



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

### ECOLOGICAL SERVICES

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M.19: Flathead National Forest

October 25, 2005

Revised schedule for A19

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Kalispell, Montana 59901

Dear Ms. Barbouletos:

Enclosed is the U.S. Fish and Wildlife Service's (Service) final biological opinion on the effects of the Flathead National Forest Plan Amendment 19 Revised Implementation Schedule on grizzly bears. The biological opinion was prepared in response to your December 2, 2004 request for re-initiation of consultation on Amendment 19 of the Forest's Land and Resource Management Plan (A19) to revise the implementation schedule. The Service evaluated the original implementation schedule for A19 in our January, 1995, biological opinion on A19. The attached biological opinion supersedes our 1995 biological opinion on A19.

The Forest's proposed action is to revise the 5- and 10-year implementation schedule proposed in A19 to reach the open motorized access, total motorized access and security core objectives in grizzly bear subunits through 2009, or until the revision of the Forest Land and Resource Management Plan is completed, which ever comes first. During the period between now and through 2009, the Forest would:

- continue to implement access management requirements in existing decisions with specified timeframes as scheduled (Moose Post Fire, Spotted Beetle Resource Management, and the Robert/Wedge and Westside Reservoir Post Fire Projects);
- continue to implement access management authorized in other existing decisions with no specified timeframes *as opportunities allow*;
- continue cooperative actions to implement the Swan Valley Conservation Agreement; and
- further restrict administrative use in nine grizzly bear subunits where National Forest Service ownership is greater than 75 percent, where A19 total road density objectives are not being met, and no projects exist with timeframes for reaching those objectives.

As part of our analysis of the effects of the revised implementation schedule for A19, we reviewed our assumptions and updated analyses in several previous consultations. The updated analyses considered the current environmental baseline and the actions to be completed as proposed in the revised implementation schedule.

Through the attached biological opinion, the Service reviews and amends the consultations and the incidental take statements on the following projects: Big Mountain Ski Area Expansion (1995) and Crane Mountain Salvage (1996). The incidental take statements for these consultations relied on the incidental take statement in the 1995 biological opinion on A19, which required access management objectives be met by 2000 and 2005. The incidental take statement in the attached biological opinion now addresses incidental take associated with access management related to these two projects.

Through the attached biological opinion, the Service reviews and amends the consultation and provides an incidental take statement for the Paint Emery Resource Project (1999). Incidental take associated with this project was addressed in the 1995 biological opinion and incidental take statement on A19, which required access management objectives be met by 2000 and 2005. As above, the incidental take statement in the attached biological opinion now addresses the incidental take associated with access management related to this project.

Finally, through the attached biological opinion, the Service reviews and amends the consultations and incidental take statements on the following projects: Swan Valley Conservation Agreement (1996), Spotted Beetle Resource (2002) (which incorporated access changes authorized through the Bent Flat II Timber Sale (1997)), Moose Post Fire Project (2002), Spotted Bear River Trailheads (2003), and Robert/Wedge Post Fire Project (2004) (which incorporated access changes for Hornet Wedge Timber Sale (1996)) and Westside Reservoir Post Fire Project (2004) (which incorporated access changes authorized through the Wounded Buck Quarry Expansion (1999)). These projects all have specific schedules for access changes that were reviewed through formal consultation. All projects have biological opinions with incidental take statements. This amendment adds the requirements of the incidental take statement in the attached biological opinion on the revised schedule for A19, but does not replace or modify any project-specific requirements in the project level incidental take statement.

This consultation examines the period between now and the end of 2009 and the access improvements to be accomplished during that period, as well as additional access changes per recent project decisions through 2011, and analyzes the effects on grizzly bears. The Service recognizes that by the end of 2009, based on the proposed action, all access changes required by A19 will not likely be met. We anticipate that additional formal consultation will be required at that time, in 2010, to address the outstanding access changes required by A19.

If Forest Plan revision is completed prior to 2010 and that process results in any modifications to the revised implementation schedule for A19, further section 7 consultation may be necessary. The Forest is scheduled to release its Draft Revised Forest Land and Resource Management Plan within a few months for a public comment period. The Forest has scheduled completion of the revised plan for the fall of 2006. A revised Forest Land and Resource Management Plan would replace the current plan as amended by A19, and guide all access management on the Forest for as long as the new plan is in effect. The Service looks forward to continuing to work with you on the Forest Plan revision.

As you are aware, grizzly bear population estimates for the northern one-third and entire NCDE are expected by the end of 2005 and 2006, respectively, from research being completed by the U.S. Geologic Survey. We will review this new information to determine whether further consultation on the revised schedule for A19 is required.

If you have questions or comments related to this biological consultation, please do not hesitate to contact Anne Vandehey at 449 5225, extension 212, or me at extension 205.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Mark Wilson", with a long, sweeping horizontal line extending to the right.

for R. Mark Wilson  
Field Supervisor

**BIOLOGICAL OPINION**  
**On the Effects**  
**of the**  
**Flathead National Forest Plan Amendment 19**  
**Revised Implementation Schedule**  
**on**  
**Grizzly Bears**

**Agency:** U.S. Department of Agriculture  
Flathead National Forest  
Kalispell, Montana

**Consultation  
Conducted By:** U.S. Department of the Interior  
Fish and Wildlife Service  
Montana Ecological Services Field Office  
Helena, Montana

**Date Issued:** October 25, 2005

## Table of Contents

Introduction.....	6
Consultation history .....	8
Description of Proposed Action.....	16
Status of the Species/Critical Habitat Description.....	24
Grizzly bear.....	24
Species/Critical habitat description.....	24
Listing history .....	25
Life history.....	25
Status and distribution .....	26
Analysis of the species to be affected .....	40
Grizzly bear.....	40
Other listed species .....	41
Environmental Baseline.....	41
Effects of the Action .....	81
General effects of roads on grizzly bears.....	81
General effects of attractants on grizzly bears.....	85
Direct and indirect effects specific to the proposed action .....	88
Cumulative Effects .....	139
Conclusion .....	142
Incidental Take Statement .....	148
Amount or extent of take anticipated.....	148
Effect of take.....	151
Reasonable and prudent measure.....	151
Terms and conditions.....	151
Reporting requirements.....	153
Reinitiation Requirement.....	154
Literature Cited .....	156
Appendices.....	171

## Tables and Figures

### Tables

Table 1. Flathead National Forest schedule of road closure and decommission for projects with decisions and timetable for completion .....	19
Table 2. Comparison of A19 objectives, existing condition, and decision condition for subunits in the Westside Reservoir Post-Fire Project .....	20
Table 3. Comparison of A19 objectives, existing, and decision access condition for subunits in the Robert-Wedge Post-Fire Project .....	22
Table 4. Flathead National Forest road closure and decommission for projects without schedule for completion.....	23
Table 5. Access condition of subunits in the NCDE grizzly bear recovery zone outside the Flathead National Forest .....	32
Table 6. Causes of known grizzly bear mortalities in the NCDE, 1980 to 2002.....	33
Table 7. Status of the NCDE grizzly bear population in relation to the demographic recovery criteria, 1987 to 2003 .....	36
Table 8. Status of the NCDE grizzly bear population in relation to the demographic recovery criteria including occupancy for 2003 .....	37
Table 9. Miles of road on the Swan Lake, Spotted Bear, Hungry Horse, and Glacier View Ranger Districts, Flathead National Forest .....	50
Table 10. Existing grizzly bear security core on the Flathead National Forest .....	55
Table 11. Existing access condition and access decisions to be completed by 2007 for subunits in Spotted Beetle Resource project.....	61
Table 12. Existing access condition and access decisions to be completed by 2009 for subunits in Moose Post-Fire Project .....	62
Table 13. Westside Reservoir Post-Fire Project changes in harvest acres .....	63
Table 14. Existing access condition and access decision completed by 2010 for subunits in Westside Reservoir Post-Fire Project .....	64
Table 15. Robert-Wedge Post-Fire Project changes in harvest acres .....	66

Table 16. Existing access condition and access decision to be completed by 2011 for subunits in Robert-Wedge Post-Fire Project.....	66
Table 17. Access condition of subunits in projects without timetable for access management changes .....	70
Table 18. Change in access condition 1995 to 2009 for all subunits that will receive additional administrative use restrictions, and subunits without decisions and have no additional administrative use restrictions .....	78
Table 19. Summary of Amendment 19 subunits baseline access condition. ....	79
Table 20. Summary of Amendment 19 subunits with access decisions implemented .....	80
Table 21. Spotted Beetle, Bent Flat, and Spotted Bear River Trails projects subunit comparison between baseline and with projects implemented.....	93
Table 22. Westside Reservoir Post-Fire Project subunit access comparison between baseline and with decisions implemented.....	96
Table 23. Crane Mountain Project subunit access comparison between baseline and with decision implemented .....	99
Table 24. Paint Emery Project subunit access comparison between baseline and with decision implemented .....	101
Table 25. Robert Fire of the Robert-Wedge Post-Fire, Moose Post-Fire, and Big Mountain Expansion projects subunit access comparison between baseline and with decisions implemented.....	103
Table 26. Wedge Canyon Fire of the Robert-Wedge Post-Fire and Hornet Wedge projects subunit access comparison between baseline and with decisions implemented .....	107
Table 27a. Increase in security core in 40 nonwilderness subunits with project implementation .....	114
Table 27b. Summary of existing and increase in security core with project implementation .....	115

## Figures

Figure 1. Grizzly bear recovery ecosystems .....	29
Figure 2. NCDE grizzly bear recovery zone and grizzly bear distribution area.....	30
Figure 3. Locations of the 2004 grizzly bear mortalities in the NCDE recovery zone.....	35
Figure 4. Grizzly bear mortality locations in the NCDE recovery zone, 2000 to 2004 .....	37
Figure 5. Flathead National Forest and action area .....	43
Figure 6. Human-caused mortality in the NCDE, 1999 to 2004 .....	45
Figure 7. The 54 nonwilderness subunits subject to management direction of Amendment 19.....	49
Figure 8. Summary of current A19 access management compliance on 40 subunits with greater than 75 percent Flathead National Forest management (includes amended objectives).....	51
Figure 9. Comparison of open motorized access density between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits .....	53
Figure 10. Comparison of total motorized access density between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits .....	54
Figure 11. Comparison of security core habitat between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits .....	55
Figure 12a. Existing security core, 2005, Flathead National Forest NCDE grizzly bear recovery zone 54 nonwilderness subunits.....	57
Figure 12b. Security core with decisions implemented, Flathead National Forest NCDE grizzly bear recovery zone.....	58
Figure 13. BMU subunits with the location of projects with decisions.....	59
Figure 14. Subunits with increased administrative use restrictions and subunits with no decisions and no increased administrative use.....	77
Figure 15. Subunits with projects with decisions by region, Flathead National Forest .....	92

## INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the effects of the Flathead National Forest Plan Amendment 19 Revised Implementation Schedule on the grizzly bear (*Ursus arctos horribilis*). This biological opinion was prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended [16 U.S. Code (U.S.C.) 1531 et seq.]. We received your December 2, 2004 request for formal consultation on January 18. Through mutual agreement the formal consultation period was extended from 135 to 270 days with a consultation conclusion date of August 28, 2005. Extension of consultation was necessary due to existing workload and demands on staff time in the Service's Montana Field Office.

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.

As part of our analysis of the effects of the revised implementation schedule for A19, we reviewed our assumptions and updated analyses in several previous consultations. The updated analyses considered the current environmental baseline and the actions to be completed as proposed in the revised implementation schedule. The Service formally reviewed these consultations because the Forest proposes to continue reducing road impacts and providing security core habitat for grizzly bears by implementation of A19, however, over an extended time frame. At the Forest scale, A19 set specific objectives for open motorized access density (OMAD), total motorized access density (TMAD), and security core within subunits. Five and 10-year access objectives were included in the amendment and as terms and conditions of the Service's February 1995 incidental take statement. Although progress was made in reducing road densities and increasing security core, neither the interim nor final objectives were achieved fully by the target dates of March 1, 2000 and 2005, respectively.

Our consultations on previous projects were based on analyses that included A19 as part of the environmental baseline as far as access management was concerned. As part of the consultations on these projects, we assumed that access changes authorized by project decisions would be implemented according to schedule, that projects with no schedules for authorized access changes would be implemented to meet or contribute to A19 objectives for either the 5- or 10-year A19 timeframes, and that all subunits would have met the A19 10-year objectives or amended objectives by the end of 2005 or the dates proposed in the projects. In several instances, our assumptions were not met. Thus, as part of this effects analysis, we reviewed our analyses and assumptions for previous

projects to determine the extent to which the effects of these projects on grizzly bears would change in light of the proposed revised schedule.

Through this biological opinion, the Service reviews and amends the consultations and the incidental take statements on the following projects: Big Mountain Ski Area Expansion (1995) and Crane Mountain Salvage (1996). The incidental take statements for these consultations relied on the incidental take statement in the 1995 biological opinion on A19, which required access management objectives be met by 2000 and 2005. The incidental take statement in the attached biological opinion now addresses incidental take associated with access management related to these two projects.

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Finally, through this biological opinion, the Service reviews and amends the consultations and incidental take statements on the following projects: Swan Valley Conservation Agreement (1996), Spotted Beetle Resource (2002) (which incorporated access changes authorized through the Bent Flat II Timber Sale (1997)), Moose Post Fire Project (2002), Spotted Bear River Trailheads (2003), and Robert-Wedge Post Fire Project (2004) (which incorporated access changes for Hornet Wedge Timber Sale (1996)), and Westside Reservoir Post Fire Project (2004) (which incorporated access changes authorized through the Wounded Buck Quarry Expansion (1999)). These projects all have specific schedules for access changes that were reviewed through formal consultation. All projects have biological opinions with incidental take statements. This amendment adds the requirements of the incidental take statement in the attached biological opinion on the revised schedule for A19, but does not replace or modify any project-specific requirements in the project level incidental take statement.

This consultation examines the period between now and the end of 2009 and the access improvements to be accomplished during that period, as well as additional access changes per recent project decisions through 2011, and analyzes the effects on grizzly bears. The Service recognizes that by the end of 2009, based on the proposed action, all access changes required by A19 will not likely be met. We anticipate that additional formal consultation will be required at that time, in 2010, to address the outstanding access changes required by A19.

If Forest Plan revision is completed prior to 2010 and that process results in any modifications to the revised implementation schedule for A19, further section 7 consultation may be necessary. The Forest is scheduled to release its Draft Revised Forest Land and Resource Management Plan within a few months for a public comment period. The Forest has scheduled completion of the revised plan for the fall of 2006. A

revised Forest Land and Resource Management Plan would replace the current plan as amended by A19, and guide all access management on the Forest for as long as the new plan is in effect. The Service looks forward to continuing to work with you on the Forest Plan revision.

Grizzly bear population estimates for the northern one-third and entire NCDE are expected by the end of 2005 and 2006, respectively, from research being completed by the U.S. Geologic Survey. We will review this new information to determine whether further consultation on the revised schedule for A19 is required.

This biological opinion is based on the information provided in the December 2004 Biological Assessment for Terrestrial Wildlife Species Amendment 19 Revised Implementation Schedule, U.S. Forest Service (2004a), telephone and electronic mail communications with Forest biologists and other sources of information. A complete administrative record of this consultation is on file at this office.

### **Consultation History for Amendment 19**

On May 15, 1985, the Service issued a no jeopardy biological opinion (U.S. Fish and Wildlife Service 1985) on the Flathead Land and Resource Management Plan (LRMP), also referred to as Forest Plan (U.S. Forest Service 1985), regarding species listed as threatened or endangered under the Act. The Flathead National Forest (Forest) LRMP, as amended, is a general programmatic planning document that provides management goals, objectives, standards, and guidelines, under which project level activities, such as timber sales and associated roads may be planned and implemented.

As a result of public appeals and litigation, amendments to the Flathead LRMP were proposed to address impacts to threatened and endangered species. Through formal consultation, the Service reviewed proposed amendments and issued a no jeopardy opinion biological opinion regarding listed species on February 22, 1989 (U.S. Fish and Wildlife Service 1989a). After issuance of the 1985 biological opinion, the Service revised the regulations that governed the section 7 consultation process. Those regulations [Interagency Cooperation - Endangered Species Act of 1973, as amended (50 Code of Federal Regulations (CFR) 402)] were published in the Federal Register on June 3, 1986.

On July 18, 1989, the Service administratively amended the biological opinion on the 1985 Flathead LRMP and amendments to conform to the revised regulations by providing an incidental take statement (absent in the 1985 opinion) and to clarify the following points: (1) scope of the consultation for the agency action, (2) current status of listed species, (3) effects of the action on listed species, and (4) recommendations made in the 1985 biological opinion (U.S. Fish and Wildlife Service 1989b).

Through this informal and formal consultation process, the Forest and the Service developed and incorporated into the Flathead LRMP and amendments, management guidelines for all listed species and a management framework within which to conduct

Flathead LRMP activities. For the grizzly bear, this management framework consisted of the following guidelines:

1. stratifying grizzly bear habitat into Management Situations 1, 2, and 3 (MS1, MS2, MS3) pursuant to the Interagency Grizzly Bear Guidelines [51 Federal Register (FR 42863), November 26, 1986] (IGBC Guidelines);
2. incorporating within the Flathead LRMP the definitions and management direction for each Management Situation according to the Interagency Grizzly Bear Guidelines; and
3. developing standards and guidelines for MS1 and MS2 that were specific to the Forest, to coordinate multiple-use activities with the needs of grizzly bears.

Standards and guidelines for MS1 and MS2 were developed for the grizzly bear pursuant to its listing as a threatened species due to the evidence that negative impacts to grizzly bears occurred as a result of logging, roads, recreation, mining, and other human activities. The listing of the grizzly bear required federal agencies to (1) utilize their authorities to carry out conservation programs for listed species, (2) ensure that their activities not jeopardize the continued existence of the grizzly bear, and (3) ensure that their activities or programs not result in the destruction or adverse modification of critical habitat. Standards and guidelines for the Forest were developed to avoid the likelihood of jeopardy, contribute toward conservation, and coordinate Forest activities with the biological needs of the grizzly bear.

All grizzly bear recovery zones were subdivided into BMUs to facilitate both the assessment of projects and recovery objectives. The agencies delineated 23 grizzly BMUs throughout the NCDE recovery zone. The BMUs were designed to: 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; and 4) establish priorities for areas where land use management needs would require cumulative effects assessments.

On February 22, 1989, a lawsuit was filed challenging the Flathead LRMP and the accompanying Environmental Impact Statement. The District Court initially decided in favor of the Forest Service, but upon appeal, the Ninth Circuit Court amended that decision on July 5, 1994. The Ninth Circuit Court reversed the District Court ruling in part and "set aside the Forest Service's determination that implementation of the Plan would not jeopardize the continued existence of listed species." The Court ruled that the Forest must reinstitute formal consultation with the Service regarding the current Flathead LRMP, or amend the Flathead LRMP to include an amended Allowable Sale Quantity (ASQ) in consideration of listed species.

The Forest chose to amend the Flathead LRMP. Amendment 19 (A19) to the Flathead LRMP was developed in 1994 and was followed by the subsequent biological opinion issued by the Service in January 1995 (U.S. Fish and Wildlife Service 1995a). The biological opinion found that A19 would not jeopardize the continued existence of the species. Amendment 19 updated Forest Plan objectives and standards for the management of MS1, MS2, and MS3 grizzly bear habitat and amended the Forest ASQ for the planning period of 1995 to 1999. To develop new LRMP objectives and standards, the Forest incorporated the definitions and approach contained in the 1994 Interagency Grizzly Bear Committee (IGBC) Task force Report (IGBC 1994). Three parameters were recommended for access management, open motorized access, total motorized access and core areas. These parameters form the basis for grizzly bear habitat management under A19 as adopted. The ASQ was then adjusted to reflect limitations on new road construction and reductions in the existing road network as directed by A19. This second adjustment resulted in an amended ASQ of 54 million board feet (MMBF) for the Flathead National Forest. The direction in A19 is in effect until the LRMP is revised.

Amendment 19 established programmatic direction for access management on the Forest. Amendment 19 was developed to minimize negative impacts of motorized access identified in the 1987 Grizzly Bear Compendium (IGBC 1987), and was based on recommendations of the 1994 IGBC Taskforce Report and the 1993 progress report for the South Fork Grizzly Bear Project (Mace and Manley 1993), commonly referred to as the South Fork Study. The study area was west of Hungry Horse Reservoir, in the Swan Mountains. Mace and Manley's progress report and previous research (Mattson et al. 1987, McLellan and Shackleton 1988, Aune and Kasworm 1989, Kasworm and Manley 1990) supported the conclusion that grizzly bears consistently were displaced from roads and habitat surrounding roads often despite relatively low levels of human use, and that substantive blocks of unroaded habitat were important to grizzly bears, especially female grizzly bears with cubs.

The South Fork Study progress report (Mace and Manley 1993) described preliminary results for grizzly bear population ecology and habitat selection in the study area. The report indicated that use of habitat by all sex and age classes of grizzly bears was less than expected in habitats where total motorized access density exceeded 2 miles per square mile. Twenty-two percent of the South Fork Study area exceeded 2 miles per square mile of road. Adult grizzly bears used habitats less than expected when open motorized access density exceeded 1 mile per square mile. Results indicated that 46 percent of the cumulative female home range was unroaded compared to 26 percent unroaded outside the range, and total motorized access density was 18 percent in the cumulative adult female home range compared to 39 percent outside the home range. Adult females used habitat further than 0.5 miles from roads or trails more than expected. Substantial blocks of unroaded habitat were components of all adult female home ranges. Of the adult female locations within unroaded polygons, 83 percent occurred within 7 polygons that exceeded 2,260 acres in size (U.S. Forest Service 1994a).

The 1994 IGBC Taskforce Report emphasized the importance of limiting open and total “motorized route densities” and providing “core area”, setting direction for consistent evaluation and management of access effects in grizzly bear habitat in all recovery zones. The IGBC established definitions and procedures delineating analysis areas and the criteria for open and total road densities and core. Acceptable levels of the access parameters were not specified by the IGBC, leaving the determination to be made at the ecosystem level. The 1994 IGBC report was revised in 1998 to address specific implementation issues. The overall intent of the 1994 report was retained.

The 1998 IGBC access task force defined “open road or trail” as a route without restriction on motorized use. “Restricted road or trail” is a route on which motorized vehicle use is restricted seasonally or yearlong with an effective barrier. Core areas are those receiving no motorized use of roads or trails during the grizzly bear nondenning season and no access routes receive high intensity nonmotorized use during the nondenning season. Motorized route density is displayed as a percentage of the analysis area in a defined density category. Core is displayed as the percentage of the analysis area meeting core area criteria.

Conservation of female individuals is generally considered fundamental to increasing grizzly bear numbers (Dood et al. 1986; U.S. Fish and Wildlife Service 1993; Mace and Waller 1998). In order to pursue a conservation strategy for the NCDE based on this premise, a composite home range was constructed using home range data compiled from eight adult female grizzly bears in the South Fork Study area (Mace and Manley 1993; U.S. Forest Service 1994b; Nancy Warren, U.S. Forest Service, pers. comm. 2005). This adult female grizzly bear composite home range was described in terms of open motorized route density, total motorized route density, and core habitat using definitions provided by the IGBC Taskforce. Analysis indicated that the composite home range was characterized by approximately less than 19 percent of the area with open motorized route density exceeding 1 mile per square mile; less than 19 percent of the area with total motorized route density exceeding 2 miles per square mile; and 67.5 percent or more of the composite home range area functioning as security core area (Flathead National Forest, in litt. 1995).

Amendment 19 to the Flathead LRMP ensured, for BMU subunits (subunits): (1) no net decrease in core area of any subunit, (2) no net increase in total motorized access density greater than 2 miles of road per mile of any subunit, and (3) no net increase in open motorized access density greater than 1 mile of road per mile of any subunit. Additionally, new Forest actions would result in a net gain toward the motorized access and core area objectives.

In general, A19 would improve habitat conditions for grizzly bears through reducing motorized access densities across Forest subunits and ensuring an adequate distribution of core habitat. Amendment 19 incorporated the methodology endorsed by IGBC (1994) for delineating subunits as access analysis areas, based on the average size of female grizzly bear home range. Subunits were designated across the Forest to approximate average female home range size in the South Fork Study (approximately 48 square

miles), include varying elevations, and roughly correspond with natural drainages and watersheds to potentially include seasonal habitats of a female grizzly bear. Subunits are not intended to represent or approximate actual female home ranges. Subunits provide the basic scale for analysis of the effects of projects and access conditions on grizzly bear habitat without having the effects diluted by consideration of too large an area. Subunits offer objective, fixed analysis areas for access management for individual projects, and allow for adequate distribution of core and areas with low road densities across the Ecosystem. By applying composite home range conditions within subunits, motorized access density would generally decrease, and core would increase within subunits and be well distributed across the Forest. Access management within subunits is a key tool in moderating and monitoring the impacts of many human activities on grizzly bears and across grizzly bear habitat.

The 11 BMUs on the Forest were divided into 70 subunits. Of the 70 subunits, 13 are wilderness and 3 have only minor amounts of Forest lands. Amendment 19 does not apply to these 16 subunits. Amendment 19 set access objectives within subunits (representative or symbolic potential range of a female grizzly) to achieve open motorized access density and total motorized access density of equal to or less than 19 percent and security core habitat of 68 percent or higher within 40 nonwilderness BMU subunits on the Forest. At least 75 percent of land area within these 40 subunits is under Forest Service management. Access direction was set at no net increase in open or total motorized access density and no net decrease of core due to Forest Service action for the 14 subunits with less than 75 percent Forest ownership. In addition, A19 set a Forest-wide standard of no net increase in open or total motorized access density and no net decrease of security core area by Forest Service action on National Forest system lands (U.S Forest Service 1995b).

In January 1995, the Service issued a no-jeopardy biological opinion on A19. The biological opinion administratively amended previous opinions and incidental take statements issued by the Service regarding projects on the Forest. Amendment 19 was based on information not available previously when several incidental take statements were previously issued. The January 1995 biological opinion incidental take statement and its associated reasonable and prudent measures, terms and conditions and reporting requirements replaced those included in previous biological opinions:

- Lost Silver Timber Sale (September 3 and October 5, 1993);
- Rock Creek, Firefighter Winter Range Project, Emma Creek Salvage, Tent Creek Salvage and Pearl Point Timber Salvage sales (January 14, 1994); and
- Bent Flat Timber Sale (April 20, 1994).

On February 17, 1995, the Service amended the January 1995 incidental take statement responding to changes in the Forest's environmental assessment for A19 (U.S. Fish and Wildlife Service 1995b). The terms and conditions in the amended incidental take statement adjusted targets for security core and open and total motorized access densities.

Specific terms and conditions in the Service's incidental take statement in the 1995 biological opinion (U.S. Fish and Wildlife Service 1995b) minimize the impact of incidental take that may occur on grizzly bears:

1. "For those BMU subunits that are predominantly National Forest (greater than 75 percent), compliance with the Forest objective of no more than 19 percent of a BMU subunits exceeding 1 mile of open motorized access per square mile (OMAD) will be achieved within 5 years of the initiation of A19.

For those BMU subunits that are not predominantly National Forest (less than 75 percent), Forest activities will not result in an increase in OMAD in any BMU subunit."

2. "For those BMU subunits that are predominantly National Forest (greater than 75 percent), compliance with no more than 19 percent of a BMU subunit exceeding 2 miles of total motorized access per square mile (TMAD) will be achieved within 10 years of the initiation of A19. Within 5 years, BMU subunits will meet or fall below the current Forest-wide average for TMAD of not more than 24 percent of a subunit exceeding 2 miles of TMAD.

For those BMU subunits that are not predominately National Forest (less than 75 percent), Forest activities will not result in an increase in TMAD in any BMU subunit."

3. "For those BMU subunits that are predominantly National Forest (greater than 75 percent), minimum core area will be 68 percent or greater of a subunit and will be achieved within 10 years of the initiation of A19. Within 5 years, BMU subunits will meet or exceed the current Forest-wide average for core area of 60 percent of a BMU subunit."

The Forest will, in consultation with Montana Department of Fish, Wildlife, and Parks and the Service, insure that core areas contain seasonal habitat approximately proportional to its availability in the BMU subunits. The habitat overlay and Seasonal Habitat Index created by the Grizzly Bear West Side NCDE Cumulative Effects Model (CEM) will aid in ensuring that this objective is accomplished.

For those subunits that are not predominantly National Forest (less than 75 percent), Forest activities will not result in a decrease in existing core areas in any BMU subunit."

With A19, substantive changes in Forest access management were designed to minimize the negative impacts of displacement of grizzly bears away from roads and road activity; behavior change and habituation due to roads and human activity; habitat loss, modification, and fragmentation; direct mortality due to human activity occurring on or along roads or facilitated by roads. The Flathead National Forest was the first National

Forest in the NCDE recovery zone to adopt objectives for access and security core, and the A19 criteria established a benchmark relied upon by resource managers for access direction and assessing impacts to grizzly bears (U.S. Forest Service 1996b, 2004c, in litt. 2005).

Five and 10-year access objectives for OMAD, TMAD and core were proposed in the amendment and were included as terms and conditions of the Service's February 1995 incidental take statement. Although progress was made in reducing road densities and increasing security core, neither the interim nor final objectives were achieved fully by the target dates of 2000 and 2005.

On May 12, 2000, the Forest contacted the Service with a request for a time extension for reaching access management objectives for A19. Since that time the Forest and the Service have been in a process of discussion and information gathering on the issue. The discussions culminated in the Forest's December 2, 2004 biological assessment and request for consultation for a revised implementation schedule received by the Service on January 18, 2005.

Since 1995, the Forest amended A19 objectives for road densities and security core for some individual subunits based on site-specific analyses. It was understood by the Forest and Service that when A19 Forest-wide objectives for grizzly bear security were established, the objectives may be impractical to reach for some subunits. The following paragraphs are from the Decision Notice amending the 1986 Forest Plan with A19 (U.S. Forest Service 1995b):

"In addition, the U.S. Fish and Wildlife Service's January 11, 1994 amendment to their Biological Opinion on the Lost Silver Timber Sale recognized that "area-based" habitat objectives measured by geographic information system techniques are untried as a management tool. Despite the Flathead National Forest's best programmatic efforts to evaluate the consequences of the alternatives considered in the Environmental Assessment for Amendment 19, site-specific application may reveal unanticipated or impractical results in some BMU subunits. This is also a source of new information that the Forest Service will share with the U.S. Fish and Wildlife Service and the public.

This continuous process of evaluation and consultation regarding monitoring results, research developments, and implementation experience, requires that the Forest Service and the U.S. Fish and Wildlife Service remain able to adapt to new information indicating a need to change, regardless of the anticipated timing of Forest Plan revision. If and when new information dictates, the Forest Service will reinitiate formal consultation with the U.S. Fish and Wildlife Service on these objectives, either in whole or by BMU subunit. On the other hand, if new information confirms the effectiveness and necessity of these objectives, they will not be changed with revision of the Forest Plan."

Subunits were not mapped based on identified ranges of individual grizzly bears or with complete consideration of the existing human development, including roads, within a subunit. Due to the conceptual nature of the subunit designation, the Service recognizes the limitations of subunit delineation and application of composite home range access conditions within subunits, at a landscape scale, without site-specific analyses. In 2002 and 2004 (U.S. Forest Service 2002d, 2004g, l), the Forest amended some of the three A19 access objectives in six subunits. Each was based on site-specific analysis of the subunit including primary access routes, access densities, core, subunit condition, size, shape, and juxtaposition on the landscape. The effects of amended objectives and timeframes on grizzly bears were analyzed through formal consultation (U.S. Fish and Wildlife Service 2002b, 2004a, b).

In 1995, the Service (1995b) examined the proposed A19 and available information and determined that “harm” to grizzly bears is likely to occur in the following circumstances: when OMAD exceeds 1 mile per square mile in 19 percent of a subunit and TMAD exceeds 2 miles per square mile in 19 percent of a subunit. The then proposed A19 also emphasized the importance of core habitat, and the Service included a term and condition that required 68 percent of a subunit provide core. Research demonstrated that roadless areas or areas with low densities of motorized access routes comprised a significant portion of adult female grizzly bears home ranges. We find no recent information to suggest deviating from defining harm in this way.

In the 1995 biological opinion on A19, the Service concluded that if these composite home range parameters were applied to subunits within the proposed 5- and 10-year A19 timeframes, then A19 as proposed, and the anticipated levels of incidental take associated with the proposal, would not likely jeopardize the species.

The Forest acknowledged that full A19 compliance has not been achieved. According to the Forest, during the 10-year period following the A19 decision, practical and financial constraints (decreased annual Forest-wide funding, unanticipated costs associated with recent large fires, etc.) resulted in difficulty in fulfilling access changes associated with projects with decisions but without timetables for completion (U.S. Forest Service 2004a). Further, access improvements prior to the end of 2009 are not likely in those subunits that were analyzed in the 1995 A19 consultation but currently do not meet A19 and do not have decisions authorizing changes. These projects and commitments underwent consultation with the Service and carried with them the obligation to complete access improvements as proposed by the Forest and/or included in the Service’s incidental take statements. While some outstanding access commitments for these projects will be satisfied under project decisions with timetables, the remaining outstanding commitments for projects without timetables may not occur prior to the end of 2009. The effects of these outstanding access commitments for projects without timetables and where no decisions authorizing access changes exist, are analyzed in this biological opinion.

In 1995, specific A19 objectives were based on preliminary research information available at the time. No other alternative was examined through consultation. In 1998,

the technical group of the NCDE access task group revisited the preliminary South Fork study conclusions (Mace and Manley 1993) based on the final report and peer reviewed work generated from the study (Mace et al. 1996, Mace and Waller 1997a); the importance of roadless areas in the home ranges of adult female grizzly bears was confirmed. The technical group included grizzly bear researchers, statisticians, grizzly bear experts, MFWP grizzly bear specialists, and wildlife biologists from each of the national forests, Tribal biologists, and Montana Department of Natural Resource Conservation (DNRC), all of who worked on grizzly bear issues. The technical group developed an access proposal for the NCDE. The team developed an alternative access management strategy modifying strict adherence to A19 access densities and core. Instead, the strategy examined subunits' site-specific roads and grizzly bear habitat, and prioritized access restrictions or reclamation to protect seasonally important grizzly bear resources (Ake et al., unpublished draft, 1998). The technical group's proposal was criticized in outside peer review and has not been formally proposed as Forest access direction.

We include mention of it here as it elaborates several points germane to managing access for grizzly bears, including that at least one team of grizzly bear researchers, experts and biologists working in the NCDE suggested that (1) the basic premise of managing open and total road densities, as well as areas (permanently or seasonally) free of motorized access is valid; (2) although A19 is considered effective for managing access in grizzly bear habitat to support recovery of the species, other strategies may also be effective as well; and (3) seasonal road closures to protect seasonally important grizzly bear habitat can be useful and effective.

In 1995, the Service evaluated the proposed A19 and issued a no jeopardy opinion. The Service based the 1995 biological opinion and incidental take statement on the impacts of the baseline access conditions at that time, the status of the species at that time, cumulative effects at that time, and the direct and indirect effects of the Forest satisfying proposed A19 objectives by 2005. This biological opinion is based on the current status of the grizzly bear, the current environmental baseline, cumulative effects, and direct and indirect effects of the proposed revised schedule. The proposed schedule includes the fulfillment of A19 (or amended) objectives in those subunits where decisions authorize changes and have schedules for completion, and possibly no more access improvements would occur until after 2009 unless funding becomes available.

## **DESCRIPTION OF THE PROPOSED ACTION**

The Forest proposes to revise the access management implementation schedule for A19 that was specified in the terms and conditions of the Service's February 1995 incidental take statement. The proposal refers only to the timeframe for implementation of A19 access objectives and revised denning period (U.S. Forest Service in litt. 2005). It does not modify A19 in other ways. Motorized access management direction contained in the revised Forest Plan now being developed would supersede this proposed revised implementation schedule. Therefore, this proposed revised schedule would apply

through 2009 or until the Forest Plan revision is final, which is scheduled for completion in 2006. Exceptions to the 2009 end-date include the Westside Reservoir and Robert-Wedge Post-Fires projects, each of which underwent consultation in 2004. The implementation schedules for these projects extend to 2010 and 2011, respectively.

Amendment 19 set 5- and 10-year objectives for obtaining levels of open motorized access density, total motorized access density, and security core for subunits on the Forest within the Northern Continental Divide Ecosystem (NCDE) recovery zone (Figures 1, 2 and 7). The 54 BMU subunits affected by A19 are divided into two groups based on the amount of Forest ownership within a subunit. Motorized access objectives are different for the two groups: subunits with greater than 75 percent Forest lands and subunits with less than 75 percent Forest lands. There are 40 subunits (approximately 1,190,700 acres) where Forest management is greater than 75 percent. The access management objectives are no more than 19 percent of the subunit with greater than 1 mile per square mile open motorized access density (referred to as OMAD for the rest of this document), no more than 19 percent with greater than 2 miles per square mile total motorized access density (referred to as TMAD for the rest of this document), and 68 percent of the subunit classified as core. Forest lands comprise less than 75 percent of 14 subunits (approximately 471,466 acres), and within these subunits the goals are no net increase in open or total motorized access density on Forest lands, and no net loss of core on Forest lands. In addition to the 54 subunits covered by the provisions of A19, there are 16 wilderness subunits (approximately 682,500 acres) and three subunits on the Forest with minor Forest Service lands not included in A19.

The 5-year objectives were not fully achieved by 2000, and the 10-year objectives were not fully achieved by 2005, thereby putting the Forest out of compliance with the terms and conditions of the incidental take statement included in the biological opinion for A19 (U.S. Fish and Wildlife Service 1995a,b).

The Forest proposes to revise the 5- and 10-year implementation schedule to reach OMAD, TMAD, and core A19 objectives or amended objectives. The reasons for implementation schedule revision are stated in the biological assessment for the proposed action. The following text is taken directly from the biological assessment submitted by the Forest.

*“The Forest proposes to revise the implementation schedule for A19, based, in part, on the following factors: upon adoption of A19 in 1995 it was recognized that there may be unanticipated or impractical results obtained when the objectives were applied to site specific analyses, current information suggests that the grizzly bear population in the NCDE may have stabilized or increased over the past several years. There are several ongoing projects to determine grizzly bear population size and trend, annual costs of currently authorized decommissioning basically exhaust the Forest’s financial capacity, and there is a risk of social backlash as a result of additional access management restrictions.*

*The proposed revised schedule includes the following elements:*

- *Continue to implement access management in existing decisions with timeframes specified in the decisions*
- *Continue to implement access management in other existing decisions as funding allows*
- *Additional restriction of motorized administrative use in 9 subunits*
- *No change to the Swan Conservation Agreement”*

In the Forest’s biological assessment and cover letter, the Forest restated that access commitments in the Spotted Beetle (U.S. Forest Service 2001, 2002a) and Moose Post-Fire (U.S. Forest Service 2002b) projects would be implemented according to the Forest’s Record of Decisions (ROD), and Service’s biological opinions and incidental take statements for the projects (U.S. Fish and Wildlife Service 2002a,b). The effects of these projects were analyzed in these biological opinions. These projects were designed to comply with requirements in A19; both projects would result in meeting A19 access requirements or amended requirements within extended timeframes according to schedules (Table 1). For both projects, some open roads would be converted to yearlong or seasonally restricted and the quantity of total roads would be reduced by decommissioning. Refer to Appendix A of this opinion for a detailed schedule of road restrictions and closures and Appendix C for a list of all Forest subunits to which A19 applies.

It is important to note that in 2002, changes in the methods used to calculate access densities and security core habitat altered the baseline condition in some subunits. The Forest decided to include all trails without restrictions against motorized use in the open motorized route density calculations. This increased open motorized access density in several subunits. As a result, although authorized access changes previously would have fulfilled A19 requirements, A19 objectives will not be fully achieved in Spotted Bear Mountain and Jungle Addition subunits. This situation will be addressed in the “Environmental Baseline” and “Effects of the Action” sections of this opinion.

**Table 1. Flathead National Forest schedule of road closure and decommission for projects with decisions and timetable for completion (U.S. Forest Service, 2004a)**

<b>Subunit</b>	<b>Ranger District</b>	<b>As Scheduled***</b>	<b>Decision Document</b>
<b>Werner Creek</b>	Glacier View	4 miles open* 19 miles total** (2003 to 2005)	Moose Post-Fire
<b>Lower Big Creek</b>	Glacier View	7 miles open 37 miles total (2006 to 2009)	Moose Post-Fire
<b>Kah Soldier</b>	Spotted Bear	18 miles open (2002) 36 miles total (2005 to 2007)	Spotted Beetle Resource
<b>Spotted Bear Mountain</b>	Spotted Bear	9 miles total (2003-2004)	Spotted Beetle Resource
<b>Jungle Addition</b>	Spotted Bear	13 miles open (2002) 11 miles total (2004 to 2005)	Spotted Beetle Resource

\* Open road scheduled for restriction (reduces OMAD)

\*\* Road scheduled for decommission (reduces TMAD)

\*\*\* Information from 2002 data. Some additional access changes have been completed to date.

The Westside Reservoir Post-Fire Project affects six grizzly bear subunits and amends A19 objectives in four of these subunits (Table 2). Full implementation of proposed access changes in the Westside project would fully achieve A19 objectives in Ball Branch, Jewel Basin Graves, and Kah Soldier subunits. Amended objectives would be achieved in the Doris Lost Johnny, Wheeler Quintonkon, and Wounded Buck Clayton subunits. All access changes are scheduled to be accomplished by the end of the year 2010.

**Table 2. Comparison of A19 objectives, existing condition, and decision condition for subunits in the Westside Reservoir Post-Fire Project (U.S. Fish and Wildlife Service 2004a)**

Subunit	Existing Condition (percent)	Decision Year 2010 (percent)	A19 Objective (percent)
<b>Ball Branch</b>			
Open Motorized Access Density <sup>1</sup>	12	12	≤ 19
Total Motorized Access Density <sup>2</sup>	8	3	≤ 19
Security Core <sup>3</sup>	73	82	≥ 68
<b>Doris Lost Johnny**</b>			
Open Motorized Access Density	60	57**	≤ 19
Total Motorized Access Density	22	19	≤ 19
Security Core	31	36**	≥ 68
<b>Jewel Basin Graves</b>			
Open Motorized Access Density	22	19	≤ 19
Total Motorized Access Density	23	19	≤ 19
Security Core	56	68	≥ 68
<b>Kah Soldier*</b>			
Open Motorized Access Density	33	19	≤ 19
Total Motorized Access Density	37	18	≤ 19
Security Core	46	68	≥ 68
<b>Wheeler Quintonkon**</b>			
Open Motorized Access Density	29	25**	≤ 19
Total Motorized Access Density	24	19	≤ 19
Security Core	50	68	≥ 68
<b>Wounded Buck Clayton**</b>			
Open Motorized Access Density	38	27**	≤ 19
Total Motorized Access Density	42	30**	≤ 19
Security Core	38	65**	≥ 68

<sup>1</sup>Open Motorized Access Density = percentage of area with **less than one mile** of road per square mile.

<sup>2</sup>Total Motorized Access Density = percentage of area with **less than two mile** of road per square mile.

<sup>3</sup>Security Core: percentage of land area meeting security core conditions

Shaded = meet A19 objectives

Horizontal shaded = meet amended objectives

\* 2003 existing condition. Incomplete access modifications are pending from another decision in the subunit.

\*\* Amended objectives

The Robert-Wedge project impacts seven subunits: Ketchikan, Upper Trail, Lower Whale, Upper Whale Shorty, Lower Big Creek, Canyon McGinnis, and Cedar Teakettle. Amending of subunit objectives and reaching those amended objectives would occur and improve conditions in Canyon McGinnis and Lower Whale (Table 3). Access changes in Lower Big Creek, Upper Trail, and Upper Whale Shorty subunits would occur after salvage activity. Access management changes including decommissioning of roads would occur within 5 years post-harvest activities.

For projects other than Spotted Beetle Resource, Moose Post-Fire, Westside Reservoir, and Robert-Wedge Post-Fire, implementation of road restrictions and decommissioning associated with existing decisions would occur when funding is available. Projects that underwent consultation and have access changes outstanding are the Big Mountain Ski Area Expansion (U.S. Forest Service 1995a), Hornet Wedge Timber Sale (U.S. Forest Service 1996, U.S. Fish and Wildlife Service in litt. 1996), Crane Mountain Salvage (U.S. Forest Service 1996c), Bent Flat II (U.S. Forest Service 1993)<sup>1</sup>, Paint Emery Resource (U.S. Forest Service 1999a), Wounded Buck Quarry (U.S. Forest Service 1999b), and Spotted Bear River Trailheads (U.S. Forest Service 2002c). The objectives in A19 remain unchanged through these decisions. Management changes would meet A19 objectives in some subunits, or progress toward A19 objectives in others. Table 4 contains a summary of outstanding access management commitments for road decommissioning, road restriction by gate or berm, or other change of road use status.

Restricted roads are closed to public use. Outside of grizzly bear core habitat during the nondenning season, motorized use of restricted roads is permitted at low intensity levels for resource management agency personnel, their contractors and permittees (IGBC 1998). Motorized access on restricted roads for limited agency action is termed "administrative use". Administrative use on all roads restricted for grizzly bear habitat management would be strictly enforced as directed by the Forest Plan. Motorized use on roads restricted for grizzly bear habitat management during the grizzly bear nondenning season would be a maximum of three round-trips per week or one period of 30 consecutive days. Administrative use restrictions apply during the nondenning period from April 1 through November 30 (U.S. Forest Service, in litt. 2005; U.S. Forest Service 2004a) for roads restricted year round. Administrative use would be allowed on roads with seasonal restrictions for grizzly bears (usually spring or fall) during the closed seasons. Motorized use of roads is the only action authorized under administrative use. Project activities associated with road use would need analysis of effects to grizzly bears.

<sup>1</sup> All access changes related to Bent Flat II have been completed (S. Anderson, USFS pers. comm. 2005). Therefore further references in this document to outstanding needed changes should be disregarded.

**Table 3. Comparison of A19 objectives, existing, and decision access condition for subunits in the Robert-Wedge Post-Fire Project (U.S. Fish and Wildlife Service 2004b)**

Subunit	Existing Condition (percent)	Decision by year 2011 (percent)	A19 Objective (percent)
<b>Canyon McGinnis**</b>			
Open Motorized Access Density	22	19	≤19
Total Motorized Access Density	42 (41)*	33**	≤19
Security Core	31 (38)*	53**	≥68
<b>Cedar Teakettle†</b>			
Open Motorized Access Density	26	26	No net loss
Total Motorized Access Density	23	23	No net loss
Security Core	21	21	No net loss
<b>Lower Big Creek</b>			
Open Motorized Access Density	19	19	≤19
Total Motorized Access Density	32 (19)*	19	≤19
Security Core	57 (68)*	68	≥68
<b>Ketchikan</b>			
Open Motorized Access Density	19	19	≤19
Total Motorized Access Density	3	3	≤19
Security Core	68	68	≥68
<b>Lower Whale**</b>			
Open Motorized Access Density	43 (43)*	37**	≤19
Total Motorized Access Density	25 (16)*	16	≤19
Security Core	28 (45)*	47**	≥68
<b>Upper Trail</b>			
Open Motorized Access Density	17	14	≤19
Total Motorized Access Density	5 (4)*	4	≤19
Security Core	85	85	≥68
<b>Upper Whale Shorty</b>			
Open Motorized Access Density	12	12	≤19
Total Motorized Access Density	10	10	≤19
Security Core	82 (85)*	86	≥68

\* 2004 existing condition. Incomplete access modifications are pending from another decision in the subunit. ( ) = with other decisions implemented

\*\*Amended objectives

† Subunit with less than 75 percent Forest Service management

Shaded = meet A19 objectives

Horizontal shaded = meet amended standards

**Table 4. Flathead National Forest road closure and decommission for projects without schedule for completion (U.S. Forest Service 2004a and addendum)**

<b>Subunit</b>	<b>Ranger District</b>	<b>Miles Authorized</b>	<b>Miles outstanding</b>	<b>Decision Document</b>
<b>Werner Creek, Lower Big Creek, Canyon McGinnis</b>	Glacier View	34 decom* 7 gated 8 to open year round	6 decom** 11.4 decom† 7.9 berm	Big Mountain Ski Area Expansion
<b>Upper Whale Shorty, Red Meadow Moose, Lower Whale</b>	Glacier View	32 decom 13 bermed 5 gated	8 decom***	Hornet Wedge Timber Sale
<b>Crane Mountain, Porcupine Woodward</b>	Swan Lake	108 decom 62 gated or bermed	72 decom 7 gated	Crane Mountain Salvage
<b>Spotted Bear Mountain</b>	Spotted Bear	17 decom 5 bermed	0****	Bent Flat II
<b>Wounded Buck Clayton</b>	Hungry Horse	0.15 decom	0.15 decom	Wounded Buck Quarry
<b>Riverside Paint, Emery Firefighter</b>	Hungry Horse	121 decom 13 gated	72 decom	Paint Emery Resource
<b>Big Bill Shelf</b>	Spotted Bear	3 decom 1.3 gated	3 decom (rds are brushed in)	Spotted Bear River Trailheads

\* decommission

\*\* decommission to be included in Moose Post-Fire Project

\*\*\* to be completed under Robert-Wedge Post-Fire Project

\*\*\*\* Bent Flat II was completed through Spotted Beetle Project

† to be conducted with completion of chair 8 and associated runs, 7.9 miles berm adjusts miles stated in biological assessment (Michelle Draggoo, U.S. Forest Service, pers. comm., 2005)

The biological assessment states that additional administrative use restrictions would be applied to nine subunits of the 40 with greater than 75 percent Forest management, TMAD is greater than 19 percent, and no signed decisions or timetable to achieve A19 or amended objectives:

- Red Meadow Moose
- Coal and South Coal
- Peters Ridge
- Swan Lake
- Crane Mountain
- Beaver Creek
- Emery Firefighter
- Riverside Paint
- Logan Dry Park

Access would be limited to emergency activities, culvert and road repair and maintenance, watershed improvement, decommissioning, vegetation planting, noxious weed treatment and prescribed burning, wildlife relocation, survey and monitoring. Selected subunits would have additional entry allowance for specific activities: brushing

of snowmobile trail in Emery Firefighter, rock quarry and gravel pit access in Logan Dry Park, Swan Lake, and Crane Mountain.

As described in the biological assessment, Hay Creek and Skyland Challenge are two of the 40 subunits without decisions and not meeting A19 objectives that would not be subjected to increased administrative use restrictions. Access management would be applied as stated in the Swan Valley Grizzly Bear Conservation Agreement (Agreement) (U.S. Fish and Wildlife Service et al. 1997) (Appendix B). Subunits affected by the Agreement are less than 75 percent Forest lands: Porcupine Woodard, Piper Creek, Cold Jim, Glacier Loon, South Fork Lost Soup, Goat Creek, Lion Creek, and Buck Holland. Beaver Creek is the only subunit in the Agreement with a majority of Forest Service land.

## **STATUS OF THE SPECIES/CRITICAL HABITAT DESCRIPTION**

The grizzly bear originally inhabited a variety of habitats from the Great Plains to mountainous areas throughout western North America, from central Mexico to the Arctic Ocean. With the advent of Euroamerican colonization in the early nineteenth century, grizzly bear numbers were reduced from over 50,000 to less than 1,000 in North America south of the Canadian border. 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 are principally located in mountainous regions in Washington, Idaho, Wyoming, and Montana and are often associated with National Parks and wilderness areas.

The Grizzly Bear Recovery Plan was approved January 1982 and was revised and approved on September 10, 1993 (Recovery Plan) (U.S. Fish and Wildlife Service 1993). The Recovery Plan details recovery objectives and strategies for the grizzly bear recovery zones in the ecosystems where grizzly bear populations persist. These recovery zones are the Northern Continental Divide (NCDE), Yellowstone Grizzly Bear (YGBE), Cabinet-Yaak (CYE), and Selkirk (SE) ecosystems. The Recovery Plan also includes recovery strategies for the North Cascades ecosystem in Washington, where only a very few bears are believed to remain, and for the Selway-Bitterroot ecosystem of Idaho and Montana where suitable grizzly bear habitat still occurs.

### **Species/Critical Habitat Description**

Grizzly bears are among the largest terrestrial mammals in North America. South of the United States (U.S.)-Canada border, adult females range from 250 to 350 pounds and adult males range from 400 to 600 pounds. Grizzly bears are relatively long-lived, living 25 years or longer in the wild. Grizzly bears are omnivorous, opportunistic feeders that require foods rich in protein or carbohydrates in excess of maintenance requirements in order to survive seasonal pre-and post-denning requirements. Grizzly bears are homeothermic hibernators, meaning their body temperature drops no more than 5 degrees Centigrade during winter when deep snow, low food availability, and low ambient air

temperatures appear to make winter sleep essential to grizzly bears' survival (Craighead and Craighead 1972a,b). Grizzly bears excavate dens and require environments well-covered with a blanket of snow for up to five months, generally beginning in fall (September to November) and extending until spring (March to April) (Craighead and Craighead 1972b; Pearson 1975).

### **Listing History**

The grizzly bear was federally listed as a threatened species in the lower 48 states on July 28, 1975 (40 FR 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) overutilization for commercial, sporting, scientific, or educational purposes; and (3) other manmade factors affecting its continued existence. 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).

### **Life History**

The search for energy-rich food appears to be a driving force in grizzly bear behavior, habitat selection, intraspecific and interspecific interactions. Grizzly bears historically used a wide variety of habitats across the North America, from open to forested, temperate through alpine and arctic habitats, once occurring as far south as Mexico. They are highly dependent upon learned food locations within their home ranges. Adequate nutritional quality and quantity are important factors for successful reproduction. Diverse structural stages that support wide varieties of nourishing plants and animals are necessary for meeting the high energy demands of these large animals. Grizzly bears follow phenological vegetative, tuber or fruit development, seek out concentrated food sources including carrion, live prey (fish, mammals, insects), and are easily attracted to human food sources including gardens, grain, compost, bird seed, livestock, 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. Grizzly bears defend food and have been known to charge when surprised. Both habituation and food conditioning increase chances of human-caused grizzly bear mortality as a result of real or perceived threats to human safety or property. Nuisance grizzly bear mortalities can be a result of legal management actions, defense of human life or illegal killing.

Adult grizzly bears are individualistic and normally solitary, except females with cubs or during short breeding relationships. They tolerate other grizzly bears 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). Across their range, home range sizes vary from about 50 square miles or more for females to a few hundred square miles for males. Overlap of home ranges is common. 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 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 one to four cubs who stay with the mother up to two years. Males may reach physiological reproductive age at 4.5 years, but may not be behaviorally reproductive due to other dominant males preventing mating.

Natural 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 a significant cause of natural mortality (Jonkel and Cowan 1971; Kistchinskii 1972; Mundy and Flook 1973; Rogers and Rogers 1976). As animals highly dependent upon learned habitat, displacement into unknown territory (such as subadult dispersal) may lead to submarginal nutrition, reduced reproduction or greater exposure to adult predatory bears or human food sources (which can lead to human-caused mortality). Starvation and mortality in dens during food shortages have been surmised, but have not been documented as a major mortality factor. Natural mortality in rare, relatively secretive animals such as grizzlies can be extremely difficult to document or quantify.

Human-caused mortality has been slightly better quantified, but recent models speculate that reported mortality may be up to 50 percent of actual mortality (McLellan et al. 1999). Between 1800 and 1975, grizzly populations in the lower 48 states had declined drastically. Fur trapping, mining, ranching and farming pushed westward, altered habitat and resulted in the direct killing of grizzly bears. Historically, grizzly bears were targeted in predator control programs in the 1930's. Predator control was probably responsible for extirpation in many states that no longer support grizzlies. More recent human-caused mortality in Montana includes legal hunting (canceled since 1991), management control actions, defense of life, vehicle and train collisions, defense of property, mistaken identity by black bear or other big game hunters, poaching and malicious killing. Grizzly bears normally avoid people, possibly as a result of many generations of bear sport hunting and human-caused mortality. Displacement away from human activities has been documented to reduce fitness of grizzly bears, affecting survival in some instances. Avoidance of roads can lead grizzly bears to either avoid essential habitat along roads, or could put them at greater risk of exposure to human-caused mortality if they do not avoid roads.

## **Status and Distribution**

***Status of grizzly bears in the YGBE.*** The 9,209 square mile YGBE recovery zone includes portions of Wyoming, Montana, and Idaho and portions of six National Forests (Beaverhead, Bridger-Teton, Custer, Gallatin, Shoshone, and Targhee), Yellowstone and Grand Teton National Parks, John D. Rockefeller Memorial Parkway, portions of adjacent private and State lands, and lands managed by the Bureau of Land Management.

All recovery parameters for the recovery zone were met in 2003 (Schwartz and Haroldson 2004). Recovery parameters had been met for at least the last 5 years through 2003. The mortality threshold of 5.2 for female bears was slightly exceeded in 2004 with a 6-year running average of 6 human-caused female mortalities (Haroldson and Frey 2005). There were a total of 26 documented grizzly bear mortalities in 2004, of which 19 were known human-caused deaths, five were natural mortalities and two were of undetermined causes (Haroldson and Frey 2005). All other recovery parameters were met in 2004 (Schwartz et al. 2005). The number of females with cubs has surpassed the recovery criterion for a number of years (Haroldson 2005) and bears now occur where they have not been reported for many years. A total of 49 unduplicated females with 96 cubs were documented in the Greater Yellowstone Ecosystem in 2004 (Haroldson 2005). With this, the 6-year running average of females with cubs within the Recovery Zone and a 10-mile perimeter has gradually increased from 15 in 1986 to 40 in 2004. The mean litter size of two in 2004 was consistent with past years (Haroldson 2005).

As in other ecosystems, the exact size of the grizzly bear population in the YGBE is not known. The nature of the species and the rugged terrain it inhabits makes complete population census difficult. Haroldson and Frey (2005) calculated a minimum population estimate within the recovery zone and a 10-mile perimeter of 431 grizzly bears. Population parameters more readily monitored are used as an alternative index to population size (Knight and Eberhardt 1984). Eberhardt and Knight (1996) used several estimators and calculated a minimum total population size of 245 bears, an estimated population size of 390 bears using marked females, and an estimated population size of 344 bears using distinct family groups. Population parameters for the YGBE recovery zone were summarized as follows in the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Area (Interagency Conservation Strategy Team 2003, page 20): “From the mid 1980s, the Yellowstone grizzly population has grown at approximately three to four percent or more per year (Eberhardt et al. 1994, Boyce 1995, Boyce et al. 2001). Boyce (1995) has calculated that the Yellowstone population has a probability of extinction of 0.0004 (4/10,000) – a very low probability. Nevertheless, as Boyce points out, ‘Population size alone is not a sufficient criterion for evaluating population viability’ and ‘even though a population may have increased or decreased over the past 10 to 20 years, this offers no indication that the population will continue on the same trajectory in the future.’” Schwartz et al. (2005) built an array of models for examining trend, and estimated that the population was increasing within the recovery zone, and decreasing outside the recovery zone, suggesting a source-sink dynamic.

The best available information suggests the YGBE grizzly bear population is stable and is likely increasing. The long term conservation of the population continues to depend largely on managing bear-human conflict, which often results in human-caused mortality of grizzly bears. Years in which natural grizzly bear food production and availability are high can result in younger age classes of grizzly bears accustomed to fairly good food availability. A year of drought and poor food production can compel grizzly bears to search widely for food. Such wide ranging movements can bring grizzly bears into closer contact with humans, increasing bear-human conflicts and resultant control/management actions.

***Status of grizzly bear populations in CYE and SE.*** The Cabinet/Yaak Ecosystem in northwestern Montana and northeastern Idaho has over 1,900 square miles of forested and mountainous habitat occupied by grizzly bears. The population in the Cabinet Mountains portion of this area is thought to be less than 15 bears. The Yaak section of the CYE currently supports a minimum of approximately 20 bears. The Yaak population estimate does not include credible reports from the public of grizzly bear observations, which suggest a population estimate of 20 to 30 bears in the Yaak section of the CYE would be conservative (Kasworm et al. 2000). There are grizzly bears to the north of the U.S.-Canada border, and interchanges of radio-collared bears across the border have been documented (U.S. Fish and Wildlife Service 1993).

The Selkirk Ecosystem of northwestern Idaho, northeastern Washington, and southeastern British Columbia includes about 1,080 square miles in the U.S. portion and about 875 square miles in the Canadian portion of the recovery zone. The Selkirk recovery zone is the only defined grizzly bear recovery zone that includes part of Canada because the habitat in the U.S. portion is not of sufficient size to support a minimum population. The habitat is contiguous across the border and radio-collared bears are known to move back and forth across the border. Therefore, the grizzly bears north and south of the border are considered one population (U.S. Fish and Wildlife Service 1993).

Neither the CYE nor the SE grizzly bear populations have attained the Recovery Plan criteria for females with cubs. Population trend information is statistically inconclusive, though the point estimate of the rate of increase declined during 1999 to 2004 (Kasworm et al. 2000, Kasworm 2001, Kasworm et al. 2004) in the CYE. The Service determined that the combined SE-CYE grizzly bear recovery zones were warranted endangered but precluded in 1999 and suggested that the two populations might be inter-connected (FR 26725-26733).

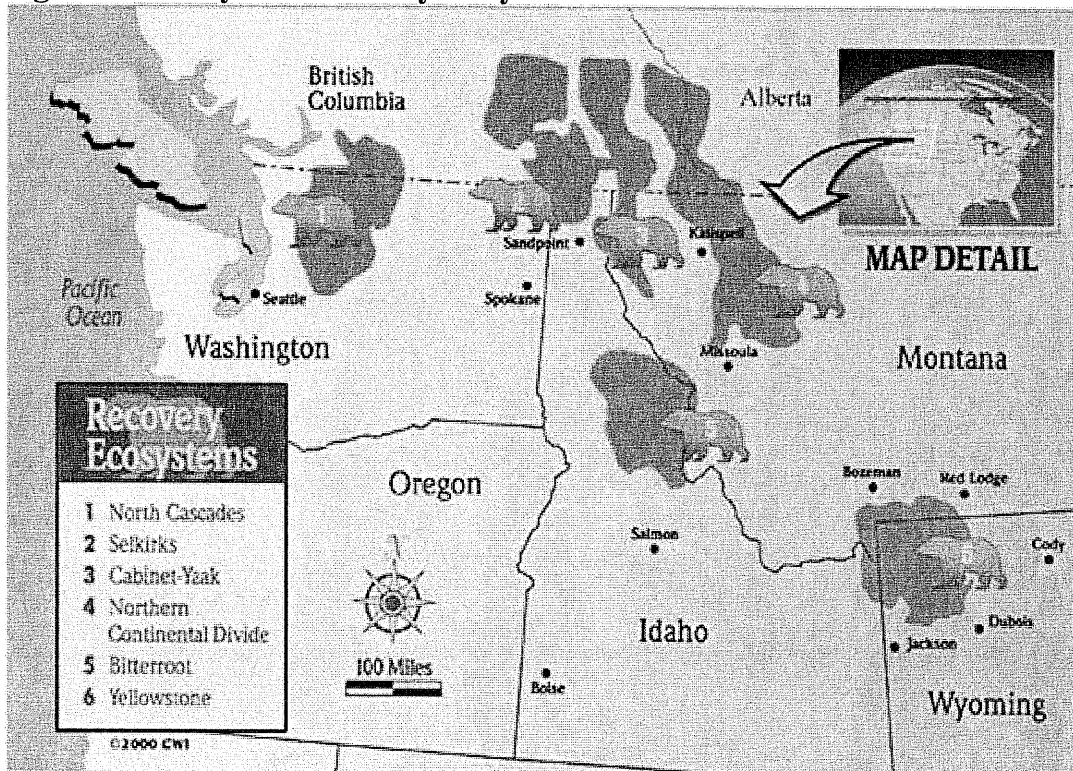
The most recent data indicate that population status is below recovery goals in the CYE for the distribution of females with young in bear management subunits and exceeds the 6-year average of female mortality in the recovery zone (U.S. Fish and Wildlife Service 2004a).

***Status of the Selway-Bitterroot and North Cascades ecosystems.*** Grizzly bear recovery efforts in the Selway-Bitterroot Ecosystem and North Cascades Ecosystem are in the planning stages. In the North 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. Though suitable habitat remains, grizzly bears were extirpated from the Selway-Bitterroot Ecosystem decades ago. In 2000, the Service issued an environmental impact statement and decision notice addressing the impacts of reintroducing grizzly bears into the Bitterroot Ecosystem in east central Idaho.

***Status of grizzly bears in the NCDE.*** The NCDE extends from the Rocky Mountains of northern Montana into contiguous areas in Alberta and British Columbia, Canada (Figure 1).

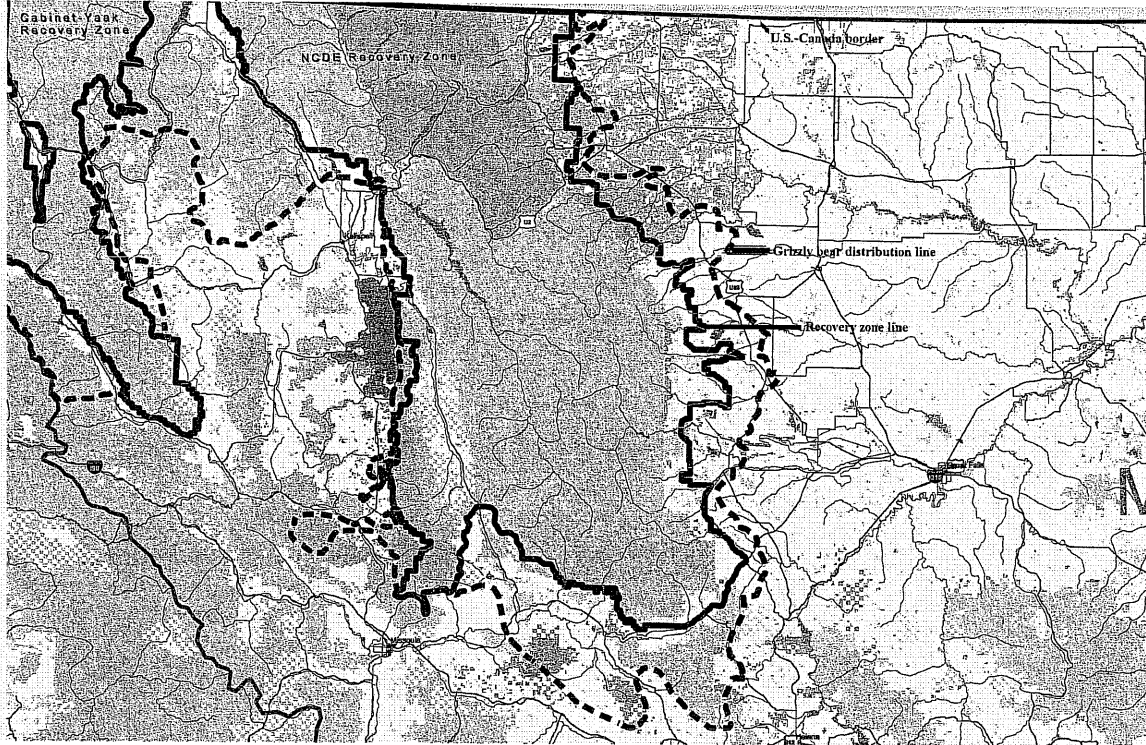
The U.S. portion of the NCDE which makes up the NCDE recovery zone (U.S. Fish and Wildlife Service 1993) encompasses over 9,600 square miles and includes parts of five National Forests (Flathead, Kootenai, Helena, Lewis and Clark, and Lolo), four wilderness areas (Bob Marshall, Mission Mountains, Great Bear, and Scapegoat) and one wilderness study area (Deep Creek North) (Figure 2). National Forest System lands encompass 63 percent of the NCDE recovery zone. Additionally, the NCDE recovery zone includes Glacier National Park (GNP), the Flathead Indian Reservation (Salish-Kootenai tribal land), the Blackfeet Indian Reservation, adjacent private and State lands, and lands managed by the Bureau of Land Management. The (Flathead National) Forest makes up 40 percent of the NCDE recovery zone; wilderness areas and Glacier National Park make up about 47 percent of the recovery zone (Katherine Ake, Flathead National Forest, pers. comm., May 13, 2005). At 40 percent of the NCDE, the (Flathead National) Forest is the majority Forest Service manager of lands within the NCDE recovery zone.

**Figure 1. Grizzly bear recovery ecosystems**



Source: Interagency Grizzly Bear Committee <http://www.fs.fed.us/r1/wildlife/igbc/>

**Figure 2. NCDE grizzly bear recovery zone (solid line) and grizzly bear distribution area (dashed line).**



Source: U.S. Forest Service et al 2002

The Lolo National Forest adopted a grizzly bear strategy and amended incidental take statement for its Forest Plan in 1996 that included the NCDE Access Committee recommendations and the Flathead Amendment 19 road density goals (U.S. Forest Service 1996b; U.S. Fish and Wildlife Service 1996) for subunits within the NCDE recovery zone. All but one of seven subunits in two BMUs on the Lolo National Forest has met access objectives; work to reduce road densities is on-going in the Swan subunit (U.S. Forest Service 2004d).

Although the Helena National Forest and Lewis and Clark National Forest have not amended their respective forest plans with the NCDE Access Committee recommendations and 1994 IGBC guidelines, the Flathead A19 is considered accepted road management protocol (U.S. Forest Service 2004c; Wendy Maples, U.S. Forest Service, pers comm., 2005). The Helena and Lewis and Clark Forests have used the 1994 IGBC guidelines to monitor and implement a no net increase in road densities and no loss of core during project planning.

The Helena National Forest manages one BMU with three subunits of the NCDE recovery zone (Table 5). Two subunits meet access guidelines, and the Red Mountain subunit that currently contains an open road density of 24.7 percent and security core of 64.7 percent (U.S. Forest Service 2004c). The Lewis and Clark National Forest has 13 subunits in 6 BMUs, 8 subunits consist of less than 75 percent forest service management and are roaded. However, a preponderance of these roads occur on private rural or ranch lands and do not receive public use. Two subunits with over 75 percent forest service

management are in wilderness. Of the three remaining subunits, two meet access objectives (U.S. Forest Service 2005 in litt.). Glacier National Park road densities are low.

Assuming adequate goals for road and trail access management will be attained on the (Flathead National) Forest through recent and upcoming decisions and actions, the Service considers NCDE recovery zone access management as contributing to and promoting grizzly bear recovery. Recent decisions made on the (Flathead) Forest will result in either A19 or amended objectives being met in several subunits (U.S. Fish and Wildlife Service 2002a, 2002b, 2004a, 2004b). The status of access management on the Flathead Forest is discussed in detail in the *Environmental Baseline* section of this opinion.

A major issue in grizzly bear recovery in the NCDE recovery zone is sanitation related human-caused grizzly bear mortality. Towns and settlements are common in low elevations and major valley bottoms within and adjacent to the recovery zone. Human generated food sources such as bird feeders, garbage, pet and livestock foods, human foods, gardens, and orchards present powerful attractants for grizzly bears. Grizzly bears attracted to these human-generated food sources become habituated and food conditioned. Such bears often become a threat to human safety and property and are killed illegally or removed through agency nuisance grizzly bear control actions. A food storage order (Special Order LC00-18) for Forest lands within the NCDE recovery zone was issued by the Forest Service to reduce the possibility of grizzly bear habituation to human-related food sources. The order has been enforced since 1998.

Sanitation related grizzly bear deaths are among the leading causes of grizzly bear mortality in the NCDE (U.S. Fish and Wildlife in litt. 2004). Data collected since 1980. (Table 6) demonstrate human site conflicts, which involve habituation of bears to human foods and garbage, resulted in 15.5 percent of total grizzly bear mortality within the NCDE recovery zone.

This figure increases to 22 percent with the addition of grizzly bear mortality resulting from livestock depredation. Illegal and malicious killing of grizzly bears is the second leading cause of death at 13.5 percent. Legal hunting of grizzly bears is the only activity that exceeded human site conflicts as a source of grizzly bear mortality. Legal hunting of grizzly bears ended in 1991.

**Table 5. Access condition of subunits in the NCDE grizzly bear recovery zone outside the Flathead National Forest**

<b>Subunit</b>	<b>Total Motorized Access Density (percent)</b>	<b>Open Motorized Access Density (percent)</b>	<b>Security Core (percent)</b>
<b>Helena National Forest*</b>			
<b>Red Mountain</b>	17.9	24.7	69.3
<b>Arastra Mountain</b>	16.5	15.1	74.5
<b>Alice Creek</b>	19.5	15.8	74.8
<b>Lolo National Forest**</b>			
<b>Swan</b>	21	29	50
<b>Rattlesnake</b>	14	5	75
<b>Morrell-Dunham</b>	19	19	68
<b>Monture</b>	4	4	91
<b>N. Scapegoat</b>	0	0	100
<b>S. Scapegoat</b>	15	7	71
<b>Mission<sup>†</sup></b>	59	22	Low
<b>Lewis and Clark National Forest***</b>			
<b>Two Medicine</b>	29	60	29
<b>W. Fork Beaver</b>	8	18	67
<b>S. Fork Willow</b>	5	19	74
<b>S. Fork Willow</b>	5	19	74
<b>Roule/Biggs£</b>	0	0	68
<b>Lick/Rock£</b>	0	0	69
<b>Badger<sup>†</sup></b>	20	53	37
<b>Heart Butte<sup>†</sup></b>	21	49	45
<b>Birch<sup>†</sup></b>	3	22	65
<b>Teton<sup>†</sup></b>	10	30	62
<b>Pine Butte<sup>†</sup></b>	9	37	59
<b>Deep Creek<sup>†</sup></b>	7	31	62
<b>Scapegoat<sup>†</sup></b>	11	24	60
<b>Falls Creek<sup>†</sup></b>	14	38	57

\* U.S. Forest Service 2004c

\*\* U.S. Forest Service 2004d

\*\*\* U.S. Forest Service in litt. 2005

Shaded cells not in compliance with IGBC access guidelines

<sup>†</sup> less than 75 percent Forest management

£ 100 percent wilderness

**Table 6. Causes of known grizzly bear mortalities in the NCDE, 1980 to 2002.  
(Chris Servheen, U.S. Fish and Wildlife Service, in litt. 2004)**

<b>Category</b>	<b>Number of Mortalities</b>	<b>Percent of Total Mortalities</b>
<b>Capture</b>	10	2.8
<b>Car</b>	13	3.7
<b>Human fatality</b>	11	3.1
<b>Human site conflict</b>	<b>55</b>	<b>15.5</b>
<b>Legal grizzly hunt</b>	<b>81</b>	<b>22.8</b>
<b>Livestock depredation</b>	22	6.2
<b>Illegal/malicious</b>	<b>48</b>	<b>13.5</b>
<b>Mistaken identity</b>	29	8.2
<b>Natural</b>	15	4.2
<b>Self-defense</b>	23	6.5
<b>Trains</b>	29	8.2
<b>Under investigation</b>	8	2.3
<b>Unknown</b>	11	3.1
<b>TOTAL</b>	355	-
<b>DEATHS per YEAR</b>	15.43	-
<b>DEATHS per YEAR without legal hunting</b>	11.91	-

The Recovery Plan defined a recovered population as one that “can sustain the existing level of known and unknown human-caused mortality that exists in the ecosystem and is well distributed throughout the recovery zone.” Demographic recovery outlined for the NCDE recovery zone includes the following criteria:

- 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 recovery zone, excluding Canada
- 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
- known, human-caused mortality not to exceed four percent of the current population estimate (based on most recent 3-year average of females with young)
- no more than 30 percent of the known, human-caused mortality shall be females
- the mortality limits cannot be exceeded in more than 2 consecutive years for recovery to be achieved
- recovery in the NCDE cannot be achieved without occupancy of the Mission Mountains portion of the NCDE

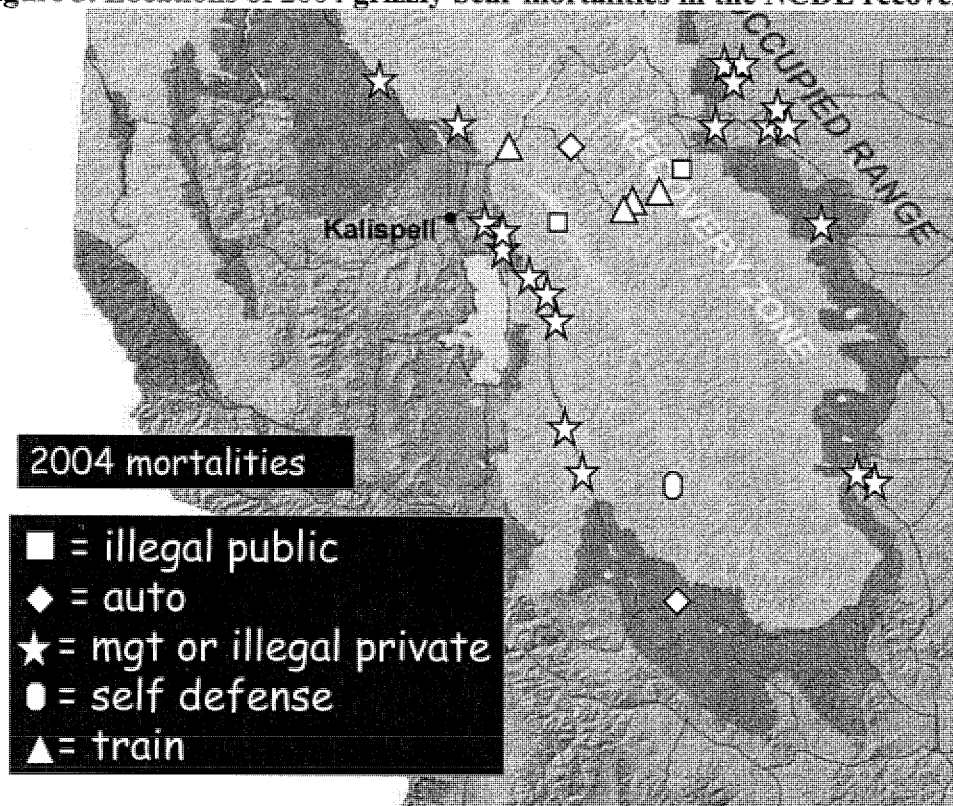
The mortality of grizzly bears is counted towards recovery zone statistics if mortality occurs within a 10-mile area outside the recovery zone boundary. This is a conservative accounting for grizzly bears making their range primarily in the recovery zone, but it includes bears whose range overlaps the recovery zone line.

The exact size of the grizzly bear population in the NCDE recovery zone is not known. The nature of the species and the rugged terrain it inhabits makes complete population census difficult, if not impossible. Population parameters more readily monitored are used to estimate a minimum population size. The Recovery Plan identified unduplicated females with cubs as one index for estimating a minimum number of grizzly bears within a recovery zone. The Recovery Plan does not rely entirely on this minimum population estimate to assess the status of grizzly bear populations. The Recovery Plan also incorporates a number of measurable annual 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.

In the NCDE, results from monitoring grizzly bears during 1987 through 1996 indicate the Recovery Plan criteria for several population recovery parameters were met, including numbers of females with cubs; numbers of BMUs with family groups; occupancy requirements for BMUs; and total human-caused grizzly bear mortality. Calendar year 2000 was the first year that annual total mortality (6-year average) and annual female mortality (6-year average) were both exceeded (Servheen, U.S. Fish and Wildlife Service, in litt. 2004) (Table 7). In 2002, three population parameters did not meet demographic recovery criteria: females with cubs inside Glacier National Park (6-year average), annual mortality (6-year average), and annual female mortality (6-year average) (Ibid.). In 2003, three parameters were not within recovery goals: 6-year average for total females with cubs inside Glacier National Park, 6-year average for annual mortality and female mortality (Servheen, U.S. Fish and Wildlife Service, in litt. 2004) (Table 8).

As of this writing, the 2004 mortality and recovery report is not complete. Preliminary data for 2004 being compiled indicate an increase in overall grizzly bear mortality within the NCDE recovery zone over the past 4 years. In 2004, there were 31 grizzly bear mortalities, including 18 females (5 adult, 8 subadult, 5 cub), 11 males (2 adults, 7 subadults, 2 cubs), and 2 individuals to be determined (Servheen, unpublished, 2005). Nine of the 31 mortalities in 2004 occurred on public lands in the NCDE (Figure 3).

**Figure 3. Locations of 2004 grizzly bear mortalities in the NCDE recovery zone**



Source: U.S. Fish and Wildlife Service, in litt. 2004

We lack grizzly bear population and trend information in the NCDE. During 1987 to 1996, research in the Swan Mountains indicated a tenuous finite rate of increase of 0.977 for grizzly bears in the study area related to high female mortality (Mace and Waller 1998). However, the authors concluded the study area population was stable, or experiencing an “exceedingly” slow population decline. The authors concluded the population was probably stable based on multiple lines of evidence, including vital rates, density and occupancy of grizzly bears in the multiple-use zone (Forest Service lands). It is important to note that annual mortality rates for bears utilizing roaded rural (private lands and adjacent roaded areas) and wilderness areas was 21 and 15 times higher, respectively, than for bears using only multiple-use lands (Ibid.). Mortalities in the wilderness areas resulted from “mistaken identity” during the black bear hunting season and human defense of life. In rural areas, mortalities resulted from malicious killing and the management removal of habituated or food-conditioned bears (Ibid.). Recent data (U.S. Fish and Wildlife Service, unpublished 2004c) indicate that the majority of human-caused mortalities in the NCDE continue to be management removal of nuisance or habituated grizzly bears, collision with trains and illegal killings. The majority of these mortalities occur on roaded, rural areas and not on roaded multiple-use Forest Service lands away from private sites (Figure 4). The Service classified roaded rural as private and public land within 1 mile of a developed private site. This differs slightly from Mace and Waller’s classification of roaded rural as private only. Both classifications demonstrate the higher incidence of grizzly bear mortality associated with areas in proximity to private lands and associated development.

**Table 7. Status of the NCDE grizzly bear population in relation to the demographic recovery criteria, 1987 to 2003 (Servheen, U.S. Fish and Wildlife Service, in litt. 2004)**

Year	Annual unduplicated females with cubs* (22 total) (12 outside/10 inside GNP*)	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

shaded cells are values below target or exceed limit

\*Glacier National Park

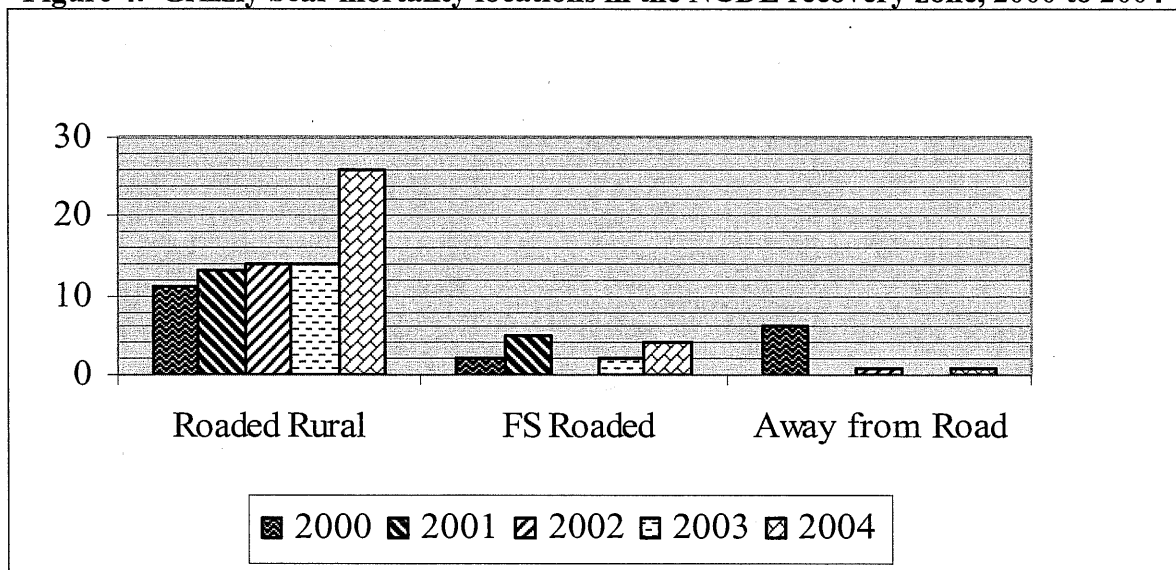
**Table 8. Status of the NCDE grizzly bear population in relation to the demographic recovery criteria including occupancy for 2003 (Servheen, U.S. Fish and Wildlife Service, in litt. 2004)**

	Target / Limit	2003 Number (6-year average)
<b>Females with cubs (6-yr average)</b>	22	23.8
<b>Inside GNP* (6-yr average)</b>	10	8
<b>Outside GNP (6-yr average)</b>	12	15
<b>Mortality limit as 4 percent of minimum population estimate</b>	Less than 13.9	17.5
<b>Female mortality limit as 30 percent of total mortality</b>	Less than 4.2	6.8
<b>Distribution of females with young</b>	21 of 23 BMUs; Missions occupied	23 of 23 BMUs; Missions occupied

\* Glacier National Park

shaded cells are values below target or exceed limit

**Figure 4. Grizzly bear mortality locations in the NCDE recovery zone, 2000 to 2004**



For many reasons, extrapolation of the rate of increase of grizzly bears in the Swan Mountains study area to the entire NCDE recovery zone population is not reasonable. Grizzly bears living in the South Fork area (including the Swan Mountains) are semi-isolated from other portions of the ecosystem, particularly females (Mace and Waller 1998). The study area was geographically situated between Hungry Horse Reservoir to the east and private lands to the west and south with extensive human development and activity in some areas. Grizzly bears face increased mortality risks due to their proximity

to these highly developed lands. According to the authors, these areas of private lands acted as mortality “sinks” for study area bears, and accounted for a great deal of the mortality incurred by study animals. The study area from which the grizzly bear sample was obtained was small (about 360,000 acres) in comparison to the NCDE (over 5,700,000 acres). The NCDE encompasses many diverse habitats and patterns of human development such as Glacier National Park with nearly 1,000,000 acres of highest quality habitat, few if any permanent human residences, no public use of firearms, and strict food storage enforcement. Over 1.7 million acres of wilderness (essentially roadless lands) are included in the NCDE along with the Rocky Mountain Front (comprised of drier habitat types east of the Continental Divide, bounded by ranches and relatively low human population), the Swan Valley (high quality habitat but highly populated with people, high road densities, and a public/private checkerboard land ownership pattern), and the North Fork (comprised of very high quality habitat and fewer human residents, bounded by Glacier National Park to the west). It is not known whether similar patterns of grizzly bear population growth, density, or natural and human-caused mortality rates occur across this ecosystem, based on the South Fork Study.

Grizzly bears in the Flathead drainage of British Columbia, including a portion of the Upper North Fork of the Flathead River area in Montana, were shown to be increasing in number over a 10-year period immediately preceding the South Fork study (McLellan 1989b). The density of grizzly bears was high and increased from 5.7 per 100 square kilometers to 8.0 per 100 square kilometer between 1981 and 1986. The estimated average grizzly bear density was 6.4 per 100 square kilometers, high for an interior population.

The Recovery Plan requires limits on human-caused grizzly bear mortality as one of the criteria for recovery and delisting. These limits were designed to promote population growth. The limits on total and female mortality account for unknown, unreported mortality. Although the Service is concerned with the recent number of grizzly bear mortalities in the NCDE recovery zone, the mortality limits in the Recovery Plan are clearly conservative. Currently, the mathematics used to calculate sustainable mortality limits depend on field counts of females and cubs. There is no established protocol for this count, and counting effort varies considerably among years. The NCDE is heavily forested and visual sightings of females with cubs are not easily obtained. Mace and Waller studied grizzly bears in a small portion of the NCDE from 1987 to 1997. Even this intense observation effort yielded variable counts from year to year. The observation variability was also reflected in years not included in the study (U.S. Fish and Wildlife Service, in litt. 2004).

The purpose of counting females with cubs is to estimate a known minimum number of adult females to demonstrate sufficient reproduction to offset existing levels of mortality (U.S. Fish and Wildlife Service 1993). Years during which the effort to count female grizzly bears is poor or conditions are unfavorable may yield very conservative counts of females with cubs. These conservative counts result in a conservative minimum population estimate, which results in conservative human-caused mortality limits. Due to the varying effort and success in counting females with cubs, neither these annual number

of females with cubs counted or the human-caused mortality limits/annual tally can be used to estimate trend (U.S. Fish and Wildlife Service 1993).

The conservative nature of the human-caused mortality estimates were intentional, as the Recovery Plan attempted to incorporate limits that clearly measured recovery of the population. The methodology used in the Recovery Plan (Knight et al. 1988, 1993 *in* U.S. Fish and Wildlife 1993) and observations of unduplicated females with cubs from 2001 through 2003 (Servheen, unpublished data, June 30, 2004) results in an estimated minimum number of grizzly bears in the NCDE in 2003 of 328 bears.

Current levels of human-caused mortality may be above that sustainable by the population, if the number of grizzly bears in the NCDE is near the minimum estimate. However, current levels may be sustainable by the population if the numbers of grizzly bears is in fact higher than the minimum. The Service acknowledges that females with cubs are typically poorly counted in the NCDE recovery zone. Reliable estimates of total population versus a minimum population estimate would allow significant insights into assessing the current status of NCDE grizzly bear population.

It is expected that reliable NCDE grizzly bear population estimates will be available within the next year (Kendall 2004a,b). The U.S. Geological Survey (USGS) DNA-based mark-recapture study in the greater Glacier area collected information from 1998 through 2000 and the data are being analyzed. Final population estimates for this northern one-third of the ecosystem are expected in the fall of 2005 (K. Kendall, U.S.G.S., pers. comm., 2005). A preliminary estimate of grizzly bear numbers from the greater Glacier study was previously reported, but the data are undergoing further analysis and a conclusion is not available at this time (K. Kendall, U.S.G.S., pers. comm., 2005). A more extensive DNA-based study is underway in the entire NCDE recovery zone and grizzly bear population estimates from this study could be available as early as the end of 2006 (K. Kendall, presentation to the Montana Chapter of the Wildlife Society, Helena, Montana, 2005).

Additionally, a recent mapping effort (U.S. Forest Service et al. 2002) used the last 5 years of location data to map the area outside the recovery zone where grizzly bears may occur. The resulting distribution of known grizzly bear presence extends to the west, south, and east of the recovery zone. Although information is limited and not statistically analyzed, grizzly bear occurrences are being increasingly documented outside the recovery zone line suggesting that the grizzly bear population in the NCDE is expanding. Due to the broad distribution of grizzly bear locations and known grizzly bear distribution within the recovery zone, this expansion is likely due to increased grizzly bear numbers in some areas of the recovery zone.

For comparison, the best available information suggests the YGBE grizzly bear population is stable to increasing (Eberhardt et al. 1994, Boyce 1995, Boyce et al. 2001). Corresponding with this increasing population number, female grizzly bears with cubs are well distributed in the Yellowstone recovery zone and sightings of other individuals with cubs occur outside the recovery and 10-mile buffer zone (Haroldson 2002, 2003; Podrutzny et al. 2002). The authors speculated that the 34 percent expansion of grizzly bear range during 1980 to 1990 was likely a product of improved management practices,

a series of good food years, and a population increase. Only an estimate of minimum population number is calculated for the NCDE, and population trend information is not available at this time. However, similarities of access management to the GYE, the distribution of grizzly bears across the recovery zone, and increasing occurrence of bears outside the recovery zone could reasonably be interpreted as indicative of an increasing grizzly bear population in portions of the NCDE as well.

The DNA-based population estimates for the northern one-third of the NCDE, to be released later in 2005, will provide important insights into assessing the minimum population estimate derived through Recovery Plan methods, and provide a meaningful context within which to view mortality limits and current levels of human-caused grizzly bear mortality. Likewise, the NCDE-wide grizzly bear population estimate, likely available in late 2006, will be invaluable to assessing the status of the population, gauging the use of minimum population estimates, and assessing the impacts of current levels of human-caused mortality. In the meantime, the Service finds no compelling evidence to support a prediction that the NCDE grizzly bear population is in decline. Evidence to the contrary, including current distribution of grizzly bears within and outside the recovery zone, reported numbers and locations of recent sightings and conflicts, and information and views of Montana Fish Wildlife and Parks (MFWP) (MFWP in litt. 2005), observations by NCDE grizzly bear experts (Waller 2005b), suggest a stable or perhaps increasing number of grizzly bears in several areas of the recovery zone. If the DNA-based population estimates reveal we have substantively erred in our assumptions, we will reassess whether the population status would change our conclusions regarding the effects of this proposed implementation schedule for access management, in accordance with CFR 402.16.

### **Analysis of the Species Likely to be Affected**

**Grizzly bear** Grizzly bears are listed as threatened under the Act. The proposed action pertains to activities inside the NCDE recovery zone. Grizzly bear populations occupy large ranges with a variety of nutrient and calorie rich foods. Habitat connectivity within geographic areas is important for maintaining security, allowing for dispersal and effective recruitment. Grizzly bears normally avoid people. Avoidance of roads can lead grizzly bears to either avoid essential habitat along roads, or could put them at greater risk of exposure to human-caused mortality if they do not avoid roads. Portions of the area affected by the proposed revised schedule for A19 implementation have a high density of existing roads. Roads facilitate human access into areas increasing the possibility of grizzly bear habituation to human-related attractants, grizzly bear displacement from key habitats, human-grizzly bear encounters, and the risk of legal and illegal mortality. Habituated and food conditioned grizzly bears become a threat to human safety and property and are killed illegally or removed through agency nuisance grizzly bear control actions. It has been determined that the existing road density and extended time implementation of A19 road access objectives would adversely affect grizzly bears. Critical habitat has not been designated for this species therefore none would be affected.

**Other listed species** In addition to the grizzly bear, other federally listed species that may be present in the action area are the threatened Canada lynx (*Lynx Canadensis*), endangered gray wolf (*Canis lupus*), and the threatened bald eagle (*Haliaeetus leucocephalus*). The Forest determined that project would have no effect on the bald eagle. The Service concurs with the Forest's determination that the proposed Amendment 19 Revised Implementation Schedule "may affect, but not adversely affect" the Canada lynx and endangered gray wolf.

The Service's concurrence for lynx is based on the following points:

- Canada lynx and suitable habitats for lynx are present in the action area.
- The implementation schedule includes no activity relevant to objectives defined in the Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000); no activities are proposed that would alter lynx habitat constituents or introduce disturbances beyond those in the baseline condition.
- The LCAS includes guidelines to determine where road density is high in lynx habitat and prioritize roads for seasonal restrictions or reclamation in those areas. In addition to grizzly bears, lynx benefit by reclamation of roads and reduced motorized use of roads. The revised implementation schedule for access management would postpone benefits for lynx.

The Service's concurrence for wolves is based on the following points:

- Wolves are wide-ranging animals that could travel through many parts of the action area. Pack activity is known in portions of the action area.
- The implementation schedule includes no elements that would impact existing denning and rendezvous sites or prey base beyond those in the baseline condition. Maintaining roads on the landscape and human use of those roads could preclude prospective rearing sites for wolves, but rearing sites are not limited on the Forest. Denning habitat is not lacking on the Forest, and the impact of maintaining the existing road network is not likely to rise to a level substantially greater than the baseline condition.
- Reduced motorized use and road reclamation would benefit wolves by reducing mortality risk and displacement. The revised implementation schedule for access management would postpone these benefits for wolves.

## ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts on grizzly bears of all federal, state or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of state or private actions that are contemporaneous with the consultation in process.

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). For the purpose of this opinion, the action area consists of the Forest lands within the NCDE recovery zone (U.S. Fish and Wildlife Service 1993). The action area includes all or portions of four ranger districts: Glacier View, Hungry Horse, Swan Lake, and Spotted Bear, and private and state lands incorporated within or adjacent to the aforementioned Forest boundaries (Figure 5).

### **Status of the Grizzly Bear within the Action Area**

Forest lands comprise a major portion of the NCDE recovery zone. The status of the grizzly bear population in the recovery zone, including grizzly bears on the Forest, was covered previously in part under the heading “Status of grizzly bears in the NCDE”.

Little is known about individual grizzly bears in the action area apart from data reported for the NCDE recovery zone as a whole. Several sources document a broad distribution of grizzly bears including several ongoing and past research efforts (such as South Fork Study and Greater Glacier DNA Study), reports, and MFWP responses to grizzly bear-human conflicts adjacent to the Forest (Manley 2005).

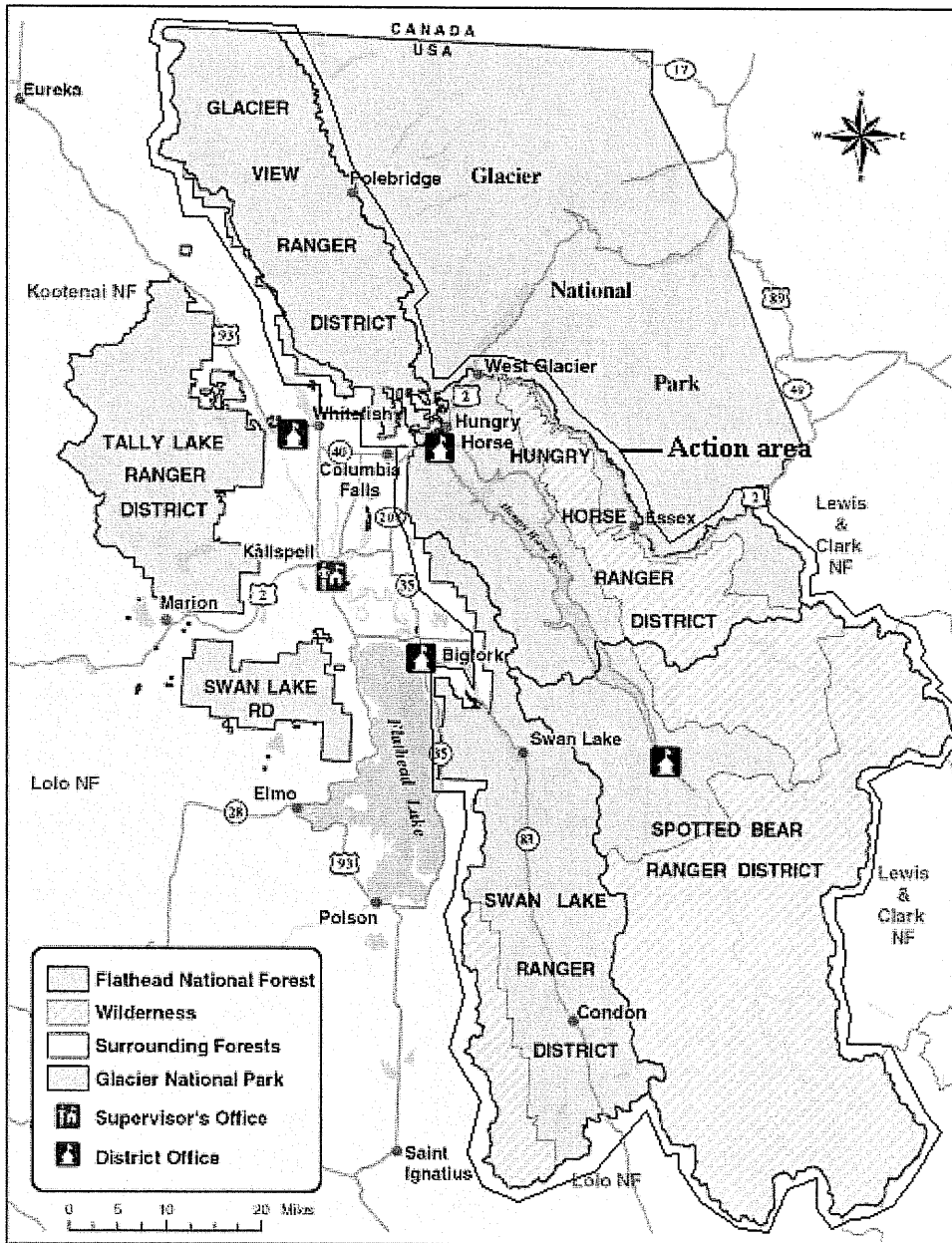
Currently, MFWP is conducting an NCDE grizzly bear trend study, which includes trapping and fitting grizzly bears with radio collars (MFWP 2005). Several of these bears will occur on the Forest. The Greater Glacier Bear DNA project (Kendall 2004a) will document grizzly bears in Glacier National Park and immediately adjacent areas of the Forest.

Waller (2005a) completed a 3-year study examining movement patterns and habitat use by grizzly bears in the U.S. Highway 2 corridor in the Upper Middle Fork area of the NCDE recovery zone. The area contains a major highway, paralleling rail line, and dispersed human development and activity. A high capture rate could indicate a high-density of grizzly bears residing in the corridor relative to other portions of the NCDE and other ecosystems. Individuals frequently cross the highway during periods of low traffic volume – usually at night. Connectivity is maintained across the developed mountain valley at the current level of human disturbance. In some areas, conflicts with humans resulted in a high level of mortality. Mortality was expected considering human activity. However, the level of mortality would not necessarily be detrimental to the population in general as long as habitat connectivity is maintained (Ibid.).

In the South Fork of the Flathead drainage, Mace and Waller (1998) estimated a “tenuous finite rate of increase ( $\lambda$ ) of 0.997 (95 percent confidence interval = 0.875 – 1.046)” for the grizzly bears in the study area from 1987 to 1996. The authors suggested the estimate of trend along with long term stability of vital rates in the population indicated “stability or an exceedingly slow population decline”. Density estimates also suggested that the population was relatively stable. Density estimates in the study area (1.6 bears per square kilometer) exceeded most other published estimates from Canada and the NW

Territories, and were similar to interior Alaska grizzly bear populations where salmon runs were absent. The authors suggested the Forest multiple use lands in the South Fork area represented a source area (area producing individuals) and the surrounding rural lands and wilderness were a sink (areas where individuals die). The annual density of grizzly bears in the multiple-use zone was five times greater than in the rural zone. The authors also believed that space was limiting to grizzly bears in the area. Home range overlap for females averaged 24 percent and about 73 percent of the space is occupied.

**Figure 5. Flathead National Forest and action area\***



Source for base map: U.S.D.A. Forest Service <http://fs.fed.us/r1/>

\* action area line depicted is for general reference only. The action area line does not represent the exact geographic boundary.

Grizzly bear occurrences are being increasingly documented to the east, the south and the northwest of the recovery zone boundary (U.S. Forest Service et al. 2002) (Figure 2). The MFWP commented that they are responding to reports of grizzly bears west of the Forest's recovery zone boundary to the Lake Kookanusca area, where grizzly bears have not been reported for 20 years (MFWP in litt. 2005). The agency surmised that interagency efforts to minimize attractants and increased security measures undertaken on the Forest had probably been responsible for the apparent increase in grizzly bear distribution outside the NCDE. The broad distribution of grizzly bear locations outside the recovery zone and known grizzly bear distribution within the recovery zone suggests that the population has likely expanded due to increases in bear numbers in portions of the ecosystem (R. Mace, MFWP, pers. comm. 2005; T. Manley, MFWP, pers.com. 2005).

### **Status of Grizzly Bear Habitat within the Action area**

Diverse, seasonal habitats for grizzly bears occur throughout the recovery zone portion of the Forest. Forest lands within the NCDE recovery zone are managed under Management Situations (MS1, MS2, and MS3) per the Recovery Plan and 1986 IGBC guidelines. Management Situation 1 lands contain habitat components needed for the survival and recovery of the species, and land uses are made compatible with the needs of grizzly bears. Objectives for land areas designated as MS1 are to "...provide high-quality habitat for seasonal foraging needs, free-ranging movement and dispersal of resident grizzly bears, and low risk of mortality due to human/bear conflicts. Objectives for MS2 are to provide adequate habitat conditions for short-term occupancy, movement and dispersal, and low risk of mortality due to human/bear conflicts. Objectives for MS3 are to discourage occupancy by grizzly bears and to minimize risks of human/bear conflicts." (U.S. Forest Service 1995b). At approximately 1,900,000 acres, MS1 lands predominate within the Forest's grizzly bear recovery zone (Ibid.). A number of Forest Plan standards, objectives, and guidelines work to reduce the impact of human activities on grizzly bears in MS1 and MS2, including those related to access management.

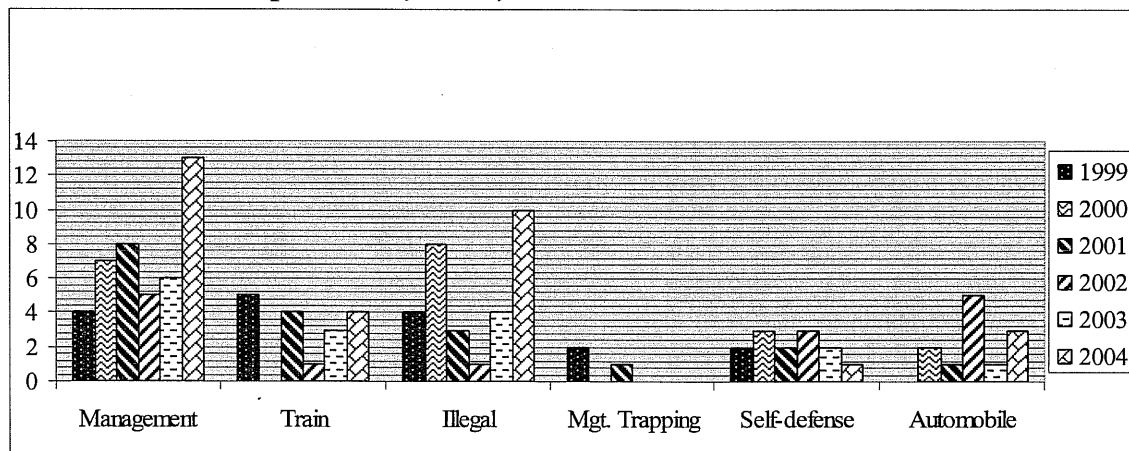
The Forest's portion of the NCDE recovery zone is influenced by large drainages that dissect the NCDE and contain varying amounts of private land. Development is typically increasing on these private lands. State and private holdings occur within the recovery zone adjacent to or encompassed by Forest recovery zone lands. The Swan Valley and the North and Middle Fork of the Flathead River drainages include residences, businesses, and infrastructure interspersed with larger agricultural areas and Forest lands within the recovery zone. The human population centers of Whitefish, Kalispell, and Big Fork are situated immediately west of the Forest recovery zone. State and private holdings contain roads, and many areas are moderately to highly roaded. Construction, timber harvest, road maintenance and decommissioning, scientific research and monitoring, and habitat improvement projects occur throughout the system of federal and nonfederal lands within the recovery zone. Dispersed and concentrated seasonally fitting recreation activities occur year-round. Activities include hunting, fishing, berry picking, firewood gathering, scenic viewing, hiking, horseback riding, camping, skiing,

snowmobiling, rafting and kayaking, bicycling, and motorized off-highway vehicle use as well as other uses.

Year-round use by people occurs at cabins, campgrounds, lodges, houses, and other human developments in the action area. The developments are primarily in lower elevations and have the potential to attract people to grizzly bear habitat. The Big Mountain winter resort is located in the action area and hosts activities that potentially impact grizzly bears both in denning and nondenning seasons. The Forest consulted with the Service on the permitting of activities at the resort (U.S. Forest Service 1984, 1995a; U.S. Fish and Wildlife Service 1984, 1995c).

Human-caused risks to grizzly bears include mistaken identification by legal hunters of black bear, malicious killing, defense of human life or property, and collisions with vehicles and trains (Figure 6). The MFWP manages black bear and big game hunting in the state. Consultation on the effects of these and other state programs was completed in 2002 (U.S. Fish and Wildlife Service 2002c). Among other measures to reduce mistaken identity kills of grizzly bears, MFWP requires a mandatory black bear and grizzly bear identification training for all black bear hunters in the state. Management action includes moving nuisance bears or destroying bears in cases of serious repeated offenses. Management actions to reduce the threat to human life and property result from food conditioning and habituation of grizzly bears at campsites, lodges, resorts and private residences in the action area. Human-grizzly bear interactions are increasing in the ecosystem, due in part, to increasing human presence and development, likely increasing grizzly bear numbers in areas of the ecosystem, and bears and people expanding their range of occupation.

**Figure 6. Human-caused mortality in the NCDE, 1999 to 2004 (U.S. Fish and Wildlife Service, unpublished, 2004c)**



Wildland fire has occurred on the Forest historically and is an important ecosystem process. Since the 1988 Red Bench Fire, the 2001 Moose Fire, wide-spread conflagrations of 2003, and numerous smaller events burned over 220,000 acres in the NCDE. Alone, the widespread fires of 2003 impacted approximately 120,000 acres within the Forest portion of the recovery zone. Fire produces a temporary loss of security

cover and alters availability of food resources for grizzly bears. In the short-term (immediately after fire to 15 years) fire rejuvenates forage and conditions for berry producing shrubs used by grizzly bears and produces open areas and forage preferred by ungulates. Long-term increases occur in berry production, security and insulating cover.

Intensive fire suppression was conducted during the 2003 fires. Suppression and post-fire rehabilitation extended into the fall season in some areas. During the grizzly bear active season, some restricted roads were temporarily open to motorized vehicle use temporarily in fire affected areas. Aircraft use was common during suppression action. Ground disturbing activities and heavy equipment operation occurred during fireline construction, land and road recontouring, hazard tree removal, and replanting.

Morel mushroom crops are common after fires. The Forest permitted a commercial and personal use mushroom harvest in 2004 with strict guidelines to minimize impacts of the large influx of humans who camped and harvested on the Forest (U.S. Forest Service 2004h, U.S. Fish and Wildlife Service 2004d). A report to the Service after the mushroom picking season documents grizzly bears sighted by pickers and Forest personnel in the harvest area during the season (U.S. Forest Service, in litt. 2004). Only one incidence of bears obtaining a food reward was reported; however, it was not certain whether these individuals were indeed grizzlies.

Whitebark pine seeds are important food source for grizzly bears. The productivity of whitebark pines has been severely impacted by disease. Ungulate populations are healthy in the ecosystem, and winter-killed ungulates are an important spring food source for grizzly bears. Ungulate populations and the availability of winter-kill are largely influenced by weather conditions. The population of ungulates are monitored and managed by Montana Fish, Wildlife and Parks. Recent fires and drought may have affected available food, including berry crops, and cover over the short-term, particularly to individual grizzly bears with a significant portion of their home ranges affected by fire. Typically, fires result in a mosaic of severely burned, moderately burned, and unburned areas on the landscape thereby maintaining some level of shelter, hiding cover, and unburned food resources for grizzly bears and other species (U.S. Fish and Wildlife Service 2004a,b).

Timber harvest or salvage and access management are ongoing for the Spotted Beetle Resource, Moose Post-Fire, Westside Reservoir Post-Fire, and Robert-Wedge Post-Fire salvage operations as well as other smaller projects. These projects have all been reviewed through section 7 (U.S. Fish and Wildlife Service 2002a, 2002b, 2004a, 2004b). Major projects include terms and conditions that minimize impacts on grizzly bears.

Grizzly bear mortality data in the NCDE includes mortalities within a 10-mile buffer area around the recovery zone lands to take into account individuals whose range includes the recovery zone. The Forest Plan does not include specific direction for grizzly bear habitat management. Areas outside the recovery zone on the Forest do not have management situation designations, a mandatory food storage order, or grazing direction for grizzly bears. Amendment 19 access goals are not applicable to the areas outside the

recovery zone. The grizzly bear habitat outside the recovery zone is generally not considered as high in quality as that inside for several reasons. Forest lands outside the recovery zone are interspersed with private and state lands. Forest and lands of other ownership outside the recovery zone are moderately to highly-roaded including highway and rail lines supporting commercial and residential human occupation. Activities occurring outside the recovery zone include, but are not limited to, grazing and agricultural pursuits, timber harvest and wood product fabrication, and concentrated and dispersed recreation. Although grizzly bears are protected under the Act wherever they occur, grizzly bear habitat needs are not necessarily prioritized in management of human activities and habitat outside the recovery zone or on nonfederal lands within the recovery zone. The Recovery Plan established the recovery zones to encompass adequate amounts of habitat within which to recover the grizzly bear population.

**Sanitation** The U.S. Fish and Wildlife Service mortality summary (2004c) reveals that sanitation and the possibility of grizzly bear habituation to human related attractants is a primary concern in the NCDE recovery zone and distribution area outside the recovery zone. Since 1999, conflicts with bears obtaining anthropogenic food and livestock feed are consistently among the leading causes of grizzly bear mortality in the NCDE. The majority of known grizzly bear mortalities occur in roaded rural areas that includes public, private, and corporate lands within 1 mile of a private developed site (Figure 4). Only nine of 31 known human-caused grizzly bear mortalities occurred on public lands in the recovery zone in 2004 resulting from self-defense, auto or train collision and illegal killing. A food storage order is in effect on the Forest in the recovery zone. This order is intended to minimize the availability of human-related attractants including livestock foods to grizzly bear access. No food storage order is in effect for nonfederal lands within the recovery zone. The Forest's order appears relatively successful when conflicts on the Forest are compared to conflicts on private lands (MFWP 2005) where grizzly bears likely occur at lower densities (Mace and Waller 1998). Although grizzly bears were estimated to utilize rural roaded, generally private, land less than 5 percent of the time, they experienced a mortality rate 30 times that of backcountry areas and 15 times greater than roaded areas when utilizing rural roaded areas (Ake et al. 1998).

Livestock grazing is limited within the action area on the Forest, and no grizzly bear conflicts have been reported.

**Denning Habitat** The Forest modeled potential denning habitat using a GIS by extrapolated characteristics of known den sites in the NCDE recovery zone (U.S. Forest Service 2004l) following, in part, the methodology of Podruzny et al. (2002). The Forest estimated about 420,400 acres of potential denning habitat on the 3,420,000-acre Forest (12.3 percent of the Forest).

Snowmobiling occurs on the Forest and grizzly bear denning habitat and snowmobile activity overlap in some areas. Most of the potential denning habitat (68 percent or 285,700 acres of the Forest) is within designated wilderness and is unavailable to snowmobiling; the remaining 134,700 acres are outside of wilderness (32 percent of modeled denning habitat).

Litigation on the Forest Plan snowmobile direction precipitated an agreement and interim snowmobile use plan. This interim settlement agreement directs winter motorized use while the Forest amends the Forest Plan to address snowmobile use on the Forest (U.S. Forest Service 2004l). Currently, under the settlement agreement, 33,300 acres of denning habitat are programmatically open to snowmobiles; however, specific site closures reduce available acres to 32,300.

Under the terms of the agreement, about 0.5 percent (2,100 acres) of modeled denning habitat is within 200 meters of open snowmobile road and routes; six percent (24,300 acres) is within 1,000 meters. The Service is currently preparing a biological opinion on the Forest Plan amendment for snowmobiling.

Snowmobile use is generally allowed from November 15 to March 15 within the Forest's portion of the NCDE recovery zone, corresponding to the dates that local grizzly bear biologists confirm denning. No temporal restrictions apply to areas outside the recovery zone.

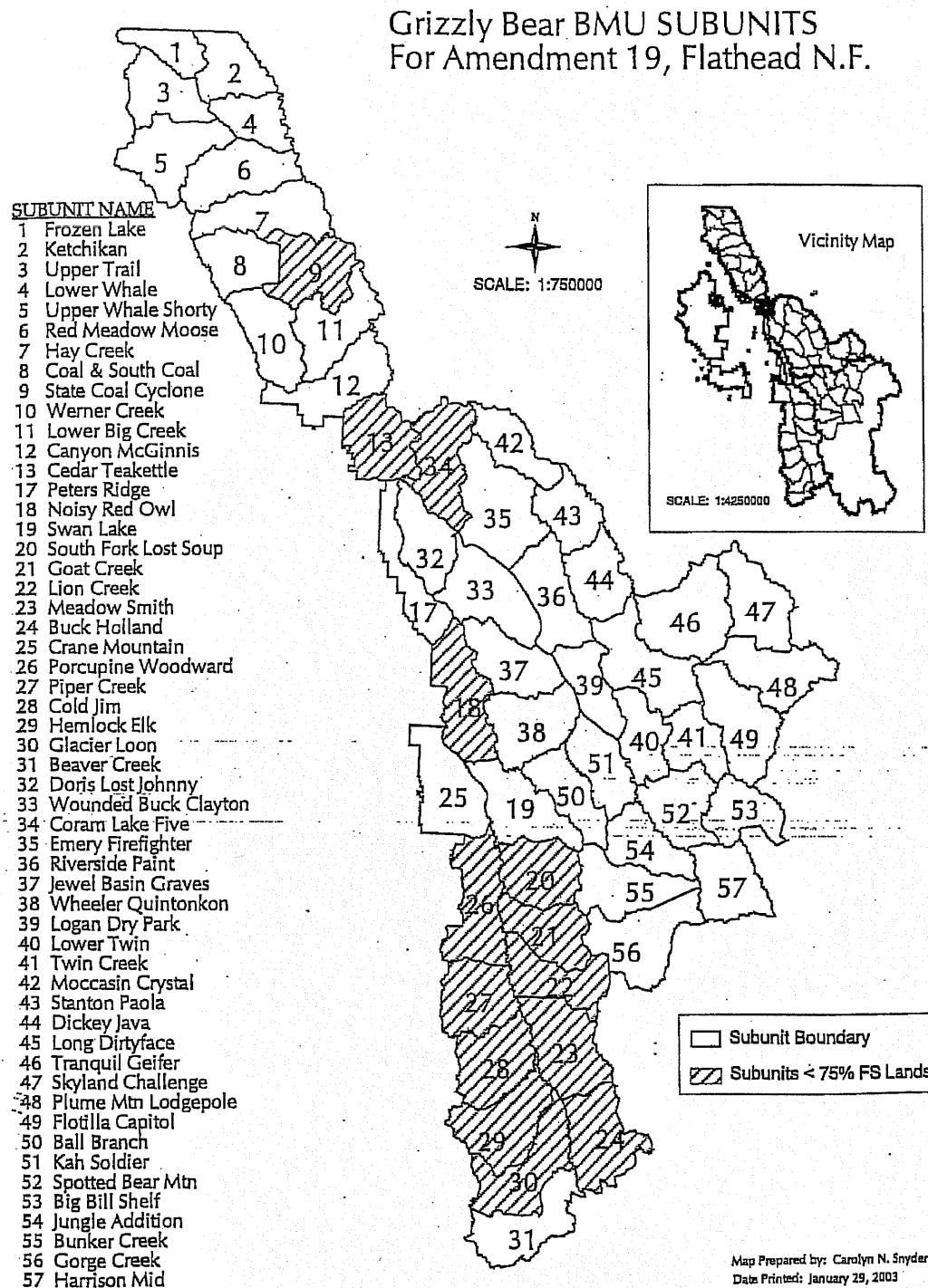
Plowed roads provide access to snowmobiles and hauling of snowmobiles to snow-covered roads or trails. Forest openings and corridors free of trees invite snowmobile use whether designated for snowmobile use or not. The Off-Highway Vehicle Environmental Impact Statement and Record of Decision for Montana and the Dakotas (U.S. Forest Service 2000) classified federal lands as closed to off-road, wheeled motorized use unless specifically designated as open. Motorized use as defined did not include snowmobile use.

Snowshoeing, cross country skiing, mountaineering and other snow-related activities occur on the Forest where and when snow conditions are suitable. These activities are not subject to denning season administrative restrictions.

***Motorized Access*** The Forest manages 40 percent of the approximately 5,700,000-acre NCDE recovery zone. Access management is a key tool in moderating and monitoring the impacts of many human activities on grizzly bears. Access is managed under the direction of A19 in both MS1 and MS2 lands in the recovery zone portion of the Forest.

Portions of the Mission Mountains, Great Bear, Bob Marshall, and Scapegoat Wilderness Areas are managed by the Forest; sixteen of the Forest's 73 subunits lie entirely within wilderness and are essentially roadless. Amendment 19 motorized access standards and objectives apply to 54 nonwilderness subunits (Figure 7). Of the 54 nonwilderness subunits on the Forest, 40 subunits are comprised of greater than 75 percent national forest lands. The remaining 14 subunits encompass small private lands as well as larger corporate and state timber land holdings; forest management extends to less than 75 percent of the land area in these subunits. Three additional subunits include insignificant amounts of Forest Service lands and are not considered in access assessment.

**Figure 7. The 54 nonwilderness subunits subject to management direction of Amendment 19**



Source: U.S.D.A. Forest Service. 2003.

The miles of open road on the Forest increased substantially during the late 1970's and early 1980's due to an aggressive program to harvest insect-infested lodgepole pine stands (U.S. Forest Service 1994b). Since 1986, as part of compliance with MS1 and MS2 direction, the Forest updated its road inventory and implemented substantial changes in road management. During the decade from 1986 to 1995 the miles of open road on the Forest decreased by 25 percent, the miles of road 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 road open in 1993 was approximately the number of miles open in the early 1970's (Ibid.).

In 1995, A19 to the Forest Plan established new Forest-wide objectives and standards to further reduce impacts of Forest management activities on grizzly bears (U.S. Forest Service 1995b). The decision notice for A19 estimated that there were 1,900 miles of open road on the Forest in 1995. The Forest anticipated that implementation of A19 would result in a reduction of the total road miles on the Forest of approximately 16 percent to 1600 miles of open road within a 10-year period (U. S. Forest Service 1995b). Though the 1995 road mile estimates predate the precision of Geographic Information System (GIS) technology, changes in total miles of road since 1995 reflect an actual trend on the Forest (Table 9).

Total, open, and seasonally restricted roads were reduced by 369 miles over a 9-year period (U.S. Forest Service 2005b). Open road miles were reduced by 25 percent from 995 to 747 miles. A total of 60 miles have been restricted and 369 miles decommissioned since 1995.

Progress was made in bringing subunits with greater than 75 percent Forest Service management into compliance with access objectives. Of 40 subunits with over 75 percent Forest Service lands, 18 meet the 5 and 10-year objectives for OMAD, TMAD, and security core (Figure 8). Sixteen subunits fully complied with A19 access objectives in 1995. At this time, 19 subunits have achieved all 5-year access objectives.

**Table 9. Miles of road on the Swan Lake, Spotted Bear, Hungry Horse, and Glacier View Ranger Districts 1995 to 2004, Flathead National Forest**

	<b>1995*</b>	<b>2004**</b>
Total Road Miles (open, gated, seasonal)	2,816	2,447 (-369)
Open Road Miles (yearlong and seasonal)	995	747 (-248)
Open Seasonally Miles (grizzly nondenning)	252	151 (-101)
Restricted Miles	1,569	1,700
Decommissioned Miles	70	439 (-369)

\* U.S. Forest Service 2004a

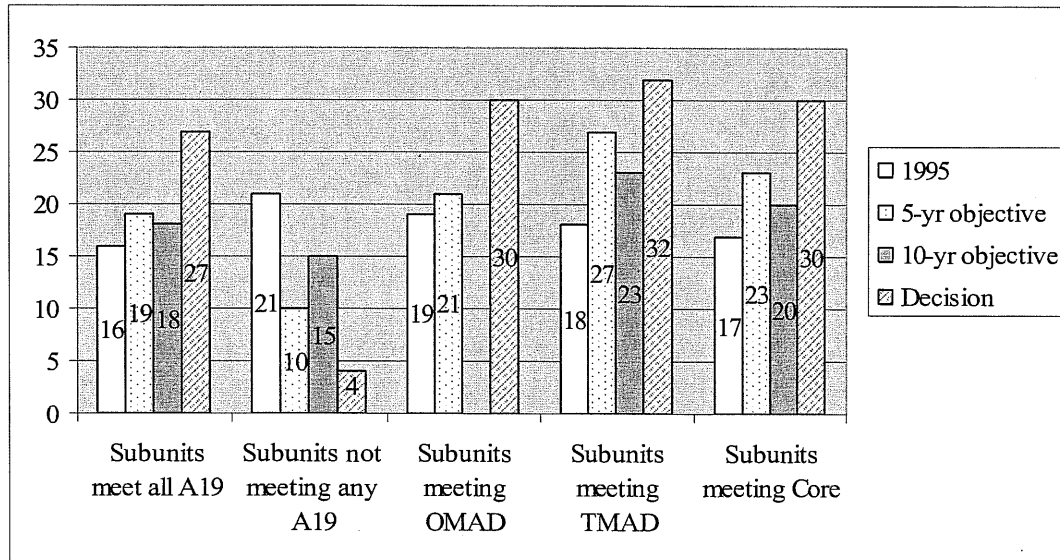
\*\*U.S. Forest Service 2005b, in litt. 2005

( ) change from 1995

The 14 subunits with less than 75 percent Forest Service land maintained the objective of no net increase in access densities and no net loss of security core on Forest lands. Since 1995, decreases in access densities occurred in some subunits while increases in other subunits resulted from actions on nonfederal holdings.

Many of the open roads on the Forest are primary access routes that lead to or affect several subunits of the Forest (such as the west- and east-side reservoir roads in the South Fork) or lead to major recreation trailheads or attractions (U.S. Fish and Wildlife Service 2004a). In some subunits, closure of these primary access routes would be necessary to achieve 19 percent OMAD. Such closures would greatly impact Forest management or be highly controversial to the public. Recently, the Forest began analyzing the individual subunits in which these situations exist. They amended A19 objectives in an attempt to serve both public and forest management access needs and meet MS1 objectives for the the conservation and recovery of grizzly bears. The Service evaluated the amendments and found that they are reasonable, and would not result in jeopardy to grizzly bear (U.S. Fish and Wildlife Service 2004a, 2004b, 2002b). The amended access parameters are discussed in detail in the discussions below, within the context of the current environmental baseline and status of the species.

**Figure 8. Summary of current A19 access management compliance on 40 subunits with greater than 75 percent Flathead National Forest management (includes amended objectives) (U.S. Forest Service in litt. 2005).**



Changes were made in moving windows analysis in preparation of the 2002 and 2003 A19 monitoring reports to reconsider trails in motorized access monitoring (U.S. Forest Service 2004e). Due to the difficulty of monitoring motorized use of all trails, trails without closure orders during the nondenning period and receiving motorized use were added to the motorized access inventory. The addition of these trails to the motorized access baseline is a more conservative approach than previously implemented. Many of these trails receive low, infrequent use but are included in open route densities. In addition, only secure polygons larger than 2,500 acres were considered in the core calculations. Subunits with changed access conditions due to inclusion of motorized trails are addressed in the “Environmental Baseline” and “Effects of the Action” sections of this document in the discussion of the projects in those subunits. In some subunits, part of the intent of the project was to bring the subunit into compliance with A19. However, subsequent changes in the GIS database, including the addition of all motorized trails, precluded the authorized access changes from resulting in meeting the A19 objectives. The 2004 A19 monitoring report includes the latest adjustment to the 1995 baseline access condition, existing condition, and the expected access condition with decisions implemented (U.S. Forest Service 2005b) (Appendix C).

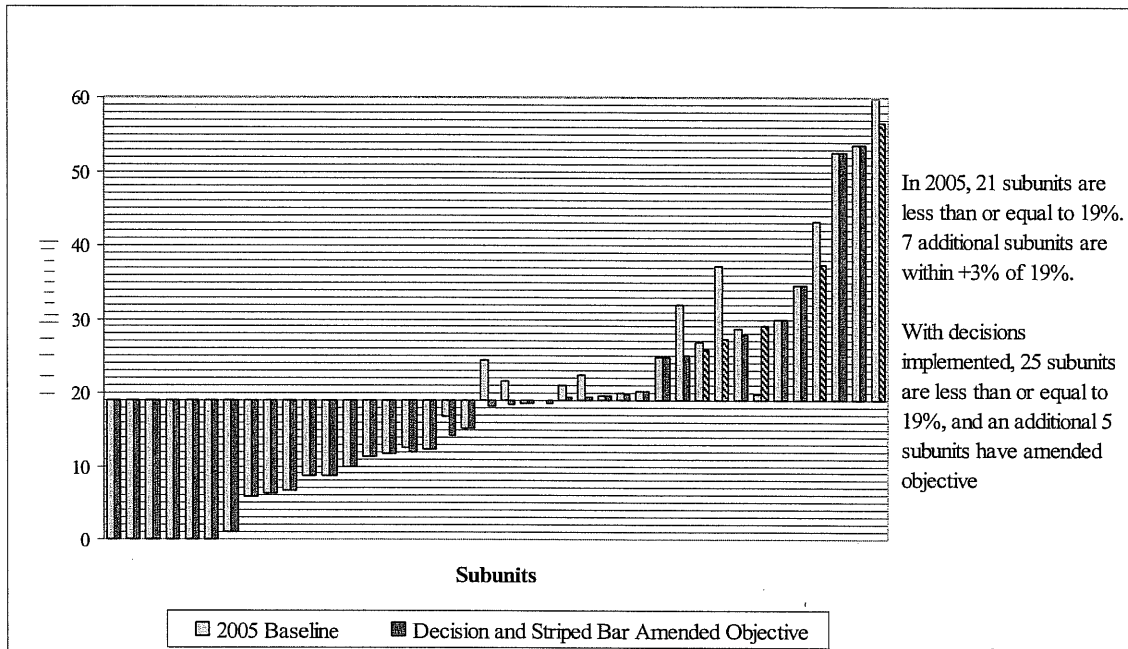
Total and open access density reductions for the Spotted Beetle and Moose projects relied on the 2001 moving windows analysis that did not include all trails receiving motorized use. The Service received the 2002 report in January 2004 (U.S. Forest Service, in litt. 2004). The 2002 annual monitoring report adjusted the 1995 baseline access numbers to include motorized trails. On-the-ground, the access condition did not change. However, these changes resulted in reported increases in OMAD and TMAD and decrease in core in some subunits: Hay Creek, Coal and South Coal, Peters Ridge, Swan Lake, Doris Lost Johnny, Wounded Buck Clayton, Jewel Basin Graves, Wheeler Quintonkon, Ball Branch, Kah Soldier, Jungle Addition, and Bunker Creek (U.S. Forest Service 2004e). The 2003 monitoring report further adjusted baseline conditions in Werner Creek, Lower Big Creek, Cedar Teakettle (< 75 percent), Noisy Red Owl (< 75 percent), Cold Jim (< 75 percent), Beaver Creek, Twin Creek, Stanton Paola, Long Dirty Face, Tranquil Geifer, Skyland Challenge, Plume Mountain Lodgepole, Flotilla Capital, Big Bill Shelf, Gorge Creek, Spotted Bear Mountain, and Harrison Mid (U.S. Forest Service 2004b).

The Forest has made progress towards Forest Plan access goals, but road and trail access in many subunits fall short of these goals. In 2005, in subunits with majority Forest management, 12 subunits meet one or two objectives, none of the 5-year objectives have been met in 10 subunits, and 15 subunits have not achieved any 10-year objectives including OMAD (Figure 8). For OMAD, the A19 objective was to reach 19 percent in the 5<sup>th</sup> year, therefore there is no 10-year objective. The 10-year time period is referred to for all OMAD progress data.

Twenty-one of 40 subunits met the 5-year objective for OMAD by 2000. In 2005, 21 subunits are in compliance. Changes in the GIS database precluded some subunits from achieving an OMAD of 19 percent or less as planned, but differences are negligible in most cases. Seven subunits that had not achieved the OMAD objective by 2005 are within 3 percent of the 19 percent objective (Figure 9). Within these seven subunits,

OMAD decreased an average of 9 percent per subunit since 1995. Of the 15 subunits not meeting any A19 objectives to date, three are within 3 percent of the 19 percent goal for OMAD.

**Figure 9. Comparison of open motorized access density between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits**



Source: U.S. Fish and Wildlife Service 2005. Data from U.S. Forest Service in litt. 2005

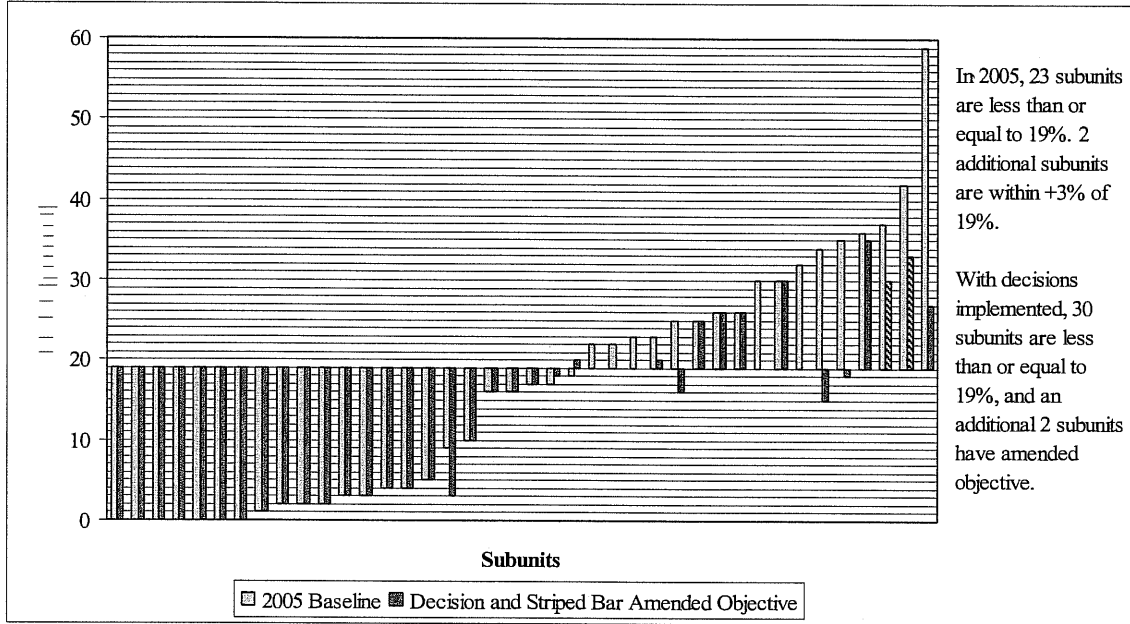
In 1995, 18 subunits met the 10-year TMAD objective, and 2005 data show 23 subunits in compliance with the 10-year objective (Figure 8). Twenty-seven subunits met the 5-year objective by 2005. Two of the 17 subunits that had not achieved objectives by 2005 are within 3 percent of the 10-year TMAD objective (Figure 10), decreasing an average of 40 percent per subunit and reflecting progress towards overall A19 objectives. One of the 15 subunits not meeting any objectives is within 3 percent of the A19 10-year goal.

In 2000, 26 subunits met the 60 percent core objective; by 2005, 23 subunits meet this 5-year objective (Figure 6). In 2005, 20 subunits meet the 10-year objective. Further, security core increased an average of 6 percent per subunit in the 17 subunits already at or exceeding 68 percent core in 1995. Eleven of 20 subunits not achieving the 10-year core objective provide at least 50 percent core habitat; three subunits not meeting any objectives provide at least 50 percent core (Figure 11). To date, 18 of the 40 A19 subunits with greater than 75 percent Forest management exceed 68 percent core, ranging from 70 to 100 percent.

Subunits approximate the size of an adult female grizzly bear home range (about 50 square miles on the Forest) and provide the basic scale for analysis of impacts to grizzly bears. The subunits allow assessment of certain existing and proposed activities associated with projects, such as access management, on grizzly bear habitat without having the effects diluted by consideration of too large an area. However, in the

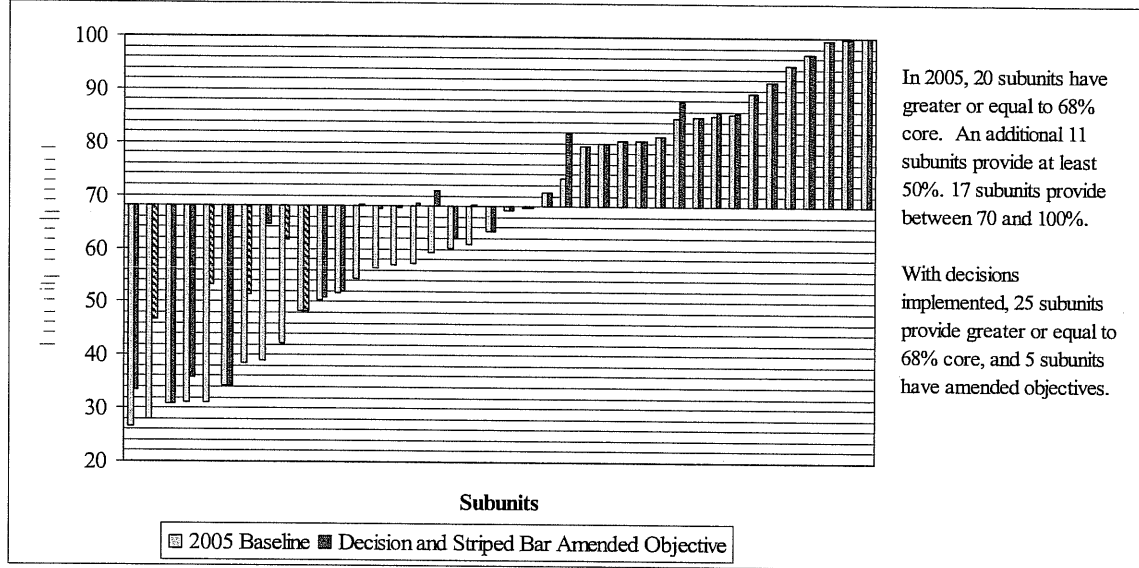
following discussions, the programmatic analysis consists of examining individual subunits, but also groups of subunits to evaluate the collective impact of access management conditions and future conditions on grizzly bears within the entire Forest recovery zone. This analysis allows a spatial context within which to analyze the impacts of access conditions in specific subunits that meet, do not meet, or better A19 objectives, on the population of grizzly bears living on the Forest. Our analysis used multiple scales: within individual subunits, on groups' adjacent subunits affected by on-going project actions, and finally, larger groups of subunits in geographic areas and Forest-wide within the recovery zone (in the "Effects of the Action" sections).

**Figure 10. Comparison of total motorized access density between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits**



Source: U.S. Fish and Wildlife Service 2005. Data from U.S. Forest Service *in litt.* 2005

**Figure 11. Comparison of security core habitat between the 2005 baseline and with decisions implemented in 40 nonwilderness subunits**



Source: U.S. Fish and Wildlife Service 2005. Data from U.S. Forest Service in litt. 2005

There are 923,954 acres of security core in the 54 non-wilderness subunits on the Forest (Figure 12a, Table 10); 745,874 acres in the 40 subunits with majority Forest management. Currently, 66 percent of the total area across the 40 subunits provides core. Across all 70 subunits on the Forest, 70 percent of the total area provides core habitat.

<b>Table 10. Existing grizzly bear security core on the Flathead National Forest (U.S. Forest Service in litt. 2005)</b>		
	<b>Total Acres</b>	<b>Percent</b>
<b>70 subunits (total)</b> includes 13 wilderness subunits and 3 subunits with minor Forest management not affected by A19	1,535,102	70
<b>54 subunits</b> includes 40 nonwilderness with $\geq 75\%$ Forest and 14 with $\leq 75\%$ Forest	923,954	60
<b>40 subunits</b> <u>nonwilderness with <math>\geq 75\%</math> Forest</u>	745,875	66
<b>14 subunits</b> with $\leq 75\%$ Forest management	178,080	44

Recent decisions made on the Forest will result in either objectives being met or attaining amended access management objectives in 12 subunits (U.S. Fish and Wildlife Service 2002a, 2002b, 2004a, 2004b). Access conditions will improve in others.

Summary of Amendment 19 access condition

In 2005, of 40 non-wilderness subunits where national forest ownership is >75 percent:

OMAD: 5-year objective (19 percent) = 21 subunits meet

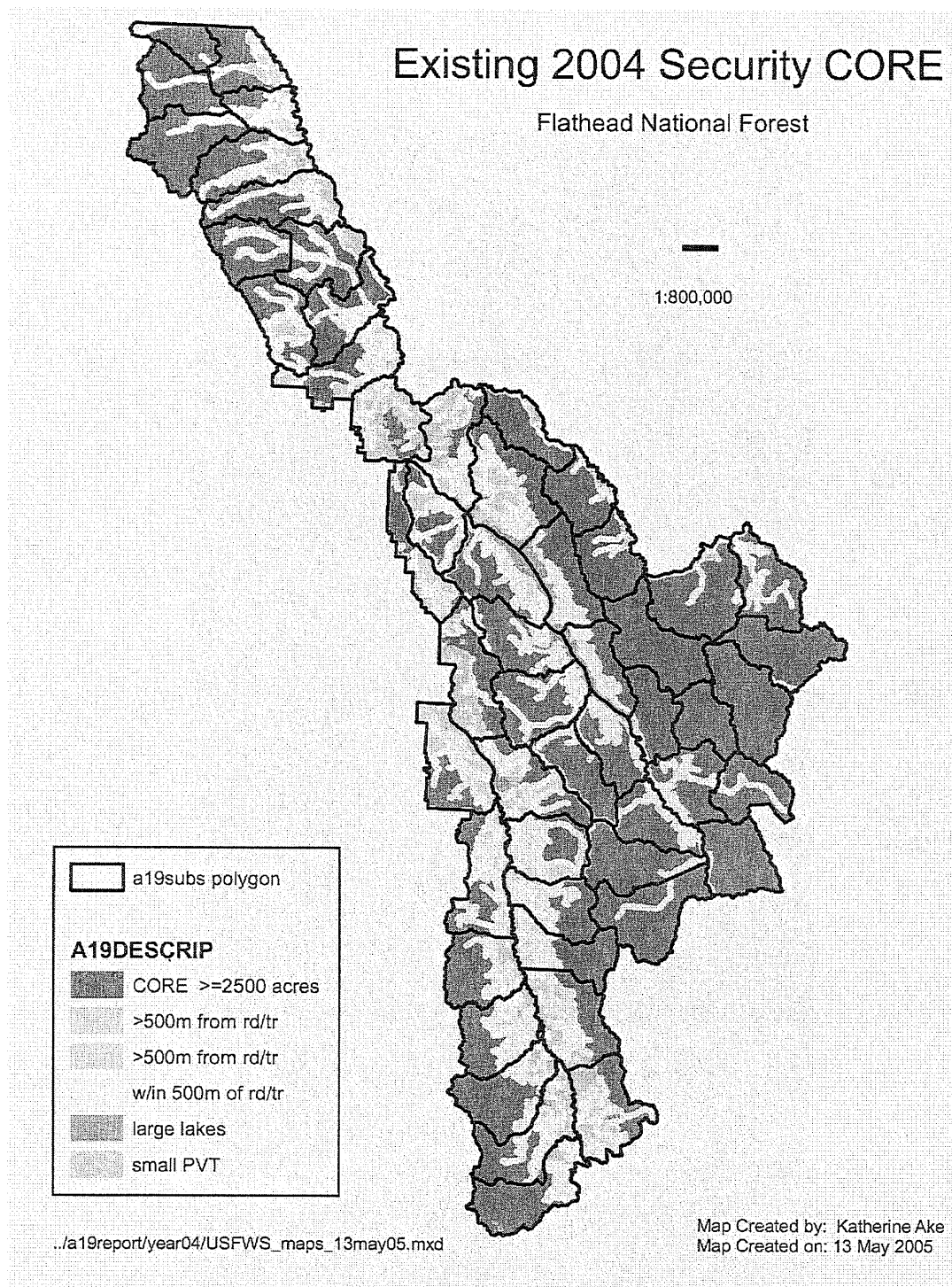
TMAD: 5-year objective (24 percent) = 27 subunits meet; 10-year objective (19 percent) = 23 subunits meet

Core Area: 5-year objective (60 percent) = 23 subunits meet; 10-year objective (68 percent) = 20 subunits meet

OMAD, TMAD, Core Area: 5-year objective = 19 subunits meet; 10-year objective = 18 subunits meet

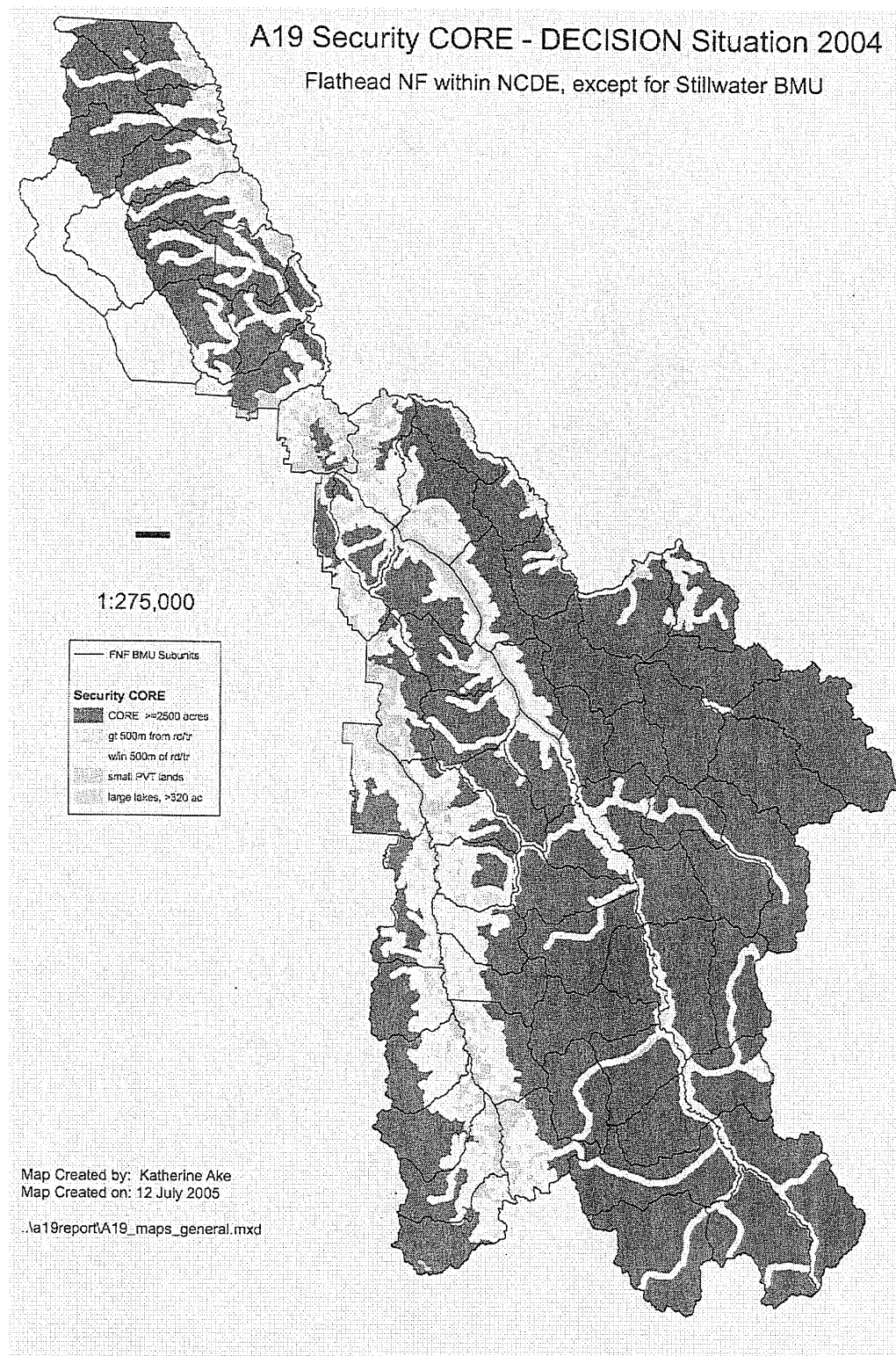
A summary of subunit progress in achieving A19 objectives and the future situation is shown in Tables 19 and 20 at the end of the Environmental Baseline section. It is important to note that, although all A19 objectives are not met in some subunits, many subunits meet the objectives for one or two parameters.

**Figure 12a. Existing security core, 2005, Flathead National Forest NCDE grizzly bear recovery zone 54 nonwilderness subunits**



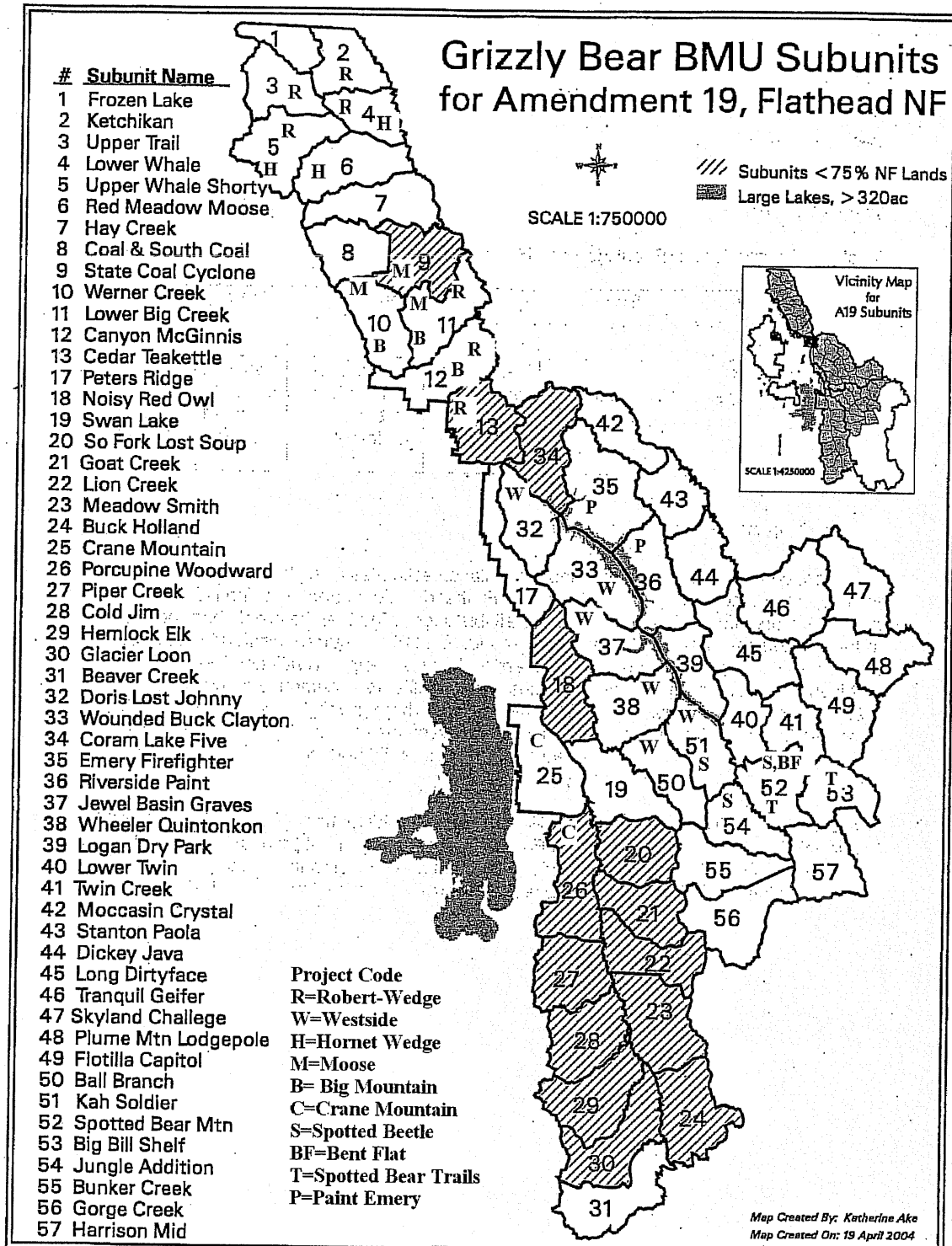
**Source: U.S.D.A. Forest Service. 2005**

**Figure 12b. Security core with decisions implemented, Flathead National Forest NCDE grizzly bear recovery zone**



Source: U.S.D.A. Forest Service. 2005

Figure 13. BMU subunits with the location of projects with decisions



Source: U.S.D.A. Forest Service. 2004. Biological assessment for terrestrial species, Amendment 19 schedule revision modified with location of projects with decisions by U.S. F.W.S. 2005.

## **Access Decisions since 1995 with Schedules for Completion**

Since 1995, Forest management decisions for Spotted Beetle Resource, Moose Post-Fire, Westside Post-Fire, and Robert-Wedge projects authorized actions to progress towards or achieve access objectives in certain subunits. Some decisions amended access objectives in additional subunits. The projects summarized below were analyzed in previous consultations (U.S. Fish and Wildlife Service 2002a,b; 2004a,b).

### ***Spotted Beetle Resource Project (Kah Soldier, Jungle Addition, and Spotted Bear Mountain subunits) (Figure 13, Table 11)***

The Spotted Beetle Resource project (2002) involved the removal of 950 acres of beetle-killed and live lodgepole pine trees in an area bisected by Hungry Horse Reservoir and the South Fork of the Flathead River. While minor post-harvest work continues, tree-harvest and hauling is complete for the project (Henry Rivera, Flathead National Forest, pers. comm., 2005); road restrictions and decommissioning is ongoing. The project decision set a timeline for reaching the decision access changes in three subunits – Kah Soldier, Jungle Addition, and Spotted Bear Mountain (U.S. Forest Service 2001, 2002a; U.S. Fish and Wildlife Service 2002a). The timetable for access changes for the Spotted Beetle Resource project was outlined in an appendix to the Service's 2002 biological opinion and appendix 3 of the Forest's 2004 biological assessment for A19 revised implementation schedule (included in this document as Appendix A). All A19 objectives would be met in Kah Soldier by 2007 and 19 percent OMAD will be attained in 2007. Spotted Bear Mountain and Jungle Addition are to reach compliance with decision objectives by the end of 2005.

Implementation of access work for the Spotted Beetle projects has not been consistent with the proposed road management schedule (U.S. Forest Service 2001, 2002a), primarily due to the change of factors considered in the moving windows analysis and resources diverted during the severe fire season of 2003. However, progress has been made in all three subunits and demonstrates a definite trend toward improved access conditions. Completion of all authorized access changes is expected by 2007 as stated in the Forest's biological assessment (Ibid.).

Access modifications in Kah Soldier and Jungle Addition subunits for the Spotted Beetle Resource project were based on data that did not include all motorized trails. Inclusion of all trails in the moving windows analysis for access in 2002 increased the existing road density numbers and decreased security core baselines in the subunits. Therefore, authorized access changes would not reach A19 objectives as planned. However, this change is minor in some cases and all gates and berms are in place, reducing OMAD (D. Mucklow, U.S. Forest Service, in litt. 2005) as directed in project decisions.

In the Kah Soldier subunit, the 2002 modification resulted in an increase in OMAD of 6 percent, increase in TMAD of 5 percent, and decrease of 8 percent core. Jungle Addition's OMAD increased 5 percent, core decreased 6 percent, and TMAD remained

unchanged. Open motorized access density increased less than 1 percent in Spotted Bear Mountain.

Kah Soldier subunit is also included in access management under the recent Westside Reservoir Post-Fire project decision (discussed below), and A19 objectives would be attained under the latter decision. Appendix A includes a prospective annual restriction and decommissioning schedule for the Westside Reservoir project. The terms and conditions of the Service's incidental take statement call for 12 miles to be decommissioned by 2008 and the balance of 37 miles to be completed by the end of 2010 (U.S. Fish and Wildlife Service 2004a). Restriction devices will be put in place as soon as roads are no longer needed to facilitate harvest and timber transport or other actions authorized by project decisions (Steve Anderson, U.S. Forest Service, pers.comm. 2005).

Jungle Addition subunit is not affected by other outstanding access decisions on the Forest. The inclusion of motorized trails and classification of core habitat size in the Forest's access database significantly altered the baseline condition in Jungle Addition. The decision was expected to result in meeting all A19 objectives. However, due to the changed baseline, the post-project condition will be 28 percent OMAD, 20 percent TMAD, and 62 percent core.

**Table 11. Existing access condition and access decisions to be completed by 2007 for subunits in Spotted Beetle Resource Project (U.S. Forest Service 2004a, 2004b, in litt. 2005)**

Subunit	Open motorized access density (percent)			Total motorized access density (percent)			Security Core (percent)		
	1995	2005	2007	1995	2005	2007	1995	2005	2007
<b>Kah Soldier*</b>	39	21 (-18)	19 (-2) <sup>†</sup>	45	35 (-10)	18 (-17) <sup>†</sup>	43	54 (11)	68 (14) <sup>†</sup>
<b>Jungle Addition*</b>	38	29 (-9)	28 (-10) <sup>†</sup>	31	18 (-13)	20 (2)	53	60 (7)	62 (2) <sup>†</sup>
<b>Spotted Bear Mountain*</b>	20	20	20	32	17 (-15)	18 (1)	49	61 (12)	68 (7) <sup>†</sup>

\*adjusted for motorized trails

() change since 1995

<sup>†</sup>change from 2005 baseline

shaded cells meet access objectives

### ***Moose Post-Fire Project (Werner Creek, Lower Big Creek, State Coal Cyclone subunits) (Figure 13, Table 12)***

Approximately 38,000 acres on the Forest were affected by the 2001 Moose Fire. The Moose Post-Fire project was designed to remove dead and dying trees on approximately 2,266 acres (6 percent) affected by the burn on Forest lands to provide merchantable timber, reduce insect infestation, and reduce fuels adjacent to private properties. Harvest activity is complete, but the full extent of access changes has not been implemented

(Henry Rivera, Flathead National Forest, pers. comm., 2005). The Moose Fire burned in State Coal Cyclone, a subunit with less than 75 percent Forest management, and no access changes were proposed in the subunit.

The Moose Post-Fire project amended A19 objectives for road density in Werner Creek and set the timeframe for reaching objectives or amended objectives in Werner Creek and Lower Big Creek subunits (U.S. Forest Service 2002b, U.S. Fish and Wildlife Service 2002b). The implementation schedule for completion of access changes is included in Appendix 4 of the Forest's biological assessment for the proposed A19 revised implementation schedule (included in this opinion as Appendix A). The projected completion date for access changes is 2009. Table 12 shows that progress was made in both subunits. In Werner Creek subunit, OMAD was reduced by 23 percent since 1995 and currently is within 3 percent the A19 objective. Total motorized access density decreased 26 percent since 1995 and is currently within 3 percent of A19 objective. Also in the Werner subunit, core increased 7 percent (2,000 acres) to 42 percent of the subunit.

Lower Big Creek subunit meets the A19 objective of 19 percent OMAD, decreasing 15 percent since 1995. Total motorized access density decreased by 7 percent. Core increased 5,688 (19 percent).

**Table 12. Existing access condition and access decisions to be completed by 2009 for subunits in the Moose Post-Fire Project (U.S. Forest Service 2004a, 2004b, in litt. 2005)**

Subunit	Open motorized access density			Total motorized access density			Security Core		
	1995	2005	2009	1995	2005	2009	1995	2005	2009
Werner	43	20 (-23)	29 (9) <sup>†</sup>	48	22 (-26)	19 (-3) <sup>†</sup>	35	42 (7)	63** (21) <sup>†</sup>
Lower Big Creek	35	19 (-15)	19	39	32 (-7)	19 (-13) <sup>†</sup>	38	57 (19)	69 (12) <sup>†</sup>

() change since 1995

<sup>†</sup> change from 2005 baseline

\* amended access objectives from other projects

\*\* seasonal closures produce 63 percent effective core in subunit

Shaded cells meet A19 10-year objective; horizontal shaded meet amended objectives

***Westside Reservoir Post-Fire Project (Ball Branch, Jewel Basin Graves, Kah Soldier, Doris Lost Johnny, Wheeler Quintonkon, and Wounded Buck Clayton subunits) (Figure 13, Table 14).***

Collectively termed the Westside Reservoir fires, numerous wildland fires burned a total of approximately 31,000 acres on the Hungry Horse and Spotted Bear Ranger Districts of the Flathead National Forest in 2003. According to the Forest's biological assessment, the Westside Reservoir Post-Fire project includes approximately 3,271 acres (10 percent of burned area) of commercial timber salvage harvest, approximately 761 acres of tree

planting, and transportation management proposals within the fire-affected area. The Record of Decision (ROD), January 2005, for the project indicated a reduction from quantities specified in the biological assessment for the project (U.S. Forest Service 2004i) of total harvest acres and harvest acres in security core of 102 and 782 acres respectively (U.S. Forest Service 2005a). The Flathead Forest Supervisor, in a declaration response to the federal court on June 20, 2005 (Barbouletos 2005) reported a modification of quantities stated in the ROD of total harvest acres in security core during the grizzly bear nondenning season. The declared quantity represented a significant decrease in harvest units from that indicated in the biological assessment, from 1535 acres of core in the assessment to 759 acres in the declaration. (Table 13)

<b>Table 13. Westside Reservoir Post-Fire Project changes in harvest acres (U.S. Forest Service 2004i,l; Barbouletos 2005)</b>			
<b>Westside Reservoir Post Fire Salvage Project</b>	<b>Biological Assessment Numbers 12/23/04</b>	<b>ROD Numbers January 2005</b>	<b>Declaration Numbers 6/20/05</b>
Total Harvest Acres	3,271	3,169	3,133
Total Harvest Acres in Security Core	1,719	937	911
Total Harvest Acres in Security Core (denning season)	184	152	153
Total Harvest Acres in Security Core (non-denning season - Helicopter log only)	1,535	599	759
<b>Total Acres Sold</b>			<b>3,133</b>

Activities for the Westside Reservoir salvage started in 2005. Although dispersed across six subunits on the west side of the Reservoir, salvage will occur on only 10 percent (3,133 acres) of the landscape impacted by 2003 wildfire (31,000 acres) during the next 3 years (U.S. Fish and Wildlife Service 2004a). The quality of the trees deteriorates quickly, and it is likely salvage will occur before the projected 3-year timeframe. Harvest will directly impact 1.8 percent of the acres in the six subunits affected by fire. Less than 1 percent of the available core among the six subunits will be harvested during the nondenning season. Units range in size from 3 to 270 acres. The time it takes to complete a unit will vary with the size of the unit, local conditions, and yarding method. Under the terms and conditions of the Service's incidental take statement for the project, salvage scheduling will consolidate activities to reduce the need for repeated entry and recurrent disturbance (Ibid.). Therefore, road status changes will occur more efficiently and as soon as possible.

The June 20, 2005 declaration states that all timber sales had been sold and totals 3,133 acres. Twenty-four percent (759) of total acres would be harvested in core in the nondenning season in Doris Lost Johnny, Wounded Buck Clayton, Kah Soldier, Ball Branch, and Wheeler Quintonkon subunits.

No salvage activities occurred during the spring period (April 1 and June 14) due restrictions to minimize impacts to grizzly bears for the first year of the project. Salvage began in winter 2005 for the Beta and Blackfoot sales and late spring for the Blackfoot North sale (Barbouletos 2005). Harvest is expected to be complete within 3 years.

The Westside Reservoir Post-Fire project affects six grizzly bear subunits and amends some A19 objectives in four subunits. Full implementation of proposed access changes in the Westside project would fully achieve A19 objectives in Ball Branch, Jewel Basin Graves, and Kah Soldier subunits. Amended objectives would be achieved in the Doris Lost Johnny, Wheeler Quintonkon, and Wounded Buck Clayton subunits. All access changes are scheduled to be accomplished by the end of the year 2010 (U.S. Fish and Wildlife Service 2004a).

Access modifications prior to the Westside Reservoir project had improved access conditions throughout the project area by a decrease of TMAD from 3 to 13 percent within subunits. Open motorized access decreased in three subunits and core increased in five of the six subunits. Slight increases in OMAD and a decrease in security occurred in some areas due to adjusting the 1995 baseline to include motorized trails (Doris Lost Johnny and Wheeler Quintonkon subunits).

Amendment 19 access objectives are not achieved in five of six subunits. Total motorized access density and security core are within A19 objectives in the Ball Branch subunit. Open motorized access density decreased substantially in Ball Branch since 1995.

<b>Table 14. Existing access condition and access decision completed by 2010 for subunits in Westside Reservoir Post-Fire Project (U.S. Forest Service 2004b, in litt 2005; U.S. Fish and Wildlife Service 2004a).</b>									
<b>Subunit</b>	<b>Open motorized access density</b>			<b>Total motorized access density</b>			<b>Security Core</b>		
	<b>1995</b>	<b>2005</b>	<b>2010</b>	<b>1995</b>	<b>2005</b>	<b>2010</b>	<b>1995</b>	<b>2005</b>	<b>2010</b>
<b>Ball Branch</b>	41	12 (-29)	12	21	9 (-12)	3 (-6) <sup>†</sup>	50	73 (23)	82 (11) <sup>†</sup>
<b>Jewel Basin Graves</b>	22	22	19 (-3) <sup>†</sup>	26	23 (-3)	19 (-4) <sup>†</sup>	50	56 (6)	68 (12) <sup>†</sup>
<b>Kah Soldier</b>	39	21 (-18)	19 (-2) <sup>†</sup>	45	35 (-10)	19 (-16) <sup>†</sup>	43	54 (11)	68 (14) <sup>†</sup>
<b>Doris Lost Johnny*</b>	58	60 (2)	57 (-3) <sup>†</sup>	31	22 (-9)	19 (-3) <sup>†</sup>	35	31 (-4)	36 (5) <sup>†</sup>
<b>Wheeler Quintonkon*</b>	27	27	26 (-1) <sup>†</sup>	33	23 (-10)	20 (-3) <sup>†</sup>	49	57 (8)	68 (11) <sup>†</sup>
<b>Wounded Buck Clayton*</b>	38	37 (-1)	27 (-10) <sup>†</sup>	49	37 (-12)	30 (-7) <sup>†</sup>	33	39 (6)	65 (26) <sup>†</sup>

( ) change since 1995

( )<sup>†</sup> change from 2005 baseline

\* amended access objectives

Shaded cells meet A19 10-year objective; horizontal shaded meet amended objective

***Robert-Wedge Post-Fire Project (Ketchikan, Upper Trail, Lower Whale, Upper Whale Shorty, Lower Big Creek, Canyon McGinnis, and Cedar Teakettles subunits)(Figure 13, Table 16)***

Wedge Canyon, Robert, Beta/Doris, Crazy Horse, Ball and Blackfoot Lake Complex Fires occurred during 2003, burning a total of 77,749 Forest acres. The project area includes 34,649 acres on the Forest that were affected by the Robert and Wedge Canyon Fires in the Glacier View Ranger District. Salvage harvest, rehabilitation, and road management are part of the proposed action. According to the Forest's biological assessment, approximately 4,337 acres of trees (about 12 percent of the fire affected acres) would be salvaged (U.S. Forest Service 2004j). An estimated 1,096 acres of conifer seedlings would be planted within salvage units; the miles of road open to seasonal or yearlong wheeled-motorized use would be reduced by about five miles; and about 15 miles of roads would be decommissioned. Timber harvest occurred during the past winter or early spring 2005 for the Dupuy, McGinnis, Hornet and Teepee sales (Barbouletos 2005). No harvest activity is being conducted April 1 through June 30 for the first year of salvage to protect grizzly bears and other wildlife during the early spring period (U.S. Fish and Wildlife Service 2004b). The Service analyzed the impacts of the Robert-Wedge Post-Fire Project and issued a biological opinion in November 2004.

The ROD for the project, dated December 2004, indicated a reduction from quantities specified in the biological assessment for the project of total harvest acres and harvest acres in security core of approximately 1,200 and 400 acres, respectively (U.S. Forest Service 2004f). The Flathead Forest Supervisor, in a declaration response to the federal court on June 20, 2005, (Barbouletos 2005) stated further modification of quantities stated in the ROD of total harvest acres, acres in security core, and acres in security core during the grizzly bear nondenning season (Table 15.). All harvest units have been sold.

During the nondenning season, logging in core habitat will occur on 43 acres in Canyon McGinnis, Upper Trail, and Lower Whale subunits and represent 1.5 percent of the total project salvage area. Canyon McGinnis is a subunit affected by the Robert Fire, and the 10 acres of core habitat to be salvaged in this subunit during the nondenning season is 0.03 percent of the available core (30,607 acres) in the Robert Fire subunits. The 33 salvage acres in core during the nondenning season in the Wedge Fire subunits is 0.04 percent of the available core (80,203 acres).

The Robert-Wedge Post-Fire project affects seven subunits and amends some A19 objectives in two subunits (Table 16). Ketchikan, Upper Trail, and Upper Whale Shorty meet all A19 objectives. Implementation of proposed access changes would fully achieve A19 objectives in Lower Big Creek. Amended and A19 objectives would be achieved in Lower Whale and Canyon McGinnis subunits. All access changes are scheduled to be accomplished by the end of 2010 (U.S. Fish and Wildlife Service 2004a). However, as salvage is complete in an area, an appropriate road restriction would be implemented (Steve Anderson, U.S. Forest Service, pers. comm. 2005).

<b>Table 15. Robert-Wedge Post-Fire Project changes in harvest acres (U.S. Forest Service 2004f,k; Barbouletos 2005)</b>			
<b>Robert and Wedge Post Fire Salvage Project</b>	<b>Biological Assessment Numbers 11/22/04</b>	<b>ROD Numbers December 2004</b>	<b>Declaration Numbers 6/20/05</b>
Total Harvest Acres	4,337	3,022	2,888
Total Harvest Acres in Security Core	672	290	174
Total Harvest Acres in Security Core (denning season)	341	145	131
Total Harvest Acres in Security Core (non-denning season - Helicopter log only)	331	122	43
<b>Total Acres Sold</b>	<b>2,888</b>		

<b>Table 16. Existing access condition and access decision to be completed by 2011 for subunits in Robert-Wedge Post-Fire Project (U.S. Forest Service 2004b, in litt. 2005; U.S. Fish and Wildlife Service 2004b)</b>									
<b>Subunit</b>	<b>Open motorized access density</b>			<b>Total motorized access density</b>			<b>Security Core</b>		
	<b>1995</b>	<b>2005</b>	<b>2010</b>	<b>1995</b>	<b>2005</b>	<b>2010</b>	<b>1995</b>	<b>2005</b>	<b>2010</b>
<b>Ketchikan</b>	19	19	19	4	3 (-1)	3	65	68 (3)	68
<b>Upper Trail</b>	18	17 (-1)	14 (-3)	5	5	5	84	85 (1)	88 (3) <sup>†</sup>
<b>Lower Whale*</b>	60	43 (-17)	37 (-6) <sup>†</sup>	44	25 (-19)	16 (-9) <sup>†</sup>	7	28 (21)	47 (19) <sup>†</sup>
<b>Upper Whale Shorty</b>	17	12 (-5)	12	13	10 (-3)	10	80	85 (5)	86 (1) <sup>†</sup>
<b>Lower Big Creek</b>	35	19 (-16)	19	39	32 (-7)	19 (-13) <sup>†</sup>	38	57 (19)	68 (11) <sup>†</sup>
<b>Canyon McGinnis*</b>	34	22 (-12)	18 (-4) <sup>†</sup>	44	42 (-2)	33 (-9) <sup>†</sup>	31	31	53 (22) <sup>†</sup>
<b>Cedar Teakettle**</b>	31	26 (-5)	26	30	23 (-7)	23	22	21 (-1)	20 (-1) <sup>†</sup>

( ) change since 1995

( )<sup>†</sup> change from 2005 baseline

\*amended access objectives

\*\* less than 75 percent Forest management

Shaded cells meet A19 10-year objective; horizontal shaded meet amended objective

Since 1995, improvements have been made in the three subunits currently not at A19 objectives. Core increased 21 and 19 percent in Lower Whale and Lower Big Creek. Open motorized route density decreased between 12 and 17 percent and TMAD between

2 and 19 percent in Lower Whale, Lower Big Creek, and Canyon McGinnis. Remaining access commitments for Hornet Wedge project in Upper Whale Shorty and Lower Whale subunits were incorporated into the planned schedule for the Robert-Wedge project (Table 4).

Cedar Teakettle subunit contains less than 75 percent Forest Service managed lands and OMAD and TMAD improved in this subunit since 1995.

Between six affected subunits, salvage units range in size from 1 to 268 acres and are estimated to take 4 to 21 days of activity within each subunit. Salvage activity would be concentrated in a seventh subunit, Lower Whale. Sixty-six percent of Lower Whale was burned (12,564 acres), the majority of the salvage units are in this subunit. The Forest's biological assessment indicated 212 days to complete salvage in the subunit.

During project activities, OMAD and TMAD would increase in some subunits as restricted roads are open for salvage activity and some temporary roads are constructed. Upon completion of road management activities OMAD and TMAD would return to pre-project levels or improve.

#### **Access Decisions since 1995 without Timetables for Completion**

There are seven projects with decisions since 1995 that included access changes as part of the project design: Big Mountain Ski Area expansion (1995), Hornet Wedge timber sale (1996), Crane Mountain Salvage (1996), Bent Flat II timber harvest (1994), Wounded Buck Quarry (1999), Paint Emery Resource project (1999), and the Spotted Bear River Trailheads relocation (2003). Section 7 consultation on each of these projects has been completed. Instituting restrictions and decommissioning roads intended to reduce access densities and increase core area, however, actions would not necessarily result in A19 objectives being met in the affected subunits. Unlike the Moose Post-Fire and the other projects mentioned previously in this document, timetables for completion of road access changes were not specified. In accordance with A19, changes were expected to contribute to meeting the 5 and 10-year A19 objectives by 2000 and 2005, respectively.

#### ***Big Mountain Ski Area expansion (Werner Creek, Big Creek, and Canyon McGinnis subunits) (Figure 13, Table 17)***

The Big Mountain Ski Area expansion involved expansion of existing facilities at the recreation area. The restaurant was expanded; a new ski lift, additional snowmobile and ski runs and mountain bike trails were proposed. Summer activities and facilities were extended to include paragliding. Progress has been made towards achieving project objectives, however, the construction of a new chair lift and associated ski runs have not started (Amy Jacobs, U.S. Forest Service, and pers.comm. 2005). At the time of the 1995 consultation, the Service determined that the proposed ski area expansion would not significantly increase the negative effects of the existing access densities on grizzly bears (U.S. Fish and Wildlife Service 1995c) based in part on proposed access changes, including decreases in road density and increases of security core, would occur by

decommissioning 34 miles and restricting 7 miles of road in the Werner Creek, Big Creek, and Canyon McGinnis subunits.

As of the 2004 monitoring report, road decommissioning and restriction had occurred as part of the Big Mountain Ski area expansion and the Moose Post-Fire project. Seventeen miles of road decommissioning and 7.9 miles of road berming remain incomplete. Approximately 6 of the 17 miles would be conducted under the Moose Post-Fire decision.

Access changes in Werner Creek and Lower Big Creek subunits will be completed under the Moose Post-Fire project by reaching 19 percent OMAD and TMAD, and 68 percent core by 2009 in Lower Big Creek. Amended standards would be achieved in Werner Creek, achieving 29 percent OMAD, 19 percent TMAD, and 63 percent core by the end of 2005. The core area objective was amended from 68 to 63 percent in Werner Creek subunit to allow limited summer access for people. A road is opened in late summer to allow people into an historic huckleberry picking area. A seasonal closure of this road protects riparian areas in the spring and protects grizzly bears during the spring and fall hunting seasons. Outstanding road decommissioning in the Canyon McGinnis subunit does not have a timetable and would require additional field inventory and acquisition of funding for completion (Steve Anderson, Flathead National Forest, pers. comm., 2005).

***Hornet-Wedge Project (Upper Whale Shorty, Lower Whale, and Red Meadow Moose subunits) (Figure 13, Table 17)***

Six million board feet of timber was harvested during the Hornet-Wedge Salvage. The project decision called for reclamation of 23 miles and restriction of 18 miles of road. Projected access changes would occur in Upper Whale Shorty and Lower Whale subunits. Road status changes were intended to improve habitat conditions for grizzly bears within the affected subunits but not intended to achieve fully A19 objectives. Road densities and security core in Upper Whale Shorty subunit have met A19 objectives since 1995. No net access changes were indicated in the project description for Red Meadow Moose subunit, however, OMAD and TMAD decreased in the subunit since the completion of the project's harvest activity.

In Lower Whale subunit, conditions for grizzly bears have improved, however project work for TMAD and security core are not yet complete. Road restrictions and decommissioning occurred in the subunit, and approximately 2 miles of road remains to be decommissioned. Lower Whale subunit is small, making achievement of A19 objectives difficult. Substantive improvements will occur, but A19 OMAD and core objectives will not be reached with implementation. Outstanding access changes for the Hornet-Wedge project will be completed according to the Robert-Wedge decision.

***Crane Mountain Project (Crane Mountain and Porcupine Woodward subunits)  
(Figure 7, Table 17)***

The Crane Mountain Salvage project involved timber harvest of 1,023 acres and prescribed fire on 932 acres in the Crane Mountain and Porcupine Woodward subunits. Harvest is complete; access changes remain to be implemented. Crane Mountain and Porcupine Woodward are situated on the western edge of the Forest, bordered by private lands on the west including the seasonal and year-round communities on the east side of Flathead Lake. The Crane Mountain subunit is popular for recreation and receives a high level of human use. Fifty-nine percent of the Porcupine Woodward subunit is private property. The Crane Mountain decision called for decreased road densities and increased core, however, A19 objectives would not be met by the proposed access changes.

The project included 108 miles of road decommissioning and 62 miles road restriction. A balance of 72 miles of decommissioning and 7 miles of road restriction remain to complete access assignments for this project (Table 4). No other Forest project requiring access changes is ongoing or proposed for the two subunits.

Crane Mountain subunit access condition is adverse to grizzly bears at 32 percent OMAD, 59 percent TMAD, and 25 percent core. Project access management to date has improved the condition in the subunit by a reduction of 21 percent of OMAD and 19 percent of TMAD, and an increase of core of 25 percent.

Porcupine Woodward is included in the Swan Valley Grizzly Bear Conservation Agreement. Access and timber harvest management in the subunit is directed by the Swan Valley Conservation Agreement and was analyzed in the Service's 1995 biological opinion. Human activity is reduced by limiting OMAD among all ownerships in the subunit, reducing human disturbance to grizzly bears in spring habitat, and providing three to six-year periods free from commercial activity. No major activity has occurred in Porcupine Woodward since 2002.

***Bent Flat II Project (Spotted Bear Mountain subunit) (Figure 13, Table 17)***

Bent Flat II project involved the harvest of 422 acres in the Spotted Bear Mountain subunit. Access changes authorized by the project decision have been completed as part of the Spotted Beetle Resource project by October 2005 (Steve Anderson and Rob Carlin, U.S. Forest Service, pers. comm. 2005) (Table 4). Amendment 19 objectives were reached for TMAD. Open motorized access density is 19.6 percent resulting from restricting of open road implemented in 2004 for the Spotted Bear River Trailheads project.

<b>Table 17. Access condition of subunits in projects without timetable for access management changes (U.S. Forest Service 2004b et al., in litt. 2005)</b>										
<b>Project</b>	<b>Subunit</b>	<b>Open Motorized Access Density</b>			<b>Total Motorized Access Density</b>			<b>Security Core</b>		
		<b>1995</b>	<b>2005</b>	<b>2009<sup>‡</sup></b>	<b>1995</b>	<b>2005</b>	<b>2009<sup>‡</sup></b>	<b>1995</b>	<b>2005</b>	<b>2009<sup>‡</sup></b>
<b>Big Mountain</b>	<b>Werner Creek</b>	43	20	29	48	22	19	35	42	63**
	<b>Lower Big Creek</b>	35	19	19	39	32	19	38	57	68
	<b>Canyon McGinnis</b>	34	22	18	44	42	33	31	31	53
<b>Hornet Wedge</b>	<b>Upper Whale Shorty</b>	17	12	12	13	10	10	80	85	86
	<b>Red Meadow Moose</b>	36	25	36	25	20	25	47	52	52
	<b>Lower Whale</b>	60	43	37	44	25	16	7	28	47
<b>Crane Mountain</b>	<b>Crane Mountain</b>	53	32	25 <sup>†</sup>	78	59	27 <sup>†</sup>	0	27	33 <sup>†</sup>
	<b>Porcupine Woodward*</b>	47	46	46	59	51	43	20	30	34
<b>Bent Flat</b>	<b>Spotted Bear Mtn.</b>	20	20	20	32	17	18	49	61	68
<b>Wounded Buck Quarry</b>	<b>Wounded Buck Clayton</b>	38	37	27	49	37	30	33	39	65
<b>Paint Emery Resource</b>	<b>Riverside Paint</b>	23	24	18	39	34	15	58	59	71
	<b>Emery Firefighter</b>	32	20	20	42	30	19	38	38	51
<b>Spotted Bear River Trailhead</b>	<b>Spotted Bear Mtn.</b>	20	20	20	32	17	18	49	61	68
	<b>Big Bill Shelf</b>	12	11	11	6	2	2	78	79	79

\*less than 75 percent Forest Service

Shaded cells will meet A19 objective through another decision

Horizontal shaded will meet amended objectives through another decision

\*\* Seasonal changes reduce effective core from 68 percent

<sup>‡</sup> 2010 or 2011 if Westside or Robert-Wedge amendment

<sup>†</sup> If this project is fully implemented

***Wounded Buck Quarry Project (Wounded Buck Clayton subunit) (Figure 13, Table 17)***

Approximately one-tenth mile of road would be decommissioned for this project in the Wounded Buck Clayton subunit. No access changes authorized by the project decision have been implemented. Access conditions within the subunit are not within A19 objectives and access changes for this project would not substantially change the condition. Access objectives were amended in the subunit under the Westside Reservoir decision, and the Westside project activities will achieve those amended objectives.

***Paint Emery Resource Project (Emery Firefighter and Riverside Paint subunits) (Figure 13, Table 17)***

The Paint Emery Resource project, proposed in 1999, would alter management of roads directly east of Hungry Horse Reservoir. Approximately 121 miles of road were to be decommissioned and 13 miles restricted either seasonally or year-long in Emery Firefighter and Riverside Paint subunits. Extensive road decommissioning would result in OMAD, TMAD, and core reaching A19 objectives in Riverside Paint subunit. Authorized access changes in Emery Firefighter would not meet the 10-year A19 objectives, but OMAD and security core would be significantly improved. The project goal of 20 percent OMAD has been achieved. Total motorized access density in Emery Firefighter would reach 19 percent. As of 2004, 59 miles of road had been decommissioned out of the expected 121 miles, and 72 miles of road decommissioning remains to be accomplished. Thirteen miles of road were restricted by gate in accordance with the project decision (Table 4).

***Spotted Bear River Trailheads Project (Spotted Bear Mountain and Big Bill Shelf subunits) (Figure 13, Table 17)***

The Spotted Bear River Trailheads project is underway in the Spotted Bear Ranger District. Numerous activities are complete, in progress, or pending to improve recreation and visitor access in the Big Bill Shelf and Spotted Bear Mountain subunits. The A19 objective for TMAD is met in Spotted Mountain subunit. Restriction of 1.3 miles of road occurred in the subunit in 2004 to reduce OMAD. The authorized changes for Spotted Bear Mountain subunit were intended for compliance with 19 percent OMAD. However, subsequent variations in the technical process for moving window road density analysis and the repositioning of a gate by 0.25 miles for increased security, resulted in an OMAD of 19.6 (rounded to 20 percent). The improvement shown in Table 4 will be in addition to the A19 objectives met by the Spotted Beetle Resource project. Big Bill Shelf subunit is in compliance with A19 objectives. Core in the Big Bill Shelf subunit would be temporarily reduced from 78 to 73 percent during project activities, but the remaining 3 miles of road decommissioning will increase security the subunit.

## Swan Valley Grizzly Bear Conservation Agreement

The Swan Valley Grizzly Bear Conservation Agreement (Agreement) (Appendix B) is a cooperative agreement between the Service, Flathead National Forest, Montana State Department of Natural Resources and Conservation (DNRC), and Plum Creek Timber Company (PCTC). The intent of the Agreement is to enhance habitat effectiveness and connectivity in the valley bottom while reducing human-caused disturbance and mortality risk (U.S. Fish and Wildlife Service 1993, 1995b and U.S. Fish and Wildlife Service et al. 1997 (Appendix B)). The agreement provides timber management, recreation management, and grizzly bear management practices integrated in a manner that is ecologically and economically sound in a mixed public-private ownership environment in the Swan Valley (Valley). Access is coordinated in subunits with multiple ownerships, OMAD is limited within subunits, 3 to 5-year periods with no commercial activity occur on a subunit rotation schedule, and commercial activity is limited in spring habitat in the agreement area.

The Swan River Valley, flanked by the Swan Mountains to the east and the Mission Mountains on the west, is the movement corridor between the Swan and Mission Mountains. The Recovery Plan states that the recovery of the NCDE grizzly bear population can not be achieved without occupancy of the Mission Mountains by grizzly bears (U.S. Fish and Wildlife Service 1993). To support occupancy of the Mission Mountains, linkage zones were identified and considered necessary to maintain a movement corridor for grizzly bears in the agreement area (Appendix B). Motorized activities are limited on the cooperators' lands in the linkage zones during the spring period – April 1 to June 15. Limiting activity permits greater security for grizzly bears using areas less than 5,200 feet in altitude and riparian areas important for early season forage and movement across the Valley.

Forest management direction for protection of grizzly bears and habitat apply to only 60 percent of the Valley. Access direction and food and attractant storage included in Forest management does not apply to lands of other ownership – 20 percent Plum Creek Timber, 10 percent State of Montana lands, and 10 percent other private land (land percentages are approximate). Application of terms of the Agreement in addition to the Forest's management practices are important for protecting grizzly bear habitat in the Valley because of the significant amount of land area in nonfederal ownership.

Eleven BMU subunits comprise 369,450 acres in the Agreement area, approximately 222,000 acres managed by the Forest Service. Ten of the 11 subunits in the Swan Lake Ranger District affected by the agreement are less than 75 percent Forest lands – Porcupine Woodard, Piper Creek, Cold Jim, Hemlock Elk, Glacier Loon, South Fork Lost Soup, Goat Creek, Lion Creek, Meadow Smith, and Buck Holland (Figure 7). The subunits are subject to A19's objectives of no net gain of access density and no net loss of core on Forest lands. Since 1995, the affected subunits experienced no increase in access densities or decrease in core due to Forest Service action and in general maintained the 1995 baseline access condition. The Forest Service manages over 75 percent of the Beaver Creek subunit. Open road density is low (6 percent) and has

remained low since 1995. Since 1995, motorized trail reclassification increased TMAD and decreased core in the Beaver Creek subunit; however, the changes did not correspond with actual motorized access increased in the subunit, but were due to inclusion of all motorized trails into OMAD (U.S Forest Service 2004f).

The 1995 and 2004 access conditions for the subunits in the Agreement area are noted in the Forest's 2004 A19 monitoring report included as Appendix C of this opinion.

Terms of the Agreement do not alter the application of A19 objectives and objectives in subunits with less than 75 percent Forest management, but in fact, further minimize impacts of motorized access than A19 alone. The Agreement further restricts OMAD during the nondenning period or restricted period – April 1 to November 15. Section 3 (a)(i) of the Agreement states that the parties to the agreement will cooperatively manage open roads within subunits covered by the agreement to reduce OMAD to 33 percent or less. Thirty-three percent OMAD would be achieved within 5 years of the 1997 Agreement. The Forest's most recent access report indicates (U.S. Forest Service 2004b) that nine subunits are less than 33 percent OMAD. South Fork Soup and Porcupine Woodward are 61 and 46 percent OMAD, respectively. A voluntary long-term goal is 21 percent OMAD in all subunits. Eight of 11 subunits within the Agreement area have met or are within 4 percent of the 21 percent goal.

Minimizing human impacts to grizzly bear habitat is particularly important in the Swan Valley area. In order to ensure secure habitat for grizzly bears in a relatively highly roaded environment, commercial activity is limited to four of the eleven subunits during the nondenning season. An active subunit is then inactive for at least 3 years, with a possibility of 5 years or more (Refer to Appendix B).

From 1995 through 2004, the Forest made substantive progress in providing more desirable habitat conditions for grizzly bears in the Swan Valley. In addition to access management under the Agreement, the land acquisition program with Land and Water Conservation Funds has led to the Forest's acquisition of 7,188 acres of private lands (U.S. Forest Service 2005b, U.S. Forest Service in litt. 2005, Appendix B). The emphasis in the valley has been to block up habitat in support of the objectives in the Agreement. A long-range plan for this area involves the public acquisition of an after of 1500 acres over the next 5 years.

Monitoring information indicates that up to 33 individual grizzly bears occurred in the Swan Valley since 2000 (U.S. Fish and Wildlife Service et al. 2005). Data compiled from individuals collared with radio and global positioning satellite transmitters indicate use of the valley bottom by grizzly bears to move between the Swan and Mission Mountains (Ibid.). Mortality rates are not known for grizzly bears that include the Swan Valley in their range (Chris Servheen, U.S. Fish and Wildlife Service, pers. comm. 2005). Some grizzly bears may well become accustomed to the presence of humans and make use of roaded habitat. Monitoring information shows that grizzly bears in the roaded areas of the valley tend to be nocturnal, potentially limiting the risk of human-caused mortality. Conversely, it is possible that the Swan Valley is a mortality sink for grizzly

bears habitually using roaded habitat and subject to frequent exposure to human-related attractants. It is important to note that data are preliminary, sample size is small, and the Swan monitoring protocol was not designed as a road response study. The goal of the Agreement was to ensure movement of grizzly bears between the Mission and Swan Mountain ranges. Such movement has been documented (U.S. Fish and Wildlife Service 2004c, U.S. Fish and Wildlife Service et al. 2005).

### **Amendment 19 Implementation Direction/Administrative Use**

Amendment 19 included implementation direction to clarify administrative use, timing restriction, closure devices, definitions for road classification, and calculation methods for open and total motorized access density (U.S. Forest Service 1995b).

Administrative use refers to activity conducted by Forest contractors, permittees and agency employees. Authorization of administrative use on restricted roads does not extend to the general public. According to A19, motorized administrative use could occur on restricted road or trail in the nondenning period if it does not exceed low intensity as defined by either (1) existing cumulative effects analysis models (CEM) or (2) minor activities not exceeding 30 days duration. The CEM defines low intensity motorized use as an average of 1 to 6 vehicles per week (U.S. Forest Service et al. 1990, U.S. Forest Service 1995b). Only low intensity or sporadic nonmotorized use of less than 20 parties per week could occur during the nondenning season (U.S. Forest Service et al. 1990, U.S. Forest Service 1995b, IGBC 1998).

To reduce OMAD, roads are restricted during the grizzly bear nondenning or active season – April 1 through November 30 (U.S. Forest Service 2004a). Restriction requires a legal restriction order and physical obstruction. Devices to prevent entry or unauthorized use include signs, gates, earthen berms, large boulders, tank traps or ditches, and dense vegetation. Amendment 19 stated that the denning period for grizzly bears on the Forest is generally between November 15 and March 15. Data acquired and/or analysis since 1995 indicate that the period from December 1 through March 31 more adequately reflect the denning behavior of grizzly bears in the area (U.S. Forest Service in litt. 2005). Changing the administrative dates for denning in the manner described below would be consistent with the best scientific and commercial information, which became available after the signing of A19 in 1995. The Forest proposes to change the administrative dates for non-denning season from *March 16-November 15* to *April 1-November 30* to reflect the denning chronology of grizzly bears on the Forest. This revised chronology is compatible with the work of Mace and Waller (1997) and is also compatible with the recommendations of the Interagency NCDE Access Technical Group (unpubl. rept. 1998), which concluded that “grizzly bear access management will apply during the non-denning period, and include April 1, through November 30 of each year.” Additional rationale was provided by Lewis Young, unpublished memo, April 11, 2003, which is found as Appendix E. 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 Service agrees with this change and the supporting rationale as based on the best available information.

Reclaimed, also called obliterated or decommissioned, road is treated in a manner as to no longer function as a road. Barriers and revegetation of roadways are minimum treatments. The purpose of reclamation is usually a reduction of TMAD and increase of core. The intent of reclamation is that motorized administrative or public use does not occur on reclaimed roads or roads under treatment for reclamation.

The Forest's District Rangers enforce administrative use limits on all year-round gated or otherwise restricted roads and during the seasonally restricted period for grizzly bears. Some gated roads have a history of vandalism or noncompliance. Inspection and evaluation of the effectiveness of road restrictions and barrier devices is reported in the annual A19 monitoring report (U.S. Forest Service 2005b). Data has been collected and reported since 1993 with the exception of no data in 2001 and incomplete reports in 1999 and 2000. Sampling effort vary from year to year. For years with data reports, from 3 to 14 percent of the barrier devices were found to be ineffective in preventing unauthorized use. Signs used in place of a device were consistently ineffective in restricting or prohibiting entry (Griffin 2004, U.S. Forest Service 2004b).

#### ***Subunits without decisions authorizing access changes***

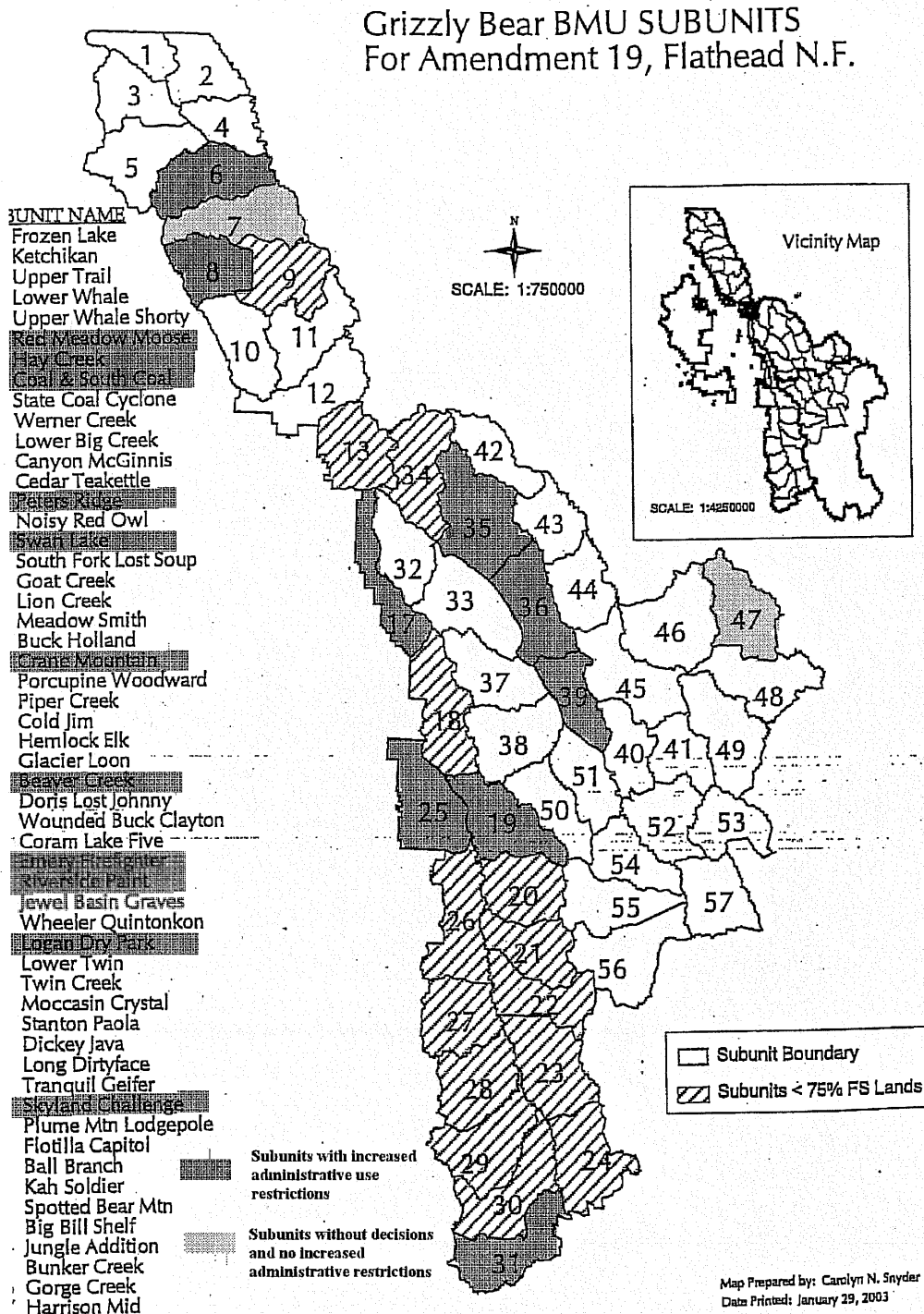
Twenty of the 40 subunits with greater than 75 percent Forest do not have decisions authorizing access changes; of these 20 subunits, 13 meet A19 objectives. These 13 subunits include or border wilderness and provide approximately 374,000 acres of core habitat. Four of the 13 subunits are included in ongoing project areas and have minor improvement or no access changes authorized. The seven subunits that do not meet full A19 objectives, do not have decisions authorizing access improvements within the subunit, and are not part of a decision authorizing access changes are Hay Creek, Coal and South Coal, Peters Ridge, Swan Lake, Beaver Creek, Logan Dry Park, and Skyland Challenge (Figure 14). Although not all access objectives are achieved in these subunits, some objectives are met (Table 18). Five of these seven subunits would have increased restrictions on administrative use. The impacts to grizzly bears of the existing access conditions and expected condition through 2009 in these subunits will be included in the sections titled "The Effects of the Revised Implementation Schedule on grizzly bears within the Forest recovery zone" and "Subunits with Increased Administrative Use Restrictions, and Subunits Without Decisions and No Increased Administrative Use Restrictions".

#### ***Subunits included in decisions authorizing access changes and subject to increased administrative use***

Administrative use restrictions would be applied in four subunits that are either part of a decision authorizing access changes but not in the subunit, or in subunits with decisions for access changes but would not likely reach full A19 objectives before 2010: Red Meadow Moose is part of the Hornet Wedge decision, Emery Firefighter and Riverside Paint under the Paint Emery decision, and Crane Mountain under the Crane Mountain

decision (Table 18). Therefore, the impacts to grizzly bears of the existing access conditions and expected condition through 2009 in these subunits will be included in the sections titled “The Effects of the Revised Implementation Schedule on Grizzly Bears within the Forest Recovery Zone” and “Subunits with Increased Administrative Use Restrictions, and Subunits Without Decisions and No Increased Administrative Use Restrictions”, and the relevant project title.

**Figure 14. Subunits with increased administrative use restrictions and subunits with no decisions and no increased administrative use**



Source: U.S.D.A. Forest Service. 2003.

**Table 18. Change in access condition 1995 through 2009 for subunits that will receive additional administrative use restrictions, and subunits without decisions and have no additional administrative use restrictions (U.S. Forest Service in litt. 2005, 2005b)**

Subunit	Open motorized access density			Total motorized access density			Security Core		
	1995	2005	2009	1995	2005	2009	1995	2005	2009
<b>Red Meadow Moose<sup>A</sup></b>	36	25 (-11)	25	25	17 (-8)	17	47	52 (5)	52
<b>Emery Firefighter<sup>A</sup></b>	32	20 (-12)	20	42	30 (-12)	19 (-23)	38	38	51 (13)
<b>Riverside Paint<sup>A</sup></b>	23	24	18 (-5)	39	34 (-5)	15 (-24)	58	59 (1)	71 (13)
<b>Crane Mountain<sup>A</sup></b>	51	32 (-19)	25 (-26)	74	59 (-15)	27 (-47)	0	27 (27)	33 (33)
<b>Beaver Creek<sup>A</sup></b>	6	6	6	24	26 (2)	26	67	67	67
<b>Swan Lake<sup>A</sup></b>	56	54 (-2)	54	33	30 (-3)	30	29	31 (2)	31
<b>Peters Ridge<sup>A</sup></b>	46	53 (7)	53	22	25 (3)	25	30	34 (4)	34
<b>Logan Dry Park<sup>A</sup></b>	33	30 (-3)	30	40	36 (-5)	35 (-1)	50	50	51 (1)
<b>Coal and South Coal<sup>A</sup></b>	23	15 (-8)	15	37	26 (-11)	26	59	71 (12)	71
<b>Skyland Challenge</b>	15	20 (5)	20	18	16 (-2)	16	58	63	63
<b>Hay Creek</b>	33	34	35	21	16 (-5)	16	41	48 (7)	48

( ) Change from 1995

<sup>A</sup> Increased restrictions on administrative use

Shaded cells meet A19 objective

Tables 19 and 20 compare current access conditions to future conditions, once existing project decisions have been implemented. The tables illustrate that although not all A19 objectives or amended objectives are met in several subunits, one or two of the three objectives are met in many instances. Post project implementation, only two of the 40 subunits will not meet any of the three A19 or amended access parameter objectives. All other subunits will meet one, two, or all three of the objectives.

**Table 19. Summary of Amendment 19 subunits baseline access condition (U.S. Forest Service in litt. 2005) (Shaded cells meet A19 objective)**

#	Subunit	Open Motorized Access Density	Total Motorized Access Density		Security Core	
			5-yr (≤24 %)	10-yr (≤19%)	5-yr (≥60%)	10-yr (≥68%)
1	Frozen Lake					
2	Ketchikan					
3	Upper Trail					
4	Lower Whale					
5	Upper Whale Shorty					
6	Red Meadow Moose					
7	Hay Creek					
8	Coal and South Coal					
10	Werner Creek					
11	Lower Big Creek					
12	Canyon McGinnis					
17	Peters Ridge					
19	Swan Lake					
25	Crane Mountain					
31	Beaver Creek					
32	Doris Lost Johnny					
33	Wounded Buck Clayton					
35	Emery Firefighter					
36	Riverside Paint					
37	Jewel Basin Graves					
38	Wheeler Quintonkon					
39	Logan Dry Park					
40	Lower Twin					
41	Twin Creek					
42	Moccasin Crystal					
43	Stanton Paola					
44	Dickey Java					
45	Long Dirtyface					
46	Tranquil Geifer					
47	Skyland Challenge					
48	Plume Mountain Lodgepole					
49	Flotilla Capitol					
50	Ball Branch					
51	Kah Soldier					
52	Spotted Bear Mountain					
53	Big Bill Shelf					
54	Jungle Addition					
55	Bunker Creek					
56	Gorge Creek					
57	Harrison Mid					

**Table 20. Summary of Amendment 19 subunits with access decisions implemented (U.S. Forest Service in litt. 2005) (Shaded meet A19, Horizontal shaded meet amended objective)**

#	Subunit	Open Motorized Access Density	Total Motorized Access Density		Security Core	
			5-yr (≤24 %)	10-yr (≤19%)	5-yr (≥60%)	10-yr (≥68%)
1	Frozen Lake					
2	Ketchikan					
3	Upper Trail					
4	Lower Whale					
5	Upper Whale Shorty					
6	Red Meadow Moose					
7	Hay Creek					
8	Coal and South Coal					
10	Werner Creek					
11	Lower Big Creek					
12	Canyon McGinnis					
17	Peters Ridge					
19	Swan Lake					
25	Crane Mountain					
31	Beaver Creek					
32	Doris Lost Johnny					
33	Wounded Buck Clayton					
35	Emery Firefighter*					
36	Riverside Paint					
37	Jewel Basin Graves					
38	Wheeler Quintonkon					
39	Logan Dry Park					
40	Lower Twin					
41	Twin Creek					
42	Moccasin Crystal					
43	Stanton Paola					
44	Dickey Java					
45	Long Dirtyface					
46	Tranquil Geifer					
47	Skyland Challenge					
48	Plume Mountain Lodgepole					
49	Flotilla Capitol					
50	Ball Branch					
51	Kah Soldier					
52	Spotted Bear Mountain					
53	Big Bill Shelf					
54	Jungle Addition					
55	Bunker Creek					
56	Gorge Creek					
57	Harrison Mid					

## EFFECTS OF THE ACTION

Under section 7 (a)(2) of the Act, “effects of the action” refers to the direct and indirect effects of an action on the species or critical habitat including the effects of other interrelated or interdependent actions. The effects of the action are added to the environmental baseline to determine the future baseline, and form the basis for the determination in this opinion. Should the effect of the action result in a jeopardy situation, the Service may propose reasonable and prudent alternatives that the federal agency can take to avoid violation of section 7 (a)(2). The impacts discussed below are the result of direct and indirect impacts of the proposed Forest Service actions. Indirect effects are those caused by the proposed timeframe and are later in time, but still are reasonably certain to occur (50 CFR 402.02)

### General Effects of Roads on Grizzly Bears

***Habituation and mortality*** Mortality is the most serious consequence of roads in grizzly bear habitat. Mortalities result directly from collisions with vehicles and indirectly through illegal shooting or habituation to human presence. Continued exposure to human presence, activity, noise and other elements without negative consequence can result in habituation, which is essentially the loss of a grizzly bear’s natural wariness of humans. High forest road densities and associated increases in human access into grizzly bear habitat can lead to the habituation of grizzly bears to humans. Habituation in turn increases the potential for conflicts between people and grizzly bears. Habituated grizzly bears often obtain human food or garbage and become involved in nuisance bear incidences, or threaten human life or property. Such grizzly bears generally experience high mortality rates as they are eventually destroyed or removed from the population through management actions. Habituated grizzly bears are also more vulnerable to illegal killing because of their increased exposure to people. In the Yellowstone region, humans killed habituated grizzly bears over three times as often as non-habituated grizzly bear (Mattson et al. 1992a).

The specific relationship between roads and the mortality risk to grizzly bear is difficult to quantify. The level of human use of roads is one of several factors influencing the mortality risk associated with any road. Research supports the premise that forest roads facilitate human access into grizzly bear habitat, which directly or indirectly increases the risk of mortality to grizzly bear. Grizzly bears were increasingly vulnerable to illegal and legal harvest as a consequence of increased road access by humans in Montana (Mace et al. 1987) and in the Yellowstone region (Mattson et al. 1992a). In southeastern British Columbia, McLellan and Shackleton (1988) reported roads increased access for legal hunters and poachers, the major source of grizzly bear mortality. McLellan (1989b) reported that 7 of 13 successful legal hunters interviewed had been on a road when they harvested their grizzly bear. McLellan and Mace (1985) found that a disproportionate number of mortalities occurred near roads. In the Yellowstone ecosystem, Mattson and Knight (1991) reported that areas influenced by secondary roads and major developments were most lethal to grizzly bears. Aune and Kasworm (1989) reported 63 percent of known, human-caused grizzly bear deaths on the east front of the Rocky Mountains occurred within 1 kilometer (0.6 mile) of roads, including 10 of 11 known female grizzly bear deaths. In Montana, Dood et al. (1986) reported that 48 percent of all known, non-

hunting mortalities during the period of 1967 through 1986 occurred within 1 mile of roads. Grizzly bears were also killed by vehicle collision, the most direct form of road-related mortality (Greer 1985, Knight et al. 1981, Palmisciano 1986). In the NCDE, 79 percent of human-caused grizzly bear mortalities occurring between 2000 and 2004 were on roaded rural areas defined as private or public land within 1 mile of private lands usually with a developed site (U.S. Fish and Wildlife Service 2004c).

Subadult grizzly bears are more often vulnerable to habituation and illegal killing or they conflict with people and are removed through management action. Subadult grizzly bears frequently traverse long distances or unknown territory, increasing the likelihood of encountering roads, human residences or other developments where human food or other attractants are available, increasing the potential for habituation and conflicts with people. Between 1980 and 2004, subadults comprised 24 percent of known mortalities involving subadults and adult grizzly bears (U.S. Fish and Wildlife Service, in litt., 2005). Subadults comprised 71 percent of the human-caused subadult and adult grizzly bear mortality in 2004 in the NCDE (U.S. Fish and Wildlife Service 2004c). The deaths of five cubs resulted from human action in the ecosystem in 2004 as well. In the Yellowstone ecosystem, roads impacted individual age and sex classes of grizzly bears differently. Subadults and females with young were most often located near roads, perhaps displaced into roaded, marginal habitat by dominant grizzly bears (Mattson et al. 1987, Mattson et al. 1992a).

***Displacement and security*** Some grizzly bears, particularly subadults, readily habituate to humans and consequently suffer increased mortality risk. However, many grizzly bears under-use or avoid otherwise preferred habitats that are frequented by people. Such under-use of preferred habitat represents modification of normal grizzly bear behavior. Negative association with roads arises from the grizzly bear's fear of vehicles, vehicle noise and other human-related noise around roads, human scent along roads and hunting and shooting along or from roads. Grizzly bears that experience negative consequences learn to avoid the disturbance and annoyance generated by roads. Such animals may not change this resultant avoidance behavior for long periods after road closures and lack of negative reinforcement. Even occasional human-related vehicle noise can result in annoying grizzly bears to the extent that they continue to avoid roads.

All factors contributing to direct links between roads and displacement from habitat have not been quantified. As with mortality risk, the level of road-use by people is likely an important factor in assessing the potential displacement caused by any road. Contemporary research, however, indicates that grizzly bears consistently were displaced from roads and habitat surrounding roads, often despite relatively low levels of human use (Mattson et al. 1987, McLellan and Shackleton 1988, Aune and Kasworm 1989, Kasworm and Manley 1990, Mace and Manley 1993, Mace et al. 1996).

In Montana, Aune and Stivers (1982) reported that grizzly bears avoided roads and adjacent corridors even when the area contained preferred habitat for breeding, feeding, shelter and reproduction. McLellan and Shackleton (1988) found that grizzly bears used areas near roads less than expected in southeastern British Columbia and estimated that 8.7 percent of the total area was rendered incompatible for grizzly bear use because of roads. In Montana, Mace and Manley (1993) reported use of habitat by all sex and age

classes of grizzly bears was less than expected in habitats where total road densities exceeded 2 miles per square mile. Twenty-two percent of the South Fork Study area exceeded 2 miles per square mile. Adult grizzly bears used habitats less than expected when open motorized access density exceeded 1 mile per square mile. Further, female grizzly bears in the South Fork Study area tended to use habitat more than 0.5 mile from roads or trails greater than expected. As traffic levels on roads increased, grizzly bear use of adjacent habitat decreases (Mace et al. 1996). In Yellowstone, Mattson et al. (1992a) reported wary grizzly bears avoided areas within 2 kilometers (1.2 miles) of major roads and 4 kilometers (2.4 miles) of major developments or town sites.

Currently, data is being collected on grizzly bears using the Swan Valley, between the Swan and Mission Mountains (U.S. Fish and Wildlife Service et al. 2005). The valley bottom is highly roaded and predominantly corporate or privately owned. Some grizzly bears apparently make use of highly roaded habitat in the valley. Preliminary monitoring information shows that grizzly bears using the roaded area of the valley tend to be nocturnal, potentially limiting the risk of encounters with people, lowering the risk of human-caused grizzly bear mortality. Conversely, it is possible that the valley is a population sink (area of high grizzly bear mortality) for those bears habitually using roaded habitat and/or subject to attractants on private lands. Mortality rates are not known for grizzly bears that use the Swan Valley as home range (Chris Servheen, U.S. Fish and Wildlife Service, pers. comm. 2005). Further, the data collected so far is preliminary, the sample size is small, and the monitoring protocol itself was not designed to measure the response of grizzly bears to roads.

Research suggests that there is value in road closures aimed at minimizing traffic on roads within important seasonal habitat, especially in low elevation habitats during the spring (Zager 1980, Mattson et al. 1987, Ake et al. 1998, Mace et al. 1999). When roads are located in important habitats such as riparian zones, snowchutes and shrub fields, habitat loss through avoidance behavior can be significant. Mace et al. (1996) found that most of the roads within grizzly bear seasonal ranges were either closed to vehicles or used infrequently by humans. Some grizzly bears avoided areas with a high total road density even when the roads were closed to public travel. If human related disturbances such as road use or timber harvest continue in preferred habitats for extended periods of time, grizzly bear use of the area may be lost for a period of time after disturbance has ended, particularly use by female grizzly bears. In the Swan Mountain study (Mace et al. 1996), female grizzly bear home range selection of unroaded cover types was greatest and as road densities increased, selection declined. Zager (1980) reported the avoidance of roads by females with cubs. Aune and Kasworm (1989) and McLellan (1989a) found that female cubs generally established their home range within or overlapping with their mother's home range, whereas males generally dispersed from their mother's home range. Long-term displacement of a female from a portion of her home range may result in the long-term under-use of that area by female grizzly bears because cubs have limited potential to learn to use the areas. In this way, learned avoidance behavior could persist for several generations of grizzly bears before grizzly bears again utilize habitat associated with closed roads. Thus, displacement from preferred habitats may significantly modify normal grizzly bear behavior patterns. To be effective, seasonal closures must be annually consistent. If roaded habitat is undisturbed year after year, grizzly bears would most likely learn to use high quality habitat in the area.

Biological Opinion

Flathead National Forest Amendment 19 revised implementation schedule

Low elevation riparian habitats are of significant seasonal importance to grizzly bears in the YGBE. Grizzly bears typically use the lowest elevations possible for foraging during spring. Craighead et al. (1982) described the value of low elevation habitats to grizzly bears. Montana Fish, Wildlife and Parks concluded that the maximum numbers of grizzly bears can be maintained only if the species continues to have the opportunity to use both the temperate and subalpine climatic zones (Dood et al. 1986).

Research identified the following individual home-range selection patterns in local grizzly bear population segments: (1) some individual animals live almost exclusively (except for denning) in low elevation habitats; (2) other individuals maintain home ranges in more mountainous or remote locations; and (3) some individuals migrate elevationally on a seasonal basis (Servheen 1981, Aune and Stivers 1982).

Specific causes or factors involved in the selection or preferences for certain home ranges by grizzly bears are not well understood. Mace and Manley (1993) found that grizzly bear home ranges in the South Fork Study area included remote areas in high elevations. South Fork Study grizzly bear habitat-use data, road density analyses of the South Fork Study area, previous studies and Cumulative Effects Model (CEM) analysis (U.S. Forest Service et al. 1990; Mace et al. 1999), suggested that low elevation habitats were not freely available to grizzly bears because of high road densities and associated human use in these areas. High road densities in low elevation habitats may result in avoidance of or displacement from important spring seasonal habitat for some grizzly bears or high mortality risk for those individuals that venture into and attempt to exploit resources contained in these low elevation areas.

**Core areas** The Service considers significant declines in expected use of habitat by grizzly bears a serious consequence of high road densities. Significant declines in grizzly bear use of MS1 habitat (habitat areas key to the survival of the grizzly where seasonal or year-long activity, under natural, free-ranging conditions is common), especially those habitat components with high seasonal values, indicate that habitat needed for survival and recovery is less available. Ideal grizzly bear habitat provides some areas isolated from excessive levels of human impact. Because grizzly bears can conflict with humans and their land uses, grizzly bear populations require a level of safety from direct human-caused mortality, disturbance, and competitive use of habitat such as settlement, roading, recreation, excessive logging, mining, and livestock grazing.

Analysis in the South Fork Study area (Mace and Manley 1993, Mace et al. 1996) indicated the importance of unroaded habitat, especially for females with cubs. Mace and Manley (1993) reported adult females used habitat further than 0.5 mile from roads or trails more than expected; 21 percent of the composite home range had no trails or roads and 46 percent was unroaded (greater than 0.5 mile from a road). Substantive blocks of unroaded habitat were components of all adult female home ranges. Of the adult female locations within unroaded polygons, 83 percent occurred within seven polygons that exceeded 2,260 acres in size (U.S. Forest Service 1994a). Based on grizzly bear habitat use data from the Yellowstone ecosystem, Mattson (1993) recommended that micro-scale security areas in the region be an absolute minimum of 6 kilometers (3.6 miles) in

diameter or 28 square kilometres (10 square miles) and should be secure for a minimum period of 5 or preferably 10 years.

The IGBC Taskforce (IGBC 1994, 1998) recognized the importance of secure areas to grizzly bears. The Taskforce defined “core areas” as those areas with no motorized access (during the non-denning period) or heavily used foot/livestock trails, providing some level of secure habitat for grizzly bears. Motorized use, such as snowmobiling or that associated with timber harvest, could occur within core areas during the denning (winter) period. The Taskforce recommended the establishment of core areas in all subunits, the size of core area should depend on ecosystem-specific habitat conditions and a core area remaining intact on the landscape for at least 10 years. In the South Fork Study area of the NCDE recovery zone, approximately 68 percent of the adult female composite home range was core area (U.S. Forest Service in litt. 1994, K. Ake, U.S. Forest Service, pers. comm. 2005).

### **General Effects of Attractants and Habituation on Grizzly Bears**

Grizzly bears’ avoidance of roads and human activities and selection for less human impacted areas has been documented. However, not all grizzly bears avoid areas of human activity or development (Mattson et al. 1987, McLellan and Shackleton 1988, Aune and Kasworm 1989, Kasworm and Manley 1990, Mace and Manley 1993, Mace et al. 1996). Continued exposure to human presence and activity without negative consequence can result in habituation, which is a loss of a grizzly bear’s natural wariness of humans. Habituated grizzly bears often obtain human food or garbage and become involved in nuisance bear incidences or threaten human life or property, resulting in management removal from the population.

Human-caused mortality of grizzly bears results from management action, train and auto collision, trapping during research or management action, defense of human life and property, and illegal killing. Grizzly bear-human conflicts resulting in management removal of grizzly bears habituated to human foods or livestock is a leading cause of grizzly bear mortality in the NCDE (U.S Fish and Wildlife Service 2004c). The number of management removals is exceeded only by legal hunting that was discontinued in 1991.

The Service is concerned with the significant number of grizzly bear mortalities resulting from habituation and conditioning to human-related foods. An increasing trend is observed in human-caused grizzly bear mortality in the NCDE. The 31 known human-caused grizzly bear mortalities in 2004 was a 29-year high. From 1999 to 2004, the number of grizzly bears removed for conflicts related to human food and livestock depredation increased from 6 to 13 (U.S. Fish and Wildlife Service 2004c), 35 percent and 42 percent of the total mortalities for the respective year. Grizzly bears face management action on public lands and other land ownerships. Consistently, mortalities from human-related causes occurred on private lands in the NCDE greater than any other land ownership (Mace and Waller 1998, U.S. Fish and Wildlife Service 2004c) (Figure 3). Grizzly bears using the interface of rural roaded and multiple-use lands in the Swan Mountains suffered a significantly higher rate of human-caused mortality than individuals using only the multiple-use lands on the Forest (Mace and Waller 1998).

Permanent or seasonal human residences and livestock facilities with improperly stored garbage, livestock or pet foods can lure grizzly bears to private property and are particular sources of grizzly bear food conditioning. Food conditioned grizzly bears enter unsecured garbage receptacles, sheds and other buildings in search of a reward. In the NCDE in 2004, 10 mortalities were associated with buildings and garbage; three mortalities involved buildings and grain (U.S. Fish and Wildlife Service 2004c). Accessibility to human related attractants and conditioning to those rewards can lead to management removal and to mortality of grizzly bears by people defending their life and property.

Mace and Waller (1998) studied grizzly bear movements in three types of access situations in the Swan Mountains in Montana: multi-use Forest Service lands, unroaded wilderness with no permanent human dwellings, and roaded rural areas adjacent to multiple-use zones and composed of private lands with roads and developed for permanent homes, farms, or service facilities. Grizzly bears spent varying amounts of time in the three zones. Grizzly bears in rural roaded and wilderness areas faced 21 and 15 times increased risk of human-caused mortality than those bears using multiple-use lands only. The researchers recommended that where concentrated human uses occur on public lands and human foods and attractants are present on private lands, efforts to minimize grizzly bear exposure to these elements is important to increasing grizzly bear numbers and improve long-term population trend. Also, the authors suggested more public road closures would be of limited mitigative value for decreasing grizzly bear mortality.

The proximity of grizzly bear habitat to areas of human settlement likely affects the risks to grizzly bears. The annual grizzly bear mortality in the Flathead South Fork Study area during the 6-year period of 1988 through 1994 appeared relatively high when compared to other studies (Mace and Manley 1993). During a 9-year period of research in southeastern British Columbia, McLellan (1989b) reported fewer human-caused grizzly bear mortalities (11) than occurred during 6 years of research in the South Fork Study area (13) (excluding legal hunter and research-related mortalities). Although the British Columbia study area was roaded for gas exploration, timber harvest and other uses, the area had few permanent human residents and generally received lower use by humans than did the South Fork Study area in Montana. In the British Columbia study area, high survivorship rates of adult and subadult females indicated an upward trend in the grizzly bear population. In the South Fork Study area, relatively low adult and subadult female survivorship rates resulted in a stable to “exceedingly” slow decline in the grizzly bear population. Adult female grizzly bear mortality was the most important factor in determining trend, and most known grizzly bear mortalities were determined to be human-caused.

Grizzly bears face direct mortality risks on public land relatively infrequently in the NCDE. Management action due to human food habituation does occur. However, on Forest Service administered lands, grizzly bear mortalities more often resulted from mistaken identity during legal hunting season, illegal or malicious killing, or automobile collision (U.S. Fish and Wildlife Service 2004c). Glacier National Park receives an average of 1.7 million visitors a year with concentrated use in developed areas and

dispersed in the backcountry (National Park Service 2005). Between 1980 and 2002, only 10 grizzly bear mortalities were attributed to management action due to human-related foods in Glacier Park (U.S. Fish and Wildlife Service, in litt. 2003). In comparison, in 2004 alone, 13 grizzly bears were removed from private lands within the NCDE because of habituation.

Ake et al. (1998) summarized human-caused grizzly bear mortality locations for the period 1984 to 1996. An estimate of the amount of time grizzly bears spent in rural, roaded, and backcountry area (Mace and Waller 1998) was then compared with mortality locations. Although grizzly bears spent less than 5 percent of time in rural settings, 56 percent of human-caused grizzly bear mortality occurred in rural roaded areas. Grizzly bear mortality data collected since 1998 support the premise of increased risk to grizzly bears in rural roaded areas. In the NCDE, mortalities associated with roaded rural (private) areas exceeded the sum of mortalities from Forest Service roaded areas and areas away from roads. Distribution data from 2003 and 2004 show a pattern of management removals at the interface of public and private lands in the NCDE (U.S. Fish and Wildlife Service 2004c).

Grizzly bears habituated and conditioned to human foods in the GYE also ranged closer to human developments and suffered higher mortalities than their more wary counterparts (Mattson et al. 1992a). Gunther et al. (2004a) reviewed grizzly bear-human conflicts in the GYE between 1992 and 2000. The second highest source of human-caused grizzly bear mortality included livestock depredation and anthropogenic foods. Defence of human life and property resulted in the highest level of mortalities. Although no distinct geographic concentrations of mortalities were evident, most management removals occurred outside of the Yellowstone recovery zone and on private land. In 2003, 85 percent of human-grizzly bear conflicts involved human foods or livestock; 71 percent of conflicts were concentrated in three areas of mixed ownership to the east of Yellowstone National Park (Gunther et al. 2004b). Two of 12 known human-caused grizzly bear mortalities reported in the GYE in 2003 resulted from site conflicts involving anthropogenic food; both removals occurred on private property (Haroldson and Frey 2004).

Yellowstone National Park received close to 3 million visitors, approximately 670,000 automobile campground use nights, and 43,000 backcountry campers from 2000 through 2003 (Gunther 2004). One-hundred and four known grizzly bear mortalities occurred in the GYE, 15 in Yellowstone National Park, during that 4-year period (Haroldson 2000, 2001, 2002, 2003). Habituation and food conditioning was not identified as a source of human-caused grizzly bear mortality. Vehicle collisions, wolf predation, natural processes and unknown (2 individuals) were causes of grizzly bear deaths in the Park. Grizzly bear mortalities occurred more frequently on national forest lands and private lands surrounding Yellowstone National Park than within the park boundary. Conflicts with hunters were a major source of grizzly bear death on national forest lands. Nuisance removals for property damage, livestock depredation, and food conditioning were primary reasons for mortality on private property.

Incidence of property damage or conflicts associated with human related foods is inversely proportional to the availability of high quality grizzly bear resources; during

Biological Opinion

Flathead National Forest Amendment 19 revised implementation schedule

periods of poor natural food production incidences of human-grizzly bear conflicts increase. When poor seasonal bear foods exist in part or through the entire nondenning season in the GYE, the incidences of bears causing property damage and obtaining anthropogenic foods increased four fold over average or good years (Gunther et al. 2004a). The conflict relationship is magnified when the availability of late season natural foods such as whitebark pine seeds is insufficient to meet the high energy requirements during hyperphagia (Mattson et al. 1992a).

Numerous studies in the NCDE elucidate the importance of late-season frugivory, especially globe huckleberries (*Vaccinium globulare*), by grizzly bears (Martinka and Kendall 1986, Weaver et al. 1990). Berry failure due to drought or destruction of plants by fire would force grizzly bears to range more widely than in normal periods of seasonal availability (Blanchard and Knight 1991). Therefore, grizzly bears face an increased risk of encounters with humans and ultimately human-caused mortality during the autumn season. Grizzly bears in some areas that avoided trails with human activity during part of the year changed this avoidance behavior when a favored berry resource came into season (Donelon 2004). Although grizzly bears still had a low tolerance for trails with high human activity, the tendency to approach areas of human activity when nutritional and energy needs are high could put individuals at an increased risk of conflict.

In the NCDE during 1998 and 2004, significant huckleberry crop failures precipitated the increase in conflicts with grizzly bears (MFWP 2005). During a normal year, a fraction of the grizzly bear population would use natural food sources at low elevations during huckleberry season. In 2004, with the lack of huckleberries at higher elevations, many more grizzly bears used low elevation habitats in search for late summer and fall foods (MFWP 2005; R. Mace, MFWP, pers. comm. 2005). The search for food at low elevations puts bears into close proximity to private lands and associated attractants. The number of conflicts and grizzly bear management removals from private and public lands rose dramatically above average. During 2003 and 2004, MFWP Region 1 (encompassing the action area) received over 50 and 225 calls reporting conflicts with grizzly bears, respectively (MFWP 2005). Ninety-five percent were confirmed grizzly bear conflicts and of these, about 95 percent were from private landowners living in or adjacent to grizzly bear habitat. Conflicts involved grizzly bears seeking unnatural foods in yards or actually causing property damage by trying to access foods in vehicles and buildings. Thirty-one grizzly bears were captured in 2004; 40 percent in the summer and 40 percent in the fall, compared to 20 percent captured in the spring. Eighty-eight percent of the captures were on private property, the rest on public lands. In comparison, only 13 grizzlies were captured in 2003, all on private property.

## **Direct and Indirect Effects of the Revised Implementation Schedule**

### Organization of the Effects Analysis

As stated earlier, 12 projects underwent section 7 consultation and are included in the baseline for this revised implementation schedule consultation. Our assumptions used in these previous consultations included the premise that changes authorized by project decisions would be implemented according to project-specific schedules, and that projects with no schedules for access improvements would be implemented with the 5-

and 10-year A19 timeframes. Further, we assumed that all subunits on the Forest would have met either the A19 10-year objectives by the end of 2005, or met amended objectives within timeframes proposed in the project. In several instances, our assumptions were not met. Thus, as part of this effects analysis, we reviewed our analyses of previous projects to determine the extent to which the effects of these projects on grizzly bears would change in light of these assumptions not being met. Therefore the following effects analysis accounts for the effects of both future actions in the revised schedule and ongoing project actions in light of the changes proposed in the revised implementation schedule.

A main focus of this analysis is the impacts of access conditions on grizzly bears in those subunits without decisions to improve access, and subunits with decisions but without schedules and, due to financial constraints, not likely to be implemented prior to the end of 2009. If Forest Plan revision is completed prior to the end of 2009, consultation may be necessary for modifications to A19 and/or the proposed schedule. The Forest is scheduled to release its Draft Plan for a 90-day public comment by February 2006, and scheduled completion of the Final Plan by the end of 2006 (Rob Carlin, Flathead National Forest, pers. comm. 2005). A revised Forest Plan would guide access management on the Forest for as long as the new plan is in effect. If the plan has not been revised by the end of 2009, consultation would occur if A19 objectives have not been fully achieved.

The following effects analysis is organized into several sections:

## I. Direct and Indirect Effects Specific to the Revised Implementation Schedule

*A. Projects with Decisions:* 11 projects with previous section 7 consultation are ongoing, and one project very recently completed (Bent Flat II), on the Forest. The action area for the projects overlap in some locations and are widely spread throughout the Forest. In order to summarize the impacts of these projects, four geographic areas of the Forest were highlighted. The areas were devised by considering Forest boundaries, contiguous or overlapping project activities, areas of human development, and the location and the juxtaposition of private and public land ownership.

*B. Subunits with increased administrative use restrictions and subunits without decisions:* This section describes the impacts of the proposed revised implementation schedule on a subunit basis for the subunits of the Forest without decisions to improve access conditions.

## II. The Effects of the Revised Implementation Schedule on Grizzly Bears within the Forest Recovery Zone.

In this section, the collective impacts of access conditions across multiple subunit areas are discussed. The starting point (the east side of Hungry Horse Reservoir) is a point from which to provide an organized look at conditions on a larger landscape scale including those subunits that meet A19 objectives or amended objectives, and those that do not meet objectives and have or do not have

decisions for access improvements. The focus begins on the east side of the reservoir and moves south to the Swan Valley and then north and west to include the west side of the Reservoir. The focus then moves to the North Fork area in the northern portion of the Forest.

### III. Summary of the Effects of the Action

This section summarizes the effects of proposed revised schedule based on three conditions that may cause harm to grizzly bears: displacement away from roads, habitat loss and fragmentation, and habituation.

### IV. Discussion on Grizzly Bear Population and Mortality

The status of the grizzly bear distribution, population and recent mortality in the NCDE are discussed in general.

### V. Effects of the Revised Implementation Schedule on Grizzly Bears in the NCDE Recovery Zone.

The impacts of the proposed revised implementation schedule are examined at the NCDE scale.

### **Projects with Decisions**

The projects examined in this section have undergone section 7 consultation. The analysis of the effects of these projects, including amended objectives and standards for access management, were addressed in previous biological opinions and are herein incorporated by reference. In this consultation, we considered these previous consultations using the current baseline in order to evaluate any change in the effects of the projects, given the revised schedule for A19.

Each of these projects was analyzed on a site-specific basis between 1994 and 2004 to assess impacts to grizzly bears – examining the access condition, availability of food and shelter resources, and existing and project-induced negative impacts to grizzly bears within individual subunits. The Service then examined the impact of each project's activities on grizzly bears in the action areas (often multiple subunits) and then on the impact of the project on the NCDE recovery zone population as a whole. Successive projects' analyses incorporated the impacts of preceding projects status of the population into the baseline condition for the activity under consultation in order to assess impacts on grizzly bears in the action area and the recovery zone. For each of these consultations, A19 and its requirements formed the environmental baseline as far as access was concerned.

We examined four geographic areas of the Forest's 2 million acres of recovery zone to facilitate the analysis of the proposed extension of A19 implementation to 2009 (Figure 15). Within these four geographic areas, 8 projects with decisions authorizing access changes would be implemented in total or in part between 2005 and 2009. Additionally,

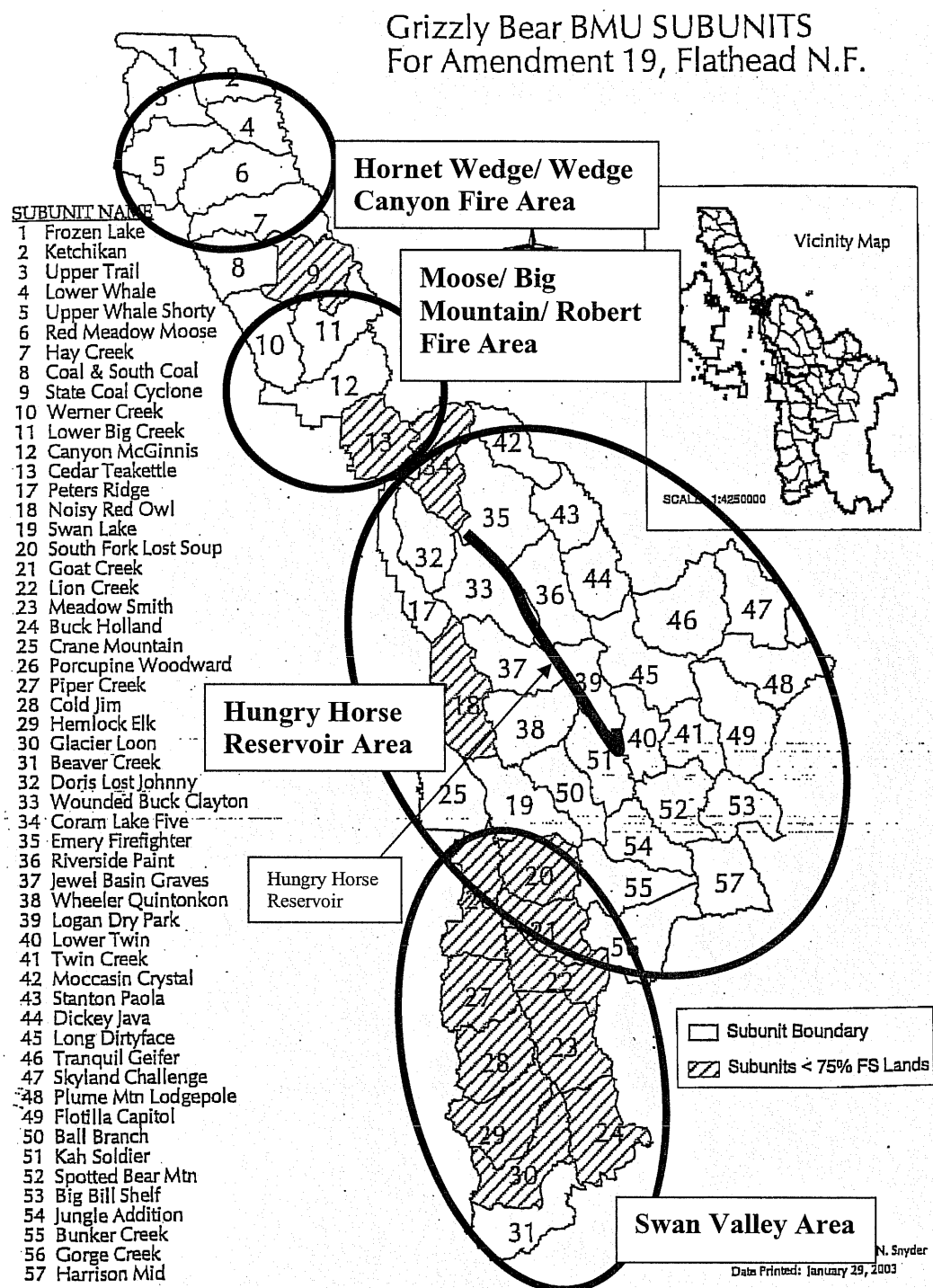
2 projects, Westside Reservoir and Robert-Wedge Post-Fire project activities included access changes and would continue until 2010 and 2011, respectively.

Projects with decisions occur in the following geographic areas of the Forest:

- 1) The Hungry Horse Reservoir area includes 13 subunits in which activities occurred or will occur for the Bent Flat II, Crane Mountain Salvage, Paint Emery Resource, Spotted Beetle Resource, Spotted Bear River Trails, and Westside Post-Fire projects (U.S. Fish and Wildlife Service 1994, 1996, in litt. 1999, 2002a, 2003, 2004a).
  - 2) The Lower North Fork Area includes four subunits in which activities occurred or will occur for the Moose Post-Fire, Big Mountain Ski Area Expansion, and the Robert Fire part of the Robert-Wedge Post-Fire (U.S. Fish and Wildlife Service 2002b, 1995c, 2004b).
  - 3) The Upper North Fork Area includes five subunits in which activities occurred or will occur for the Hornet Wedge and Wedge Canyon Fire portion of the Robert-Wedge Post-Fire projects (Upper North Fork) (U.S. Fish and Wildlife Service in litt. 1996; 2004b)
  - 4) The Swan Valley Grizzly Bear Conservation Agreement area is composed of 11 subunits in the southern portion of the action area (Swan Valley) (U.S. Fish and Wildlife Service 1995d and U.S. Fish and Wildlife Service et al. 1997 [Appendix B]).
- 1) Hungry Horse Reservoir Area: Westside Reservoir Post-Fire, Spotted Beetle Resource, Bent Flat II, Spotted Bear River Trails, Paint Emery Resource, and Crane Mountain Resource projects.(Figures 13 and 15).**

Six projects have either ongoing activities or no current activity, but remain incomplete, in 13 subunits surrounding Hungry Horse Reservoir in the southern half of the action area. The Forest proposes to implement access management associated with projects with signed decision documents authorizing the issuance of road access changes: Spotted Beetle Resource, Bent Flat II, Spotted Bear River Trails, and Westside Reservoir Post-Fire, Paint Emery Resource, and Crane Mountain Salvage projects.

**Figure 15. Subunits with projects with decisions by region, Flathead National Forest**



K. Ake. 19 April 2004 base map modified by U.S. Fish and Wildlife Service to include for revised A19 implementation schedule. 2005.

***Spotted Beetle Resource/Bent Flat II/ Spotted Bear River Trails Project: Jungle Addition, Kah Soldier, Spotted Bear Mountain and Big Bill Shelf subunits (Table 21).***

Table 21 displays information on three projects in varying stages of implementation in four subunits to the south and southeast of Hungry Horse Reservoir. Project activities impact one or multiple subunits, and the effects are summarized collectively.

<b>Table 21. Spotted Beetle, Bent Flat, and Spotted Bear River Trails projects subunit access comparison between baseline and with projects implemented (U.S. Forest Service in litt. 2005)</b>					
<b>Subunit</b>	<b>*Kah Soldier</b>	<b>Jungle Addition</b>	<b>Spotted Bear Mountain</b>	<b>Big Bill Shelf</b>	<b>Total Subunit Acres</b>
<b>A19 Total Acres</b>	24,928	24,392	28,014	23,177	<b>100,511</b>
<b>Existing Core</b>	13,552 (54%)	14,659 (60%)	17,054 (61%)	18,516 (80%)	<b>63,781 (64%)</b>
<b>Increase in core acres</b>	3,504	435	2,099	0	<b>6,038</b>
<b>Total core acres post decision</b>	17,056 (68%)	15,094 (62%)	19,153 (68%)	18,516 (80%)	<b>69,819 (69%)</b>
<b>Existing acres affected by OMAD</b>	5,221 (21%)	7,034 (29%)	5,603 (20%)	2,549 (11%)	<b>20,407 (20%)</b>
<b>Decrease in acres affected by OMAD</b>	499	204	0	0	<b>703</b>
<b>Total acres affected by OMAD post decision</b>	4,736 (19%)	6,830 (28%)	5,603 (20%)	2,549 (11%)	<b>19,718 (20%)</b>
<b>Existing acres affected by TMAD</b>	8,724 (35%)	4,390 (18%)	4,762 (17%)	464 (2%)	<b>18,358 (18%)</b>
<b>Decrease in acres affected by TMAD</b>	4,255	488 increase	280	0	<b>4,047</b>
<b>Total acres affected by TMAD post decision</b>	4,487 (18%)	4,878 (20%)	5,042 (18%)	464 (2%)	<b>14,871 (15%)</b>
*Kah Soldier also included in Westside Reservoir Project Shaded cells meet A19 objective					

Timber harvest for the 2002 Spotted Beetle and 1994 Bent Flat II projects is complete in Jungle Addition, Kah Soldier, and Spotted Bear Mountain subunits. Access changes for Spotted Beetle Resource are ongoing in these three subunits and expected to continue until 2007. Bent Flat II road restrictions were completed in Spotted Bear Mountain as part of the Spotted Beetle access changes (Table 4).

The Service's 2002 biological opinion for the Spotted Beetle Resource project indicated that the effects of the project were primarily a function of high road densities and low security core. Core area does not meet A19 objectives, but substantive core acreage exists in the three to four subunit area. All subunits provide over 50 percent core. The existing TMAD is low across the area but high in Kah Soldier.

High OMAD persists in Jungle Addition subunit with potential for displacement, under-use of habitat, and increased visibility in portions of the subunit. However, core area is currently 60 percent, or over 14,000 acres. TMAD is at A19 objectives. Access conditions in Jungle Addition are expected to improve slightly, but due to GIS technical variation, OMAD A19 objectives will not be reached under authorized actions in current decisions.

Spotted Bear River Trails project began in 2002 in Spotted Bear Mountain and Big Bill Shelf subunits. Project activities include improvement and relocation of outfitter facilities, relocation of two trailheads due to road closures, and improvement of access condition per A19 in the Spotted Bear Mountain subunit. Motorized access management changes in Spotted Bear Mountain subunit are complete. Existing OMAD and TMAD are low, 20 and 17 percent respectively, and core is 61 percent (Table 21). Spotted Bear Mountain subunit is expected to reach the A19 core objective when Spotted Beetle project is complete. Potential impacts to grizzly bears could occur during trail and road construction. The camp area and trails system in this subunit and neighboring Big Bill Shelf subunit are popular recreation destinations. Grizzly bear sightings, grizzly bear-human conflicts, and management removal of a grizzly bear have been reported since 1996 (U.S. Forest Service 2002c). The existing high level of recreation activity in the area presents displacement and habituation risk, but the remaining project activity is not expected to add significantly to that risk. The effects of ongoing and future road decommissioning and trail construction in Big Bill Shelf subunit will be minimized by restricting the work to the road prism. A survey is commencing in the summer of 2005 (Deb Mucklow, U.S. Forest Service, 2005, pers. comm.) for preparation of road decommissioning that will further reduce TMAD and provide additional core habitat in the Spotted Bear Mountain Trails project area, surpassing A19 objectives.

Open motorized access density increased on paper in Spotted Bear Mountain due to variation in the technical process used for road analysis, and the placement of a gate 0.25 miles from the planned location for increased security. The full access commitment under the decision has been completed, but due to this database adjustment the subunit will remain at 19.6 percent. All access densities and core are rounded to the nearest whole number for simplicity. Therefore, OMAD in the subunit is reported as 20 percent. The impacts of 19.6 percent OMAD on grizzly bears is negligible over the 19 percent

objective, and within the technical variation of the GIS analysis process (Kathy Ake, Flathead National Forest, pers. comm. 2005).

The impacts to grizzly bears will be further minimized by the buffering effect of 80 percent core in adjacent Big Bill Shelf, all proposed work will be scheduled to meet the allowable administrative use period, and the public will not be permitted on restricted roads.

The Spotted Beetle decision authorized full A19 compliance in Kah Soldier by 2007 and access improvements have progressed. Spotted Beetle timber harvest is complete. Timber harvest is ongoing in Kah Soldier and is discussed under the Westside project in following sections.

Once decommissioning is done by 2007 and road restrictions put in place as part of the Westside salvage, conditions will be improved by meeting all A19 objectives in Kah Soldier and Spotted Bear Mountain (note OMAD 19.6). An increase in security core of approximately 6,000 acres would occur over the three affected subunits and average 69 percent. Jungle Addition would reach 62 percent core; approximately 1500 acres of additional core would have been required in the subunit to achieve 68 percent average (Table 21). However, the high core percentage in Big Bill Shelf adds 2,756 acres to the four-subunit area, compensating for the 1,500 acre deficit in Jungle Addition. Overall, 69 percent of the 100,511 acre, four-subunit area would provide core habitat. The OMAD in the area would be 20 percent and the TMAD 15 percent (Table 21.).

***Westside Reservoir Post-Fire Project: Ball Branch, Wheeler Quintonkon, Jewel Basin Graves, Wounded Buck Clayton, and Doris Lost Johnny, Kah Soldier subunits (Figure 13 and Table 22).***

Westside Reservoir Post-Fire project activities will occur in Kah Soldier, Ball Branch, Wheeler Quintonkon, Jewel Basin Graves, Wounded Buck Clayton, and Doris Lost Johnny subunits. Access changes will occur in all but one of the subunits, Kah Soldier, where salvage harvest would occur, but no access changes were authorized by this decision. (Kah Soldier will meet A19 objectives under Spotted Beetle project). Grizzly bears in these six subunits on the west side of the Hungry Horse Reservoir experienced the direct and indirect effects of wildfire in 2003, wildfire suppression activity, and pre-existing adverse access conditions. Four fires or complexes of smaller fires from 457 to 14,194 acres affected the landscape with varying burn intensities.

**Table 22. Westside Reservoir Post-Fire Project subunit access comparison between baseline and with decision implemented\* (U.S. Forest Service in litt. 2005)**

<b>Subunit</b>	<b>Ball Branch</b>	<b>Doris Lost Johnny</b>	<b>Jewel Basin Graves</b>	<b>Wheeler Quintonkon</b>	<b>Wounded Buck Clayton</b>	<b>Total Project Acres</b>
<b>A19 Total Acres</b>	25,589	25,993	28,175	33,860	32,207	<b>145,824</b>
<b>Existing Core</b>	18,771 (73%)	8,103 (31%)	15,888 (56%)	19,279 (56%)	12,589 (39%)	<b>74,630 (51%)</b>
<b>Increase in core acres</b>	2,133	1,226	3,158	3,707	8,219	<b>18,444</b>
<b>Total core acres post decision</b>	20,904 (82%)	9,329 (36%)	19,046 (68%)	22,987 (68%)	20,808 (65%)	<b>93,074 (64%)</b>
<b>Existing acres affected by OMAD</b>	3,067 (12%)	15,596 (60%)	6,198 (22%)	9,142 (27%)	11,917 (37%)	<b>45,920 (31%)</b>
<b>Decrease in acres affected by OMAD</b>	0	781	845	341	3,221	<b>5,188</b>
<b>Total acres affected by OMAD post decision</b>	3,067 (12%)	14,815 (57%)	5,353 (19%)	8,801 (26%)	8,696 (27%)	<b>40,732 (28%)</b>
<b>Existing acres affected by TMAD</b>	2,303 (9%)	5,718 (22%)	6,480 (23%)	7,788 (23%)	11,917 (37%)	<b>34,908 (24%)</b>
<b>Decrease in acres affected by TMAD</b>	1,535	780	1,127	1,355	2,255	<b>7,052</b>
<b>Total acres affected by TMAD post decision</b>	768 (3%)	4,939 (19%)	5,353 (19%)	6,433 (19%)	9,662 (30%)	<b>27,856 (19%)</b>

\* Kah Soldier subunit access considered with Spotted Beetle et al. see Table 21

Salvage will occur on only 10 percent (3,133 acres) of the landscape impacted by 2003 wildfire (31,000 acres) during the next 3 years (U.S. Fish and Wildlife Service 2004a). Harvest will directly impact 1.8 percent of the acres in the six subunits affected by fire in units ranging in size from 3 to 270 acres. Less than 1 percent of the available core among the six subunits will be harvested during the nondenning season. The time it takes to complete a unit will vary with the size of the unit, local conditions, and yarding method. Under the terms and conditions of the Service's incidental take statement for the project, salvage scheduling will consolidate activities to reduce the need for repeated entry and recurrent disturbance (Ibid.). Therefore, road status changes will occur more efficiently and as soon as possible.

Since the Service's biological opinion (2004a) was issued, planned total harvest acres have been reduced slightly, and acres to be harvested in security core have been significantly reduced (2004k, Barbouletos 2005; Table 13). Therefore, the impacts to grizzly bears will be significantly lessened from the proposal analyzed in the biological opinion (U.S. Fish and Wildlife Service 2004a).

As described in the 2004 biological opinion, timber harvest impacts on security core will be lessened by restrictions against wheeled, motorized activities in any of the Westside Reservoir salvage units located in security core during the nondenning season. Any log hauling by ground vehicles within security core will occur during the grizzly bear denning season. A helicopter will be used to remove timber during the nondenning period. While the use of helicopter transport does not eliminate direct displacement of grizzly bears from harvest activity, the impacts of building road and decommissioning roads, and long-term impacts of roads left on the landscape, are avoided.

Salvage harvest activity expected in the six subunits over the next 3 years (likely 1 year) will produce relatively short-term disturbance to grizzly bears additive to the direct and indirect impacts of wildfire. We expect that displacement effects of salvage harvest will be moderated as grizzly bear use of summer and fall habitats in the burned area will most likely be reduced due to the effects of fire on forage and cover (U.S. Fish and Wildlife Service 2004a). On a seasonal basis, reduced use of burned habitat by grizzly bears is likely to occur for a few years post-fire, especially during the summer and fall when most project-related activities will occur. Spring foraging opportunities are expected to improve during the first year post-fire while berry-producing shrubs will take longer to produce a crop (5 to 20 years). Once the berry plants begin producing, they may persist as an important late summer and fall food source for 30 to 40 years (Gniadek and Waller 2003a, b). Some studies have found that it may take 25 to 70 years in areas of high burn severity to provide summer foraging habitat for grizzly bears (Martin 1983 and Zager 1980). Over the short-term, summer foraging in the action area is expected to be limited.

High road densities and deficient security core in subunits contributed to adverse conditions for grizzly bears before wildfire impacted the area. The Westside Reservoir project decision authorized access changes to bring five subunits into compliance with A19 objectives, or if not meeting objectives then making substantive improvements from the existing condition through amended objectives (Table 22). Implementation of

proposed access changes will fully achieve A19 objectives in Ball Branch and Jewel Basin Graves subunits. Some A19 objectives were amended in Doris Lost Johnny, Wheeler Quintonkon, and Wounded Buck Clayton subunits. Each amended objective was based on site-specific analysis of the subunit including primary routes and access, subunit condition, size, shape, and juxtaposition on the landscape. All access changes are scheduled for completion by the end of the year 2010 (U.S. Fish and Wildlife Service 2004a).

After harvest, road decommissioning work may result in some level of disturbance, but it will be confined to the road prism, and contractors do not present a significant mortality risk. Once decommissioning is done by 2010, the access condition in all subunits will be improved. Each subunit with an amended objective will have a decrease in acres affected by OMAD and TMAD; the increased core in the two subunits with amended core objectives will add 9,500 acres to the landscape.

Post project, Doris Lost Johnny will be the only subunit in the area with substantive deficits in core habitat, and will have high OMAD. TMAD would meet A19. We expect this subunit will be under-used by grizzly bears, and risks of high visibility, habituation, and/or mortality will persist for those bears attempting to use the subunit.

However, over the five-subunit area, access conditions are conducive to supporting female grizzly bears. Post-project, core will be substantively increased by 18,444 acres and provide 64 percent core habitat over the combined 145,824 acre, five-subunit area even with amended objectives in two subunits. The OMAD would be relatively high at 28 percent, but TMAD would be 19 percent. Further, impacts to grizzly bears from open roads would be generally concentrated in the Doris Lost Johnny subunit and along the reservoir road (U.S. Fish and Wildlife Service 2004a). Other portions of this five-subunit area would provide substantial levels of core and moderately to sparsely roaded habitat available to grizzly bears.

***Crane Mountain Salvage Project: Crane Mountain and Porcupine Woodward subunits (Figure 13, Table 23)***

The 1996 Crane Mountain Salvage project involved timber harvest of 1,023 acres and prescribed fire on 932 acres in the Crane Mountain and Porcupine Woodward subunits. Harvest and timber treatment are complete; access changes remain to be implemented. The project included 108 miles of road decommissioning and 62 miles road restriction. A balance of 72 miles of decommissioning and 7 miles of road restriction remain to complete access assignments for this project.

<b>Table 23. Crane Mountain Project subunit access comparison between baseline and with decision implemented (U.S. Forest Service in litt. 2005)</b>			
<b>Subunit</b>	<b>Crane Mountain</b>	<b>Porcupine Woodward</b>	<b>Total Subunit Acres</b>
<b>A19 Total Acres</b>	32,325	36,509	<b>68,834</b>
<b>Existing Core</b>	8,611 (27%)	11,082 (30%)	<b>19,693 (29%)</b>
<b>Increase in core acres</b>	2,173	1,340	<b>3,513</b>
<b>Total core acres post decision</b>	10,784 (33%)	12,422 (34%)	<b>23,206 (34%)</b>
<b>Existing acres affected by OMAD</b>	10,344 (32%)	16,794 (46%)	<b>27,138 (39%)</b>
<b>Decrease in acres affected by OMAD</b>	2,263	0	<b>2,263</b>
<b>Total acres affected by OMAD post decision</b>	8,081 (25%)	16,794 (46%)	<b>24,875 (36%)</b>
<b>Existing acres affected by TMAD</b>	19,072 (59%)	18,620 (51%)	<b>37,692 (55%)</b>
<b>Decrease in acres affected by TMAD</b>	10,344	2,921	<b>13,265</b>
<b>Total acres affected by TMAD post decision</b>	8,728 (27%)	15,699 (43%)	<b>24,427 (36%)</b>

Crane Mountain subunit access conditions adversely affect grizzly bears at 32 percent OMAD, 59 percent TMAD, and 27 percent core (Table 23). Project access management since 1995 has improved the condition in the subunit by a reduction of 17 percent of OMAD and 15 percent of TMAD and an increase of 25 percent core. This 8,600-acre increase in core was substantial in a subunit previously having no core habitat. When the project access commitments are completed, access densities would decrease to 25 percent OMAD, 27 percent TMAD, and core would increase to 33 percent (approximately 2,200 acres) for a total of 10,784 acres. An 11,200 acre deficit in core area from A19 objectives would persist in this subunit. A significant possibility of under-use of habitat by grizzly bears and human-caused mortality would remain. Females with cubs have been reported in this subunit, despite the high road densities. No grizzly bear mortalities have been documented in the Crane Mountain subunit. However, considering the access condition, close proximity to human development, and extensive recreation use of the Crane Mountain project area, completion of authorized access changes or thorough reevaluation of long-term access objectives for the subunits should be pursued. Open motorized access density could be decreased by restricting the remaining 7 miles of road authorized in the project decision (Table 4) (U.S. Forest Service 2004a). If A19 objectives are not attained by 2009 in Crane Mountain subunit, or modified through the Forest Plan revision process, this subunit should receive further analysis of habitat and access management in 2010.

With the proposed revised A19 timeframe, the Forest would reduce motorized administrative use on restricted roads (already restricted to public motorized use during the nondenning period) in the Crane Mountain subunit (U.S. Forest Service 2004a). Use of restricted roads would be closely monitored, and activities restricted to habitat and

watershed improvement, monitoring and surveying, necessary maintenance and repair, and other minor uses (Ibid.). Motorized use by Forest personnel and contractors is expected on some restricted roads, however under the increased administrative use restrictions, some roads could be free of motorized travel. It is expected that displacement and under-use of habitat by grizzly bears would be reduced near roads with decreased motorized administrative use.

The Forest Service manages less than 75 percent of Porcupine Woodward subunit. By reaching the Crane Mountain project access goals, grizzly bears would benefit by an 8 percent reduction of TMAD and a 4 percent increase in percent core. The increase in core across the two subunits would be 3,513 acres. Overall the two subunits total 68,834 acres, of which 34 percent would be core, OMAD would be 36 percent and TMAD 36 percent. However, based on the Forest's comments related to financial constraints (U.S. Forest Service 2004a), the Service expects that these access objectives will not be fully achieved before 2009, and therefore benefits to grizzly bears would be delayed beyond the timeframes considered in our 1996 Crane Mountain Salvage biological opinion. We expect continued displacement of female grizzly bears in Crane subunit, which may impair to some level reproduction of those females using the area. Increased mortality risk would also remain and affect those bears attempting to use the subunit.

***Paint Emery Resource Project: Riverside Paint and Emery Firefighter subunits (Figure 13, Table 24)***

The purpose of the Paint Emery Resource project was the restriction and reclamation of road in the Riverside Paint and Emery Firefighter subunits. Access changes have occurred since 1999, reducing OMAD, TMAD in Emery Firefighter and reducing TMAD and increasing core in Riverside Paint (Table 17). Additional decommissioning is necessary to achieve project objectives (Table 4). No significant access work or major Forest activity is being conducted, and future decommissioning is dependent on funding. The major Forest road (10104) accessing the east side of Hungry Horse Reservoir runs through both subunits roughly north to south. This road is open year round to motorized use and would remain so. It is expected that habitat in proximity to the road is under-used by grizzly bears. Grizzly bears using the road margins for foraging or travel may face a risk of habituation and human-caused mortality due to vehicle collision, malicious or accidental killing. However, the two subunits are 93 and 86 percent Forest Service, and the risk to grizzly bears from human-causes in a primarily Forest Service roaded area is relatively low compared to a more mixed or private ownership (Mace and Waller 1998, U.S. Fish and Wildlife Service 2004c). Further, Emery Firefighter is close to OMAD objective, in fact, reported as meeting the objective in 2001. In 2002, the changes in how OMAD access density is calculated by moving windows analysis (U.S. Forest Service 2004e) bumped the OMAD to 20 percent; Riverside Paint is slightly higher at 24 percent. The TMAD is currently high in both subunits at 30 and 34 percent. A substantial amount of decommissioning remains to be completed. The impacts to grizzly bears could be eased by reducing motorized use on currently restricted roads. Until 2009, the final 72 miles of road requiring decommissioning would be closed to public use and additional restrictions of motorized administrative use would be applied (U.S. Forest Service

2004a). It is expected that effectively reducing disturbance by restricting motorized administrative use could improve security for grizzly bears in specific parts of the subunits. The level of benefit to bears would depend the habitat value adjacent to particular roads, and on administrative use that was significantly and consistently limited until decommissioning occurs. This would depend on administration use decisions in the future.

<b>Table 24. Paint Emery Project subunit access comparison between baseline and with decision implemented (U.S. Forest Service in litt. 2005)</b>			
<b>Subunit</b>	<b>Emery Firefighter</b>	<b>Riverside Paint</b>	<b>Total Subunit Acres</b>
<b>A19 Total Acres</b>	43,136	27,594	<b>70,730</b>
<b>Existing Core</b>	16,581 (38%)	16,394 (59%)	<b>32,975 (47%)</b>
<b>Increase in core acres</b>	5,625	3,190	<b>8,815</b>
<b>Total core acres post decision</b>	22,206 (51%)	19,584 (71%)	<b>41,790 (59%)</b>
<b>Existing acres affected by OMAD</b>	8,627 (20%)	6,623 (24%)	<b>15,250 (22%)</b>
<b>Decrease in acres affected by OMAD</b>	0	1,656	<b>1,656</b>
<b>Total acres affected by OMAD post decision</b>	8,627 (20%)	4,967 (18%)	<b>13,594 (19%)</b>
<b>Existing acres affected by TMAD</b>	12,941 (30%)	9,382 (34%)	<b>22,323 (32%)</b>
<b>Decrease in acres affected by TMAD</b>	4,745	5,243	<b>9,988</b>
<b>Total acres affected by TMAD post decision</b>	8,196 (19%)	4,139 (15%)	<b>12,335 (17%)</b>

Currently, the two subunits contribute nearly 33,000 acres of core habitat (Table 24), or 47 percent of the combined area. By reaching project objectives in Riverside Paint, all A19 objectives would be met; core would be 71 percent, exceeding the size required by A19. Project objectives do not reach A19 objectives in Emery Firefighter; core would reach 51 percent.

Due to funding constraints described by the Forest, we do not expect full project compliance prior to the end of 2009. Even if project goals were achieved, a deficit of 6,306 acres would remain compared to A19 objectives across the two subunits. Restricting administrative use could moderate the impacts of this level of reduced core and the high TMAD, depending on the type of administrative use necessary or authorized for subunit management during any given grizzly bear active season. However, benefits to grizzly bears would be delayed beyond the timeframes considered in our 1999 consultation. We expect continued displacement of female grizzly bears in the subunits due high TMAD, which may to some level, impair reproduction of those females using the area.

**2) Lower North Fork Area: Moose Post-Fire, Big Mountain Ski Area expansion, and Robert Fire of the Robert-Wedge Post-Fire projects (Figures 13 and 15).**

The Moose Post-Fire, Big Mountain Ski Area expansion, and the Robert Fire portion of the Robert-Wedge Post-Fire projects have either ongoing activities or remain in incomplete status, in the North Fork of the Flathead River drainage in four subunits: Werner Creek, Lower Big Creek, Canyon McGinnis, and Cedar Teakettle (Figure 7, Table 25)

***Moose Post-Fire/Big Mountain Ski Area Projects and Robert Fire (because of overlapping projects in this area, impacts of access changes are examined collectively): Werner Creek, Lower Big Creek, and Canyon McGinnis subunits (Table 25).***

The 2001 Moose Creek wildfire impacted approximately 38,000 acres of national forest land including portions of the Werner Creek and Lower Big Creek subunits. The 2002 Moose Post-Fire project decision authorized 2,266 acres (6 percent of the burned area) of salvage harvest, amending of A19 objectives in the Werner Creek subunit, and access changes to achieve A19 objectives in the Lower Big Creek. The full access commitment is scheduled for 2005 in Werner Creek and 2009 for Lower Big Creek (U.S. Forest Service 2004a).

The access changes in Werner Creek subunit will achieve 19 percent TMAD and amended objectives of 29 percent OMAD and 63 percent core. These improvements represent a significant increase in core of 21 percent (5,997 acres), a decrease of TMAD of 3 percent, and an increase of 9 percent OMAD. In Werner Creek, the 5 percent deficit in core area and high OMAD results from a seasonal opening of one road to allow eight weeks of public access to an historic huckleberry picking area. The road will remain closed during spring and fall seasons. Lower Big Creek subunit will have an increase of 11 percent core (3,451 acres) and decrease of 13 percent TMAD authorized by the Moose Post-Fire decision; the A19 objective for OMAD is met. Completing the authorized access changes in both subunits will provide an additional 9,448 acres of core habitat. By not achieving full 68 percent core objective in Werner Creek, a deficit of 1,763 acres of core would remain compared to A19 requirements (Table 25).

In addition to the Moose Post-Fire project, the 1995 Big Mountain Ski Area expansion included road restriction and decommissioning in the Werner Creek and Lower Big Creek subunits. Canyon McGinnis subunit was also affected by the Big Mountain activities. Expansion activities authorized by the decision were never fully completed; chair 8 and associated runs have not been started and no completion schedule is available. It is possible that the Forest would reinitiate the National Environmental Policy Act (NEPA) and consultation processes for the balance of the Big Mountain Expansion activities (Amy Jacobs, U.S. Forest Service, pers. comm. 2005).

**Table 25. Robert Fire of the Robert-Wedge Post-Fire, Moose Post-Fire, and Big Mountain Expansion projects subunit access comparison between baseline and with decisions implemented (U.S. Forest Service in litt. 2005)**

Subunit	Canyon McGinnis (Robert & Big Mountain)	Werner Creek (Moose Fire & Big Mountain)	Lower Big Creek (Robert, Big Mountain, & Moose Fire)	Cedar Teakettle* (Robert Fire)	Total project acres
<b>A19 Total Acres</b>	30,525	28,640	29,935	19,428	<b>108,528</b>
<b>Existing Core</b>	9,528 (31%)	12,046 (42%)	17,108 (57%)	4,061 (21%)	<b>42,743 (39%)</b>
<b>Increase in core acres</b>	6,745	5,997	3,451	0	<b>16,193</b>
<b>Total core acres post decision</b>	16,273 (53%)	18,043 (63%)	20,559 (68%)	4,061 (21%)	<b>58,936 (54%)</b>
<b>Existing acres affected by OMAD</b>	6,715 (22%)	5,728 (20%)	5,687 (19%)	5,847 (26%)	<b>23,977 (22%)</b>
<b>Decrease in acres affected by OMAD</b>	1,220	+2,578	0	0	<b>+1,358</b>
<b>Total acres affected by OMAD post decision</b>	5,495 (18%)	8,306 (29%)	5,687 (19%)	5,847 (26%)	<b>25,335 (23%)</b>
<b>Existing acres affected by TMAD</b>	12,820 (42%)	6,301 (22%)	9,878 (32%)	2,674 (23%)	<b>31,673 (29%)</b>
<b>Decrease in acres affected by TMAD</b>	2,747	859	4,191	0	<b>7,797</b>
<b>Total acres affected by TMAD post decision</b>	10,073 (33%)	5,442 (19%)	5,688 (19%)	2,674 (23%)	<b>23,876 (22%)</b>

\*less than 75% Forest management

Access management for the Big Mountain project are pending in three subunits. A portion of these access management commitments for the Big Mountain project was included in the Moose Post-Fire actions (U.S. Forest Service 2004a, Table 4). Amended objectives will be reached in Werner Creek by 2006 as indicated in the previous paragraph describing Moose Post-Fire activities. Lower Big Creek will reach A19 objectives by 2009. As mentioned, the 2002 Moose decision modified the Big Mountain decision to reopen road 316 on a seasonal basis in Werner Creek. The net effect to grizzly bears from the seasonal restriction will be spring and fall habitat availability and

security during the spring black bear and fall big game hunting seasons. Displacement of grizzly bears could occur during the 8-week period in summer when the road is open to public use, but summer habitat is not limited on the Forest (U.S. Fish and Wildlife Service 2004a). Road decommissioning is confined to the road prism and is not expected to produce additional negative impacts to grizzly bears.

Minor harvest activity will occur in Lower Big Creek for the Robert-Wedge Post-Fire project, but that is not expected to alter the objective or timing of reaching A19 objectives in the subunit. Canyon McGinnis subunit will also be impacted by the Robert-Wedge salvage and the effects are summarized in the following Robert Fire section.

Once access management decisions are implemented, OMAD and TMAD would meet A19 objectives in two of the four subunits, and be moderate at 23 and 22 percent respectively over the area. Core would increase 15 percent across the area. Overall, from 2005 through 2009, grizzly bear habitat would improve and provide long-term benefits for grizzly bears through road decommissioning in Canyon McGinnis, Low Big Creek, and Werner Creek, decreasing TMAD and increasing core by 16,000 acres (Table 25).

***Robert Fire of Robert-Wedge Post-Fire Project: Canyon McGinnis, Lower Big Creek, and Cedar Teakettle subunits (Figure 13, Table 25).***

In 2003, numerous wildfires affected a total of approximately 35,000 acres in the Upper Flathead Drainage. The Robert Fire burned approximately 13,000 acres in Canyon McGinnis, Lower Big Creek and Cedar Teakettle subunits. Salvage of burned and beetle infested trees will occur on up to 1,937 acres in three subunits (U.S. Forest Service 2004j). Salvage activity began in March of 2005 (Barbouletos 2005). Harvest is expected for up to 3 years, however, dead trees deteriorate quickly, and it is likely that salvage would occur in a shorter timeframe. Access changes would be completed within 5 years after harvest. In addition, the project decision authorizes access improvements that would lead to one subunit meeting A19 and amending two objectives in one subunit. The Service thoroughly analyzed the effects of the Robert Fire and issued a biological opinion on the Robert-Wedge Post-Fire project (U.S. Fish and Wildlife Service 2004b).

Harvest unit sizes range from 1 to 138 acres over approximately 2.5 percent of the combined subunits area. The amount of time an area would be impacted by salvage is dependent on the size, yarding method, and local conditions. As indicated in the Forest's biological assessment (2004k), salvage in Lower Big Creek and Cedar Teakettle is minimal and expected to take 10 days or less in each subunit. Thirty-seven percent (approximately 12,300 acres) of Canyon McGinnis was burned and salvage activity would be concentrated in this subunit. Canyon McGinnis contains most of the harvest units, and a minimum of 163 days is needed for logging and hauling in this subunit (Ibid.).

Since the Service's biological opinion was issued, total harvest acres have been reduced slightly, and acres to be harvested in security core have been significantly reduced (U.S. Forest Service 2004f; Barbouletos 2005; Table 15). Less than 0.5 percent (10 acres) of the total project acres would be salvaged from core during the nondenning season. This

represents 0.03 percent of the available core in the project area. The nondenning season core harvest was reduced from 331 acres as analyzed in the biological opinion to 43 acres. Therefore, the impacts to grizzly bears will be significantly lessened from the proposal analyzed in the biological opinion (U.S. Fish and Wildlife Service 2004b).

There is negligible net change in the access condition post-project in the Cedar Teakettle subunit. During the project OMAD will increase from 26 to 30 percent in Cedar Teakettle to facilitate access to salvage units and transport. Cedar Teakettle is less than 75 percent Forest Service jurisdiction and will comply with no net increase in access density or decrease in core by project end.

Access management will improve and achieve A19 objectives by 2009 in Lower Big Creek subunit as part of the Moose Post-Fire project.

By 2011, TMAD in Canyon McGinnis will decrease 9 percent to the amended objective of 33 percent, and reduce by 2,747 acres the area affected by road density greater than 2 miles per square mile. During project activities, OMAD will increase temporarily from 19 percent to 22 percent in Canyon McGinnis. However, OMAD will reach the project objective of 18 percent by 2011. An increase of 6,745 acres of core will improve the subunit by 22 percent.

The Robert Fires drastically altered the nature and temporarily decreased the value of grizzly bear habitat in large areas. Grizzly bears are still expected to use the area in spring and early summer. Summer and fall use by grizzly bears would include traveling through or making exploratory forays within their home ranges. Natural food resources for grizzly bears should improve over the next few years across the subunits, coinciding with completion of harvest and hauling activity for the Robert-Wedge project. Hiding cover is not expected to recover significantly during the period of future salvage. Because of the extensive fire activity in the Canyon McGinnis subunit, grizzly bears could be more visible and subject to illegal or malicious killing before cover rejuvenates. However, since the recent fires on the Forest beginning in 2001, no malicious illegal, human-caused grizzly bear mortalities have been reported in any of the burned areas (T. Manley, MFWP pers. comm. 2005).

Road decommissioning conducted when salvage is complete will be confined to the road prism and is not expected to produce significant negative impacts to grizzly bears.

From 2005 until 2011, grizzly bear habitat will improve and provide long-term benefits through road decommissioning authorized by the Robert-Wedge Post-Fire project in conjunction with the Moose Post-Fire project. An additional 16,193 acres of core habitat would be added across the 108,528 collective acres of the Canyon McGinnis, Lower Big Creek, Werner Creek, and Cedar Teakettle subunits. Core habitat will average 62 percent across the three subunits where access changes are authorized and scheduled for completion. At 62 percent, an additional 5,713 acres are needed to achieve 68 percent in the three-subunit area. Cedar Teakettle is only 61 percent Forest-managed land and contributes a minor amount of core to the subunit. Consequently, the four-subunit area

encompassing the Robert portion of the Robert Wedge, the Moose, and Big Mountain projects will have a post-project core of 54 percent. Cedar Teakettle provides 4,061 acres (3 percent) to the 108,528-acre collective subunit area, and A19 does not require a minimum level of core in subunits with less than 75 percent Forest management. Therefore, the increase in core and subsequent benefit to grizzly bears is more satisfactorily reflected in the post-project 62 percent core expected over the three subunits where the Forest manages over 75 percent of the subunit area.

### **3) Upper North Fork Area: Hornet Wedge and Wedge Canyon Fire of the Robert-Wedge Post-Fire project**

#### ***Hornet Wedge Project: Upper Whale Shorty, Lower Whale, Red Meadow Moose subunits (Figure 13, Table 26).***

In the northern portion of the action area, the 1996 Hornet Wedge timber harvest occurred in Upper Whale Shorty, Lower Whale, and Red Meadow Moose subunits. Some displacement of grizzly bears and under-use of habitat may have occurred due to access conditions and harvest activity. Some degree of displacement may have occurred in Upper Whale Shorty subunit during harvest, however, A19 objectives were met before, during, and after harvest. Table 26 depicts the net improvement in access condition after project implementation.

Some beneficial access changes occurred through project activity. However, project objectives did not include reaching full compliance with A19 in Red Meadow Moose and Lower Whale. In Red Meadow Moose, existing core is 52 percent, OMAD is 25 percent and TMAD is 17 percent. In Lower Whale, authorized access improvements are incomplete (Table 4). However in Lower Whale, OMAD has decreased by 16 percent, TMAD decreased by 19 percent, and core increased by 17 percent or 2,888 acres since 1995.

The Hornet Wedge project did not include access changes for the Red Meadow Moose subunit. However, the access condition has improved in the subunit by a decrease of OMAD by 11 percent, and decrease of TMAD by 5 percent since 1995. High road densities, particularly OMAD and low core percentages in both subunits may negatively impact grizzly bears by increasing the risk of illegal killing and the displacement of some individual grizzly bears away from roads resulting in under-use of potentially suitable habitat. The proposed increase in administrative use restrictions in Red Meadow Moose is intended to reduce displacement impacts on grizzly bears. Total motorized access density is low at 20 percent. A decrease of administrative use would improve grizzly bear security slightly within the subunit. The effects of high OMAD would not be alleviated by the increased restrictions.

**Table 26. Wedge Canyon Fire of the Robert-Wedge Post-Fire and Hornet Wedge projects subunit access comparison between baseline and with decisions implemented\* (U.S. Forest Service in litt. 2005)**

Subunit	Ketchikan (Wedge Canyon Fire)	Lower Whale (Wedge Canyon Fire)	Upper Trail (Wedge Canyon Fire)	Upper Whale Shorty (Wedge Canyon Fire & Hornet Wedge)	Red Meadow Moose (Hornet Wedge)	Total project acres
<b>A19 Total Acres</b>	19,894	16,986	25,874	33,856	30,778	<b>127,388</b>
<b>Existing Core</b>	13,492 (68%)	4,724 (28%)	21,913 (85%)	28,866 (85%)	15,931 (52%)	<b>84,926 (67%)</b>
<b>Increase in core acres</b>	0	3,259	803	251	0	<b>4,313</b>
<b>Total core acres post decision</b>	13,492 (68%)	7,983 (47%)	22,716 (88%)	29,117 (86%)	15,931 (52%)	<b>89,239 (70%)</b>
<b>Existing acres affected by OMAD</b>	3,779 (19%)	7,474 (43%)	4,398 (17%)	4,062 (12%)	17,073 (25%)	<b>36,786 (29%)</b>
<b>Decrease in acres affected by OMAD</b>	0	1,189	776	0	0	<b>1,965</b>
<b>Total acres affected by OMAD post decision</b>	3,779 (19%)	6,285 (37%)	3,622 (14%)	4,062 (12%)	17,073 (25%)	<b>34,821 (27%)</b>
<b>Existing acres affected by TMAD</b>	596 (3%)	4,246 (25%)	1,293 (5%)	3,386 (10%)	11,210 (17%)	<b>20,731 (16%)</b>
<b>Decrease in acres affected by TMAD</b>	0	1,528	258	0	0	<b>1,786</b>
<b>Total acres affected by TMAD post decision</b>	597 (3%)	2,718 (16%)	1,035 (4%)	3,385 (10%)	11,210 (17%)	<b>18,945 (15%)</b>

Salvage harvest would occur in Lower Whale and Upper Whale Shorty subunits under the Robert-Wedge Post-Fire project decision (discussed in the following section). The Robert-Wedge decision amended the access objectives in Lower Whale to 37 percent OMAD, 16 percent TMAD, and 47 percent core. Achieving amended objectives as required under the Robert-Wedge decision, and Service's incidental take statement

requires completing access commitments for the Hornet Wedge project. Therefore, it is assumed that access conditions in Upper Whale Shorty and Lower Whale would improve as harvest in these subunits, and in those subunits accessed through them, is completed. As described in the biological opinion for the Robert-Wedge project (U.S. Fish and Wildlife Service 2004b), Lower Whale subunit is small, and contains major access routes to an adjacent subunit, and state and private lands, making A19 more difficult to achieve. The adverse effects on grizzly bear habitat, in terms of acres, of not meeting A19 in small subunits are less than not meeting objectives in large units.

***Wedge Canyon Fire of the Robert-Wedge Post-Fire Project: Ketchikan, Upper Trail, Upper Whale Shorty, Lower Whale subunits (Figure 13, Table 26).***

Activities of the Wedge Canyon portion of the Robert-Wedge Post-Fire project are in progress in the Ketchikan, Upper Trail, Upper Whale Shorty, and Lower Whale subunits (Figure 7). Salvage activity is expected for up to 3 years; access changes will be completed within 5 years after harvest (U.S. Fish and Wildlife Service 2004b).

Some short-term displacement of grizzly bears and alteration of normal activity will likely ensue from salvage operations. Grizzly bears experienced some adverse effects of high road densities and low security core habitat before the fire, displacement during the fire, and significant alteration of resources after the 2003 fire season. These activities were most pronounced in Lower Whale subunit. Post-fire salvage would be concentrated in the Lower Whale subunit where displacement and under-use of available habitat could be prolonged across the span of the project. The impacts of harvest activity would be moderated by the favorable access conditions within the neighboring subunits: Frozen Lake, Ketchikan, Upper Trail, and Upper Whale Shorty are all within or are better than A19 objectives.

Lower Whale is a small subunit at about 17,000 acres. Attainment of A19 objectives is more difficult in smaller subunits. To meet A19 OMAD objectives, motorized access to either private or state lands would need to be prohibited. In addition in order to meet core objective of 68 percent, motorized access to the adjacent subunit (Upper Whale Shorty) would need to be prohibited (U.S. Forest Service 2004j). Finally, due to size, the impacts of not achieving A19 percentages in this subunit are not as significant as in larger subunits, in terms of acres.

Installation of gates, berm construction, some culvert removal and road regrading will be necessary to complete the balance of access changes during and after salvage activity. The work to complete the authorized road decommissioning or restriction is expected to have no lasting negative impacts on grizzly bears, instead benefiting grizzly bears and progressing towards A19 objectives.

By the project's end, the number of acres impacted by high OMAD will decrease 1,965 and 4,244 acres of security core will be added to the four subunits in the Wedge Canyon Fire area. Core will average 75 percent, OMAD 18 percent, and TMAD 8 percent across

the 96,610 acres comprised of Ketchikan, Lower Whale, Upper Trail, and Upper Whale Shorty subunits.

There is a relatively small portion of the salvage acres that will require helicopter activity during the nondenning season. Helicopter logging results in disturbance to grizzly bears, but does not include the adverse impacts of road construction, reconstruction, decommissioned, or the lingering effects of roads left on the landscape.

Since the Service's 2004 biological opinion was issued, planned total harvest acres have been reduced substantially, and acres to be harvested in security core have been reduced (see following section) (U.S. Forest Service 2004k, Barbouletos 2005; Table 15). Therefore, the impacts to grizzly bears will be significantly lessened from the proposal analyzed in the biological opinion (U.S. Fish and Wildlife Service 2004b).

Access conditions over 127,388 acres of the five subunits where the Wedge Canyon salvage and Hornet Wedge project activities occur will benefit grizzly bears by increasing security core and improving road densities. Core will increase by 4,313 acres and be situated over 70 percent of the area, thereby providing large areas of security habitat contiguous over the project areas and with the sparsely-roaded Glacier National Park to the east and British Columbia to the north. Total motorized access density will improve from 16 to 15 percent across the five subunits. Open motorized access density is 29 percent and will improve with project access changes by 2 percent. Three subunits already meet the A19 objectives for all three access parameters. Post-salvage road decommissioning to achieve a reduction in TMAD is confined to the road prism and is not expected to produce additional negative impacts to grizzly bears. In addition, the good access condition of three subunits before, during, and after the project is expected to moderate the impacts of the ongoing and anticipated salvage activity.

As with the Robert Fire salvage, the fires temporarily decreased the value of grizzly bear habitat in large areas. Grizzly bears are still expected to use the area in spring and early summer. Summer and fall use by grizzly bears would include traveling through or making exploratory forays within their home ranges. Natural food resources for grizzly bears should improve over the next few years across the subunits, coinciding with completion of harvest and hauling activity for the Robert-Wedge project. Hiding cover is not expected to recover significantly during the period of future salvage. Grizzly bears could be more visible and subject to illegal or malicious killing before cover rejuvenates. However, since the recent fires on the Forest beginning in 2001, no malicious illegal, human-caused grizzly bear mortalities have been reported in any of the burned areas (T. Manley, MFWP pers. comm. 2005).

#### Updated information on Westside Reservoir and Robert-Wedge Post-Fire projects

Since the Service's biological opinions (2004a,b) were issued, the planned total harvest acres and acres to be salvaged in security core have been significantly decreased for both the Westside Reservoir and Robert-Wedge projects (U.S. Forest Service 2004f, l; Barbouletos 2005; Tables 13 and 15). For the Westside project, 759 acres of security core habitat would be harvested during the nondenning period, a reduction of 776 acres

from that analyzed in the biological opinion. Forty-three acres would be salvaged during the nondenning period in the Robert-Wedge fire areas, a reduction of 288 acres.

As determined in the biological opinions for the projects, salvage in core habitat during the nondenning period could adversely impact grizzly bears. The reduction of acres to be salvaged in core would be expected to reduce the level of impacts to grizzly bears from that analyzed in the biological opinions. As stated in the opinions, helicopter use during the active season is expected to cause some displacement of grizzly bears. However, the use of helicopters to remove logs from cutting units reduces the effects of traditional logging by eliminating the short- and long-term impacts of constructing, reconstructing, or decommissioning access roads on the landscape. Most importantly, there will be no risk of lingering effects of roads potentially left on the landscape. Helicopter logging will be used exclusively in all core areas during the nondenning season. As indicated in the incidental take statements for the projects, no salvage will occur in the spring when grizzly bears would be likely to utilize fire impacted areas.

#### **4) Swan Valley Grizzly Bear Conservation Agreement (Appendix B)**

The Forest would continue management applications of the Agreement over approximately 222,000 acres of Forest land in 11 subunits in the Swan Valley (Figure 13). The impacts of the terms of the Agreement on grizzly bears were analyzed in the Service's 1995 biological opinion. Terms of the Agreement do not alter the application of A19 objectives in subunits with less than 75 percent Forest management and are expected to further reduce adverse impacts of motorized access than A19 alone over the next 5 years. Application of terms of the Agreement, in addition to the Forest's management practices, is important for protecting grizzly bear habitat in the Valley due to the significant amount of land area in nonfederal ownership and would continue to support grizzly bear recovery in a highly roaded, mixed ownership, and multiuse environment.

The goal of the Agreement was to ensure movement of grizzly bears between the Mission and Swan Mountain ranges (U.S Fish and Wildlife Service 1993, 1995d). Since the implementation of the Agreement, grizzly bears have been documented using the valley bottom and maintaining a presence and increasing distribution in the Mission Mountains. Over the next 5 years, grizzly bears would face increased risk of human-caused mortality when using the Valley as a substantial part of their range or as a movement corridor. The Forest's participation in providing linkage zones of relatively low human disturbance would reduce the risk of fatal consequence. It is expected that human use and occupation of the Swan Valley will increase in the future. The Forest's management direction for the public lands portion of the Swan Valley will be increasingly important as human influence ensues on private lands.

#### **Subunits with Increased Administrative Use Restrictions and Subunits without Decisions and No Increased Administrative Use Restrictions (Figure 14)**

The Forest's proposed increase in administrative use restrictions would apply to nine subunits where Forest ownership is greater than 75 percent, where no projects exist with timeframes within which to meet A19, and /or where A19 TMAD objectives are not met: Red Meadow Moose, Emery Firefighter, Riverside Paint, Crane Mountain, Beaver Creek, Swan Lake, Peters Ridge, Logan Dry Park, and Coal and South Coal.

Three of the nine subunits have decisions authorizing access changes, although the authorized alterations have not been completed: Emery Firefighter, Riverside Paint, and Crane Mountain. Red Meadow Moose was affected by the Hornet Wedge decision, but no access changes were authorized for the subunit. The TMAD for Red Meadow Moose subunit exceeds the A19 objective. Impacts to grizzly bears for these four subunits were discussed in the relative section under the "projects with decisions" heading.

Beaver Creek subunit has no decisions authorizing access changes. Increased administrative use restrictions would apply to this subunit. Beaver Creek is the only subunit in the Swan Valley Agreement area that is greater than 75 percent Forest land. The subunit is currently has very low OMAD of 6 percent, 26 percent TMAD, and 67 percent core. Increased administrative use restrictions could decrease the impacts of TMAD and provide additional security depending on the management needs in the subunit over the next 5 years.

Swan Lake, Peters Ridge, Logan Dry Park, and Coal and South Coal subunits also have no decisions authorizing road access changes. Increased administrative use restrictions would apply to these subunits. To what degree restricted administrative use alleviates impacts of high road densities and a deficit of core habitat depends on the existing access condition and management needs in the subunit. If restricted roads consistently did not receive motorized use during the nondenning season, improved security for grizzly bears could occur in some locations. We expect a net decrease of motorized use from levels occurring over the past 10 years. Limited motorized use could reduce displacement especially to grizzly bears with a tendency to avoid areas with high TMAD even though closed to public travel (Mace et al. 1996).

Swan Lake and Peters Ridge are located on the west side of the South Fork area. They are separated by Noisy Red Owl subunit. Both subunits are neighbored by subunits with dispersed or concentrated human development and popular recreation areas. Swan Lake subunit is highly roaded at 54 percent OMAD and 30 percent TMAD and provides 9,246 acres (31 percent of the subunit) of security core. The subunit is located at the northern end of the Swan Valley in a popular recreation area adjacent to the Noisy Red Owl subunit, which is predominately private land. Noisy Red Owl has moderate road densities (16 percent TMAD and 20 percent OMAD) and 56 percent core. Peters Ridge borders Noisy Red Owl to the north, and is a long narrow subunit bordering private land and subunits that include the communities of Big Fork to the south and Coram and Hungry Horse to the north. Open motorized access density is 53 percent, TMAD 25 percent, and core is 34 percent. Over the next 4 years, no additional core or reduction of road densities are expected in either subunit. Increased restrictions on administrative use could decrease the impact of high TMAD and possibly provide additional security in

some areas. The efficacy of limiting administrative use on a larger scale is uncertain because of the large amount of private lands, high road densities in the neighboring subunits, and a deficit of approximately 18,000 acres of core habitat across the Swan Lake and Peters Ridge subunits. However, the shape of both of these subunits and Noisy Red Owl is long and narrow. As discussed earlier, assessing the real impacts on grizzly bears of not attaining A19 objectives on Forest lands is difficult in these instances. These three subunits are adjacent to Doris Lost Johnny, Jewel Basin Graves, Wounded Buck Clayton, Wheeler Quintonkon, and Ball Branch subunits to the east. All but Doris Lost Johnny will provide significant amounts of core habitat by 2011 upon completion of the Westside Reservoir project (Figure 12b and Table 25). Access conditions in these adjacent South Fork subunits would moderate the negative impacts to grizzly bears whose home ranges encompass portions of them and Swan Lake and/or Peters Ridge.

Logan Dry Park subunit, to the south and west of Hungry Horse Reservoir, does not meet A19 objectives at 30 percent OMAD, 36 percent TMAD, and 50 percent core. Fifty percent core represents 3500 acres less than if A19 objectives were met. A slight increase in core (0.5 percent) would be gained if access changes are completed for the Paint Emery project. The East Side Reservoir Road impacts this elongated subunit. The impacts of high road densities and low core acres to grizzly bears whose home ranges encompass this subunit are likely moderated by the extensive area of security core to the east of Hungry Horse Reservoir, the availability of security habitat in the vicinity, and road closures during the early spring that benefit grizzly bears using the habitats along the Reservoir.

In addition to the nine subunits with administrative use restrictions, Skyland Challenge and Hay Creek subunits do not have decisions authorizing access changes and would not have increased restrictions on administrative use over the next 5 years. In the Middle Fork of the Flathead River drainage, Skyland Challenge is very close to A19 objectives with 20 percent OMAD, 16 percent TMAD, and 63 percent core habitat, or 1,445 acres less than if A19 objectives for core were met. Although grizzly bears would likely benefit from additional core acres, the existing core in Skyland Challenge, the neighboring A19 subunits and wilderness provide the most extensive security area for grizzly bears on the Forest.

In the North Fork of the Flathead River drainage, Hay Creek subunit provides 48 percent core habitat, or 14,919 acres. Thirty-five percent of the subunit is affected by OMAD, and TMAD is at the A19 objective. Hay Creek subunit is long and narrow, and Forest Road 376 bisects the subunit and may inhibit to some degree but not preclude the longitudinal movement of grizzly bears through the subunit. Hay Creek is bordered by Red Meadow Moose to the north and Coal and South Coal to the south. None of these three subunits has fully met A19 objectives, but generally the subunits are close to compliance. Coal and South Coal provides relatively good habitat with sufficient core of 71 percent core, 15 percent OMAD, and 26 percent TMAD. Red Meadow Moose is 52 percent core, 25 percent OMAD, and 17 percent TMAD. Grizzly bears would benefit from an additional 5,000 acres of core in Red Meadow Moose if the A19 objective was met, but no decision is in place to authorize the increase in core. However, the three

subunits combined provide 56 percent core, or nearly 48,700 acres, about 10,400 acres less than required by A19. The proposed increased administrative use restriction in Coal and South Coal and Red Meadow Moose could further reduce displacement of and improve security for grizzly bears over the next 5 years.

A total deficit of 34,440 acres of core among the eight subunits occurs as a result of no decisions authorizing access changes: Red Meadow Moose, Hay Creek, Coal and South Coal, Peters Ridge, Swan Lake, Beaver Creek, Logan Dry Park, and Skyland Challenge subunits (Table 27a). Core in Coal and South Coal exceeds 68 percent by 709 acres.

We expect adverse effects to grizzly bears in local areas affected by high road densities. However Table 18, repeated below, reveals that of the nine subunits that will additional receive administrative use restrictions six meet at least one access parameter, and provide better conditions that required by A19 objectives in some cases. As described here, the negative effects to grizzly bears using these subunits are likely often moderated by available habitat in other portions of the affected subunit and/or adjacent subunits.

Reduction of administrative use levels would also provide some level of improved security in these subunits at local scales, if levels were adequately reduced and restrictions applied consistently year to year. If by 2009, the Forest Plan is not revised, or A19 or amended objectives are not met in all subunits, reinitiation of consultation on access management within these subunits would be required, based on the baseline and status of the species at that time.

**Table 27a. Increase in security core in 40 nonwilderness subunits with project implementation (U.S. Forest Service in litt 2005)**

Subunit	A19 Total Acres	Existing core acres	Percent	Increase in core acres	Total core acres post decision	Percent	Post decision difference in acres from reaching $\geq 68\%$ Negative values in parentheses
Swan Lake	30,119	9,246	31	0	9,246	31	(11,235)
Crane Mtn	32,325	8,611	27	2,173	10,784	33	(11,197)
Peters Ridge	21,420	7,351	34	0	7,351	34	(7,215)
Doris Lost Johnny	25,993	8,103	31	1,226	9,329	36	(8,346)
Lower Whale	16,987	4,724	28	3,190	7,915	47	(3,636)
Hay Creek	30,879	14,919	48	0	14,919	48	(6,078)
Emery Firefighter	43,136	16,581	38	5,625	22,206	51	(7,127)
Logan Dry Park	19,573	9,836	50	123	9,959	51	(3,473)
Red Meadow Moose	30,778	15,931	52	44	15,975	52	(4,954)
Canyon McGinnis	30,526	9,528	31	6,745	16,274	53	(4,484)
Jungle Addition	24,392	14,659	60	435	15,094	62	(1,493)
Werner Creek	28,640	12,046	42	5,666	17,712	62	(1,763)
Skyland Challenge	30,549	19,328	63	0	19,328	63	(1,445)
Wounded Buck Clayton	32,207	12,589	39	8,219	20,808	65	(1,093)
Beaver Creek	31,550	21,225	67	0	21,225	67	229
Jewel Basin Graves	28,175	15,888	56	3,158	19,046	68	0
Kah Soldier	24,928	13,552	54	3,504	17,056	68	0
Ketchikan	19,894	13,492	68	0	13,492	68	0
Spotted Bear Mtn	28,014	17,054	61	2,099	19,153	68	0
Wheeler Quintonkon	33,860	19,279	57	3,707	22,987	68	0
Lower Big Creek	29,936	17,108	57	3,452	20,560	69	204
Coal & South Coal	25,277	17,897	71	0	17,897	71	709
Riverside Paint	27,594	16,394	59	3,190	19,584	71	820
Big Bill	23,177	18,516	80	0	18,516	80	2,756
Frozen Lake	15,357	12,362	80	0	12,362	80	1,919
Stanton Paola	22,616	18,191	80	0	18,191	80	3,774
Dicky Java	25,581	20,757	81	0	20,757	81	3,362
Ball Branch	25,559	18,771	73	2,133	20,904	82	3,524
Tranquil Geifer	41,577	35,267	85	0	35,267	85	6,994
Bunker Creek	31,572	26,968	85	114	27,082	86	5,613
Upper Whale Shorty	33,856	28,866	85	252	29,118	86	5,310
Upper Trail	25,874	21,914	85	804	22,718	88	5,124
Gorge Creek	38,771	34,720	90	0	34,720	90	8,356
Lower Twin	22,391	20,488	92	0	20,488	92	5,262
Harrison Mid	29,073	27,518	95	0	27,518	95	7,748
Plume Mtn Lodgepole	32,736	31,678	97	0	31,678	97	9,418
Flotilla Capitol	37,935	37,683	99	0	37,683	99	11,887
Long Dirtyface	38,580	38,476	100	0	38,476	100	12,242
Twin Creek	21,223	21,223	100	0	21,223	100	6,791

**Table 27b. Summary of existing and increase in security core with project implementation (U.S. Forest Service in litt. 2005)**

	<b>A19 acres</b>	<b>Existing core acres</b>	<b>Percent core</b>	<b>Decision core acres</b>	<b>Percent core</b>	<b>Acres difference from 68% objective in all subunits</b>
<b>40 nonwilderness subunits with &gt; 75 percent Forest</b>	1,134,240	745,875	66	801,733	71	+30,450
<b>14 subunits with &lt; 75 percent Forest*</b>	407,927	178,080	44	180,305	44	Not applicable
<b>54 subunits including 40 nonwilderness and 14 with ≤75 percent Forests</b>	1,542,167	923,955	60	982,037	64	-66,637
<b>16 all wilderness subunits**</b>	681,509	611,148	90	611,148	90	+147,722
<b>70 total subunits on Forest</b>	2,223,677	1,535,102	69	1,593,185	72	+81,085

\* A19 objectives are no net loss of core or net increase in OMAD or TMAD.

\* not subject to A19 objectives

**Table 18. Change in access condition 1995 through 2009 for subunits that will receive additional administrative use restrictions, and subunits without decisions and have no additional administrative use restrictions (U.S. Forest Service in litt. 2005, 2005b)**

Subunit	Open motorized access density			Total motorized access density			Security Core		
	1995	2005	2009	1995	2005	2009	1995	2005	2009
<b>Red Meadow Moose<sup>A</sup></b>	36	25 (-11)	25	25	17 (-8)	17	47	52 (5)	52
<b>Emery Firefighter<sup>A</sup></b>	32	20 (-12)	20	42	30 (-12)	19 (-23)	38	38	51 (13)
<b>Riverside Paint<sup>A</sup></b>	23	24	18 (-5)	39	34 (-5)	15 (-24)	58	59 (1)	71 (13)
<b>Crane Mountain<sup>A</sup></b>	51	32 (-19)	25 (-26)	74	59 (-15)	27 (-47)	0	27 (27)	33 (33)
<b>Beaver Creek<sup>A</sup></b>	6	6	6	24	26 (2)	26	67	67	67
<b>Swan Lake<sup>A</sup></b>	56	54 (-2)	54	33	30 (-3)	30	29	31 (2)	31
<b>Peters Ridge<sup>A</sup></b>	46	53 (7)	53	22	25 (3)	25	30	34 (4)	34
<b>Logan Dry Park<sup>A</sup></b>	33	30 (-3)	30	40	36 (-5)	35 (-1)	50	50	51 (1)
<b>Coal and South Coal<sup>A</sup></b>	23	15 (-8)	15	37	26 (-11)	26	59	71 (12)	71
<b>Skyland Challenge</b>	15	20 (5)	20	18	16 (-2)	16	58	63	63
<b>Hay Creek</b>	33	34	35	21	16 (-5)	16	41	48 (7)	48

( ) Change from 1995

<sup>A</sup> Increased restrictions on administrative use

Shaded cells meet A19 objective

### **Effects of the Revised Implementation Schedule on Grizzly Bears within the Forest's Portion of the Recovery Zone**

The Forest's proposal impacts the entire recovery zone portion of the Forest. Over the next 4 years grizzly bears would be impacted to varying degrees by existing road densities, road use, decreasing road densities in some areas, increasing security core in some areas, salvage harvest, recreation activity in all seasons, legal big game hunting, routine Forest management tasks, and natural changes in habitats in the ecosystem. Routine management includes road and facilities maintenance and wildlife improvement projects. If a revised Forest Plan is not in effect by 2010, according to direction under section 7 regulations, reconsultation would be needed to address the effects on grizzly bears for any of subunits not meeting A19 or amended objectives as scheduled.

Of the 40 nonwilderness subunits with greater than 75 percent Forest management 18 meet or better A19 objectives for OMAD, TMAD, and security core. By the end of 2011, four additional subunits for a total of 21 would be at A19 objectives or better due to existing decisions and schedules (Figure 8). Additionally, six subunits would reach amended access objectives. Completion of access objectives for those six subunits would occur by 2010/2011 under two project decisions. Twelve of the 40 subunits would not meet all A19 or amended objectives. In some of those subunits not meeting A19, one or two of the three access parameters are met, or approach, or provide better conditions for bears than required by A19 (Figure 9, 10, 11 and Appendices C and D).

The 14 subunits with less than 75 percent Forest managed lands would remain at access levels specified when A19 was signed, and no net increase of road densities or decrease in core would occur as a result of Forest Service action.

By the end of 2009, decreased motorized vehicle activity due to reductions in administrative use would have been in place for up to four years in nine subunits not meeting A19 objectives.

Seven subunits do not have decisions authorizing access changes and reductions in road densities and core are unlikely through 2009. However, some of the three access parameters (OMAD, TMAD, and core) in these seven subunits meet or approach A19 objectives (Table 18).

To the east and south of Hungry Horse Reservoir, nineteen subunits provide and would continue to provide an extensive area of core habitat, approximately 349,000 acres of approximately 575,000 acres (Figure 12b). The area includes Moccasin Crystal, Emery Firefighter, Riverside Paint, Stanton Paola, Dickey Java, Logan Dry Park, Long Dirtyface, Tranquil Geifer, Skyland Challenge, Plume Mountain Lodgepole, Flotilla Capitol, Twin Creek, Lower Twin, Spotted Bear Mountain, Big Bill Shelf, Jungle Addition, Bunker Creek, Gorge Creek, and Harrison Mid subunits.

These subunits are contiguous with approximately 1,650,000 acres of Forest Service wilderness area and 1,000,000 acres of the sparsely roaded Glacier National Park. Thirteen of the 19 subunits meet all A19 objectives. Two additional subunits would meet A19 objectives by 2006 thereby increasing core by 2,500 acres. Increased restriction on administrative use would apply in three other subunits with no timetable and/or decision to improve the access condition. The remaining subunit, Skyland Challenge, is currently very near A19 requirements at 20 percent OMAD, 63 percent core, and meets TMAD objective. Trail construction remains to be completed in Spotted Bear Mountain, but no major project activity is expected in these 19 subunits over the next 4 years.

In the Hungry Horse Reservoir area, the Service expects that the effects of displacement of grizzly bears away from roadways and changes in behavior and activity of grizzly bears would be highly localized. Local access conditions could induce displacement and increase mortality risk in three subunits bordering the Reservoir, Emery Firefighter, Riverside Paint, and Logan Dry Park, where all A19 objectives are not expected to be

met by the end of 2009 (Tables 16 and 17, Figure 13). Roads in these subunits are concentrated generally near the Reservoir; the eastern portions of the subunits contribute to the extensive contiguous core habitat in the region. Some roads are closed to public use between November 30 and July 1 (U.S. Forest Service, in litt. 2001). Early season road restrictions on some roads reduce impacts to grizzly bears utilizing spring habitat closer to the Reservoir. Increased restrictions on motorized administrative use would reduce the displacement impacts to some degree. The Forest is committed to fulfilling access improvements of the Paint-Emery Resource project. The existing decision authorizes changes that would not bring Emery Firefighter into A19 compliance, and the timetable for improvements is uncertain due to financial constraints (U.S. Forest Service 2004a). The TMAD and core would improve in Emery Firefighter. Riverside Paint subunit would achieve A19 objectives when access commitments are complete, but no timetable is set for access changes (U.S. Forest Service 2004a). In addition to the Paint-Emery Resource project, we expect the Forest will make progress in access changes authorized by other project decisions without time frames as financial resources are available (Ibid.).

Little substantive information exists elucidating the number of grizzly bears inhabiting specific geographic areas on the Forest. However, Waller (2005a) recently suggested a high density of grizzly bears, based on high capture rate, to the east and northeast of Hungry Horse Reservoir in the U.S. Highway 2 corridor (Upper Middle Fork). The access condition for subunits along the U.S.-2 corridor is the most suitable on the Forest. (Appendix C). It is not known what contributes to the high number of grizzly bears in the area, but it is reasonable to assume that high quality habitat and contiguous security area provided on the Forest is important to grizzly bears residing near or moving through the corridor.

Concentrated private lands and development, including Martin City and Hungry Horse communities, are situated to the north of the Reservoir (Figure 5). A two-lane highway (Highway 2), rail line, and dispersed private property are situated between the Forest and Glacier Park to the north. Along the highway and rail line, the dispersed, low-density year-round private development, the Forest's and Glacier Park's food storage programs, and wildlife management officials' education outreach to landowners may contribute to the low level of recent grizzly bear-human conflicts in the region (U.S. Fish and Wildlife Service 2004b, Waller 2005a).

Vehicle and train collision are the most frequent causes of known human-caused mortality in this part of the recovery zone in 2004 (U.S. Fish and Wildlife Service 2004c). Grain and other attractants spilled from trains can lead to conditioning, bears frequenting tracks, and an increased risk of collisions with trains. Train incidents comprised 8 percent of human-caused grizzly bear mortality between 1980 and 2002 (U.S. Fish and Wildlife Service, in litt. 2004). However, it is not clear to what degree food conditioning (grizzly bears seeking spilled grain) influenced these deaths. The major operator of the rail line, Burlington Northern Santa Fe, is developing measures with the Service to minimize the impacts of rail operations on grizzly bears in the area (Tim Bodurtha, U.S. Fish and Wildlife Service, pers.comm. 2005). Measures may

include reducing spillage from rail cars, prompt cleanup of grain spills, and use of aversion techniques to limit access to spillage and trestle bridges. These measures are expected to reduce grizzly bear mortality resulting from habituation. However, it is impractical to expect to eliminate collision risk because of the extensive fencing and wildlife passage-ways it would require. Therefore, the risk of train collision would remain and would be expected to increase if train traffic increased significantly. At this time it is not known if or to what degree train traffic would increase over the next 4 years. It is assumed that traffic and the associated risks would not decrease.

Grizzly bear population density appeared to be high in the U.S. -2 corridor compared to other portions of the NCDE (Waller 2005a). Normal animal dispersal and movement through the area would put animals at risk of collisions with auto traffic. However, vehicle collision contributes less than 4 percent of overall NCDE recovery zone grizzly bear mortality between 1980 and 2002 (U.S. Fish and Wildlife Service, in litt. 2004). Grizzly bears appear to alter behavior to minimize the collision risk. Waller (2005a) noted that grizzly bears avoided U.S.-2 during periods of high traffic, crossing more often at night. At current levels of vehicle traffic, it appears the highway does not pose a demographic threat to grizzly bears in the NCDE recovery zone (Ibid.). However, as individuals become more nocturnal to avoid highway impacts the risk of train collision may increase.

In general, the 19 subunits to the east and south of Hungry Horse Reservoir offer extensive contiguous areas of security core. Project activities are ongoing in only two subunits—Big Bill Shelf and Spotted Bear Mountain. However, Big Bill Shelf is well within A19 compliance and the other, Spotted Bear Mountain, provides 62 percent core area. Road densities and/or core area objectives are not met in six of the 19 subunits. Effective restriction of administrative use would further reduce the impact of high road densities. Thirteen of the 19 subunits meet A19 objectives, access conditions are improved since 1995, and access commitments to be completed over the next year would achieve very close to full A19 objectives including 68 percent core in Spotted Bear Mountain and improve in Jungle Addition. Although some subunits do not meet 68 percent core, others provide more than 68 percent. If the A19 objective of 68 percent core is achieved 379,207 acres of core would exist distributed over these 19 subunits. Collectively, these subunits currently provide 442,470 acres of core. Completion of signed decisions and amended objectives for core would provide a total of 454,056 acres of core (Table 27a). This core area is well distributed across the area (Figures 12a and 12b). The Service concludes that the area overall is conducive to supporting a relatively high number of female grizzly bears.

Eleven subunits cover the Swan Valley in the southern part of the Forest's NCDE recovery zone. Forest management is limited to approximately 221,000 acres within these subunits, of which the Forest lands contribute approximately 162,000 acres of security core (Figure 12a and 12b). Subunits in the Swan Valley contribute about 66,000 acres of core to the extensive contiguous security core of the eastern portion of the Forest and Bob Marshall Wilderness to the south and east. Forest security core on the west side of the Valley contributes approximately 100,000 acres to the Mission Mountains.

Habitat in the Swan Valley is fragmented due to intermingled ownership and a major roadway. Fragmentation of mountain valleys leading to isolation of grizzly bear populations has occurred throughout western U.S. (Mattson and Merrill 2002). Security core and maintained or reduced road densities on the Forest contribute to grizzly bear occupation of the Missions and the larger contiguous areas across the Valley. Grizzly bears cross and grizzlies are expected to continue using the Valley. However, roaded and developed areas likely limit movement of some individual grizzly bears with aversion to human activity.

Over the next 4 years, some grizzly bears would face the risk of continued displacement from the highly roaded valley bottom. Some individuals appear to habituate to high human-use areas (U.S. Fish and Wildlife Service et al. 2005). However, it is not known how this highly roaded and developed environment impacts survival and reproductive success. It is reasonable to assume that some individuals may survive for an extended period of time, although all grizzly bears utilizing the valley face increased risks of human-caused mortality from illegal killing, management and self defense actions stemming from habituation and food conditioning, and vehicle collision.

Occupancy of the Mission Mountains, not necessarily the Swan Valley itself, by female grizzly bears is a criterion for recovery of the NCDE population. Movement of grizzly bears across the Swan Valley was a primary goal of the Swan Valley Conservation Agreement and is integral to achieving a consistent occupation of the Missions. The Forest participation in the Swan Valley Conservation Agreement and access restrictions on the Forest are expected to continue over the next 4 years. Reasonable minimization of negative impacts in the mixed ownership environment would be achieved by maintaining security core, maintaining or decreasing road densities, enforcing the Forest's food storage order, coordinating activity with private and state land owners, and providing linkage zones across the Valley with limited human activity. Linkages are considered one way to facilitate grizzly bear population connectivity through developed areas (Servheen et al. 2001, Wilcox 1980). We expect continued occupancy of the Mission Mountains and continual movement of grizzly bears across the valley.

Currently, the Swan Valley Agreement is under revision. Terms of the revised document provide for continued management of necessary linkage zones in light of changing land ownership and possible increase in human development. The on-going monitoring program to assess the effectiveness of coordinated management in the Valley could provide insights into grizzly bear use of habitat with a high degree of human activity.

The Crane Mountain subunit is immediately north of the subunits covered under the Swan Valley Agreement. It is highly roaded, and authorized access changes remain incomplete. Once completed, core would be 33 percent, or about 11,000 acres less than that required by A19. The OMAD post decision (25 percent) would impact 1,939 more acres, and TMAD (27 percent), 2596 more acres than if A19 objectives were achieved. It is unlikely that all authorized access changes would be completed prior to the end of

2009. We expect continued displacement of grizzly bears from portions of this subunit, and an increased risk of human-caused mortality for bears attempting to use the area.

Nine subunits are delineated on the west side of Hungry Horse Reservoir and encompass the study area for female grizzly bears of the South Fork project (Mace and Waller 1998; Figure 7). The subunits are Noisy Red Owl, Peters Ridge, Doris Lost Johnny, Wounded Buck Clayton, Jewel Basin Graves, Wheeler Quintonkon, Kah Soldier, Ball Branch, and Swan Lake. Grizzly bear habitat here is semi-isolated because of human development and the expanse of Hungry Horse Reservoir (Ibid). The influence of private lands and development to the west, and the Reservoir to the east, are permanent human-caused features that maintain a long-term semi-isolated condition for grizzly bears in this portion of the Swan Mountains. In addition to the population and demographic effects of isolation, grizzly bears are currently impacted by high road densities, high recreational use, and drought impacted forage. Indeed, many parts of the Forest have experienced drought conditions over the past several years. Human-caused mortalities in this region made up 23 percent of the total 2004 NCDE grizzly bear mortality (U.S. Fish and Wildlife Service 2004b). However, six of the seven grizzly bear deaths were concentrated on private lands in the Swan Valley portion of the area. Mortalities included management removal of bears that were food conditioned, which likely occurred on private lands, and illegal killing in proximity to a major roadway (Figure 3).

None of the 8 subunits with greater than 75 percent ownership currently meet all A19 objectives. The ninth subunit, Noisy Red Owl, is less than 75 percent Forest managed lands. Decisions authorize access changes to improve conditions (2 subunits), amend access objectives (3 subunits), and reach A19 objectives (3 subunits). The impacts of amendments and timeframe changes were addressed in previous biological opinions (U.S. Fish and Wildlife Service, 2002a, 2004a). It is assumed that access improvement would progress annually in these subunits over the next 4 years. At least one additional subunit would achieve full A19 objectives by 2007, possibly two more by 2009, adding 12,000 acres of core habitat. Kah Soldier and Ball Branch subunits would provide core in proximity to the extensive system in the Swan Mountains and Flathead Range to the south and east, thereby increasing the potential for dispersal, population connectivity and expansion. Although A19 objectives would not be achieved in all 9 subunits in the South Fork area over the next 4 years, the access condition is improved and would continue to improve over the 1995 baseline. In these subunits, reaching A19 core objective would have required 168,516 acres of core. Implementation of decisions, including amended core objectives in two subunits, would provide 141,095 acres or 57 percent core habitat over the combined 9 subunits.

The core on Forest land on the west side of the Reservoir is a relatively narrow polygon dissected by roads. However, it is contiguous with extensive core and wilderness area to the south. Grizzly bears limiting their activities near roads or avoiding roads would likely move in a north/south orientation through the landscape.

In 2003, the Beta Doris, Wounded Buck, Blackfoot Lake, and Ball fires burned over 31,000 acres on the west side of Hungry Horse Reservoir. Salvage harvest would occur

within the next 3 years over approximately 10 percent of the area directly impacted by fire, equivalent to 1 percent of the land area on the west side of the Reservoir. Grizzly bears are expected to utilize burned areas over the next 4 years and could be displaced to an unknown degree by harvest directly and indirectly by changes in road use for timber transport in six subunits. However, some grizzly bears tolerate some level of disturbance along roads. For instance, grizzly bears were observed in the same drainage while BMP road work was occurring within the 2001 Moose Fire perimeter. As long as the activities were along the road, the grizzly bears did not leave the drainage (T. Manley, MFWP, pers. comm. 2004). Reduced vegetative cover from fire activity increases the visibility of grizzly bears using burned areas. Restricted roads used for harvest activity would be closed to public use, thereby limiting exposure of grizzly bears to illegal killing. Limitations of harvest activity in core and in spring resource locations further reduce risks to grizzly bears. Actual harvest activity, though possible up to three years post-decision, is most likely to occur on a compressed timeline. The quality of wood from fire-killed trees diminishes quickly. The 2005 grizzly bear active season is already the second year after fire. The negative impacts of harvest would be short-lived and impact only a small percentage of area, after which access changes and continued vegetation regeneration would improve conditions in five subunits.

Mace and Waller (1997a, 1997b, 1998) believed that space was potentially more limiting than food resources in the South Fork study area. Mace and Waller (1998) suggested that the carrying capacity of the South Fork study area may have been met and the population likely stabilized. Over the next 4 years, the inherent geographic nature of the west side of the Reservoir, continued high road densities in a few subunits until access improvements are complete, and direct and indirect impacts of fire and salvage would impact grizzly bears west of the reservoir.

However, as described in this and project-level consultations, these impacts are not likely to preclude adequate levels of reproduction and rearing of cubs to the degree it impacts long-term survival or stability of this portion of the NCDE population. Access conditions have generally improved on Forest lands in the area since 1995 (U.S. Forest Service 2004b, in litt. 2005, 2005b). At that time, the density of grizzly bears was five times higher on multiple-use Forest lands than on neighboring private holdings (Mace and Waller 1998). In 1998, researchers concluded the area was a “source” population for grizzly bears for surrounding areas (Ibid.). After full implementation of the Westside Reservoir Post Fire project by 2011, access conditions will be significantly improved over the existing condition. Consistently, in spite of increasing known human-caused mortalities in the NCDE, grizzly bears experience a higher mortality risk on private lands than on roaded multi-use Forest land (U.S. Fish and Wildlife Service 2004c).

Cedar Teakettle and Coram Lake Five subunits contain less than 75 percent Forest lands. They connect the Hungry Horse Reservoir and Swan Valley portions of the Forest with the northern most subunits on the Forest by a narrow geographic area dominated by private lands and human development (Figures 13, 12a, and 12b). Cedar Teakettle and Coram Lake Five subunits are 59 percent and 69 percent Forest land, respectively. Both subunits are less than 75 percent Forest management. Over the next 4 years, no change in

access condition is expected from Forest Service action in Coram Lake Five. A temporary increase of OMAD of 4 percent would occur in Cedar Teakettle as some salvage units are accessed for the Robert-Wedge Post-Fire project.

Private lands in Cedar Teakettle and Coram Lake Five include the communities of Martin City, Coram, and Hungry Horse. Concentrated and dispersed human development, road and railways, and a low level of Forest managed property limit the amount of core habitat available to grizzly bears. Grizzly bears are reported in the subunits (U.S. Forest Service 2004b), however the nature of development would be expected to limit movement of individuals through the area and present increased risks of human-caused mortality. Glacier National Park is adjacent to the subunits to the northeast, perhaps providing alternative habitat or travel corridors. Although not due to Forest action, risks of human-caused mortality are expected to remain and possibly increase over the next 4 years due to increased development on neighboring private lands. Vehicle traffic on established roadways and backcountry use are expected to increase on the Forest as development increases; risks of grizzly bear displacement, illegal killing, human self-defense actions and encounters with human attractants are possible.

Twelve subunits are situated north of Cedar Teakettle and Coram Lake Five in the North Fork drainage of the Flathead River (Figure 13). Six of the 12 currently meet A19 objectives. Five subunits meet A19 objectives for greater than 75 percent Forest land and one subunit, State Coal Cyclone, for less than 75 percent Forest land. The Coal Creek State Forest is a prominent component of this subunit.

The direct impacts of salvage harvest activity during the grizzly bear nondenning period and indirect effects of excessive road densities in some areas are the principle impacts to grizzly bears on Forest lands within the recovery zone in the North Fork drainage. Grizzly bears are expected to under-use some cutting areas depending on post-harvest human activity and seasonal availability of food resources (Waller and Mace 1997).

In the North Fork , access conditions impart varying levels of adverse effects on grizzly bears in seven subunits south of Upper Whale Shorty subunit (Figure 13, Table 17). Grizzly bears may face increased risk of human-caused mortality due to existing road densities and resulting displacement from otherwise suitable habitat. As described previously, direct grizzly bear mortality is more likely associated with interfaced private lands and roadways than roaded multi-use Forest lands. Access conditions have improved since 1995 and the Moose Post-Fire and Robert-Wedge Post-Fire decisions are expected to further improve conditions over the next 4 years. Over all, project decisions involve eight subunits in the North Fork drainage, and include the Moose and Robert-Wedge projects (Figure 13). Five projects with decisions are mostly completed with the exception of access changes in six subunits. Limitations on administrative use over the next 4 years in two subunits could increase security for grizzly bears depending on the management needs in the individual subunits.

Lower Big Creek subunit is expected to reach A19 objectives within 4 years as authorized by the Moose Post-Fire decision. Harvest activity for the Moose project is

complete. However, salvage for the Robert-Wedge Post-Fire project could possibly continue to impact grizzly bears in the subunit for up to 3 years. After the Robert – Wedge salvage, the Moose project access changes would be implemented.

The Robert-Wedge Post-Fire project is the one major project action underway and continuing in some capacity in the North Fork over the next 4 years. The Robert-Wedge Post-Fire project would temporarily increase open road densities by increasing motorized use of restricted roads and displace some grizzly bears during harvest activities. Salvage harvest would directly impact less than 1 percent of the land area in the North Fork drainage. Only 0.01 percent of security core would be directly impacted. As with the salvage occurring concurrently in the South Fork area, harvest activity is likely to occur on a compressed timeline. The quality of wood from fire-killed trees diminishes quickly, and the 2005 grizzly bear active season is the second year after fire. Negative impacts of salvage harvest would be short-lived, after which access changes and continued vegetation regeneration and reinvigoration would improve conditions in the seven subunits impacted by recent fire. Glacier National Park, adjacent to the east, would continue to provide large expanses of habitat relatively undisturbed by people, for those bears in the North Fork whose home ranges include the east side of the drainage.

Four subunits, contiguous with a grizzly bear population in British Columbia, Canada, meet A19 objectives and provide the largest geographic area of core in the northern part of the Forest recovery zone (Figures 12a and 12b). The local population of grizzly bears in British Columbia is one of only a few populations with a known quantified population trend. Between 1989 and 1996, it was reported that the British Columbia population adjacent to the NCDE demonstrated an increasing trend and relatively high female survival rate (McLellan 1989a, 1989b, 1989c; Hovey and McLellan 1996). McLellan's study area included a small portion of the Forest. Although no density or trend information is available for the North Fork drainage on the Forest, it is reasonable to assume that grizzly bears move between the Canadian population, the Forest, Glacier National Park, and other contiguous portions of the NCDE recovery zone.

High core (81,358 acres, or 73 percent) and low road densities in the five subunits contiguous with British Columbia and Glacier National Park in the northern portion of the Forest are important to reducing fragmentation and supporting movement of individuals across the landscape, particularly with the low-roaded areas of Glacier National Park. Wildfire impacted subunits in the area to some degree but only limited salvage is planned. Harvest would be conducted from 4 to 21 days across three subunits and would not deteriorate the access condition below A19 objectives. The short-term impact of salvage operations and minimal fire effects are not expected to significantly impair the ability to support grizzly bears or fragment the area.

Some grizzly bears were displaced from native areas during the fires of 2001 and 2003. Blanchard and Knight (1996) observed that grizzly bears resumed movement with little variation from their pre-fire ranges after an incident, although some individuals altered their use of certain seasonal habitat types. It is expected that grizzly bears are utilizing the fire areas and would continue to use the areas as vegetation succeeds over the next 4

years. Harvest activity is likely to temporarily displace some grizzly bears. Grizzly bears are expected to under-use some cutting areas depending on post-harvest human activity and seasonal availability of food resources (Waller and Mace 1997). Hauling, decommissioning, and road use associated with harvest impact grizzly bears too, but if the activity is confined to the road grizzly bears are less likely to leave an area. Grizzly bears were observed in the same drainage while BMP road work was occurring within the 2001 Moose Fire perimeter. As long as the activities were along the road, the grizzly bears did not leave (T. Manley, Montana Fish, Wildlife and Parks, pers. comm. 2004).

Because of the relatively small land area impacted by harvest, retention of cover within harvest units, roads closed to the public during harvest, and landscape variation of burn intensity, salvage harvest is not expected to reduce the overall suitability of the area to support grizzly bears or alter connectivity within the northern portion of the recovery zone.

Private lands occur along the North Fork drainage bottom where grizzly bears face an increased risk of displacement and human-caused mortality as they move between Forest land and the extensive area of sparsely roaded, high quality habitat in Glacier National Park. However, roads paralleling the North Fork River between the Forest and Glacier receive relatively low traffic levels and present much less of a risk than the major highway on the western boundary. Information and education work and sanitation efforts in problem areas conducted by bear specialists and others in the North Fork appears to have lessened the risks of private lands and attractants to grizzly bears in recent years (T. Manley, MFWP 2005). Despite the extensive huckleberry crop failure and resulting lack of late summer and fall foods on public lands, there were no conflicts with people that resulted in grizzly bears being removed from or killed in the North Fork drainage in 2004.

United States Highway 93 and associated development bounds the western edge of the recovery zone where illegal killing, human self-defense actions, and vehicle collision on non-Forest land contributed to recent grizzly bear mortalities (U.S. Fish and Wildlife Service 2004b, c). Private development and U.S.-93 are permanent and continue to exert some degree of adverse impacts to grizzly bears. The risk of human-caused mortality increases as development continues. It is not known to what degree these effects would increase in the short-term (4 years), but it is unlikely that development or road use would decrease. Road use and development are independent of Forest management, but as increases ensue, recreation pressure on the Forest would be expected to increase; risks of grizzly bear displacement, illegal killing, human self-defense actions and encounters with human attractants are possible. The MFWP bear specialist program is actively working in this area to reduce grizzly bear conflicts with people.

The North Fork has contiguous areas of core across numerous subunit boundaries. Forest core is a relatively narrow polygon transected by some roads (Figure 12a and 12b). Currently 185,480 acres of core exist. Achieving A19 would provide 215,269 acres of core. Attainment of decisions and amended objectives is expected to provide 205,636 acres or 65 percent over the 12-subunit area by 2011. The area has high quality habitat

and is adjacent to Glacier National Park and southeastern British Columbia. While localized areas of high road density may have adverse effects on grizzly bears, including some impact on reproduction, using those areas, the area and adjacent lands to the north and east provide substantial area conducive to supporting grizzly bear reproduction. Access management in the North Fork would not preclude reproduction and rearing of cubs to the degree it would impact long-term stability and survival of this portion of the NCDE grizzly bear population.

## **Summary of the Effects of the Action**

### ***Displacement away from roads and road activity***

Open motorized access densities, TMAD, and security core improved across the recovery zone portion of the Forest since 1995. Within the Forest portion of the NCDE recovery zone, 18 of 40 nonwilderness subunits meet all, or are improved over, A19 objectives for OMAD, TMAD, and security core. By the end of 2009, decisions authorize access changes in 3 additional subunits, totaling 21 subunits with greater than 75 percent Forest management, that are expected to reach A19 objectives. Additionally, six subunits would reach or make progress towards amended access objectives, as determined by site-specific analyses of individual subunits. By 2011, amended objectives would be met in those subunits. Fourteen subunits with less than 75 percent Forest managed lands would remain at access levels specified in A19 direction. In several subunits not meeting A19, one or two of the access parameters are met or are close to meeting A19 objectives.

Through 2009, increased restrictions on motorized administrative use would occur in 9 of the 11 subunits without decisions and in Riverside Paint, authorized to meet A19 objectives but with no set timetable. Reduced motorized administrative use could minimize the effects of high TMAD and low core in nine subunits depending on local Forest management needs. The two subunits without authorizing decisions for reaching A19 or amended access objectives, and not subject to increased restrictions on administrative use meet the A19 TMAD objective; one of these subunits is within 1 percent of meeting OMAD and 5 percent of meeting core objectives (Appendix D; U.S. Forest Service 2005b).

Core area currently is less than 50 percent in 10 of 40 subunit, 7 subunits provide 50 to 59 percent core, 4 provide from 60 to 67 percent. Twenty-three subunits provide 68 percent or more core. With implementation of decisions, 25 of the 40 subunits will provide 68 percent or more core, and collectively provide over 30,000 acres of core over that required by A19. Core area is and would be well distributed over the 40 subunits; 34 of 40 subunits would provide from 50 to 100 percent core area.

Based on A19 objectives, access conditions are adverse for grizzly bears in eleven subunits on the Forest and could continue after 2009 where decisions do not exist or have no timetable for completion. Displacement or under-use of otherwise suitable habitat by grizzly bears in portions of these subunits is expected, from slight to significant degrees. The effects of displacement and under-use of habitat are tempered by local resource

availability, resource condition, seasonal use, and the number of grizzly bears using an area. Under-use of habitat in proximity to Forest roads does not necessarily preclude use or form a barrier to dispersal and movement across the landscape.

For a few years, displacement is expected in areas where active timber harvest and restricted roads are used for hauling. Timber harvest would occur on Forest lands over the next 3 years, possibly less, for the Westside Reservoir and Robert-Wedge Post-Fire projects. Commercial timber harvest is expected to continue on corporate holdings most notably the Plum Creek Timber Company lands in the Swan Valley. However, commercial activity is limited to active subunits on a 4-year rotational basis by the Swan Valley Grizzly Bear Conservation Agreement. The South Fork and southern portion of the North Fork area would be most affected over the next three years. Elsewhere, conditions are generally good over large areas of the landscape, and will improve through 2011 where improvements are scheduled, or administrative use restrictions apply.

### ***Habitat loss, modification, and fragmentation***

Habitat loss and modification result from natural and human-caused events. Under-use of otherwise suitable habitat along roads essentially reduces the amount of habitat freely available to grizzly bears. Fire, timber harvest, silviculture treatments, drought, and high levels of human activity can reduce the amount of suitable habitat, alter temporal or quantitative use of an area, and limit an environment's ability to support a species.

The Forest's portion of the NCDE recovery zone occupies a relatively narrow land area on the western edge of the recovery zone, interspersed with dissecting blocks of private property and development, major highways, a railway, and a hydroelectric facility. It is adjacent to Glacier National Park and National Forest wilderness areas to the east. Grizzly bear movement through the Forest and neighboring public lands of the recovery zone is likely inhibited in some areas even without the influence of Forest roads. At high densities, forest roads reduce the availability of suitable habitat on the Forest and to a lesser degree, as evidenced in annual mortality reports, increase the risk of human-caused mortality of grizzly bears.

Although Forest roads have negative influences on habitat quality and use of habitats by grizzly bear, high Forest road densities alone are not known to prohibit movement across the landscape or result in isolation of population segments. Access changes over the next 4 years are expected to improve connectivity and potentially increase available habitat on the Forest.

Recent wildfire activity and drought affected the North Fork as well as the South Fork area. However, unlike the South Fork area, conditions in the North Fork are not semi-isolating. An increasing grizzly bear population in British Columbia and sparsely roaded habitat of Glacier National Park are contiguous with the area. Access changes on the Forest are expected to improve connectivity and increase freely available grizzly bear habitat in the North Fork and South Fork drainages over the next 4 years.

Revegetation and revitalization of burned areas and decommissioned roadways are expected to improve habitat conditions in time. Salvage harvest would remove some residual cover for grizzly bears within cutting units and possibly delay vegetal succession due to heavy equipment operation. However, less than 0.3 percent of the Forest recovery zone would be directly impacted by salvage activity.

Occupancy of the Mission Mountains, not necessarily the Swan Valley itself, by female grizzly bears is a criterion for recovery of the NCDE population. Movement of grizzly bears across the Swan Valley was a primary goal of the Swan Valley Conservation Agreement and is integral to achieving a consistent occupation of the Missions. The Forest participation in the Swan Valley Conservation Agreement and access restrictions on the Forest are expected to continue over the next 4 years. Reasonable minimization of negative impacts in the mixed ownership environment would be achieved by maintaining security core, maintaining or decreasing road densities, enforcing the Forest's food storage order, coordinating activity with private and state land owners, and providing linkage zones across the Valley with limited human activity. Linkages are considered one way to facilitate grizzly bear population connectivity through developed areas (Servheen et al. 2001, Wilcox 1980). We expect continued occupancy of the Mission Mountains and continual movement of grizzly bears across the valley.

### ***Habituation and mortality***

Near roads and human activity, some grizzly bears change their activity periods to coincide with a low level of human activity. Nocturnal grizzly bears are associated with high intensity human activity on private property and off the Forest. Grizzly bears in the Swan Valley and U.S.-2 corridor are more nocturnal than individuals in less human impacted areas (Chris Servheen, U.S. Fish and Wildlife Service, pers. comm. 2005; Waller 2005a). Altering an active period could reduce mortality risk from vehicle collision, illegal killing, and mistaken identity, but other risks remain and possibly increase. Exposure to human-related attractants could lead to food conditioning and eventual management action, the leading cause of recent high grizzly bear mortality (U.S. Fish and Wildlife Service 2004c).

Habituated bears suffer high human-caused mortality rates. Access for people into grizzly bear habitat can increase risk of habituation, or risk of illegal killing of grizzly bears. However, known human-caused grizzly bear mortality consistently occurs less frequently on multiple-use Forest lands than on roaded-rural private lands in the area or wilderness areas on the Forest (Ake et al. 1998; Mace and Waller 1998; see also Manley 2005). The South Fork study indicated an annual mortality rate 21 times higher for grizzly bears using roaded-rural areas than for bears occupying Forest lands despite a 5 times higher density of grizzly bears in the multiple-use areas (Mace and Waller 1998). Grizzly bears in the wilderness areas of the Forest experienced a 15 times higher annual rate of mortality compared to multiple-use areas. In the wilderness areas of the Forest, human-caused grizzly bear mortalities are often associated with hunting: human defense of life, illegal killing, and mistaken identity of black bear. At this time, the risks to grizzly bears in the backcountry are not well understood. The results of the MWFP grizzly bear

population trend study are expected beginning in 2006 and could provide insights on survivorship rates in roadless wilderness areas (Manley 2005). In multiple use areas of the Forest, human-caused mortality is most often associated with illegal shooting, including mistaken identity (U.S. Fish and Wildlife Service 2004c). These mortalities are difficult to manage through access management alone, and realistically cannot be completely avoided. They often occur in roaded habitat during spring and fall, but do not occur in any evident pattern across the Forest and are not predictable in relation to specific areas or to specific roads. Public and hunter information and education programs are key to addressing these mortalities, in addition to general access management programs. Both the Forest and MFWP have such programs.

In the NCDE, relatively high rates of grizzly bear mortality occur on private property as opposed to Forest Service lands (U.S. Fish and Wildlife Service 2004c). Since 1999, 44 percent of human-caused grizzly bear mortalities occurred on private lands despite the fact that the vast proportion of grizzly bears live on public lands; 25 percent occurred on Forest Service property. From 2000 to 2004, 79 percent of human-caused mortality occurred in areas classified as "roaded rural". In this particular NCDE grizzly bear mortality report, rural roaded is considered private or public land within 1 mile of private land and usually associated with a developed site (Ibid.).

The incidence of human-caused mortality near (Flathead) Forest roads is similarly low compared to mortalities on private lands (MFWP 2005). It would be expected that more human-caused mortality would occur along Forest roadways if grizzly bears were habituating to human presence in high-density road areas on the Forest. An observed low incidence of grizzly bear mortalities on the Forest might be attributed in part to a decreasing trend in access densities, increasing trend in security core area, the Forest food storage order reducing potential for habituation, visitor information and education program on the Forest, or lower probability of detection. However, grizzly bear research has not addressed these hypotheses. It is well documented that attractants on private lands within or adjacent to grizzly bear habitat create situations where bears encounter or are lured to unnatural food sources and become habituated, consequently suffering the inevitable resulting high human-caused mortality rate.

The risk of human-caused mortality exists as long as grizzly bears interact with humans. Human activity including development on private property in the recovery zone and recreation on the Forest is expected to increase over time. Increasing levels of traffic and human activities in the recovery zone could result in increased risk of habituation. Conflicts do occur on the Forest, but these are comparatively few and relatively few grizzly bears have been removed because of known habituation and food conditioning on the Forest. The NCDE food storage order would continue and is expected to reduce the availability of human-related attractants such as garbage, human foods and other attractants, and livestock feed. Mortality risks due to habituation and food conditioning are expected to remain substantially higher on private lands in vicinity to the Forest. As grizzly bear numbers increase, the number of conflicts is expected to increase as well. The MFWP bear specialists program is expected to continue to work to effectively reduce conflicts between grizzly bears and people on private and public lands.

Over the next 4 years, the Forest would increase restrictions on motorized administrative use, continue to reduce open and total road densities in many areas, increase security core and the availability of grizzly bear habitat. Although not all subunits meet A19 objectives, some meet and some provide better conditions for grizzly bears than required by A19. Core area is well distributed across the Forest, occurring in each subunit.

### **Other Activities Impacting Grizzly bears on the Forest's Portion of the Recovery Zone**

#### *Winter motorized recreation*

Generally, the analysis of impacts to grizzly bears concentrates on Forest activities and conditions existing from March 15 to November 15. Across the Forest, winter recreation, particularly motorized winter travel could potentially impact grizzly bears in dens and during the period of spring den emergence. However, no grizzly bear mortality or adverse impacts associated with snowmobile activity have been reported in the NCDE or other ecosystems (C. Servheen, pers. comm. with Ben Conard 2004, W. Kasworm, pers. comm. with Ben Conard 2004). To date, no den abandonment or other deleterious effects on individual grizzly bears have been documented to result from snowmobiling. Formal consultation on the effects of snowmobiling on grizzly bears is ongoing between the Forest and Service.

### **Discussion on Grizzly Bear Population and Mortality**

The NCDE recovery zone was identified as an area large enough and of sufficient habitat quality to support a recovered grizzly bear population (U.S. Fish and Wildlife Service 1993). The grizzly bear Recovery Plan recognizes monitoring of three key parameters as indicative of the grizzly bear population recovery status:

- Occupancy – distribution of reproducing female grizzly bears (family groups) across the recovery zone
- Estimated average minimum population size based on a 3-year average of unduplicated females with cubs of the year
- Sustainable human-caused mortality levels related to number of females with cubs

#### ***Distribution***

The occupation criterion within the recovery zone is based on maintaining a distribution of grizzly bears in an average of 21 of 23 BMUs over a running 6-year period. This requirement for a recovered population is supported because female grizzly bears with young have occupied 23 of the 23 BMUs (2001, 2002, 2003) in the recovery zone over a 6-year running period (U.S. Fish and Wildlife Service in litt. 2004). In addition, the Mission Mountains portion of the recovery zone is occupied – another requirement for recovery. Grizzly bears have been documented outside the recovery zone. Grizzly bears

were reported outside the recovery zone with increasing frequency prior to the year 2000 (U.S. Forest Service 2000). An interagency task force consolidated and mapped grizzly bear distribution in 2000 and updated the database in 2002 to reflect a wider distribution of grizzly bears outside the recovery zone (U.S. Forest Service et al. 2000, 2002).

It is not certain as to why grizzly bears are moving or residing with increasing frequency outside the recovery zone. Diverse social and environmental factors influence the behavior of these wide-ranging carnivores. We offer a discussion on possible influences effecting the grizzly bear population in the NCDE based on studies and observations of grizzly bear populations and habitats in the NCDE and the GYE. The expanding distribution of grizzly bears might be a function of a growing grizzly bear population, displacement from human development or activity, including roads, within the recovery zone, temporarily limited resources, and/or attractiveness of resources outside the recovery zone. The causes for an expanding distribution could vary depending on specific characteristics and conditions of different areas of the recovery zone.

In the GYE, current information indicated that the grizzly bear population is growing (Eberhardt et al. 1994, Boyce 1995, Boyce et al. 2001). Corresponding with this increasing population number, female grizzly bears with cubs are well distributed in the Yellowstone recovery zone and sightings of other individuals with cubs occur outside the recovery and 10-mile buffer zone (Haroldson 2002, 2003; Podrutzny et al. 2002). For the NCDE, only an estimate of minimum population number is calculated and little population trend information is available at this time. However, similarities of access management to the GYE, the distribution of grizzly bears in the recovery zone, and dispersal activity outside the recovery zone could indicate an increasing grizzly bear population in the NCDE as well.

The Service concludes that it is unlikely that movement of grizzly bears from inside to outside the recovery zone is driven by displacement from roads, human development or activity alone within the recovery zone. Grizzly bears are apparently dispersing in all directions outside the recovery zone except the highly developed area of Flathead Lake to the west (U.S. Fish and Wildlife Service 2004c, Figure 2). High human-caused mortality and/or avoidance by grizzly bears associated with this area may act as a barrier to movement beyond concentrated development and activity. Grizzly bears are moving east out of Glacier National Park and the Blackfeet Indian Reservation and east along the Rocky Mountain Front, both are areas where development on public land is sparse and/or few roads exist inside the recovery zone. Grizzly bears are also occurring more frequently outside the wilderness areas of the National Forest, leaving the recovery zone for roaded areas to the south. Grizzly bears are documented west of the recovery zone in the north, as far west as Lake Kootenai. Also, grizzly bears are being more frequently documented outside the recovery zone as access conditions on the National Forests have improved.

Little is known of grizzly bear population numbers in specific areas of the NCDE recovery zone. However, a few studies revealed a propensity for grizzly bears to occur in greater densities on public, multi-use lands (Mace and Waller 1998 and Waller 2005a).

Public lands dominate the recovery zone. Forest and National Park lands are generally higher in quality shelter and security than proximal private lands; fewer roads and development exist on the landscape, denning habitat is available, existing food storage and handling programs, and education programs are in place. It is commonly assumed that grizzly bear densities are relatively high in Glacier National Park, given the high quality habitat, low development, and lack of public use of firearms. The documented aversion of grizzly bears, particularly females, to human development and activity (Mace et al. 1996) would lead to a conclusion that grizzly bears are leaving relatively superior habitats on public lands for other than access management or other human-caused pressures. A more plausible explanation is increased numbers of grizzly bears in at least portions of the NCDE recovery zone (R. Mace, MFWP, pers. comm. 2005; T. Manley, MFWP, pers. comm. 2005).

The inherent carrying capacity of public lands for grizzly bears is likely impacted to some degree by roads. However, road density is not the sole determinant of habitat quality and carrying capacity, but only one of a multitude of factors. Based on the best information available, the current and planned distribution of roads and core area, large portions of roadless areas, and known grizzly bear distribution within the recovery zone portion of the Forest reveal a pattern and trend in access management that is improving, is based on ecosystem-specific information, and will be conducive to supporting grizzly bears at numbers that promote recovery.

### ***Mortality***

As the density or number of grizzly bears increases, whether in specific areas or throughout the recovery zone, competition for resources including space could force individuals into using less favorable, lower quality habitats (Mattson et al. 1992a). Roaded and developed areas on the Forest or other public lands would likely be frequented by grizzly bears more often than expected and preferred over neighboring private lands (Mace and Waller 1998). Individuals utilizing lower quality habitat, in terms of being near roads, or other human development are most vulnerable to human-caused mortality. For example, human-caused mortality would likely increase in roaded areas or at least some roaded areas of the Forest before population pressures forced grizzly bears to less hospitable private lands. Although human-causes were implicated in the high numbers of grizzly bear mortalities on the Forest in 2004, mortality on private land exceeded all other land jurisdictions combined (Manley 2005; U.S. Fish and Wildlife Service 2004c).

In the situation where the grizzly bear population is increasing and individuals are frequenting roadside habitats on the Forest, a lower level of mortality on the Forest than on neighboring private lands could indicate that Forest roads pose less of a mortality risk and are less population-limiting than roaded areas on private lands.

Subadults dispersing from natal areas would likely face increased mortality risks in density-dependent and density-independent systems (Pearson 1975, U.S. Fish and Wildlife Service 1993, Mueller 2001). Young males disperse from the natal area and might travel long distances seeking territories unoccupied by adult males, thus subjecting

themselves to increased mortality. Young females tend to establish home ranges in proximity or overlapping their mother's range. A high proportion of female subadults in human-caused mortality records could indicate that in some geographic areas the grizzly bear population is growing and possibly nearing the area's maximum capacity to support grizzly bears.

In general, subadults are naïve in interactions with humans and more likely to utilize habitats near roads than adults (Mueller 2001). The elevated mortality level in 2004 of both male and female subadult grizzly bears might indicate density-dependent movement out of the recovery zone or on to private lands. On the other hand, because of their inexperience and natural inclination to disperse, subadults likely succumbed to the attractiveness of human-related foods in a density-independent situation, especially during a period of temporarily limited natural food sources.

Much of the private human development in the recovery zone and known distribution areas occurs in low temperate and temperate elevations zones preferred by grizzly bears, especially during the spring season (Mace et al. 1996, U.S. Forest Service 1998, U.S. Forest Service in litt. 2005). Available spring habitat on private lands could be attractive to habituated individuals, subadults, and/or multi-use area individuals when attractants are readily available, grizzly bear population density is high, or recent destruction or deterioration of habitat occurred on the Forest or other public land. (Blanchard and Knight 1991; Mattson et al. 1992a).

Fire invigorates early successional vegetation dominated by grasses and forbs – benefiting grizzly bears during the spring and early summer (Blanchard and Knight 1996). The effects of a reduced food resource such as huckleberries would be most noticeable when individuals are preparing for hibernation. Berry failure due to drought and destruction of plants by fire would force grizzly bears to range more widely than in normal periods of seasonal availability (Blanchard and Knight 1991). Therefore, grizzly bears face an increased risk of encounters with humans and ultimately human-caused mortality during the autumn season.

Grizzly bears consume other high calorie foods during the corresponding berry season – including army cutworm moths, other insects and lower elevation fruiting shrubs. However, in the NCDE insects are a minor portion of the diet (Martinka and Kendall 1986, White 1996). The proximity and availability of human-related attractants relative to insects and other reduced natural food resources could entice hyperphagic grizzly bears to overcome their normal trepidations and venture to private lands with a high proportion of livestock, stock and pet foods, grains, garbage, and bird feeders during years of low berry production. The risk of habituation and human-caused mortality increases as grizzly bears spend more time on private lands.

Martinka and Kendall (1986) reported that grizzly bears in the Greater Glacier Ecosystem (within the NCDE) increased berry consumption in August, and by mid-September berries composed the majority of their diet. The 2004 dramatic increase in human-caused mortality occurred in August and September corresponding with the expected use of

berries. Grizzly bears in the Yellowstone ecosystem subsist on different food resources than NCDE grizzlies. However, the nutritional requirements and temporal food selection patterns are similar. In the GYA, human-grizzly bear conflicts are few during years of abundant food resources (Gunther et al. 1997). Conflicts and human-caused mortality increase during years with shortages of one or more of the seasonal food items (Mattson et al. 1992a,b; Gunther et al. 1997).

It is reasonable to consider that natural events contributed to an increasing trend in known, human-caused grizzly bear mortality and last year's 30-year high in the NCDE. High to severe drought conditions (Natural Resource Information System 2005) and accompanying wildfire activity since 2000 resulted in temporary reduction or destruction of resources in areas of the NCDE. In 2003 alone, wildfire directly impacted approximately 200,000 acres in the NCDE (U.S. Forest Service 2004f,l, in litt. 2004). The recent yield of huckleberries, important mid- to late-season forage, has declined in the NCDE (Martinka and Kendall 1986; Mann 2004; Jamison 2004; Manley 2005) and berry areas were impacted by wildfire (U.S. Forest Service 2004g). In 2004, the massive huckleberry crop failure coincided with high grizzly bear mortality (Manley 2005). Grizzly bears that would have used higher elevation berry fields on Forest lands in a normal year, moved to lower elevations to find adequate late summer and fall foods (R. Mace, MFWP pers. comm. 2005; T. Manley, MFWP pers. comm. 2005). High numbers of grizzly bears encountered private lands and attractants resulting in conflicts with people, and were removed from the population through management action or illegal killing. It is unlikely that further reduction of road densities on Forest land could have prevented or even significantly reduced grizzly bear mortality, given the known lack of huckleberries at higher elevations on Forest lands, the amount of lower elevation habitat in or near private ownership, and the number of mortalities associated with the private lands (T. Manley, MFWP pers. comm. 2005; R. Mace, MFWP pers. comm. 2005).

### ***Population***

Numerous factors contributing to the recent high human-caused mortality are proffered in this discussion. However, the impact of any level of grizzly bear mortality is dependent on the status of the population. One component of assessing the recovery of the NCDE grizzly bear population is the number of grizzly bears in the recovery zone; population size is important in understanding population survival (Boyce 1992; Caughley 1994). In addition to overall population numbers, changes in grizzly bear population density or changes in demographic rates (birth, death, movement) over time are important indicators of population viability and response to changes in the environment (Doak 1995).

Since 1987, estimates of minimum population numbers were derived from observations of females with cubs and numbers of known total and female mortality (U.S. Fish and Wildlife Service 1993). There is no established protocol for this count, counting effort varies considerably among years, and visual sightings of females with cubs are not easily obtained in the NCDE because of forest cover. The Service acknowledges that females with cubs are typically poorly counted in the NCDE recovery zone, therefore, the number of female grizzly bears recorded each year represents a conservative minimum. These conservative counts result in a conservative minimum population estimate, which results

in conservative sustainable mortality limits. Due to the nature of how this information is collected, females with cubs and the resulting minimum population estimate cannot be used to determine trend (U.S. Fish and Wildlife Service 1993).

Recent human-caused mortality is a major consideration in the analysis of this proposed extended implementation timeframe for A19. However, populations increase and decrease over time because of mortality or decreased birth rates in response to the complicated interplay of environmental (such as drought and fire), intraspecies social interactions (demographic changes including mortality of reproduction cohorts), and human influences (development and roads). Boyce (1995) points out that “population size alone is not a sufficient criterion for evaluating population viability,” and “even though a population may have increased or decreased over the past 10 to 20 years, this offers no indication that the population will continue on the same trajectory in the future.” Walters and Holling (1990) consider the best path for ensuring a healthy population of grizzly bears is to monitor both population and habitat parameters closely and respond to problems in a dynamic way.

Roads and human use associated with roads have negative influences on habitat quality and use of habitat by grizzly bears and could limit the quantity of individuals an area can support. However, there is no grizzly bear research that makes a direct correlation between grizzly bear population demographics and access management. Determining the carrying capacity of a system is complex, requiring synthesis of mortality and other vital rates, the inherent availability, distribution and quality of food, shelter and space, access to mates, population number, behavior, social structure, dominance hierarchy, predator/prey dynamics and other factors. While some aspects of the natural history of the grizzly bear in the NCDE are known, information on population number and vital rates is limited to a few studies focusing on relatively small areas of the recovery zone.

Analyses of data collected for the U.S.G.S. DNA-based mark-recapture projects in the Glacier area and NCDE (Kendall 2004a,b) are underway. The projects are expected to produce a population estimate for grizzly bears in the northern third of the NCDE and the NCDE recovery zone in its entirety by the end of 2005 and 2006 respectively. This baseline population size will provide a starting point for the analysis of population trend over time (MFWP 2005). The Recovery Plan’s running average of human-caused mortality can be put in better perspective by comparing it to a rigorous population estimate, observation of family groups, and distribution of grizzly bears across their range. The significance of human-caused mortality levels cannot be evaluated until there is adequate information on grizzly bear population size (U.S. Geological Survey 2004).

In 2004, Montana Fish, Wildlife and Parks began collecting information for estimating trend that will yield a number of vital rates for the NCDE grizzly bear population, such as fecundity and survivorship. Such information is invaluable to assessing the status of the population, and again, assessing the significance of current known levels of human-caused mortality. Trend information would also document reproductive success across the NCDE; successful reproduction is one indicator of habitat sufficiency. Thus

distribution of family groups is one indicator of suitable habitat in areas where such sightings occur. Results are expected beginning in 2006 (MFWP 2005).

***Forest action: summary of population, mortality, and access***

The Forest represents 40 percent of the NCDE 5.7 million-acre recovery zone, approximately 2,090,000 acres (K. Ake, pers. comm., 2005). Land management activities on the Forest have potential to significantly impact the quality and availability of grizzly bear habitat. In turn, the quality of the habitat is reflected in the reproductive success of resident grizzly bears.

As analyzed in this biological opinion, the Forest provides substantive amounts of habitat conducive to supporting female grizzly bears. While some areas of high road densities may cause impairment of reproduction at local scales, access management alone does not and cannot be reasonably assumed to drive population trend or carrying capacity (Waller 2005b). Subunits and subunit boundaries do not represent actual home ranges with which female grizzly bears live. Female home ranges encompass portions of several subunits and overlap each other. Home ranges of female grizzly bears in the South Fork Study overlapped an average of 24 percent (Mace and Waller 1998). Subunit delineation is used to ensure a conservative application of access conditions found in the larger composite home range. Subunits also ensure adequate distribution of core and available habitat for grizzly bears across the Forest. In 1995, we expected that site-specific analyses and condition in some subunits as influenced by size, shape and existing roads, would require modification of objectives in some subunits over time. For reasons just mentioned, such modification may result in affecting habitat in local areas and adverse impacts to some grizzly bears. But our analysis leads us to conclude that conditions across the Forest, and improvements to be made by 2011 through implementation of projects with timeframes, can reasonably be assumed conducive for supporting an adequate number of female grizzly bears during that time. Access conditions will not appreciably reduce numbers or distribution of grizzly bears in the NCDE over this time period. Additional improvements may occur, but only if funding becomes available during this period.

The best information leads the Service to believe that the grizzly bear population in the NCDE is relatively stable, and perhaps increasing in some areas. While the recent levels of mortality are a concern, this biological opinion has analyzed the Recovery Plan human-caused mortality limits, the only existing trend information in the NCDE, and the recent expansion of grizzly bears outside the recovery zones in two ecosystems. We have also closely examined grizzly bear mortality records, which strongly indicate that Forest roaded lands pose less direct and indirect mortality risk than private lands in and adjacent to grizzly bear habitat. Temporary adverse effects due to natural phenomenon account for a portion of the recent increased human-caused mortality. Increasing grizzly bear numbers could also be reasonably expected to account for a proportion of the increase in human-caused mortality. As grizzly bear numbers increased in the GYE, grizzly bear mortality levels typically increased as well (Haroldson and Frey 2004).

We have also examined the existing and future access management conditions on the Forest. There is no grizzly bear research that makes a direct correlation between grizzly bear population demographics and access management. The Recovery Plan sets conservative mortality limits based on a minimum estimate of known adult female grizzly bears and resulting minimum population estimate. If limits are exceeded, the plan indicates that the information available suggests the grizzly bear population has not yet achieved a status that would diminish the need for protection under the Act. The Recovery Plan does not address total population or trend.

Forthcoming population and trend information about the NCDE grizzly bear population, which was not available for use in the Recovery Plan, will provide insight into the significance of current mortality levels. The State's current approach and effort towards trend monitoring will help the Service, land managers, researchers and interested parties develop appropriate and effective measures to support grizzly bear sustainability in the NCDE ecosystem. At this time, available evidence and mortality records indicate that conditions other than Forest roads would need to be addressed to significantly reduce human-caused mortality of grizzly bears.

Within the next 6 to 15 months, grizzly bear population information will be available to aid the Service in evaluating population status in the NCDE. We will re-evaluate our assumptions regarding habitat conditions on the Forest and the effects of the proposed timeframe as rigorous population information becomes available. If new information should prove our assumptions regarding population status are in error, the time frame within which we discover such error would be so short as to lead to insignificant impacts on grizzly bears as a result of the proposed extension of A19. As directed under section 7 of the Act, new information may lead to reinitiation of consultation on the effects of this proposal (see *Reinitiation Requirement* section at end of this biological opinion).

Excessive road densities and low levels of security core exist in some areas of the Forest recovery zone. However, progress would be made over the next four years towards achieving access conditions in compliance with A19 objectives or amended objectives. There would be less displacement of grizzly bears and more habitat available due to substantive increases in core habitat, fewer roads, increased road restrictions, and less administrative use of roads. The extension of the A19 implementation timeframe for 4 years is not expected to appreciably reduce the numbers or distribution of grizzly bears on the Forest.

At over 2 million acres, the Forest covers a substantial geographic area in the NCDE recovery zone. As stated earlier, excessive road densities impact grizzly bears in some parts of the Forest, however, conditions are favorable for grizzly bears and connectivity is supported by over 700,000 acres (66 percent) of security core habitat in the 40 subunits managed under A19 (Figure 12a. and Table 27b). Contiguous with these A19 subunits are 16 additional Forest subunits in the recovery zone that average 90 percent core. The 14 subunits with less than 75 percent Forest lands contribute an additional 180,000 acres of core. Forest-wide, the 70 subunits encompass approximately 1.5 million acres of grizzly bear habitat, 69 percent of these acres currently provide security core, which is

distributed across the landscape (Figure 12a). Decisions in place include authorizations for decreasing the acres impacted by OMAD and TMAD and increasing core to 72 percent Forest-wide within the recovery zone. Decisions authorize access changes to increase core to over 800,000 acres in the 40 nonwilderness subunits with greater than 75 percent Forest management. After project implementation, security core would average 71 percent across these 40 subunits. On a Forest-wide scale, access changes authorized by existing decisions would provide security core in excess of the A19 objective (Tables 27a and 27b). Core would be well distributed across the Forest (Figure 12b).

### **Effects of the Revised Implementation Schedule on Grizzly Bears in the NCDE Recovery Zone**

The Forest manages 40 percent of the 5.7 million-acre NCDE grizzly bear recovery zone. At present, 745,875 acres within A19 subunits provide 66 percent security core habitat. Decisions are in place authorizing the access changes that would increase security core to 71 percent over the next 4 years. Security core increases to 72 percent when subunits with less than 75 percent Forest management and wilderness areas on the Forest are considered. There is some variation in the amount of security core and access densities distributed across the Forest on a subunit level. The variations are based on differences in the presence of major access routes, private property access, geographic features, size, shape and juxtaposition of subunits. Overall, core is distributed across all areas of the Forest; all subunits contribute core habitat. It is reasonable to assume that some grizzly bears are impacted on a local level by adverse access conditions, and mortality risks associated with the proximity of human development and activities and availability of attractants. Access conditions vary locally however; large areas of the Forest are sparsely roaded, contiguous with wilderness and other public lands and are expected to provide adequate short and long-term security and habitat connectivity within the recovery zone. Human-caused grizzly bear mortality has consistently been higher for bears in private roaded areas than for individuals using roaded areas on the Forest, even when the Forest areas are not within A19 access objectives. Grizzly bear family groups are well distributed across the Forest and NCDE.

A recent report indicated that grizzly bears move across U.S. Highway 2 between the Forest and 961,949 acres of the sparsely roaded Glacier National Park (Waller 2005a). Grizzly bears are also known to move between the Swan and Mission Mountains, crossing State Highway 83. Forest Service wilderness provides 1.6 million acres of contiguous habitat, mostly roadless, between the Flathead, Lolo, Lewis and Clark, and Helena National Forests. The expanse of contiguous security habitat provides opportunity for far-ranging individuals (usually adult males) as well as accommodating family groups with overlapping ranges. In addition, tribal lands contribute over 91,000 acres of wilderness (K. Ake in litt. 2005).

Grizzly bears are observed with increasing frequency in the Swan Valley which is dominated by private land and bisected by state road 83 (U.S. Fish and Wildlife Service et al. 2005). Movement of grizzly bears utilizing the Swan Valley as a corridor between the Swan and Mission Mountains is documented and contributes to the recovery goals for

the NCDE grizzly bear population (U.S. Forest Service 1993, C. Servheen, in litt. 2004, U.S. Fish and Wildlife Service et al. 2005).

Access conditions for grizzly bears are generally good throughout the recovery zone. Eleven of 14 subunits with majority forest service management in the other three national forests provide 68 percent or greater security core. Three subunits exceed 19 percent OMAD and range from 24.7 to 60 percent, and two subunits exceed TMAD ranging from 21 to 29 percent.

There are indications of an increasing grizzly bear population in the recovery zone. We base this postulation on the distribution of grizzly bears and occupancy of 23 BMUs over the past 3 years and the documented presence of grizzly bears in all directions outside the recovery zone. The presence of grizzly bears throughout the recovery zone and beyond, the generally good access conditions throughout the recovery zone, the food storage order, grazing restrictions, weapons restriction in the Park, relatively low human-caused mortality, and access improvements on the Forest over the next 4 years are expected to contribute to a stable or increasing grizzly bear population in the NCDE recovery zone. The Service believes that grizzly bears in the NCDE would benefit from continued application of the Forest's access management strategy, as proposed. Efforts to reduce open road density, especially in seasonally important resource areas, and reducing roads to provide core habitat in subunits with high road densities should be pursued and included in all project planning.

The results of the NCDE DNA-based population study, Greater Glacier study, and the MFWP grizzly bear trend monitoring are expected to yield significant insights on the number, distribution, and population trends of grizzly bears in the recovery zone within the next five years. This information will be invaluable in assessing ongoing recovery actions and identifying future management actions, if needed.

## **CUMULATIVE EFFECTS**

Cumulative effects are the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this opinion. Future federal actions unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Development, including roads, on private lands and human activity are expected to increase over the long-term. It is not known to what degree development will increase over the next 4 years; it is certain that development will not decrease. Human activity and access conditions on private lands would continue to impact grizzly bears to some extent.

Based on past growth and growth projections for northwestern Montana, human settlement and development in low elevation areas has, and will continue to have, a cumulative impact on grizzly bears through loss of habitat, displacement of individual grizzly bears, and mortality risk. These low elevation lands often encompass high quality

riparian areas and other habitat preferred by grizzly bears. Such habitat attracts grizzly bears to private lands and puts bears into close proximity to people. Grizzly bears are lured to garbage, livestock and pet foods, bird feeders and other attractants. Grizzly bear mortality is associated with private lands or exposure to hazards on private lands. As human population centers expand and increased dispersed human activity and development ensues, risks to grizzly bears may increase. Public lands will remain important to the recovery and sustainability of the NCDE grizzly bear population. Subadult grizzly bears that encounter private lands when dispersing from natal ranges will continue to face significant human-caused mortality risk.

Montana Fish, Wildlife, and Parks employs four bear specialists that work in the NCDE, including Region 1, which encompasses the Forest. The importance of these positions and the program cannot be overstated. Montana Fish, Wildlife, and Parks states that perhaps the greatest advancement in the management of problem bears has been the development of bear management specialist positions (MFWP 2001). The combination of shortened response time to grizzly bear conflict reports, preventative actions to remove attractants, the deterrent effects of local law enforcement, and perhaps most important, building community involvement in the management and conservation of grizzly bears, has been invaluable in dealing with nuisance bears, preventing habituation of bears, and fostering local public support of grizzly bear conservation.

In all areas of the NCDE, including the action area, the bear specialist program has worked with individuals, local groups and governments to reduce the availability of attractants on private lands. The results of these programs are somewhat difficult to quantify. However, the results of bear specialist programs are summarized biannually at IGBC Subcommittee meetings and in annual reports, such as the annual "Yellowstone Grizzly Bear Investigations", and annual reports from the MFWP grizzly bear specialists in the NCDE (Manly 2005). Many of the efforts are preventative and quantifying effects is difficult. In any case, there is ample evidence that securing human food and garbage from grizzly bears can dramatically reduce the number of grizzly bears removed through management actions (Gunther 1994). Recent examples of work accomplished through the program in the action area includes the garbage collection service for the community of West Glacier offering free upgrades to residents for grizzly bear-resistant garbage containers. All county garbage transfer stations have been upgraded to bear-resistant in the Middle Fork and Swan drainages and in the Highway 93 corridor north to Eureka (Eric Wenum, MFWP, pers. comm. 2005). Further, actions to make the Glen Lake site bear-resistant are underway. Elsewhere, outside the action area, Montana's bear specialists also report annually on progress and measurable success. For example, conflict reports detailed the number of grizzly bear conflicts before and after construction of electric fencing around attractant sites (Agency Summaries *in* Schwartz and Haroldson 2001). Since the beginning of the management program on the Rocky Mountain Front, records indicated that the presence of grizzly bears in the region, including females with cubs, has remained stable to slightly increasing, but the level of known human caused grizzly bear mortality has declined (Mike Madel, Montana Fish, Wildlife and Parks, pers. comm. 2002). The Service considers the bear specialist programs one of the most

important factors in grizzly bear recovery. The program is expected to continue indefinitely within the action area.

The human population is expected to increase in small communities and dispersed areas within and adjacent to Forest's portion of the recovery zone. Along with human population increase come greater demands for year-round recreation, residential, and commercial development and opportunities accompanied by the necessary infrastructure including roads. County, state and private road construction and maintenance activities are expected to continue. Loss of habitat and habitat fragmentation are likely to occur due to actions on private lands.

U.S. Highway 2 and the paralleling rail line are potential sources of habitat fragmentation in the recovery zone. At the present level of traffic, the U.S.-2 corridor is not considered a factor in isolating the high-density population of grizzly bears in the area.

Fourteen of the 54 nonwilderness subunits delineated on the Forest encompass more than 25 percent private or corporate lands along with Forest Service lands. On these subunits with intermingled landowners, it is reasonable to assume that additional human development would continue, based on past and current projections of human population growth in the area. Adverse cumulative effects to grizzly bears would likely occur from increased development and human activities. However, the Forest actions are not likely to contribute to those adverse effects. As proposed, Forest actions would gradually lead to improved conditions, albeit at a slower pace than A19 required in 1995. In some areas, Forest actions would continue to benefit or alleviate impacts in mixed ownership environments.

Eleven of the 14 subunits that are not greater than 75 percent Forest land are managed under the Swan Valley Grizzly Bear Conservation Agreement, discussed previously in this opinion. Timber harvest and other silvicultural treatments are expected to continue on large commercial holdings by Plum Creek Timber Company, other private lands, and State of Montana lands managed by the DNRC. Timber harvest is expected to produce some displacement of grizzly bears due to disturbance and removal of cover. The effects of timber harvest and access are moderated by management guidelines. The effects of the management actions on these private lands were analyzed in a biological opinion in 1995 (U.S. Fish and Wildlife Service 1995a,b). On other state, private, and commercial timber lands outside the Swan Valley, timber harvest is expected to continue. Although difficult to predict or quantify, grizzly bears would be impacted to varying degrees at smaller scales.

Plum Creek is selling properties in the Swan Valley as the extraction of forest products becomes less profitable. Divested Plum Creek lands could be used for further timber resource activities, residential and commercial development, recreation, or conservation purposes – depending on the intent of the purchaser. Plum Creek and the state are cooperators in the Swan Valley Grizzly Bear Conservation Agreement with the Flathead National Forest and the Service. In the Agreement area, commercial activities including access management are conducted to limit human disturbance in identified linkage zones

considered necessary for movement of grizzly bears between the Swan and Mission Mountains. Terms of the current agreement would not apply to private buyers of Plum Creek property. As Plum Creek property is transferred to other owners, human-caused risks to grizzly bears would be expected to increase. A revised version of the 1997 Agreement is in development that would address lands sales in the Swan Valley to minimize the impacts of land transfers. A cooperative monitoring program for the application and effectiveness of the guidelines of the Agreement is ongoing.

The State of Montana sponsors big game hunting including black bear hunting on Forest lands within the action area. Grizzly bear mortality is possible due to mistaken identification of grizzly bear for black bear and human self-defense. The effects of the State's hunting program on grizzly bears were addressed in a 2002 biological opinion (U.S. Fish and Wildlife Service 2002c).

## CONCLUSION

After reviewing the current status of the grizzly bear, the environmental baseline for the action area, the effects of the proposed Amendment 19 Revised Implementation Schedule, and cumulative effects, it is the Service's biological opinion that the Forest's proposed action is "not likely to jeopardize the continued existence" of grizzly bears. No critical habitat has been designated for this species, therefore none will be affected. Implementing regulations for section 7 (50 C.F.R. 402) 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 the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." Our rationale for this non-jeopardy conclusion is based on the information and analyses in this biological opinion. The following outlines and briefly summarizes primary points:

1. As described in this biological opinion, OMAD, TMAD, and security core have improved across the recovery zone portion of the Forest since 1995 (Figure 8). From 1995 to 2004, the Forest restricted 131 miles of road (Table 9), and decommissioned approximately about 369 miles of road (U.S. Forest Service 2005b: Appendix C). Road density and core conditions in many subunits have substantively improved for grizzly bears, with decreases in OMAD, and/or TMAD, and/or increases in core habitat (Appendix D). Such decreases result in lessened displacement of grizzly bears from key habitats.
2. The Forest has worked cooperatively with private, commercial, and state entities to coordinate access management in subunits with less than 75 percent forest service managed lands. Road densities in these subunits have maintained or improved conditions due to Forest and cooperator actions or increased insignificantly since 1995 due to cooperator or other private actions (U.S. Forest Service 2005b).

3. Currently, 18 of the 40 subunits with greater than 75 percent Forest management meet or provide better conditions than A19 objectives for all three access parameters (Appendix C). Of the subunits not meeting all A19 objectives, many meet one or two of the three access objectives. Further, of the 15 subunits not meeting all objectives, 3 subunits are within 3 percent of the 19 percent OMAD objective, 1 subunit is within 3 percent of the 19 percent TMAD objective, and 3 subunits provide at least 50 percent of the area in security core habitat.

Currently, several subunits provide access conditions improved over A19 objectives. To date, 18 of the 40 subunits with greater than 75 percent Forest management exceed 68 percent core, ranging from 70 to 100 percent. Nineteen subunits have OMAD below 19 percent, ranging from 0 to 17. Twenty-three subunits have TMAD below 19 percent, ranging from 0 to 18 percent (Figures 8, 9, 10, and 11).

4. High road densities impact grizzly bears in some parts of the Forest. However, currently, conditions are favorable for grizzly bears and connectivity is supported by over 700,000 acres (66 percent) of security core habitat in the 40 subunits managed under A19 (Figure 12a. and Table 25b). Contiguous with these A19 subunits are 16 additional Forest subunits in the recovery zone that average 90 percent core. The 14 subunits with less than 75 percent Forest lands contribute an additional 180,000 acres of core. Forest-wide, the 70 subunits encompass approximately 1.5 million acres of grizzly bear habitat within the recovery zone, 69 percent of these acres currently provide security core, which is distributed across the landscape (Figure 12a; Table 27b).
5. The Forest would continue to progress toward achieving A19 or better access conditions, or amended access objectives, as described in this and previous biological opinions. Specific project decisions are in place authorizing actions to attain A19 or amended objectives between 2004 through 2011. The Moose, Robert-Wedge, and Westside Reservoir Post-Fire decisions amended access objectives in 6 subunits. The effects of the amended objectives on the NCDE grizzly bear population were analyzed in previous biological opinions and re-examined in this opinion. Within three years, two additional subunits would achieve or better the objectives of 19 percent OMAD, 19 percent TMAD, and 68 percent core. One additional subunit would achieve amended objectives. Within five years access restriction and decommissioning would be accomplished in two additional subunits thereby reaching full A19 implementation. In summary, access conditions would reach A19 objectives in 22, and some amended objectives in six subunits, of 40 the relevant subunits, by the end of 2011. Eight additional subunits would provide at least 50 percent core habitat. Six subunits would provide less than 50 percent core. After project implementation, security core would average 71 percent across these 40 subunits. On a Forest-wide scale, access changes authorized by

existing decisions would provide security core in excess of the A19 objective (Tables 27a and 27b). Core would be well distributed across the Forest (Figure 12b).

6. An additional 103 miles of road will be restricted (by seasonal closure, gate, berm, bridge out, or natural revegetation) and approximately 152 miles will be decommissioned by 2011 through the Robert-Wedge and Westside projects. There are 172 miles of authorized decommissioning that is not scheduled; some of this decommissioning could occur if funding becomes available. Outstanding miles of access changes noted here is high, as it does not reflect all accomplishments from the 2004 and 2005 field seasons.
7. The Forest is not proposing to build additional roads, but to reduce the miles of roads over a longer timeframe than that proposed in 1995. Our conclusions consider the period through 2009 and implementation of projects with access improvement schedules, as well as the resulting conditions that may remain below those required by A19 in some areas due to funding constraints for projects without schedules, and in subunits with no decisions authorizing access changes. However, the Service believes it is reasonable to assume that the NCDE grizzly bear population can sustain the levels of adverse impacts of roads over the extended timeframes, as proposed. We anticipate that the amount of impairment of reproduction caused by displacement (harm, or incidental take) associated with this proposal is above that anticipated in our 1995 incidental take statement or subsequent biological opinions in the sense that displacement, and to a much lesser extent, habituation of grizzly bears will occur over a longer period of time than previously anticipated. However, based on the current population status, the status of habitat conditions across the NCDE (including Glacier National Park, other National Forests, tribal and State lands), and continued future progress in reducing road densities on the Forest, an extension of the timeframes for implementation of A19 is not likely to appreciably reduce the reproduction, numbers or distribution of grizzly bears in the NCDE.
8. At the end of 2009, if Forest Plan revision and/or consultation on access management is not complete, consultation on the effects of access management would be required if subunits are not in compliance with A19 or not in compliance with access improvements according to the timeframes mandated in previous decisions and biological opinions.
9. Rigorous population estimates will be available by the end of 2005 for the northern 1/3 of the NCDE, and by the end of 2006 for the entire NCDE, along with trend information beginning in 2006. This information will be used to reassess our assumptions. If the estimated population levels are below what we anticipate here, below levels that could reasonably be expected to sustain the anticipated level of adverse impacts, section 7 regulations would require reinitiation of consultation.

10. Analysis of access conditions in project areas across the Forest, at landscapes larger than subunits but not larger than the composite home range upon which A19 objectives were based, reveals the access conditions meet or are nearing the composite home range condition (Tables 21 through 26). Further, Figure 12a displays a broad distribution of core area across the Forest. Access conditions would improve even more with the completion of ongoing projects by 2011 (Figure 12b).
11. Administrative use restrictions would be applied immediately and continue until re-evaluated under the Forest Plan revision process or in 2010, which ever comes first, in the nine subunits with an outstanding balance of access changes or without decisions authorizing actions. Decreased motorized traffic during the nondenning season, which could result in the elimination of most use in some cases, would reduce the possibility of displacing grizzly bears from roads left on the landscape. Two subunits have no decisions affecting access and no increased administrative use restrictions.
12. Severe drought and catastrophic wildfire contribute to reduced natural foods availability on the Forest. These are temporary, natural variations of environmental conditions. Temporary reductions in natural food resources could result in grizzly bears expanding or altering their individual ranges in the quest for food. Geographic features, juxtaposition with private lands in some areas, and human-related attractants increase the risks to grizzly bears from human causes. A food storage order is in force to minimize grizzly bears' exposure to human-related attractants on the Forest. Long-term records show a relatively low risk of food conditioning and resulting mortality of grizzly bears on Forest lands.
13. Recent high levels of human-caused mortalities of grizzly bears in the NCDE are a concern. Risks to grizzly bears are expected to increase as human presence increases in proximity to Forest lands. Encounters with humans and mortal consequences increase in the case of an expanding grizzly bear population. Since 1995, access changes and an enforced food storage order on the Forest have contributed to improved conditions for grizzly bears. An increase in known human-caused mortality is associated with rural roaded areas and primarily private property. As described in this biological opinion, known human-caused mortality of grizzly bears on Forest Service lands is consistently lower than rural roaded private lands, despite bears spending significantly more time on Forest lands than private lands. Additional road restrictions and reductions required by A19 are important to reduce displacement (and indirect mortality) and ensure adequate habitat available for continued reproduction and population growth over the long term. There is no compelling evidence to suggest more road restrictions would have significantly reduced recent high levels of human-caused grizzly bear mortality. Therefore, an extension of the timeframes within which to reduce

road densities is not likely to significantly increase direct, illegal or legal grizzly bear mortality.

14. The State's bear specialist program is expected to continue to work with the public to reduce risks to grizzly bears on private and public lands. In cooperation with other agencies, this program has made notable strides toward an informed public and reduced the availability of attractants to grizzly bears on private and public lands.
15. Some displacement of grizzly bears is expected from ongoing fire salvage activity over the two to three years, in addition to the displacement caused by Forest roads. The area impacted by salvage activity is limited. The Forest covers over 2,000,000 acres of grizzly bear habitat. According to the RODs, salvage harvest units total up to approximately 6,021 acres or about 0.3 percent of Forest land in the recovery zone. To date, even less acreage has been sold and scheduled for harvest (Tables 13 and 15). Thirteen subunits have harvest units of varying size and of the 6,021 acres of salvage harvest, approximately 1,270 acres will occur during grizzly bear denning season, where impacts are absent or minimal. Less than 4,750 acres, or about 0.2 percent of the Forest, will likely be harvested during the nondenning period. Many harvest units require only short periods to complete harvest activities. Further, minimization measures are included in each project to reduce displacement expected from increased road use and timber removal activity. We conclude that this level of disturbance, in addition to the disturbance and displacement caused by roads and other activities, can be tolerated by the grizzly bear population within the 5,700,000 acre NCDE, considering the status of the population and habitat. The effects of access and disturbance on the Forest are not likely to appreciably reduce the reproduction, numbers or distribution of grizzly bears.
16. The effects of salvage activity on the NCDE grizzly bear population were briefly re-examined in this opinion and thoroughly analyzed in previous project biological opinions. In each project-level analysis, we concluded that effects of proposed actions would not appreciably diminish survival or recovery of the NCDE grizzly bear population. Our analysis in this consultation leads us to the same conclusions.
17. Vegetation regeneration and invigoration is expected in grizzly bear habitat over the short and long term as a result of approximately 221,000 acres of wildland fires on or adjacent to the Forest since 2001.
18. The latest grizzly bear observation and mortality data yielded an estimated minimum population in the NCDE of 324 individuals. Recovery Plan population criteria were not met in 2003, and likely not in 2004, for overall and female mortality. The expected number of females with cubs in the entire recovery zone and Glacier National Park exceeded the minimum of 22 and 10,

respectively. The 6-year average occupation goal of BMUs by females with cubs was met. Human-caused mortality limits have been exceeded since 2000, and female mortality since 1997. Although the Service is concerned with the recent number of grizzly bear mortalities in the NCDE recovery zone, for reasons explained in this opinion, we consider the Recovery Plan mortality limits to be conservative.

19. If NCDE grizzly bear population levels are near Recovery Plan minimum estimates, then recent human-caused mortality levels are likely not sustainable. If population levels are in fact higher than the Recovery Plan minimum estimate, then current levels of mortality may be sustainable. At this time, no total population estimate is available; however there is no evidence to suggest the population is in decline. Grizzly bears are widely distributed on the Forest and the NCDE and occurrences are being increasingly documented outside the recovery zone. The broad distribution of grizzly bear locations outside and known grizzly bear distribution within the recovery zone, including consistent occupancy of more than 21 of 23 BMUs by female grizzly bears with young over 6-year averages, and 23 of 23 BMUs occupied for at least the past 3 years (2001, 2002, 2003), suggests an expansion is likely and partially due to increased grizzly bear numbers in areas of the recovery zone. A similar expansion in the range of grizzly bears occurred in the Greater Yellowstone Ecosystem during a period of known increasing trend in the grizzly bear population.
20. Population and trend information for the NCDE grizzly bear population is currently lacking. The Service acknowledges that there may be some debate as to whether the NCDE population is increasing, decreasing or stable. At this time, the Service finds no compelling evidence to suggest that the grizzly bear population in the NCDE is experiencing a significant decline in population, if any, nor is there compelling evidence that such a decline (if in fact it were occurring) would be driven by access conditions on the Forest. The NCDE encompasses 5.7 million acres, of which 1.7 million acres is wilderness and 962,000 acres is Glacier National Park, which contains highest quality grizzly bear habitat. Considering these lands only, nearly half of the NCDE is essentially roadless or free of motorized use (47 percent). Further, the Forest currently contributes approximately 924,000 acres of additional core, distributed across the Forest (Figure 12a). Decisions authorize an additional 58,000 acres of core in 54 nonwilderness subunits (Figure 12b). Nonwilderness core area currently comprises about 64 percent of the lands in these 54 subunits, and over 70 percent of the land in the 40 subunits that are predominantly Forest lands. Table 5 displays access conditions across the four other National Forests in the NCDE, which provide additional substantive core area.
21. Examination of known, human-caused mortality records and research on grizzly bear use of Forest and private lands, indicates that multiple-use Forest

lands represent far less risk of mortality to grizzly bears through illegal or necessary management actions than do private lands. Displacement of grizzly bears from roads would continue and may result in some level of impairment of breeding and reproductive success in some areas where high road densities exist. The Service concludes that National Forest access management requires continued improvement in some subunits in the NCDE to attain and sustain recovery. However, as described and analyzed in this opinion, past reductions in open and total road densities, the current condition, and ongoing and authorized actions contribute to the eventual recovery of grizzly bears in the NCDE. We conclude that the proposed extension of implementation timeframes for A19 is not likely to appreciably diminish survival and recovery of grizzly bears.

## **INCIDENTAL TAKE STATEMENT**

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 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 behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions creating the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns including, but are not limited to, breeding, feeding, or sheltering. As part of the consultation process, the Service may conclude that any action or the action with the implementation of any reasonable and prudent alternatives, and the resultant incidental take of listed species, will not violate section 7(a)(2). This is done by providing a biological opinion with an incidental take statement. 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 the incidental take statement.

### **Amount or Extent of Take Anticipated**

The proposed timeframe for implementation of A19 access requirements would not increase road densities or decrease core areas and so is in partial compliance with the Service's 1995 incidental take statement (U.S. Fish and Wildlife Service 1995a,b). Road densities in the action area would not change or would decrease as a result of the ongoing or incomplete projects described in the environmental baseline. Core areas would not change or would increase. The incidental take anticipated due to amended A19 objectives in some subunits is above levels anticipated in our 1995 incidental take statement. These levels of incidental take were previously analyzed in project level biological opinions and incidental take statements (U.S. Fish and Wildlife Service 1994,

1995c, 1995d, 1996b, in litt. 1996, in litt. 1999, 2002a, 2002b, 2003a, 2004a, 2004b and U.S. Fish and Wildlife Service et al. 1997).

The proposed timeframes for achieving A19 objectives in other subunits are extended over that analyzed in our 1995 incidental take statement. We anticipate therefore, the amount of incidental take associated with this proposal is above that analyzed in our 1995 incidental take statement or subsequent biological opinions in the sense that displacement, and to a much lesser extent, habituation of female grizzly bears will occur over a longer period of time than previously anticipated.

High road densities increase the risk of take of grizzly bears by habituating some individuals and displacing some individuals. However, habituation of grizzly bears is largely a function of private lands and or attractants. Human-caused mortality records for the Forest indicate that habituation on Forest lands is likely infrequent. Displacement of grizzly bears from key habitats is likely to continue on the Forest in those portions of subunits with high road densities for longer periods of time than anticipated in our 1995 biological opinion (U.S. Fish and Wildlife Service 1995a).

The proposed extension of time for achieving A19 requirements would result in take due to displacement of grizzly bears, specifically female bears, from essential habitat. We expect take in the form of harm or harassment as a result of disturbance from roads or from alteration of habitat (high road densities) to the extent female bears significantly under-use important habitat. Such under-use of habitat likely leads to some level of impairment of normal breeding and feeding behavior in females. Significant levels of displacement from key habitats could result in a female bear's failure to obtain adequate food resources, which in turn could result in reduced fitness and either failure to breed or mortality of cubs prior to or after parturition. We do not expect adult or subadult grizzly bear mortality as a result of displacement. We do not expect mortality, injury, or significant impairment of breeding, feeding or sheltering of male or subadult grizzly bears as a result of displacement. Further, it is the biological judgement of the Service that direct and indirect effects of the proposed A19 revised implementation schedule and associated activities would not add significant new effects, other than those considered in relation to roading and road management.

The effects of displacement of grizzly bears from key habitats are difficult to quantify and may be measurable only as long-term effects on the species' habitat and population levels. We believe that incidental take will occur from the effects of high road densities persisting in some areas of the Forest. However, grizzly bears are individualistic and display a wide variation in their tolerance of and response to human activity and road density. The best scientific and commercial data available at this time are not sufficient to enable the Service to determine a specific amount of incidental take of the grizzly bears due to displacement. The reasons for this difficulty are in part based on the lack of ongoing, intensive grizzly bear research. We lack information related to the following:

- the number of grizzly bears living on the Forest;

- the number of adult female grizzly bears whose home ranges encompass all or portions of any particular subunit or groups of subunits with high road densities;
- the individual response of adult females whose home range encompasses areas with high road densities;
- demographic parameters, such as survivorship and fecundity;
- detection of loss of cubs prior to or after parturition.

The level of take is also difficult to detect. Failure to breed, or loss of cubs prior to or after parturition are exceedingly difficult to detect, and the reasons for such exceedingly difficult to discern. Therefore, in such cases where take is difficult to enumerate, the Service uses surrogate measures to gauge the level of take. The best available information indicates that female grizzly bears display significant under-use of habitat near roads and areas of high road densities. Research provided a composite home range for female grizzly bears that survived to adulthood to successfully produce cubs. From this home range information, the surrogate measures of OMAD, TMAD and security core were derived to limit, measure and monitor the displacement impacts and resulting level of incidental take. It is the Service's biological judgement that "harm" of grizzly bears is likely to occur in the following conditions:

1. The precise open motorized access densities exceeds 1 mile per square mile in over 19 percent of a subunit. Research has demonstrated that when open road densities exceeded 1 mile per square mile of habitat, adult grizzly bear use of habitat significantly declined from expected use. It is reasonable to assume that some level of under-use of habitat may occur before essential behavior patterns are significantly impaired to the point of causing injury or death to individual bears. Research has also demonstrated that adult females utilizing home ranges encompassing some area of open road density greater than 1 mile per square mile were able to survive and produce cubs. Nineteen percent of the adult female composite home range in the South Fork study area had open motorized access density exceeding 1 mile per square mile.
2. The precise total motorized access density exceeds 2 mile per square mile in over 19 percent of a subunit. Research has suggested that when total road densities exceeded 2 miles per square mile of habitat, use of habitat by all sex and age classes of grizzly bears significantly declined from expected. It is reasonable to assume that some level of under-use of habitat may occur before essential behavior patterns are significantly impaired to the point of causing injury or death to individual grizzly bears. Research has also demonstrated that adult females utilizing home ranges encompassing some area of total road density greater than 2 miles per square mile were able to survive and produce cubs. Nineteen percent of the adult female composite home range in the South Fork study area had total motorized access density exceeding 2 mile square mile.
3. Security core is less than 68 percent of a subunit. Research

demonstrated that roadless areas or areas with less than 1 mile per square mile of access routes comprised a significant portion of adult female grizzly bears home ranges. Sixty-eight percent of the composite home range of adult females in the South Fork study area was core.

### **Effect of the Take**

In the accompanying biological opinion, the Service has determined that the anticipated level of take is not likely to result in jeopardy to grizzly bears within the NCDE recovery zone. Until additional research or analyses indicate otherwise, if, at the end of 2009, subunits meet or exceed the A19 or amended Forest objectives according to decisions with improvement schedules, or are in compliance with access improvement schedules in existing decisions, and Forest actions result in no increase in road densities or decrease in core habitat, then the intent of the access management biological objectives will be met and Forest-wide conditions will be within anticipated levels of taking. Consultation on revised Forest Plan requirements would supersede this biological opinion and incidental take statement. If Forest Plan revision and consultation has not been completed by the end of 2009, consultation should be reinitiated to analyse the effects of road densities in those subunits that do not meet A19 or amended objectives.

### **Reasonable and prudent measures**

This biological opinion provides a reasonable and prudent measure that is expected to reduce the amount of incidental take:

- Minimize or reduce the negative impacts associated with roads and excessive road densities

The measures described below are non-discretionary and must be undertaken by the Forest so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Forest (1) fails to assume and implement the terms and conditions or (2) fails to require an applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. 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 402.14f(i)(3)].

### **Terms and conditions**

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 measure described above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The Forest shall proceed with reductions of access densities and increases of security core as authorized and scheduled by all project decisions with timetables. Access objectives shall be completed within the respective timetables stated in the proposed A19 revised implementation schedule for the Spotted Beetle Resource project and Moose Post-Fire project (U.S. Fish and Wildlife Service 2002a,b). The Forest shall proceed with reductions of access densities and increases of core as authorized by the Westside Reservoir and Robert-Wedge Post-Fire projects within the timetables stated in the incidental take statement for the respective project (U.S. Fish and Wildlife Service 2004a,b).
2. Roads authorized by an existing decision to be converted from open to restricted, for part or whole of the grizzly bear active season (April 1 through November 30) or decommissioned shall be restricted with a gate or berm as soon as possible and completed before September 1, 2007, or unless otherwise stated in the individual project proposal or Service's biological opinion and incidental take statement for that project, or as otherwise agreed to by the Forest and Service prior to September 30, 2006.
3. In subunits subject to additional administrative motorized use restrictions, all restricted roads shall have an effective physical restriction as soon as possible or by September 1, 2006 at the latest. Effective physical restriction could be a gate, berm, or others needed to limit motorized use to appropriate levels. The use of a restriction device is needed only during the period or season the road is restricted.
4. By September 30, 2006, the Forest shall coordinate with the Service to further reduce, or eliminate, administrative use on any number of specific restricted roads within subunits to simulate a 19 percent or less TMAD in that subunit. Considerations will include existing TMAD, core levels, juxtaposition of restricted roads and core area (i.e. opportunity to increase amount of effective core habitat), and watershed issues, including the conservation of bull trout.
5. The first restriction device on any road shall be inspected on a regular basis (once per year at least) and kept in good repair. Effectiveness of the barrier to prevent unauthorized access shall be determined and recorded. In the case of an ineffective device, an alternative device, technique, or repair shall be implemented, and implementation of the appropriate remedy shall be considered a priority in the Forest's work scheduling. Human health and safety takes priority over this term and condition.
6. Forest activities shall not result in an increase in OMAD, TMAD, or decrease in security core habitat without additional consultation.
7. The Service's February 1995 incidental take statement directed the Forest, under terms and conditions, to develop and implement a public information program on the positive effects of road closures for fish and wildlife, water quality, and other

Forest resources. The Forest shall continue the implementation of this public information program focusing on both information that is available and relevant at a local, district level and on information pertinent to a broad-based Forest level approach. A clear and understandable explanation of the status of existing road densities and future road densities as directed by A19 shall be available to the public. The explanation shall include how road management actions benefit grizzly bears. The net reduction in OMAD, and the remaining opportunities for motorized public access, timber extraction, recreation, and other Forest uses should be emphasized.

8. Roads facilitate human access and increase the possibility of grizzly bears encountering human-related attractants. Continue the implementation of an appropriate food storage and handling program in the Forest recovery zone. Provide and make information available to Forest employees, contractors, and Forest users on the effects, consequences and ways to avoid grizzly bear conditioning to human-related foods.
9. The Forest shall notify the Service's Grizzly Bear Recovery Office in Missoula within 24 hours of discovery of a human-caused grizzly bear mortality on the Forest.
10. The Forest shall contact the Service by March 15 of each year, and notify the Service as to what access management changes will occur the following work season. This requirement could be met at the Forest and Service's annual meeting in January or February. Further, the following reporting requirements must be met.

### **Reporting Requirements**

- The Forest shall submit an annual report to the Service's Montana Ecological Services Field Office in Helena by March 15 for the preceding year. The report shall detail the progress in achieving target OMAD, TMAD, and core area criteria in subunits. Annual progress towards achieving OMAD, TMAD, and security core authorized for individual projects shall be included in the report and identified as to which project the access changes apply. (Refers to Term and Condition 1, 2, 3, 4)
- The annual report shall include the date and type of restriction device installed on roads authorized by an existing project decision to be converted from open to restricted at least part of the grizzly bear active season (April 1 through November 30) or decommissioned. (Refers to Term and Condition 1, 2, 3, 4, 5 and 6)
- The annual report shall include the date and type of device installed to restrict motorized use on roads in subunits with additional restriction of administrative motorized use. The annual report shall include logs

demonstrating the type of activity and duration of administrative use in subunits with additional administrative motorized use restrictions: Red Meadow Moose, Coal and South Coal, Peters Ridge, Emery Firefighter, Riverside Paint, Logan Dry Creek, Crane Mountain, Swan Lake, and Beaver Creek. (Term and Condition 3)

- The annual report shall include a monitoring report for restriction devices stating number of devices or barriers on the recovery zone portion of the Forest, number inspected, and effectiveness. (Term and Condition 5)
- If without additional consultation for a specific project or activity, administrative motorized use is exceeded in any subunit, including subunits with additional administrative use restrictions, the Service's Montana Ecological Services Field Office in Helena shall be notified within 72 hours. (Refers to Term and Condition 4 and 5)
- Within 90 days after meeting the open and total motorized access densities and core area requirements in each subunit, the Forest shall provide the Service with a final report for that subunit detailing all activities undertaken in association with terms and conditions of this biological opinion. (Refers to Term and Condition 1 through 11)
- Provide with the annual report, any literature or instructional material the Forest is using to educate employees, contractors, and the public on the positive effects of road closures for fish and wildlife, water quality, and other Forest resource, and the consequences and ways to avoid grizzly bear conditioning to human-related foods. (Refers to Term and Condition 7 and 8)
- With the annual report, the Forest shall provide a summary of numbers and explanation of grizzly bear mortality due to human action on the Forest. The report shall include an explanation of any incident of exceeding incidental take limit once A19 or amended objectives are achieved in a subunit and actions taken to eliminate or reduce the situation resulting in take. (Refers to Terms and Condition 9)

## REINITIATION NOTICE

This concludes formal consultation on the terrestrial species associated with the action outlined in your December 2, 2004 request for consultation on the Amendment 19 Revised Implementation Schedule. 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 maintained (or is authorized by law) and if: (1) the amount or extent of incidental is exceeded; (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; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. The Service retains the discretion to decide when the level of incidental take exempted in this opinion has been exceeded and to decide when consultation should be reinitiated.

This biological opinion is based on the implementation of the Forest Plan access management activities, including the minimization measures described in the biological assessment, the Forest Plan, special orders and administrative decisions. To ensure protection for a species assigned an unquantifiable level of take due to activities related to the implementation of Forest Plan activities, reinitiation may be required if the terms and conditions are not adhered to or the magnitude of the proposed activities exceed the scope of this biological opinion. Determination of reinitiation of consultation pursuant to the Act will depend upon the nature and extent of noncompliance with the implementation of Forest Plan actions, and/or the terms and conditions of this incidental take statement, and may result in loss of take exemption from the prohibitions of section 9 of the Act.

If, at the end of 2009, subunits meet or exceed the A19 or amended Forest objectives according to decisions with improvement schedules, or are in compliance with access improvement schedules in existing decisions, and Forest actions result in no increase in road densities or decrease in core habitat, then the intent of the access management biological objectives will be met and Forest-wide conditions will be within anticipated levels of taking. Consultation on revised Forest Plan requirements would supersede this biological opinion and incidental take statement. If Forest Plan revision and consultation have not been completed by the end of 2009, consultation should be reinitiated to analyse the effects of road densities in those subunits that do not meet A19 or amended objectives.

It is important to reiterate that the results of the NCDE grizzly bear population DNA studies are expected by the end of 2005 and 2006. The Service will revisit this biological opinion and incidental take statement when results become available to determine whether reinitiation of consultation is necessary.

Thank you for your cooperation in the conservation of endangered, threatened, and proposed species. If you have any questions or comments on this biological opinion, please contact Anne Vandehey, Beth Dickerson, or me at 406 449 5225.

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## Appendix A

## Road Management Schedule from Spotted Beetle Resource Management Project

2002 early season (all actions deal with ORD):

Subunit	Rd Number	Miles	Action	Resulting ORD %	Existing ORD%
Jungle Addition	2828	3.5	Gate 7/15/02		
	10103	1.7	Gate 7/15/02		
	10183	.9	Berm 7/15/02		
				26%	33%
Kah Soldier	547	5.6	Gate 7/15/02		
	2801	1.4	Gate 7/15/02		
				25%	30%
Spotted Bear Mountain				20%	20%

2002 fall season (all action deal with ORD):

Subunit	Rd Number	Miles	Action	Resulting ORD %	Existing ORD%
Jungle Addition	2827	2.7	Gate 10/15/02		
			Function as low use trail		
	2829	3.5	Gate 10/15/02		
			Function as low use trail		
	9861	.4	Berm 10/15/02		
				19%	26%
Kah Soldier	2831	1.5	Gate 10/15/02		
	2847	3.9	Gate 7/15/02		
	9845	1.9	Berm 10/15/02		
	11437	2.3	Gate 10/15/02		
	11472	.8	Berm 10/15/02		
	11474A	.2	Berm 10/15/02		
				19%	25%
Spotted Bear Mountain				20%	20%

2002 field season - Survey & Design work for 2003 decommissioning work planned

## 2003 – contract award &/or ground work

Subunit	Rd Number	Miles	Action	Resulting TRD %	Existing TRD%
Jungle Addition-					23%
Kah Soldier					38%
Spotted Bear					
Mountain	2849	2.0	decommission - 5 culverts		
	2849Y	.2	decommission - 0 culverts		
	2850	3.0	decommission - 6 culverts		
	2851	.5	decommission - 0 culvert		
	11401	1.5	decommission - 2 culverts		
	1678	.25	decommission - 1 culvert		
	2836	1.1	decommission - 3 culverts		
				20%	23%
decommissioning					
total approximately:		8.1 miles	17 culverts		

\*\*all work planned for decommissioning 2003 in Spotted Bear Mountain Subunit is from the Bent Flat Decision — this is the last of the Bent Flat work to be implemented. Post sale work being completed for this area 2002.

2003 field season - Survey & Design work for 2004 decommissioning work planned

# 2004 – contract award &/or ground work

Subunit	Rd Number	Miles	Action	Resulting TRD %	Existing TRD%
Jungle	2828Y	.5	decommission - 0 culverts		
Addition	2828	4.6	decommission - 18 culverts		
	10183	1.2	decommission - 0 culverts		
	10183Y	.4	decommission - 0 culverts		
	9535	.4	decommission - 1 culvert		
	11496	.2	decommission - 0 culverts		
2829	.4		decommission - 0 culverts		
				20%	23%
Kah Soldier					37%
Spotted Bear Mtn	10119	.9	decommission - 3 culverts		
				19%	20%
	9856	1.2	close - gate**	Resulting 19% ORD	Existing 20% ORD
decommissioning					
total approximately:		8.6 miles	22 culverts		
Closure of open road					
Approximately:		1.2 miles			

**\*\*implementation tied to Spotted Bear Trailhead decision and funding for recreation facility movement. May be more miles closed to accommodate reasonable trailhead facility or closure will occur on the South Creek Road.**

2004 field season - Survey & Design work for 2005 decommissioning work planned

## 2005 – contract award &/or ground work

Subunit	Rd Number	Miles	Action	Resulting TRD %	Existing TRD%
Jungle Addition	10103	2.76	decommission - 7 culverts		
	10103Y	.9	decommission - 0 culverts	19%	20%
Kah Soldier	11472	.65	decommission - 0 culverts		
	11472A	.14	decommission - 0 culverts		
	11437	2.5	decommission - 2 culverts		
	2831	1.6	decommission - 4 culverts		
	11459	2.2	decommission - 6 culverts		
				33%	38%
Spotted Bear Mountain					
				19%	
decommissioning total approximately:		10.75 miles	19 culverts		

2005 field season - Survey & Design work for 2006 decommissioning work planned

## 2006 – contract award &/or ground work

Subunit	Rd Number	Miles	Action	Resulting TRD %	Existing TRD%
Jungle Addition					19%
Kah Soldier	2831Z	.1	decommission - 0 culverts		
	2831C	2.5	decommission - 2 culverts		
	10338	1.0	decommission - 2 culverts		
	2847	6.6	decommission - 23 culverts		
	11449	.5	decommission - 2 culverts		
	2847H	.1	decommission - 0 culverts		
	2847A	.2	decommission - 1 culverts		
	2847Y	.8	decommission - 1 culverts		
	2847K	.2	decommission - 1 culverts		
				26%	33%

Spotted  
Bear Mountain

19%

decommissioning  
total approximately:

12.0 miles

29 culverts

2006 field season - Survey & Design work for 2007 decommissioning work planned

# 2007 – contract award &/or ground work

Subunit	Rd Number	Miles	Action	Resulting TRD %	Existing TRD%
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Jungle  
Addition

19%

Kah Soldier	10130	.6	decommission - 2 culverts		
	10339	2.2	decommission - 6 culverts		
	9734	4.1	decommission - 16 culverts		
	11452	3.3	decommission - 8 culverts		
	11467	1.3	decommission - 1 culverts		
	11453	1.6	decommission - 4 culverts		
	1115A	1.15	decommission - 1 culverts		
	1115Y	.15	decommission - 0 culverts		
	1115Z	.2	decommission - 0 culverts		
	11447	.76	decommission - 1 culvert		
	11454	.4	decommission - 0 culverts		
	9845	1.0	decommission - 42 culverts		

19%

26%

Spotted  
Bear Mountain

19%

decommissioning total approximately:	16.7 miles	39 culverts
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Depending on contract award date and field conditions some portions of the work may be completed in 2008.

**Moose Post-Fire EIS Road Implementation Schedule  
(Project record exhibit M-7)**

**Changes from existing situation**

**2003 – Contract award &/or ground work**

<b>WERNER CREEK SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
10908	Berm	Decommission	0.20	Big Mountain ROD
10907	Berm	Decommission	1.33	Big Mountain ROD
5396	Berm	Decommission	1.57	
5287	Berm	Decommission	1.53	
5262	Yearlong Gate	Decommission	2.52	
5223	Vegetation	Decommission	0.71	
1667	Berm	Decommission	0.96	
315A	Vegetation	Decommission	1.00	
<b>Total Decommission</b>			<b>9.82</b>	
5261	Open Yearlong	Berm	2.07	
5220B	Vegetation	Berm	0.20	
1692	Open Yearlong	Berm	2.39	
1655	Open Yearlong	Berm	6.16	
1655B	Open Yearlong	Berm	0.09	
<b>Total Berm</b>			<b>10.91</b>	
315	Open Yearlong	Seasonal Gate	1.87	
5207	Open Yearlong	Seasonal Gate	4.56	
<b>Total Seasonal Gate</b>			<b>6.43</b>	
<b>LOWER BIG SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
10896	Yearlong Veg	Berm	0.13	
10899	Open Yearlong	Berm	0.20	
1656	Yearlong Gate	Berm	2.84	
1664	Yearlong Gate	Berm	2.20	
648D	Open Yearlong	Berm	0.15	
648E	Open Yearlong	Berm	0.10	
803	Open Yearlong	Berm	3.28	
<b>Total Berm</b>			<b>8.90</b>	
1656	Open Yearlong	Yearlong Gate	0.06	
648	Open Yearlong	Yearlong Gate	1.08	
803	Open Yearlong	Yearlong Gate	3.11	
<b>Total Yearlong Gate</b>			<b>4.25</b>	

**2004 – Contract award &/or ground work**

<b>WERNER CREEK SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
5261	Berm	Decommission	1.13	
5261A	Berm	Decommission	1.00	
5207	Berm	Decommission	0.90	
1692	Yearlong Gate	Decommission	3.13	Snowmobile route – 1 culvert will remain

315	Yearlong Gate	Decommission	3.84	Snowmobile route - 2 culverts will remain
<b>Total Decommission</b>			<b>10.00</b>	
<b>LOWER BIG SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
NONE				

#### 2005 – Contract award &/or ground work

<b>WERNER CREEK SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
1696A	Yearlong Gate	Decommission	1.78	Big Mountain ROD
5220 D	Yearlong Gate	Decommission	0.50	
1696	Yearlong Gate	Decommission	2.71	Big Mountain ROD
<b>Total Decommission</b>			<b>4.99</b>	
<b>LOWER BIG SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
316E	Yearlong Gate	Decommission	4.37	Big Mountain ROD – 5 culverts will remain
5286	Yearlong Gate	Decommission	1.70	Big Mountain ROD – 2 culverts will remain
<b>Total Decommission</b>			<b>6.07</b>	

#### 2006 – Contract award &/or ground work

<b>WERNER CREEK SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
316 (Up. portions) <sup>1</sup>	Yearlong Gate/ Berm	Seasonal Gate	6.87	See footnote
316 (Mid. portions) <sup>2</sup>	Open Yearlong	Seasonal Gate	8.53	See footnote
<b>LOWER BIG SUBUNIT</b>				
<b>Road Number</b>	<b>Existing Condition</b>	<b>Action</b>	<b>Road Miles Affected</b>	<b>Comments</b>
5233	Yearlong Berm	Decommission	2.25	
5272	Yearlong Berm	Decommission	0.14	
5272	Vegetation	Decommission	0.81	
5272A	Vegetation	Decommission	0.20	
5272B	Vegetation	Decommission	0.27	
5273	Vegetation	Decommission	0.60	
5283	Yearlong Berm	Decommission	1.66	
5288	Yearlong Berm	Decommission	2.12	
5288A	Yearlong Berm	Decommission	0.07	
5293	Vegetation	Decommission	0.50	
5299	Vegetation	Decommission	0.40	
<b>Total Decommission</b>			<b>9.02</b>	

<sup>1</sup> The upper portions of Big Creek Road 316 are currently restricted to wheeled motorized vehicles yearlong. This portion of the road will be made available to wheeled motorized access from July 15 thru September 14 after salvage activities are complete and 63% seasonal core is met in the Werner Creek subunit. We estimate that this road could then open up to seasonal wheeled motorized access in 2006 or 2007.

<sup>2</sup> The middle portions of Big Creek Road 316 (between junctions with Nicola Creek Road 1692 and Hallowat Creek Road) is currently open yearlong and will remain open yearlong until the upper portions of Big Creek open to seasonal wheeled motorized access. Then middle portions of Big Creek Road (between junctions with Werner Divide Road 1658 and Hallowat Creek Road) will then be available to wheeled motorized access from July 15 thru November 30.

## 2007 – Contract award &amp;/or ground work

WERNER CREEK SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
NONE				
LOWER BIG SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
1694A	Yearlong Berm	Decommission	1.80	
1694 B	Yearlong Gate	Decommission	.35	
5280	Open	Decommission	.02	
5280	Yearlong Berm	Decommission	1.98	
5290	Open	Decommission	0.05	
5290	Yearlong Gate	Decommission	2.13	
5304	Yearlong Berm	Decommission	1.20	
5316	Yearlong Gate	Decommission	1.70	
		<b>Total Decommission</b>	<b>9.23</b>	

## 2008 – Contract award &amp;/or ground work

WERNER CREEK SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
NONE				
LOWER BIG SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
1694	Open	Decommission	.06	
1694	Yearlong Gate	Decommission	6.14	
1694C	Yearlong Gate	Decommission	1.80	
1694 D	Yearlong Gate	Decommission	1.90	
		<b>Total Decommission</b>	<b>9.9</b>	

## 2009 – Contract award &amp;/or ground work

WERNER CREEK SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
NONE				
LOWER BIG SUBUNIT				
Road Number	Existing Condition	Action	Road Miles Affected	Comments
5268	Yearlong Gate	Decommission	1.94	
5292	Yearlong Gate	Decommission	3.90	
5292A	Yearlong Berm	Decommission	1.0	
803 K	Yearlong Berm	Decommission	.53	
803 M	Yearlong Berm	Decommission	1.10	
		<b>Total Decommission</b>	<b>8.47</b>	

## **APPENDIX B**

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### **Proposed Road Decommissioning Schedule Using Appropriated and Purchaser / Knudsen-Vandenburg Funds:**

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#### **Appropriated Funds:**

\* Assumptions: Funded approximately 18 to 20 miles per year (\$100K to \$200K per year)

2005: 11 miles at Spotted Beetle  
8 miles at Moose

2006: 12 miles at Spotted Beetle  
11 miles at Moose

2007: 19 miles at Spotted Beetle  
9 miles at Moose

2008: 10 miles at Moose  
7 miles at West Side Reservoir  
3 miles at Robert Wedge (R/W)

2009: 7 miles at Moose  
10 miles at West Side Reservoir (WSR)

2010: 20 miles at West Side Reservoir

#### **Purchaser/Knudsen-Vandenburg (KV) Funds:**

An additional 12 miles of decommissioning using a combination of purchaser and KV funding is assumed to be available at each of the WSR and R/W projects. This assumption is based on the timber sales selling above appraised rates. These roads are either haul routes or are located within the sale area boundary. The timing of accomplishment for this decommissioning would be during the three year life of the timber sales plus a possible additional year for the KV projects, therefore this decommissioning would be completed by 2008. A year-by-year schedule using purchaser or KV funds is not possible since the timing of the logging is at the discretion of the purchaser.

\* Our assumptions are just that, and these projections are only valid as long as our assumptions play out, I think this lines out a reasonable program (Jimmy Deherrera, District Ranger, November 10, 2004).

## Appendix B

AMENDED AND RESTATED  
CONSERVATION AGREEMENT  
AMONG  
PLUM CREEK TIMBER COMPANY, L.P.  
AND  
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION  
AND  
U S D A FOREST SERVICE, FLATHEAD NATIONAL FOREST  
AND  
UMTED STATES FISH AND WILDLIFE SERVICE  
DATED AS OF  
June 6, 1997

Conservation Agreement (the "Agreement" or "Conservation Agreement") dated as of February 23, 1995, as amended and restated as of June 6, 1997, among Plum Creek Timber Company, L.P. ("Plum Creek"), Montana Department of Natural Resources and Conservation ("DSL" or "Montana Department of State Lands"), the Flathead National Forest ("Forest Service") and United States Fish and Wildlife Service (the "Service") (collectively referred to either as the "parties" or the "Parties", except where the context implies reference to only the land managers, in which case the term "Parties" or "parties" shall mean Plum Creek, the Forest Service and DSL).

RECITALS

WHEREAS, the Service and the Forest Service are committed to the conservation of the grizzly bear in the Northern Continental Divide Ecosystem,

WHEREAS, Plum Creek and DSL wish to comply with the Endangered Species Act as amended (as so amended, the "Act") and to cooperate in the conservation of the grizzly bear,

WHEREAS, the Swan Valley presents a unique situation because of the intermingled pattern of land ownership and development in the valley,

WHEREAS, an adaptive management approach to management of the integrated pattern of ownership and development in the valley has the best chance of success; and

WHEREAS, after consulting on the current scientific understanding of the grizzly bear and the requirements of the Act, the Parties hereto have agreed upon a set of reasonable and prudent management practices for implementation on certain of Plum Creek, DSL and National Forest lands in the Northern Continental Divide Ecosystem Grizzly Bear Recovery Zone that reduces the impact of activities on the grizzly bear in the unique setting of the Swan Valley,

NOW THEREFORE, the Parties hereto agree:

## AGREEMENT

### 1. Definitions

This Agreement is consistent with the Flathead Land and Resource Management Plan, as amended (the "LRMP"). The Forest Service is bound by and/or accepts existing definitions found within the LRMP. The Forest Service will utilize existing definitions found in the LRMP, unless definitions found in this Agreement are more conservative in regard to the Bear, in which case, definitions found in this Agreement will be utilized.

"Active Subunit" shall mean those BMU Subunits in which the Parties are conducting Administrative and Commercial Use activities.

"Active Subunit Restricted Road" shall mean a gated or barriered road within an Active Subunit which is closed for all uses except Administrative Use and Commercial Use.

"Administrative Use" shall mean use by Plum Creek, Forest Service, or DSL associated with all land and resource management activities including, without limitation, timber sale layout, road location, precommercial thinning, road maintenance, tree planting, slash disposal and Salvage Harvest, but shall not include Commercial Use. Administrative Use also shall mean minor actions such as bough and post and pole harvest that are less than two consecutive weeks in duration.

"Bear" shall mean the grizzly bear (*Ursus arctos horribilis*).

"BMU Subunits" shall mean the female home range analysis areas specified on Attachment D hereto, which is hereby incorporated herein and made a part hereof

"BMUs" shall mean Bear Management Units as set forth in Attachment A, which is hereby incorporated herein and made a part hereof

"Commercial Use" shall mean major forest management activities by Plum Creek, Forest Service, or DSL including, without limitation, road construction, road reconstruction and timber harvest, but does not include Salvage Harvest.

"Conservation Area" shall mean certain Plum Creek, National Forest and DSL lands set forth on Attachment B, which is hereby incorporated herein and made a part hereof, that lie within the Swan Valley in the Northern Continental Divide Ecosystem Grizzly Bear Recovery Zone.

"Core Areas" shall mean those areas as defined by the IGBC Access Task Force Report (July 1994) and set forth in Attachment C, which is hereby incorporated herein and made a part hereof.

"Cover" shall mean vegetation blocks having a minimum diameter of at least three Sight

Distances, which on Plum Creek and DSL lands shall not be less than 300 feet. "Denning Period" shall mean the period between November 16 and March 31 "Effective Date" shall have the meaning set forth in Section 6 hereof

"Even Age Cutting Unit" shall mean a harvest unit in which either a clearcut or seedtree silvicultural prescription is used or any other treatment that would result in openings of more than three (3) Sight Distances.

"Guidelines" shall mean the principles and guidelines for forest management set forth in Section 3 hereof, as the same may be amended from time to time.

"Inactive Subunit" shall mean those BMU Subunits in which the Parties are not conducting Commercial Use activities.

"Inactive Subunit Restricted Road" shall mean a gated or barriered road within an Inactive Subunit, which is closed for all uses except Administrative Use, and Commercial log haul when necessary.

"Linkage Zones" shall mean the areas necessary for linking populations of Bears specified on Attachment E, which is hereby incorporated herein and made a part hereof.

"Open Road" shall be any road on which there are no use restrictions. Open Road shall not mean Restricted Roads or highways, county roads, administrative site access roads and private residence access roads.

"Preferred Habitat" shall mean areas adjacent to streams and wetlands inside Linkage Zones as set forth in Attachment G, as the same may be changed from time to time by mutual agreement of the Parties based on field verification

"Reclaimed Road" shall mean a road which (i) has been "put to bed" to address Bear security or to address watershed concerns by pulling culverts and revegetating with trees or grass, and (ii) is generally unusable for 4-wheeled vehicles due to physical obstructions such as "kelly humps" or other physical obstructions, rather than gates Reclaimed Road shall also mean roads that are physically blocked using large cement blocks or equivalent barriers. A Reclaimed Road will not receive motorized Administrative or Commercial uses

"Restricted Period" shall mean the non-denning period which runs between April 1 and November 15.

"Restricted Roads" shall mean Active Subunit Restricted Roads and Inactive Subunit Restricted Roads.

“Riparian Zone” shall mean a streamside management zone as defined on the date hereof in the Montana Streamside Management Zone Rules, a copy of which is attached hereto in Attachment F, which is hereby incorporated herein and made a part hereof

“Salvage Harvest” shall mean short term activities to harvest dead or dying trees resulting from fire, disease, blowdown or the like and shall not continue for periods of more than two consecutive weeks or for more than 30 days in the aggregate during a given calendar year in the non-denning period (April 1 to November 15). Salvage activities that result from catastrophic fire or blowdown and that require more than two consecutive weeks to complete, will require special management considerations (refer to Section 3(b)(iv)).

“Sight Distance” shall mean the distance at which 90% of an animal is hidden from view, which on Plum Creek and DSL lands is approximately 100 feet depending on the type of cover available.

“Spring Habitat” shall mean all areas within Linkage Zones below 5200 feet in elevation.

“Spring Period” shall mean period of time running from April 1 to June 15.

“Take” shall mean take of a species as contemplated under Section 9 of the Act. “Visual Screening” shall mean a minimum of one Sight Distance.

## 2. Stated Purposes

### (a) Integrated Management Objectives

It is the objective of the Parties to establish an ecosystem-based management plan throughout the Conservation Area which allows affected Parties to realize the economic and recreational benefits of their ownership while helping conserve the Bear and other species. The basic purpose of the Conservation Agreement is to outline and begin implementation of a strategy through which multi-jurisdictional land owners can comply with the Act as it regards the Bear, while continuing to practice forestry and multiple user management on their timberlands in the Conservation Area. Through the implementation of this strategy, the Parties intend to integrate timber management, recreational management and Bear management practices in a manner that is both ecologically and economically sound in a mixed ownership environment. Further, it is the objective of the Parties to use an adaptive management approach to accomplish Bear conservation.

### (b) Avoidance of Take

While incidental Take of Bears in specific cases is always a possibility, it is the intent of the Parties that adherence to the Guidelines should reduce the possibility of incidental Take Violations of the Guidelines will not necessarily constitute Take but may invalidate the legal protection provided by an incidental Take statement issued pursuant to consultations under Section 7 of the Act as contemplated herein. The legal definition of Take must be applied if it becomes necessary to determine whether a Section 9 violation has occurred.

(c) Consultation

Under Section 7 of the Act, Federal agencies are required to consult with the Service when their actions are likely to affect Bears. The Parties expect that the agreement to carry out forest management in the Conservation Area in accordance with the Guidelines will facilitate such consultations. In some cases, reasonable and prudent alternatives may be required to avoid jeopardizing the continued existence of the Bear, and an incidental take statement may be issued. Absent material change in the scientific understanding of the Bear, the Parties agree that the Guidelines will serve as the basis for reasonable and prudent alternatives, should they be necessary, in connection with Plum Creek, DSL, and agency actions in or affecting the Conservation Area.

(d) Results of Consultation

Because of the possibility that incidental Take might occur, and because the Guidelines will, in the opinion of the Service, satisfy the requirements of Section 7(a)(2) of the Act and will reduce the impact of management activities on the Bear across the Conservation Area, the Service will issue incidental take statements as appropriate in connection with consultations involving actions in or affecting the Conservation Area. Specifically, the Guidelines shall constitute the reasonable and prudent measures referred to in Section 7(b)(4)(ii) of the Act and the terms and conditions referred to in Section 7(b)(4)(iv) of the Act, with such changes thereto as are reasonably necessary and appropriate to reflect site specific conditions and to meet the requirements of the ESA.

### 3. Management Guidelines

Plum Creek, DSL, and the Forest Service agree to carry out forest management practices within the Conservation Area during the term of this Conservation Agreement, as the term may be extended, according to the practices and procedures that follow. In addition to the practices and procedures documented in this agreement, the Forest Service will continue to adhere to all Objectives, Standards and Guidelines found in the Flathead Forest LRMP, as amended. While this Agreement establishes shared responsibilities to achieve biological targets and threshold planning goals across multiple-ownership

landscapes, there are certain principles inherent in these Guidelines. These principles include (1) the notion that while this Agreement relies on the best scientific and commercial information available on the date hereof, the strategies set forth in Section 3 may need to be revised as new information about the Bear becomes available, (2) in recognition of (1), above, the Parties acknowledge the need for flexibility in the Agreement and they expect to consult periodically, pursuant to the terms of Section 4 of the Agreement, to consider such needs, (3) the need to engage in additional monitoring and coordination under Section 4 of the Agreement will be principally governed by the needs of the Bear within the Conservation Area and, insofar as possible, the Parties will endeavor to jointly agree on such needs and; (4) no Party should be forced to mitigate for the shortfall of any other Party.

(a) Open Road Densities

- (i) To minimize the risk of death or injury to Bears, the Parties will manage roads throughout the Conservation Area so that no more than 33% of any given BMU Subunit exceeds an Open Road density of one mile per square mile during the Restricted Period. This density will be achieved as soon as is practicable, but no later than five years after the Effective Date. The long-term goal is that no more than 21% of a BMU Subunit shall exceed the Open Road density of one mile per square mile. The reduction from 33% to 21% will be done by voluntary road closures by the Parties.
- (ii) The share, of the allowable possible deviation from the 1 mi/sq standard will be apportioned among the Parties in approximate proportion to land ownership within the BMU Subunit, provided that no Party shall take advantage of road reductions made by another Party, except as mutually agreed to by all Parties. No Party will be required to close roads if the required open road density of 33% set forth in Section 3(a)(i) is otherwise being met.
- (in) Open road densities of lands owned or managed by the Parties within each BMU Subunit will be calculated using a GIS moving window technique.

(b) Operations and Uses

- (i) The Parties agree to stop all management activities (other than replanting and non-motorized Administrative Use) during the Spring Period in Spring Habitat, provided that (x) Administrative Use and the hauling of harvested logs may occur on roads that are open to the public that are in such Spring Habitat and (y) road use associated with replanting and limited spring burning is permitted on all roads. Roads within Linkage Zones at low elevation that are open to all Administrative Uses between April 1 and June 15 are shown in Attachment H.

- (ii) The Parties agree to limit the number of Active Subunits within the Conservation Area by concentrating Commercial Use during the Restricted Period in four (4) out of the eleven (11) BMU Subunits on a rotational basis, leaving the other seven (7) BMU Subunits as Inactive Subunits during the Restricted Period for a minimum of three (3) years. The rotational schedule as it is currently contemplated is governed by Attachment I attached to and hereby made a part of this Agreement. At no one time during the Restricted Period will more than two BMU Subunits be Active Subunits within the Mission Range BMU, one BMU Subunit be an Active Subunit within the Big Salmon BMU, and one BMU Subunit be an Active Subunit within the Bunker BMU. The Parties will commence such rotation on the date set forth in Attachment I, but in any event not later than three years after the Effective Date. Periodically, as necessary, the Parties may agree to adjust or modify these seasonal and rotational concepts based on evolving science regarding the needs of the Bear. Attachment I may be modified and updated as needed based on coordination and agreement among the Parties Insofar as possible, schedules will be developed 3 years in advance of the start of the Commercial Activity within a BMU Subunit
- (in) Every effort will be made to minimize uses in Inactive Subunits, but when in the interests of local residents it may be possible to allow post and pole and bough collection in Inactive Subunits as long as the activity is less than two consecutive weeks in duration.
- (iv) Salvage Harvests will not occur in Spring Habitat during the Spring Period In Inactive Subunits, Salvage Harvests shall be conducted either (x) between June 16 and August 31 as long as they do not exceed more than 30 days in the aggregate for a given Inactive Subunit within a given calendar year, or (y) during the Denning Period (November 16 to March 31). Salvage Harvests during the period June 16 to August 31 in Inactive Subunits resulting from extraordinary events such as catastrophic fire or blowdown that require more than two consecutive weeks or in the aggregate more than 30 days in a calendar year to complete, may require special management. The Parties agree to confer on a case-by-case basis with respect to such events to determine the special management opportunities that might compensate for any such Salvage Harvests.
- (v) Although the Parties will attempt wherever feasible to avoid activities during the Spring Period in Spring Habitat outside of Preferred Habitat, they recognize that some Administrative and Commercial Use may need to occur in Active Subunits in such low elevation areas during such period. If a party wishes to conduct an activity within Spring Habitat (but outside of Preferred Habitat) during the Spring Period that is otherwise

prohibited by subparagraphs (i) or (iv) above, such party may nevertheless conduct such activity provided that the activity complies with a plan prepared in accordance with this paragraph. Before conducting such activity, the Party proposing such activity agrees to confer with the Service on a disturbance avoidance plan to mitigate for such activity. Such plan, which shall be prepared by a wildlife biologist for the party proposing such activity after conferring with the Service, shall detail the steps that will be taken to avoid and/or minimize the impacts of the activity on Bears and be submitted to the Service for review at least four weeks prior to the commencement of the planned activity..

(c) Road Locations

- (i) The Parties recognize the importance of Preferred Habitat and Riparian Zones to Bear security and the Service recognizes the Parties' need to access their lands. Accordingly, the Parties will limit the construction of new roads in Preferred Habitat and Riparian Zones to those roads that are essential to forest management. In addition, any roads built in these areas will be constructed in such a manner as to minimize the density/mileage of roads in such areas. Existing roads will be analyzed and those not required for short term management will be Reclaimed, and those roads needed for ongoing primary, access will be relocated when reasonable.
- (ii) Within the Conservation Area, harvest or new road construction will leave Visual Screening between roads that are outside of Even Age Cutting Units and the Unit itself, although exceptions may be required to accommodate some cable yarding harvest.

(d) Cover

- (i) The Parties will evaluate Cover across all ownerships and will manage their lands so that a minimum of 40% of all land in each BMU Subunit in the Conservation Area is maintained in Cover. To the extent feasible, Cover will be distributed evenly throughout the Subunit. Each party will be responsible for maintaining cover, at a level adequate to meet the 40% objective, in proportion to its ownership within the Subunit.
- (ii) Visual Screening retention will be the management objective in areas adjacent to all Open Roads. The Parties will leave Visual Screening adjacent to Open Roads, although exceptions may be required for such

situations as cable yarding harvest and in some exceptional cases of insects, disease, or blow down Even-age treatments adjacent to Open Roads will be no larger than one acre

- (iii) The Parties will lay out Even Age Cutting Units in the Conservation Area so that no point in the unit is more than 600 feet from Cover. The Parties will use their best efforts to leave Cover around natural open areas so that no point of such openings is more than 600 feet from Cover. Catastrophic events will be dealt with on a case-by-case basis
- (iv) In large Even Age Cutting Units (larger than 40 acres) the Parties will retain Cover to reduce line-of-sight distances

(e) Riparian Zones

The Parties will use uneven-aged forest management practices in Riparian Zones located in the Conservation Area.

(f) Security

- (i) The Parties acknowledge that Reclaimed Roads and Restricted Roads are important for providing 'security for Bears. The Parties agree to contribute to security, particularly within Linkage Zones, by reclaiming or restricting roads. Plum Creek and DSL may voluntarily elect to contribute to security, particularly within Linkage Zones, by reclaiming (as defined in this Agreement) some roads that are not essential to their respective management. The Forest Service hereby agrees not to take management actions that increase total road density or open road density or to decrease Core Areas on its ownership. DSL will voluntarily agree to contribute those areas set forth in Attachment C as Core Areas. The Forest Service also agrees to reclaim roads to enhance use of preferred and other high quality habitats, and to complement adjacent areas of secure habitat. The Parties will cooperate in identifying roads on their lands within the Conservation Area that are grown-in and/or unnecessary for management and will make such roads Reclaimed Roads from April 1 to November 15 in order to increase security for bears. The Parties agree not to reclaim existing roads accessing the other Parties' lands without first ensuring that reasonable alternative access exists. Plum Creek and DSL agree to work with the Forest Service to minimize the number and length of new roads that will go through Core Areas; provided, however, that the foregoing will not require Plum Creek or DSL to accept alternate access that would preclude reasonable use of their lands. The Forest Service agrees that if

the only reasonable access is through Core Areas that it will provide replacement Core Areas, where feasible, so that such access by Plum Creek and DSL is possible.

- (ii) The Parties will prohibit their contractors that are working under contract from carrying firearms while on duty.
- (iii) Plum Creek and DSL will not be subject to a total road density standard. The Forest Service will not take management actions that increase total road density on its ownership except to the extent required by law to grant access to inholders. The Forest Service agrees to reclaim roads to the extent necessary to meet its total road density obligations. Plum Creek and DSL agree to work with the Forest Service to minimize the total road density impact on the Forest Service caused by their access requests; provided that the foregoing will not require Plum Creek or DSL to accept alternative access that would preclude reasonable use of their respective lands.
- (iv) Nothing in this Section 3(f) shall be construed to change the obligation of the Forest Service to maintain existing easements and permits or to provide access to non-federal lands within the boundaries of the national forest, as required by law.

#### 4 Monitoring and Coordination

- (a) The Parties acknowledge that the principles of "adaptive management" should govern management within the Conservation Area. As such, new information gained from monitoring and research, conducted either within or outside the Conservation Area, will be reviewed on an annual or more frequent basis, as necessary, to determine if changes in management direction are appropriate. The Parties may choose to support such research and monitoring by contributing to ongoing or future proposed Bear research projects..
- (b) The Parties will cooperatively monitor the application and effectiveness of the Guidelines on an ongoing basis and provide the Service with the results thereof on an annual basis. Monitoring will include: (i) an analysis of open and total road densities, (ii) levels of Administrative Use in Inactive Subunits, (iii) levels of Administrative Use on Restricted Roads within Linkage zones during the Spring Period and fall period (September to November 15).
- (c) The Guidelines will be reviewed by the Parties annually and appropriately revised, pursuant to the procedures set forth in Section 10 hereof. Revisions will be

commensurate with new research findings concerning Bear conservation practices and experience with the practicability of the strategies agreed to here.

- (d) The Parties agree to develop strategies to inform the public about the needs of the Bear.

## 5 Application

The provisions of this Conservation Agreement have been tailored to protect Bears under the special conditions present within the Swan Valley of the Northern Continental Divide Ecosystem. The terms of this agreement apply only to the Conservation Area as defined in this Agreement.

## 6 Effectiveness

This Conservation Agreement shall be effective upon the date (the "Effective Date") when the following events have occurred (i) execution of the Agreement by all the Parties, and (ii) issuance of a biological opinion evaluating the effects of this Conservation Agreement, together with an incidental take statement as contemplated by Section 2(d) hereof

## 7. Term

- (a) This Conservation Agreement shall remain in effect for five years, commencing on the Effective Date, and shall thereafter self-renew for successive one year periods unless otherwise terminated pursuant to the terms hereof.
- (b) Any Party may cancel this Conservation Agreement upon (30) thirty days written notice to the other Parties.

## 8. Resources

Nothing in this Conservation Agreement shall require the Service, DSL, or the Forest Service to expend funds that have not been lawfully appropriated and administratively allocated for such use.

9. Notices

Notices hereunder shall be sent to, and all contacts regarding this Conservation Agreement should be made through:

Charles P. Grenier  
Plum Creek Timber Company, L.P.  
P.O. Box 160  
500 12th Avenue West  
Columbia Falls, MT 59912  
Tel: (406) 892-6201  
Fax: (406) 892-1828  
Rodd E. Richardson  
Forest Supervisor  
Flathead National Forest  
1935 Third Avenue B.  
Kalispell, MT 59901  
Tel: (406) 758-5200  
Fax: (406) 758-5351

Arthur Clinch  
Montana Department of Natural Resources  
and Conservation  
1625 11th Ave.  
Helena, MT 59620  
Tel: (406) 444-2074  
Fax: (406) 444-2684  
Ralph O. Morgenweck  
Regional Director  
U.S. Fish and Wildlife Service  
134 Union Blvd., Suite 400  
P.O. Box 25486  
Denver, CO 80225  
Tel: (303) 236-7920  
Fax: (303) 236-8295

10. Amendments

The Parties acknowledge that advances in the scientific understanding of the Bear may occur as a result of the monitoring hereunder or due to other scientific studies that could necessitate changes in this Conservation Agreement. The Parties will negotiate such changes in good faith and agree to enter into mutually acceptable dispute resolution, if necessary. If such changes cannot be agreed upon, then any of the Parties may declare this Conservation Agreement null and void, effective immediately upon notification to the other Parties. All amendments to this Conservation Agreement shall be in writing and signed by all Parties hereto.

IN WITNESS WHEREOF, duly authorized representatives of the Parties hereto have duly executed this Conservation Agreement on the date set forth below.

U.S.D.A. Forest Service,  
Flathead National Forest

By \_\_\_\_\_

Date \_\_\_\_\_

Plum Creek Timber Company, L.P.

By \_\_\_\_\_

Date \_\_\_\_\_

United States Fish and Wildlife Service

By \_\_\_\_\_

Date \_\_\_\_\_

Montana Department of State Lands

By \_\_\_\_\_

Attachments

A-- BMIJs

B -Conservation Area

C-- CoreAreas

D -Female Home Range Analysis Areas--BMU Subunits

E -Linkage Zones

F -Riparian Zones

O -Preferred Habitat

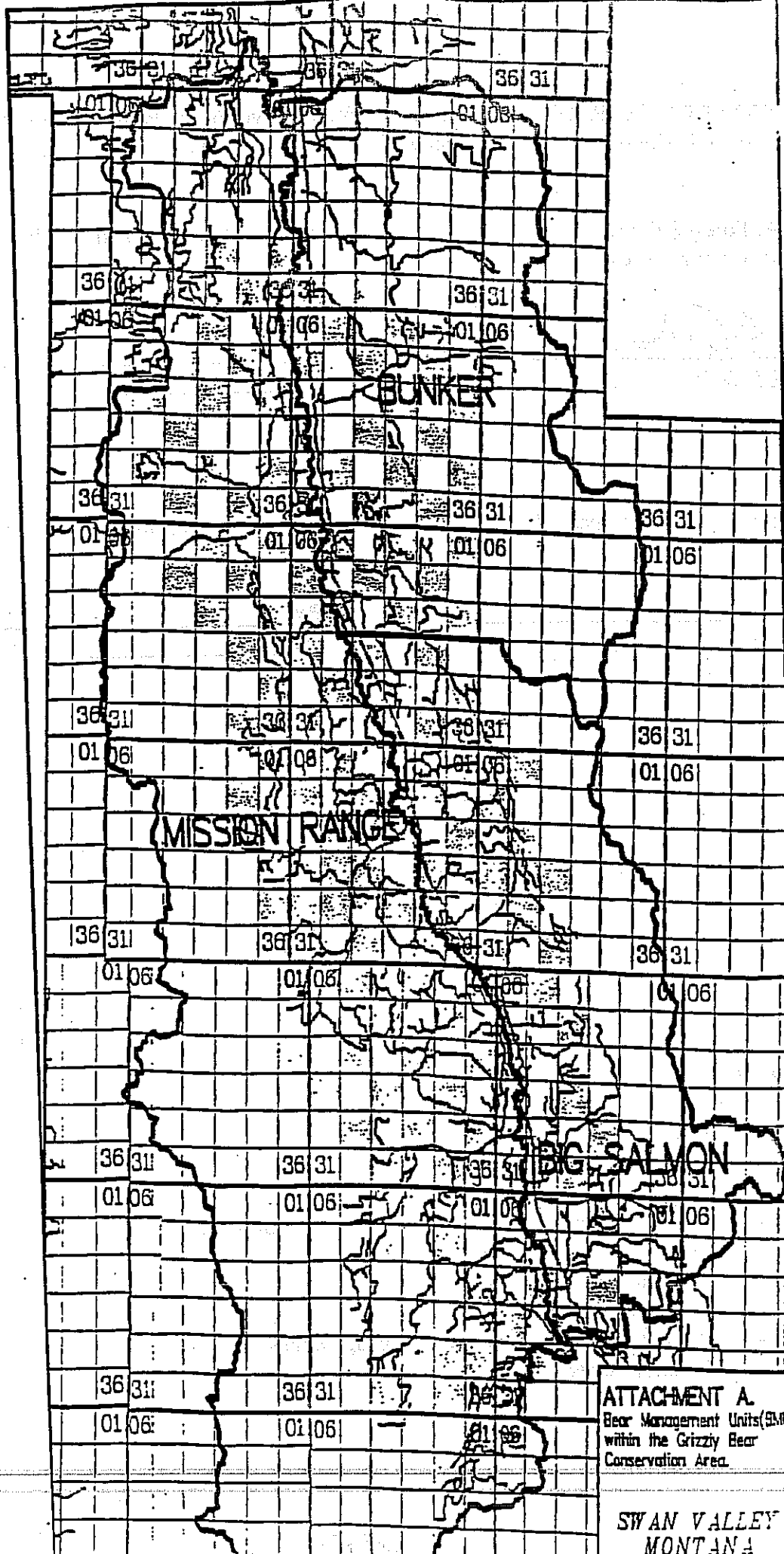
H -Open Roads in Low Elevation Linkage Zones

I -Rotation Schedule

## Attachment I - Rotation Schedule

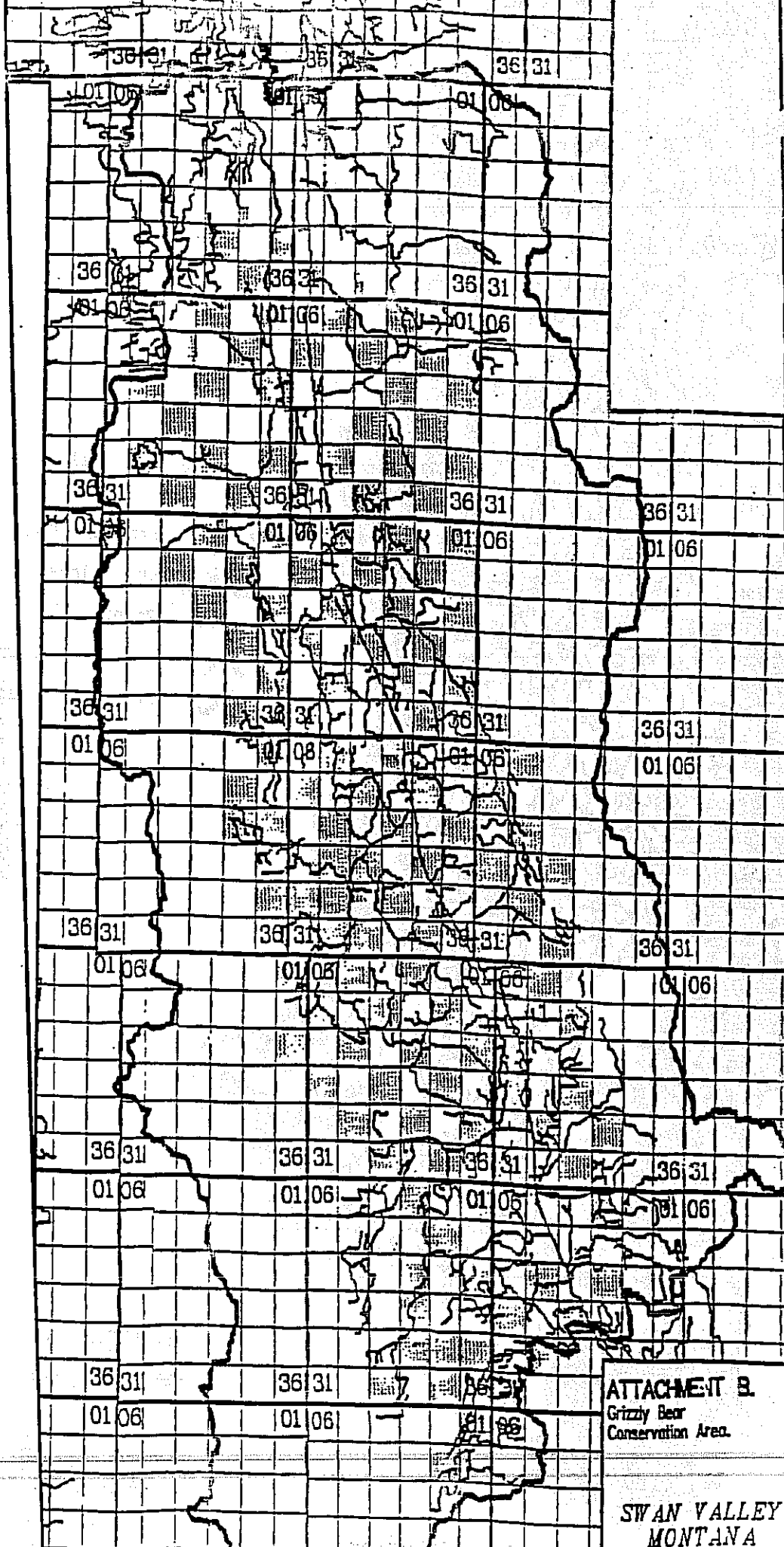
BMU	SUBUNIT	ACTIVE
Mission Range		
North	Porcupine-Woodward	2000-2002
	Piper Creek	1997-1999
	Cold-Jim	2003-2005
South	Hemlock-Elle	2000-2002
	Glacier-Loon	2003-2005
	Beaver Creek	1997-1999
Bunker	So. Fk. Lost Soup	1997-1999
	Goat Creek	2003-2005
	Lion Creek	2000-2002
Big Salmon	Meadow-Smith	1997-1999
	Buck-Holland	2000-2002





ATTACHMENT A  
Bear Management Units (BMUs)  
within the Grizzly Bear  
Conservation Area.

SWAN VALLEY  
MONTANA








ATTACHMENT B.  
Grizzly Bear  
Conservation Area.

SWAN VALLEY  
MONTANA

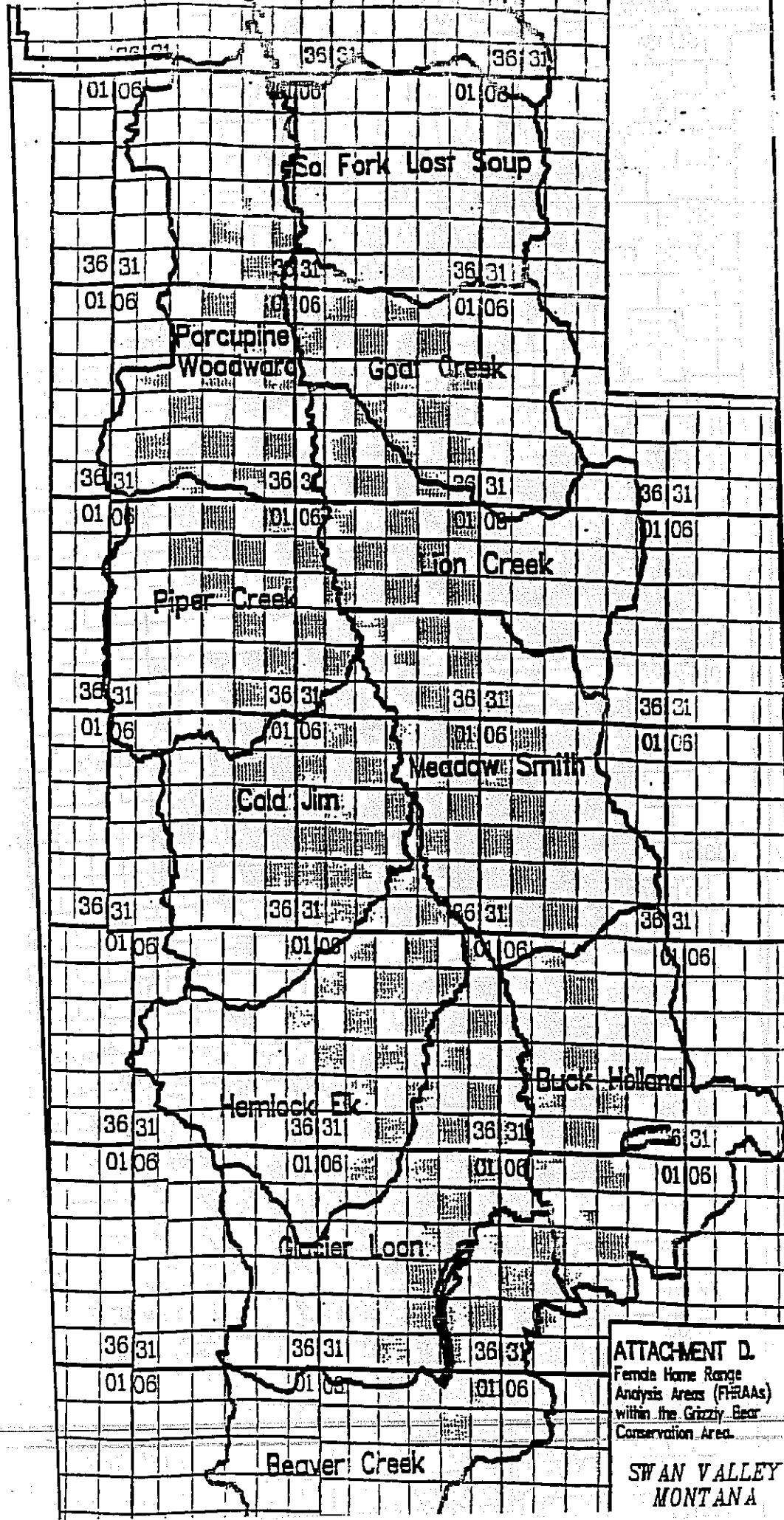
1: 275000 scale

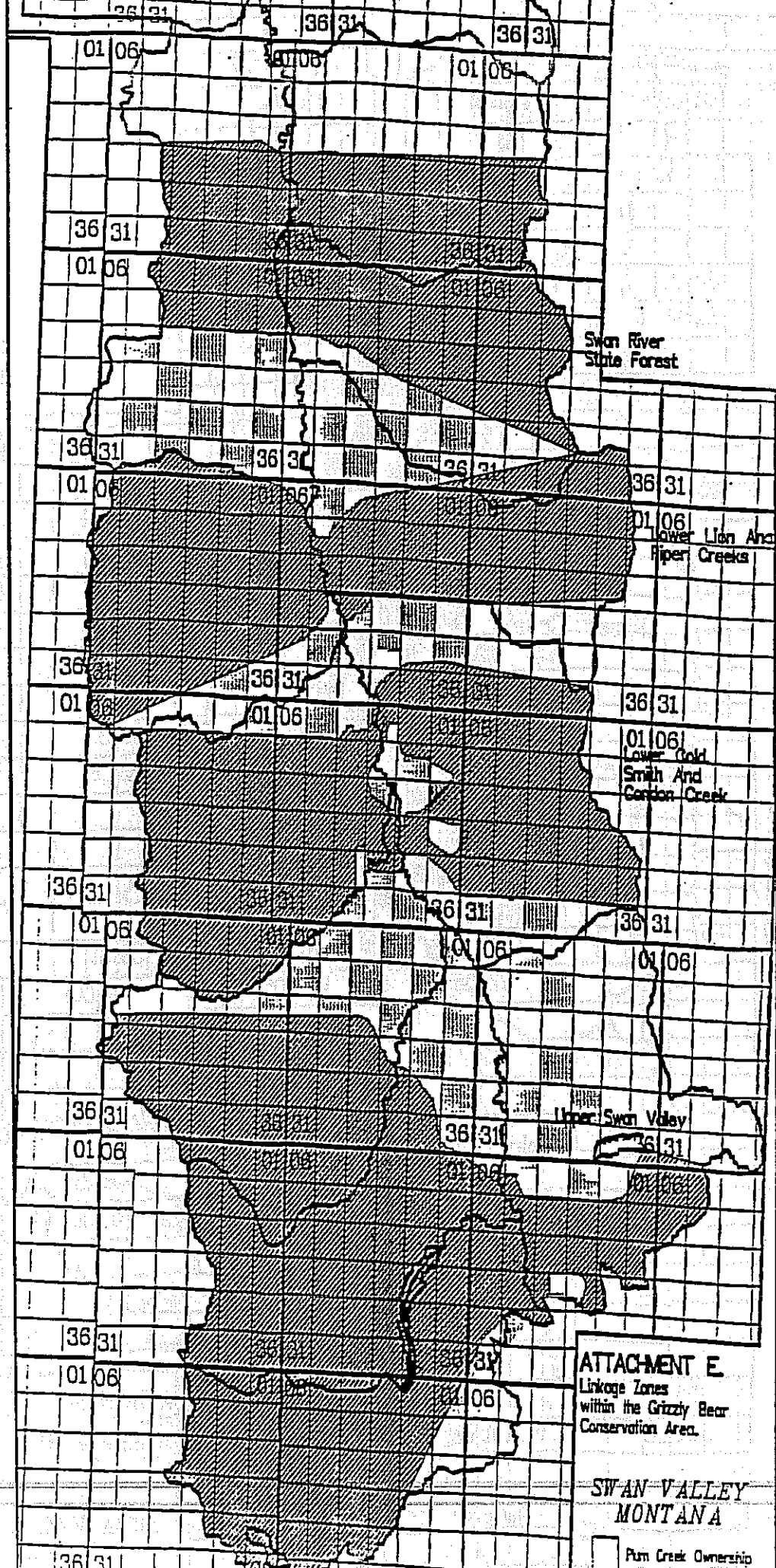


-  Longterm Potential CORE
-  Large lakes
-  Roads
-  BMU subunit boundary
-  Swan Conservation area

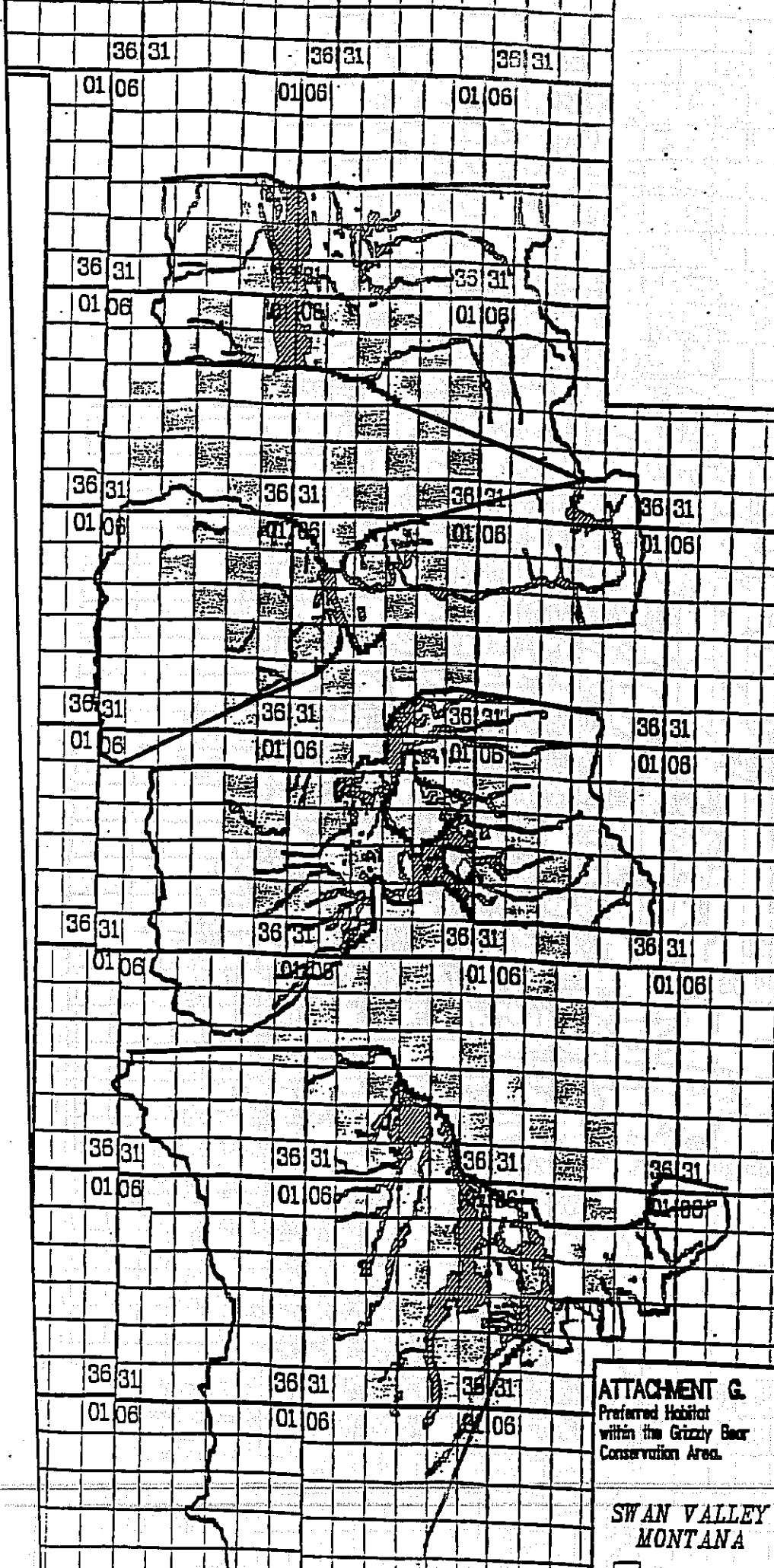
ATTACHMENT C.  
Core Security Areas  
within the Grizzly Bear  
Conservation Area.

SWAN VALLEY  
MONTANA







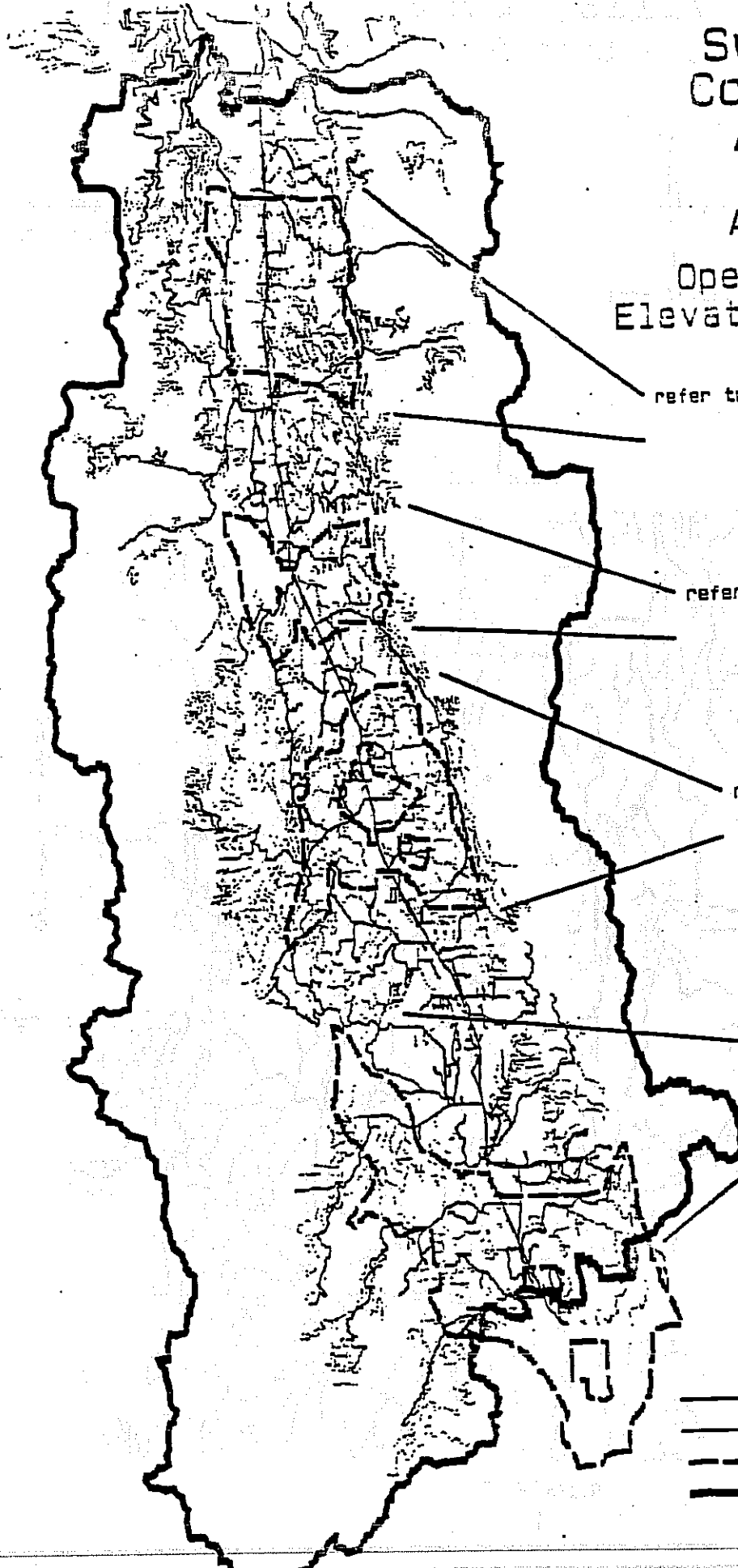


**ATTACHMENT G.**  
Preferred Habitat  
within the Grizzly Bear  
Conservation Area.

**SWAN VALLEY  
MONTANA**

# Swan Valley Conservation Agreement

## Attachment H Open Roads on Low Elevation Linkage Zone



refer to MAP H.1

refer to MAP H.2

refer to MAP H.3

refer to MAP H.4

1:275000 scale

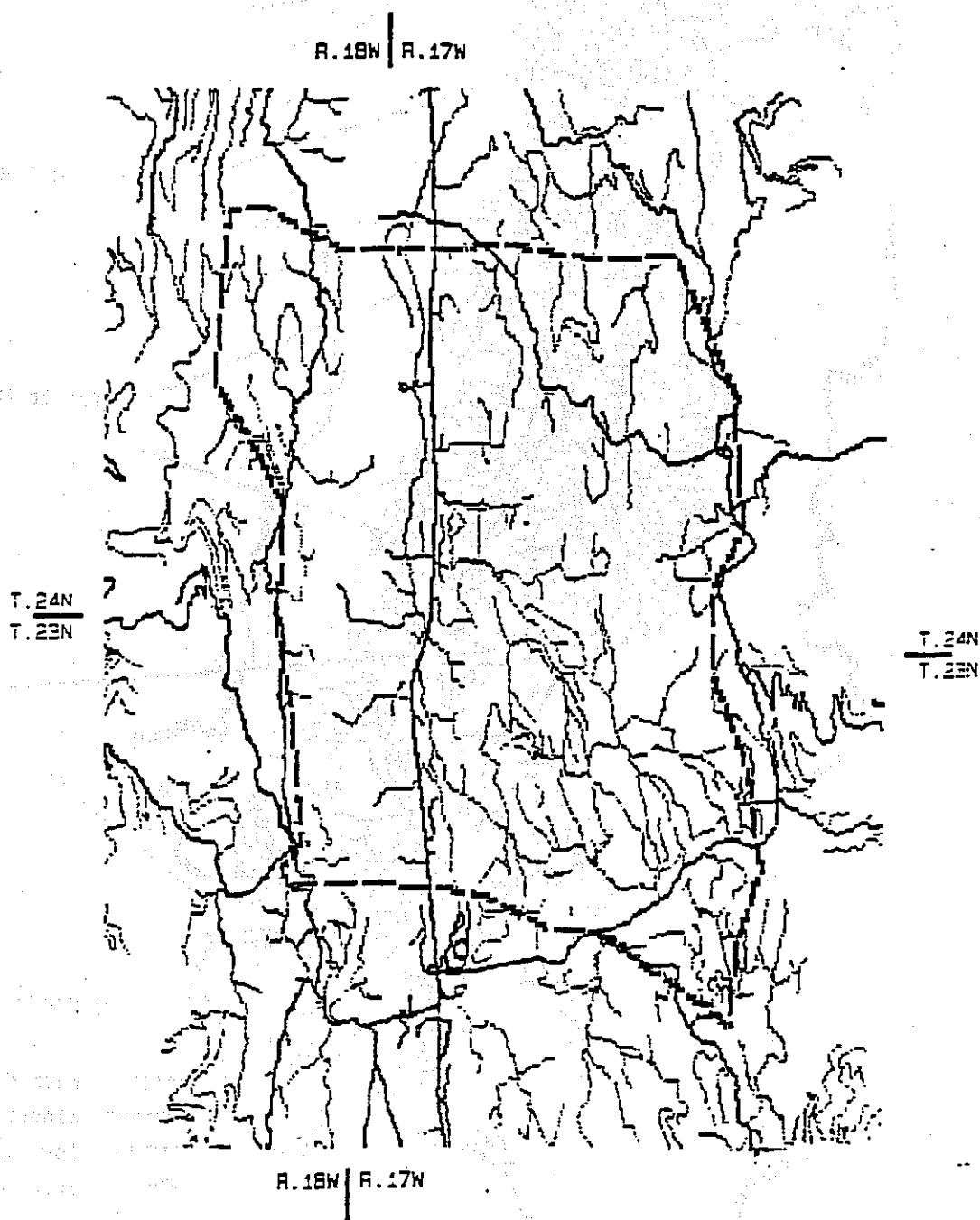
- open roads
- - - closed roads, 1 APR - 15 JUN
- - - low elevation LINKAGE ZONE
- Swan Conservation area

# Swan Valley Conservation Agreement

## MAP H.1 - Swan River S.F. Linkage Zone

N  
↑  
1:80000 scale

— open roads  
— closed roads, 1 APR - 15 JUN  
--- low elevation LINKAGE ZONE



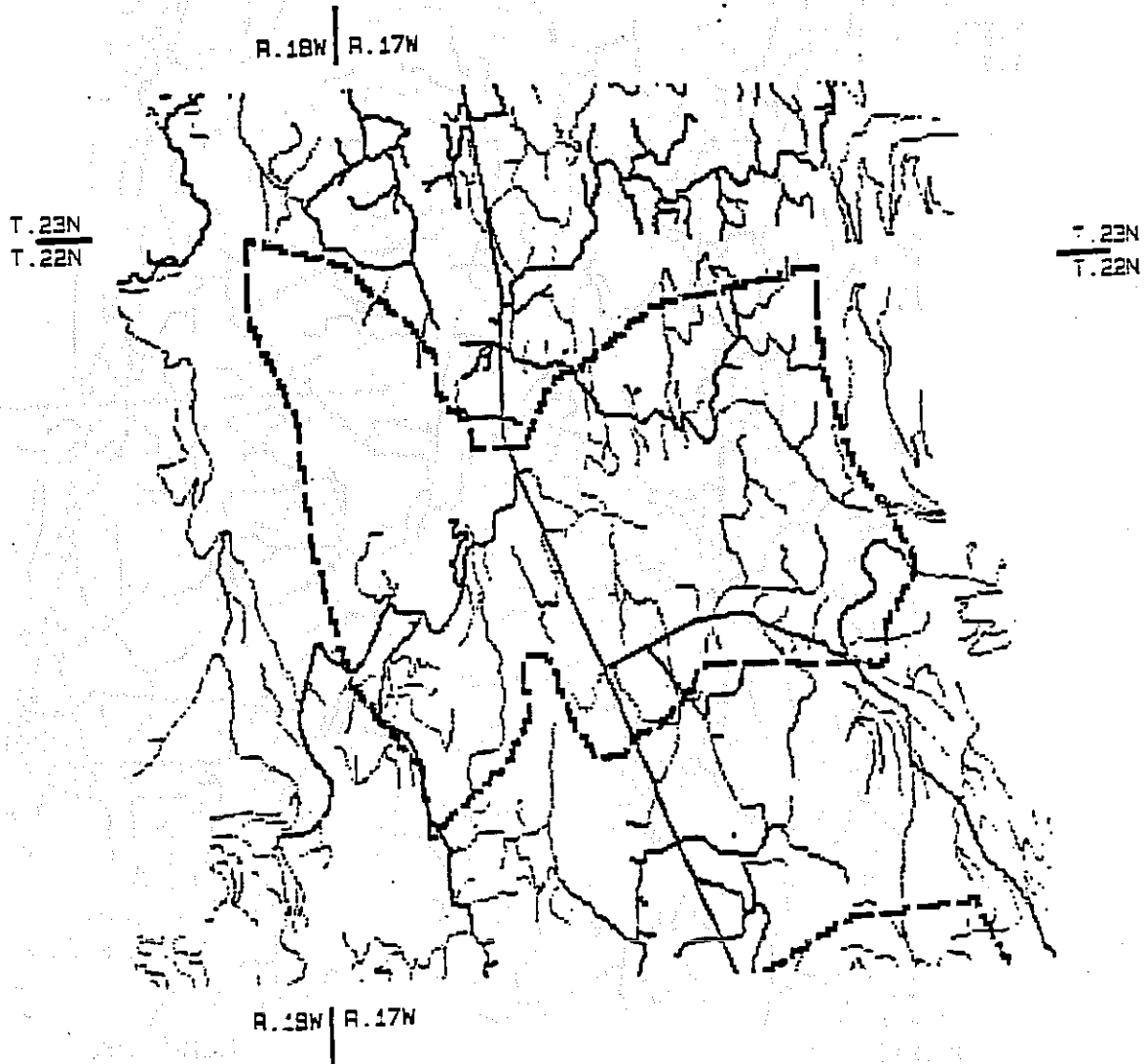
# Swan Valley Conservation Agreement

## MAP H.2 - Lion & Piper Creeks Linkage Zone



1:86000 scale

- open roads
- closed roads. 1 APR - 15 JUN
- - - low elevation LINKAGE ZONE



# Swan Valley Conservation Agreement

## MAP H.3 - Cold, Smith, & Condon Linkage Zone



1:95000 scale

- open roads
- closed roads. 1 APR - 15 JUN
- - low elevation LINKAGE ZONE

R.17W | R.16W

T.22N  
T.21N

T.22N  
T.21N

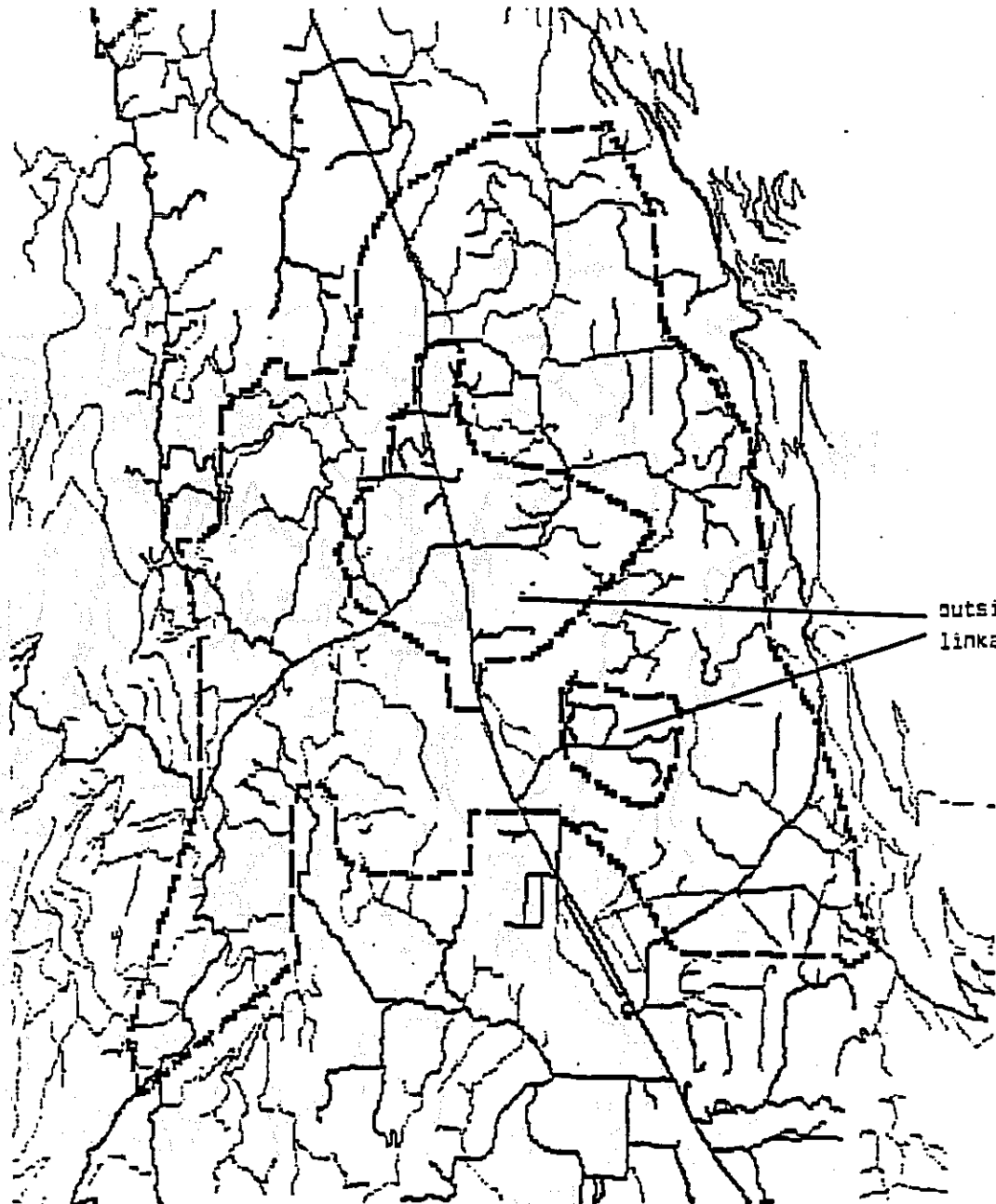
outside  
linkage zone

T.21N  
T.20N

T.21N  
T.20N

R.19W | R.17W

R.17W | R.16W



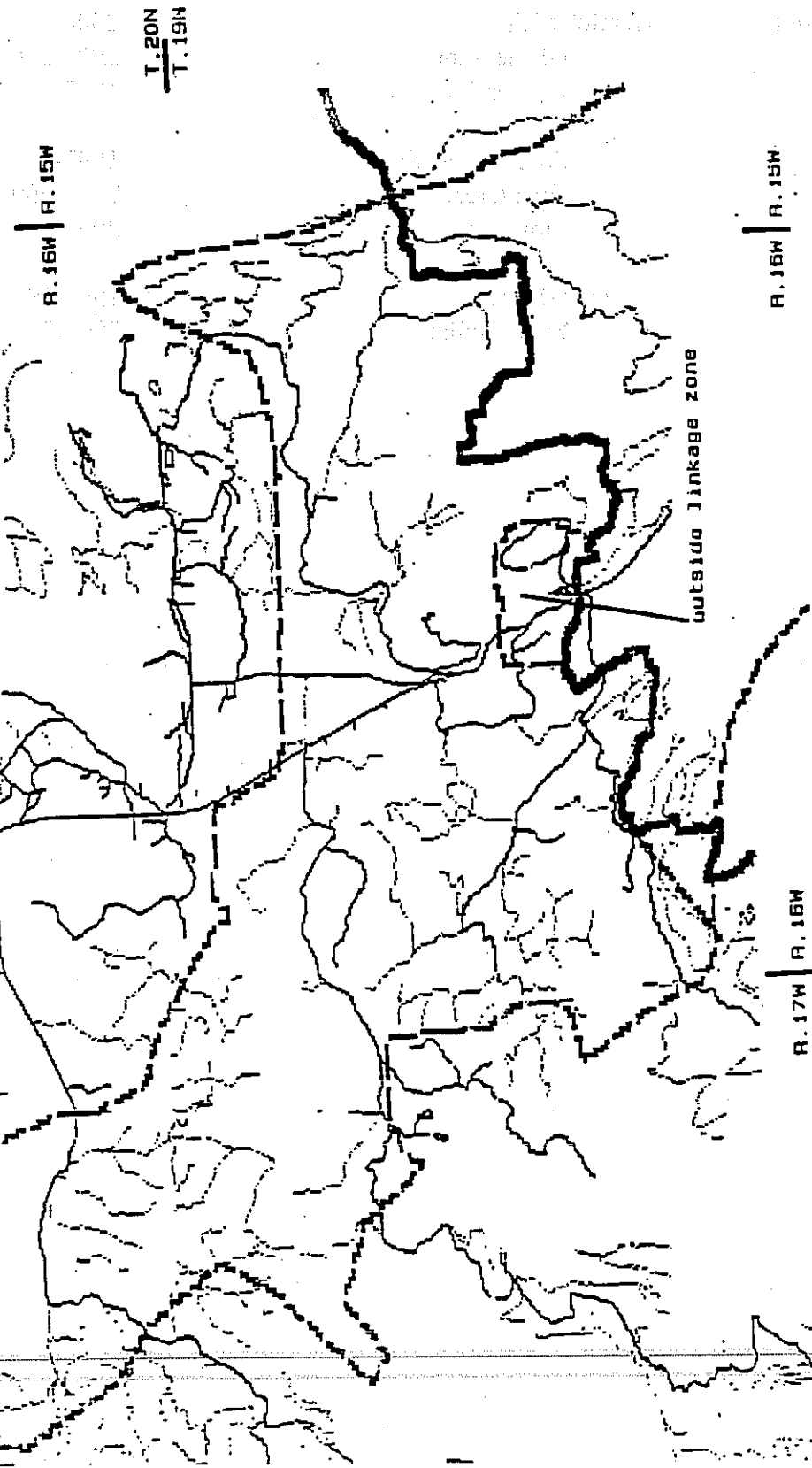
# Swan Valley Conservation Agreement

## MAP H.4 - Upper Swan Linkage Zone

- open roads
- closed roads, 1 APR - 15 JUN
- low elevation LINKAGE ZONE
- Swan Conservation area



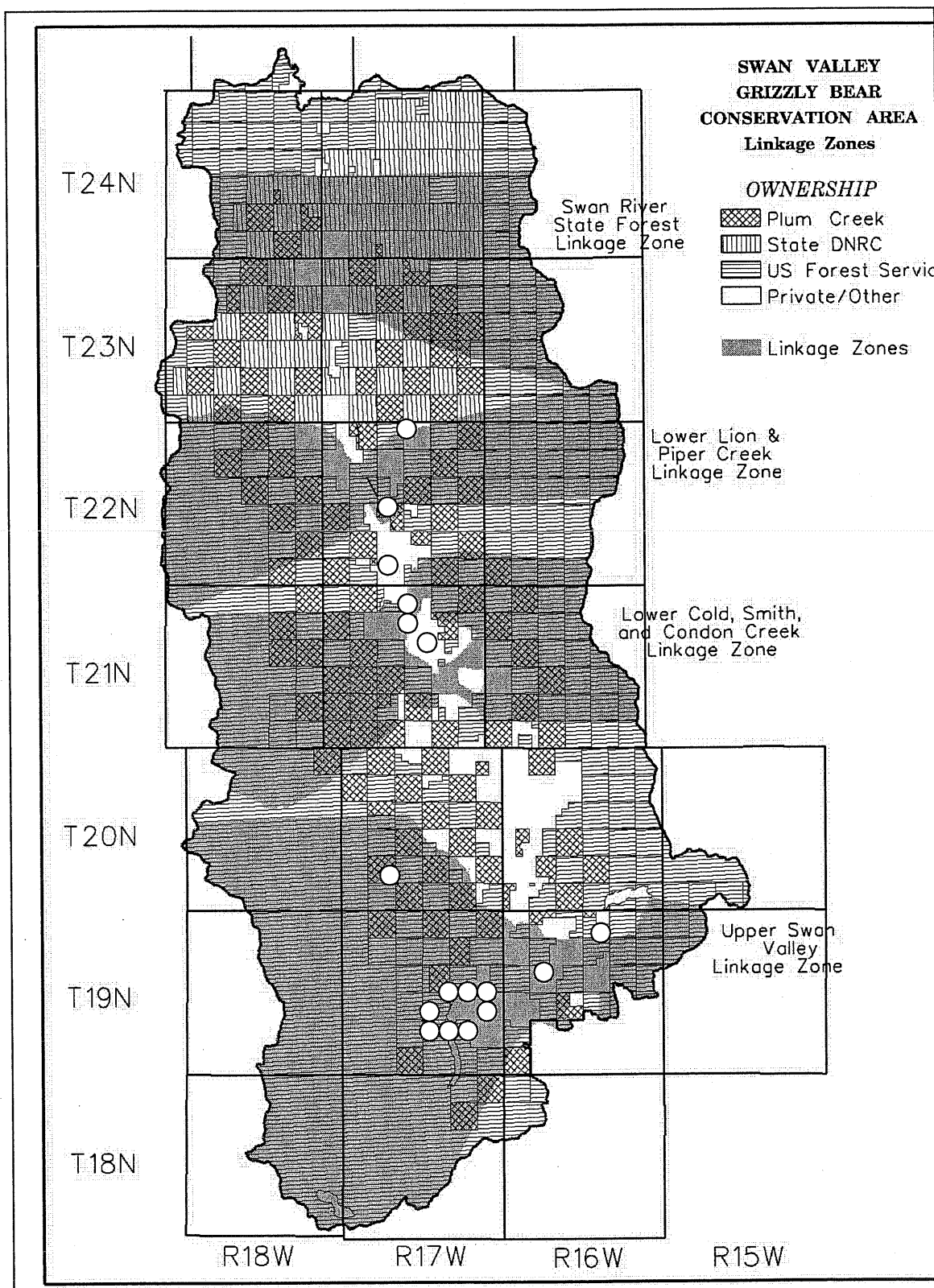
1:85000 scale



# Attachment I -- Rotation Schedule

BMU	SUBUNIT	ACTIVE
Mission Range	North	Porcupine-Woodward
		2000-2002
		Piper Creek
	South	1997-1999
		Cold-Jim
		2003-2005
Bunker	Hemlock-Elk	2000-2002
		Glacier-Loon
		2003-2005
	So. Fk. Lost Soup	1997-1999
		Goat Creek
		2003-2005
Big Salmon	Lion Creek	2000-2002
	Meadow-Smith	1997-1999
		2000-2002
	Buck-Holland	

FLATHEAD NATIONAL FOREST												
5420 Purchase Accomplishment												
FY	Date	Case Name	Acres	Legal	Purchase Price	\$/Acre	FTO					
1999	12/28/1998	TPL Lindberg Lake Phase I	1801.7	T19NR17W SEC13,22,26,27,35	\$10,000,000	\$5,550	7/6/1999					
2000	2/15/2000	TPL Lindberg Lake Phase II	704.74	T19NR17W SEC11,22	3,041,000	4,315	6/14/2000					
2001	10/11/2001	TPL Swan Valley Phase I	624.58	T22NR17W SEC17	3,159,000	4,500	8/30/2002					
2001	10/1/2001	TPL Swan Valley Phase II	400	T19NR16W SEC3	1,800,000	4,500	9/9/2002					
2001	3/19/2002	TPL Swan Valley Phase III	80.69	T19NR16W SEC3	360,000	4,462	9/5/2002					
2003	5/1/2003	TPL Van Lake	1696.91	T21NR17W SEC3,9,15	8,731,000	5,145	2/16/2004					
2003	9/25/2003	TPL Beaver S19	599.59	T22NR17W SEC3								
				T19NR16W SEC19	3,000,000	5,003	3/31/2004					
2004	5/10/2004	TPL Hemlock S29	640	T20NR17W SEC29	1,388,000	2,169	4/6/2005					
2004	8/26/2004	TPL Beaver 2 Phase I	545	T19NR16W SEC17	2,779,000	5,100	4/1/2005					
2005		TPL Beaver 2 Phase II	95	T19NR16W SEC17	484,500	5,100						
2005		TPL Beaver 3 Phase I										
			7188.21		\$34,742,500							
		easement donation	80	T21NR17W SEC10								
		easement donation	40	T22NR17W SEC32								
		easement donation	640	T19NR17W SEC24								



**Flathead National Forest. Locations of Swan Valley Land Purchases and Easements 1999- 2005**

Locations are approximate and one circle represents multiple purchases in some locations

## Appendix C

**FLATHEAD NATIONAL FOREST  
2004 LRMP AMENDMENT 19 REPORT  
MAY 2005**

### Background

To address the legal issues and incorporate the management direction associated with the 1995 Forest Plan Amendment 19 (A-19) into the Flathead National Forest (FNF) Land and Resource Management Plan, tight court-mandated timeframes existed. As a result, when the original 1995 plan amendment and consultation began, adequate data validation could not occur and the FNF recognized there may be unanticipated or impractical results in some grizzly bear management subunits during site specific implementation. As it turned out the FNF underestimated the original amount of roads to be decommissioned to meet the A-19 objectives by about 100 miles. In the 10 years following 1995 the FNF has experienced approximately a 50% decrease in total forest budget and corresponding decrease in personnel for planning and implementation. Although the FNF continues to explore other opportunities to meet A-19 standards, annual costs of currently authorized decommissioning exhaust our financial capacity to increase the decommissioning efforts. In addition, devastating wildfires during 2001 and 2003 caused the FNF to shift forest priorities and re-evaluate past decisions in order to implement fire rehabilitation and salvage. It is important to note that some grizzly bear subunit areas contain major access roads, private land access, safety escape routes, and access to recreation developments, trailheads and other investments, while some are poorly configured due to the lay of the land making it very difficult to reach A-19 standards. The FNF has also experienced an increased social animosity as a result of additional access management restrictions. Consequently, all of these factors contributed to the FNF's inability to meet the A-19 five and ten-year implementation standards. To account for these issues and the slower progress in achieving access management standards the FNF is currently in the process of consulting on an Amendment 19 Revised Implementation Schedule for the initial 1995 biological opinion.

However, during the years 1995 through 2004 the forest has still made significant progress in providing more desirable habitat conditions for grizzly bears and other species and habitats as shown in the text and tables that make up this report. In addition to access management, another form of habitat improvement for grizzly bears and other wildlife, but separate from A-19, has been the land acquisition program with Land and Water Conservation Funds. Between 1996 and 2004, 6,622 acres have been acquired for NFS lands with Congress appropriating \$31,258,000. The emphasis has been in the Swan Valley to block up habitat in support of the Swan Valley Conservation Agreement objectives. A long range plan for this area involves the public acquisition of an average of 1500 acres over the next 5 years.

### Changes for the 2004 report - overall.

There are no major differences in processing, and no changes in definitions. However, there was an update to the INFRA database from the Washington Office that caused problems with the closure devices. After the update was applied, it was discovered that the forest had more devices than before the update. These "new" devices were originally labeled 'HISTORIC' before the update, and incorrectly labeled as 'EXISTING - OPERATIONAL' after the update. While most of these were caught during editing of the road layer prior to the final runs, there may be a few incorrectly existing on the 2004 road layer. The changes would be between the type of device (gate, physical barrier, and natural vegetation), and would affect Security CORE and Total Route Density percentages. An estimation of the change in percentage would be  $\leq 5\%$ . This unfortunate event will be evaluated during 2005 and we'll explain any corrected situations within the 2005 report.

The ownership coverage was updated in June 2004, and has not been updated since then. There are only minor changes in ownership within the Swan Valley, affecting Porcupine Woodward, Lion Creek, Meadow Smith, and Buck Holland BMU Subunits. The acreage is less 100 acres each.

As a reminder the following was included in the 2003 report:

The 1995 baseline was re-calculated based upon two changes initiated in the 2002 report: motorized trails and CORE. First, the 1995 trail coverage was re-evaluated for motorized trails. For this recalculation, trails were considered motorized if managers knew it was receiving any motorized use in the non-denning season in 1995. Second, under the security standard, CORE polygons need to be >2500 acres in size. Polygons <2500 acres could be considered as potential security habitat, but not CORE. The 1995 baseline OPEN Route Density (ORD), TOTAL Route Density (TRD) and Security CORE (CORE) percentages used in this report included both of the above corrections. In 2003, the report pulled the tabular road information from the forest's INFRA road database and connected the information to the current Arc/Info road coverage. The forest's INFRA road database is considered to be the official road information database. The forest is using only one database for these calculations.

#### Changes for 2004 report – specific significant subunits

Peters Ridge subunit (#17) had the Noisy Face motorized trails included this year. Prior to this year, they were not included. Although there are several trails, they are concentrated in an already roaded area of the subunit. The result was an increase in ORD and TRD; however, CORE did not change as the motorized trails were already in an area that is buffered.

Werner Creek subunit (#10) has proposed standards of 29% ORD, 19% TRD, and 63% CORE. The decision run which incorporates all signed road management decisions, results in 62% CORE. The difference was two open roads. One is along the western base of the Whitefish Divide and the other is an extension of the road to Werner Peak lookout. The former creates an area >500m from open roads/trails that is less than 2500acres, thus no longer CORE. The latter extends the buffered area, creating less CORE. Both roads were not in the forest's road INFRA database at the time of the project, and have been added since.

Spotted Bear Mtn. subunit (#52) has some differences between the decision run for the annual report and Spotted Beetle project's decision run. This is a technical difference in the X,Y starting coordinate location. Slightly different results will happen if the starting X,Y coordinate of the grids are not exactly the same. The difference is <0.5%. The subunit will meet A19 standards will full implementation of Spotted Beetle. However, with the technical difference and the implementation of Spotted Bear River Trailhead project, the ORD is at 20% and not 19% after rounding to the nearest whole number. Spotted Bear River Trailhead project moved the location of a gate on an open road approximately 0.25 miles further up the road.

Jungle Addition subunit's (#54) decision run does not meet A19 standards of 19, 19, and 68. The decision run included the Spotted Beetle project's road management decisions. After the Spotted Beetle project was signed, the definition used for motorized trails under A19 was changed. As a result, several miles of trails in the Jungle Addition subunit were re-classified to motorized, which increased ORD to 28%, TRD to 20%, and decreased CORE to 62%.

### General Summary of Grizzly Bear Management Unit Subunits

The Flathead National Forest (FNF) has 73 grizzly bear management unit subunits. Sixteen of these subunits (numbers 58 – 73) are primarily wilderness or unroaded. Three of the subunits (14, 15 and 16) have only a fraction of National Forest System (NFS) lands. These 19 subunits are not affected by Forest Plan Amendment #19 (A-19). The remaining 54 subunits (see Map) are utilized for A-19 analysis and reporting. 40 subunits include NFS lands that are more than 75% of the subunit area; 14 subunits are comprised of NFS lands that are less than 75% of the subunit area.

#### Existing Subunit Status

Tables 1a and 1b display the existing status of the 54 subunits. 32 of the 54 subunits (59%) meet all A-19 or amended A-19 objectives. One other subunit meets 2 of the 3 objectives. Eight subunits meet one objective, and 13 subunits do not meet any objective. 41 of 54 subunits (76%) meet at least one objective.

#### Existing Subunit Status + Subunits Within 5% of Objectives

Reviewing Tables 2a, 3a and 4a there are additional subunits within 5 percentage points of meeting A-19 or amended A-19 objectives for ORD, TRD and CORE. Those units that meet or are within 5 percentage points of meeting all 3 objectives are 34 of 54. Six subunits meet 2 of 3 objectives and 8 subunits meet one objective (48 of 54 for 89% meet or are within 5% of meeting at least one objective).

ORD, TRD and CORE Status for subunits where NFS lands are greater than 75% of the area  
Figures 1 through 3 are histograms of existing conditions for subunits where NFS lands are greater than 75% of the area.

- o 22 of 40 subunits (55%) meet the 19% or amended standard for ORD (Figure 1). An additional 9 subunits (Table 2a) are within 5 percentage points of 19 or amended percent [ $22 + 9 = 31$  of 40 (78%)]. Of the remaining 9 subunits, 3 are within 10% of the 19% standard or amended standard.
- o 23 of 40 subunits (58%) meet the 19% or amended standard for TRD (Figure 2). An additional 4 subunits (Table 3a) are within 5 percentage points of 19 or amended percent [ $23 + 4 = 27$  of 40 (68%)]. Of the remaining 13 subunits 6 are within 10% of the 19% standard or amended standard.
- o 19 of 40 subunits (48%) meet the 68% or amended standard for CORE (Figure 3). An additional 3 (Table 4a) are within 5 percentage points of 68 or amended percent [ $19 + 3 = 22$  of 40 (55%)]. Of the remaining 18 subunits 3 are within 10% of the 19% standard or amended standard.

While not meeting the 5-year and 10-year time frames the forest has still made significant progress in providing more desirable habitat conditions for grizzly bears and other species and their habitats between 1995 through 2004 (see 2004 existing and % Change 2004-1995 columns in the ORD, TRD and CORE Tables 2a and b, 3a and b, and 4a and b, and Figures 1, 2 and 3) and summarized below:

- o Of the 40 subunits where NFS lands are greater than 75% of the area, 19 subunits have decreased ORD (Table 2a), 16 subunits have stayed the same and 5 subunits

have increased. Many of the subunits with increases are a result of database updates to correct an error or update trail use classification for motorized use.

- o Of the 40 subunits where NFS lands are greater than 75%, 27 units have decreased TRD (Table 3a), 11 subunits have stayed the same, and 2 subunits have increased due to the acquisition of private lands inclusion of trails not originally included as motorized.
- o Of the 40 subunits where NFS lands are greater than 75%, 34 units have increased in CORE habitat (Table 4a), 5 units have stayed the same, and 1 subunit has decreased due primarily to the acquisition of private lands and database updates.

The remaining fourteen of the 54 subunits have less than 75% NFS lands in the subunit (see Tables 1b, 2b, 3b and 4b for subunit status). As seen in these tables, (% Change 2004-1995 column) many subunits also show some major improvements in road access management and security core habitat. ORD in 5 subunits, TRD in 3 subunits and CORE in 5 subunits have improved standards at least 5% or greater. All of these units currently meet the "no net loss" objectives as specified in A-19. Changes shown in percentages for route densities and CORE are due to an assortment of situations: 1) changes in access management on NFS, and access management on Plum Creek, Montana Department of Natural Resources and Conservation, or small private lands; 2) land exchanges that affected the total small private lands; 3) updates in trail classification based upon field information, for example, the number of parties using a trail may have increased or decreased so the trail may now be, or may no longer be classified as high use; and 4) corrections to the forest's INFRA road database based upon field inspections and not based upon a change in NFS road management.

#### Effectiveness Monitoring Closure Device Inspections

The 2004 closure device inspection report (Table 5) and annual monitoring summary (Table 6) reflect the closure device monitoring program. These figures show the official documented visits and actually under-represent the total number of inspections as many closure devices are checked more often by forest personnel and just not documented. Official inspections have been handled by engineering personnel who were again occupied in 2004 with the aftermath of the 2003 fire, BMPs and restoration. There are current on-going discussions on how to best handle these closure devices and informal observations to determine effectiveness of the closure devices. Although the number of inspections was down in 2004, the percent found to be ineffective is similar to other years. The totals include both A-19 and non A-19 closure inspections. The total number of devices does include 1) those devices that are already behind other devices, such as a barrier at milepost 10.0 may be behind a barrier a milepost 8.0; and 2) the many devices that are on the system and occur on historic roads, but past the beginning device at milepost 0.0. Also, 1) most employees in the field will recognize a device that requires repair and will notify the road manager of the problem without writing a report, 2) most field-going employees pass a device that is properly functioning and not make a report, and 3) in addition, many field-going personnel also hike or bicycle roads that are closed that are functioning properly without making a report.

#### Administrative Use

There are several roads that sign-out logs indicated one or more weeks where the administrative use was above the defined limits. A majority of these roads occurred in project areas for fire salvage. Some reflect a short-term increase while working towards a long-term benefit. A

## Final

majority of the administrative use occurred on gated roads, affecting only ORD (Table 7). However, there were several roads labeled historic for the existing analysis, but with administrative use over the limit prior to the final re-classification. In those situations, all three standards are affected. The one exception is State Coal Cyclone where a bermed road had been opened for project work during the summer.

### Miles of Decommissioned Roads by Calendar Year

The 2003 report included a table similar to the one below (Table 8). The entry for 1999 was incorrect. The writer of the report was new to the forest and unfamiliar with the information at the time. In 1999, several years of previous work was incorporated into the decommission road database in addition to the 1999 on-the-ground accomplishments. 77.66 miles should have been added to the 31.54 miles for 1999 for a total of 109.20 miles with subsequent changes to the cumulative column. The correct figures are shown below in Table 8. A total of 41.52 miles of road were decommissioned in 2004.

Table 1a. 2004 existing status of the 40 BMU Subunits where NF ownership >75%. Numbers are compiled from Tables 2a and b through 4a and b.

#	BMU Subunit	RD	OPEN Route Density	TOTAL Route Density	Security CORE
1	Frozen Lake	GV	10	4	81
2	Ketchikan	GV	19	3	68
3	Upper Trail	GV	17	5	85
4	Lower Whale (amended 37-19-47)	GV	43	25	28
5	Upper Whale Shorty	GV	12	10	85
6	Red Meadow Moose	GV	25	17	52
7	Hay Creek	GV	34	16	48
8	Coal and South Coal	GV	15	26	71
10	Werner Creek (amended 29-19-63)	GV	20	22	42
11	Lower Big Creek	GV	19	32	57
12	Canyon McGinnis	GV/TL	22	42	31
17	Peters Ridge	HH/SL	53	25	34
19	Swan Lake	SL	54	30	31
25	Crane Mountain	SL	32	59	27
31	Beaver Creek	SL	6	26	67
32	Doris Lost Johnny (amended 57-19-36)	HH	60	22	31
33	Wounded Buck Clayton (amended 27-30-65)	HH	37	37	39
35	Emery Firefighter	HH	20	30	38
36	Riverside Paint	HH	24	34	59
37	Jewel Basin Graves	HH	22	23	56
38	Wheeler Quintonkon (amended 25-19-68)	HH/SB	27	23	57
39	Logan Dry Park	HH/SB	30	36	50
40	Lower Twin	SB	9	2	92
41	Twin Creek	SB	0	0	100
42	Moccasin Crystal	HH	7	1	79
43	Stanton Paola	HH	6	3	80
44	Dickey Java	HH	9	0	81
45	Long Dirtyface	HH	0	0	100
46	Tranquil Gelfer	HH	0	2	85
47	Skyland Challenge	HH	20	16	63
48	Plume Mtn Lodgepole	HH/SB	0	0	97
49	Flotilla Capitol	HH/SB	10	0	99
50	Ball Branch	SB	12	9	73
51	Kah Soldier	SB	21	35	54
52	Spotted Bear Mtn	SB	20	17	61
53	Big Bill Shelf	SB	11	2	80
54	Jungle Addition	SB	29	18	60
55	Bunker Creek	SB	12	4	85
56	Gorge Creek	SB	0	0	90
57	Harrison Mid	SB	1	0	95

Subunits meet LMRP A19.

Subunit meets amended A-19 objectives

Table 1b. 2004 existing status of the 14 BMU Subunits where NF ownership <75%. Numbers are compiled from Tables 2a and b through 4a and b.

#	BMU Subunit	RD	OPEN Route Density	TOTAL Route Density	Security CORE
9	State Coal Cyclone	GV	30	21	58
13	Cedar Teakettle	GV	26	23	21
18	Noisy Red Owl	SL	20	16	56
20	South Fork Lost Soup	SL	54	44	26
21	Goat Creek	SL	28	49	43
22	Lion Creek	SL	22	38	55
23	Meadow Smith	SL	22	50	43
24	Buck Holland	SL	25	41	36
26	Porcupine Woodward	SL	46	51	30
27	Piper Creek	SL	20	30	57
28	Cold Jim	SL	19	55	44
29	Hemlock Elk	SL	8	29	66
30	Glacier Loon	SL	25	39	47
34	Coram Lake Five	HH	29	46	18

Subunits meet LMRP A19 objective.

Table 2a. Subunit % Open Route Density for the 40 BMU Subunits where NF ownership &gt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
1	Frozen Lake	GV	10	10	10	
2	Ketchikan	GV	19	19		
3	Upper Trail	GV	18	17	14	-1
4	Lower Whale (amended 37%)	GV	60	43	37	-17
5	Upper Whale Shorty	GV	17	12	12	-5
6	Red Meadow Moose	GV	36	25	25	-11
7	Hay Creek	GV	33	34		+1
8	Coal and South Coal	GV	23	15		-8
10	Werner Creek (amended 29%)	GV	43	20	29	-23
11	Lower Big Creek	GV	35	19	19	-16
12	Canyon McGinnis	GV/TL	34	22	18	-12
17	Peters Ridge	HH/SL	46	53		+7
19	Swan Lake	SL	56	54		-2
25	Crane Mountain	SL	51	32	25	-19
31	Beaver Creek	SL	6	6		
32	Doris Lost Johnny (amended 57)	HH	58	60	56	+2
33	Wounded Buck Clayton (amended 27)	HH	38	37	27	-1
35	Emery Firefighter	HH	32	20	20	-12
36	Riverside Paint	HH	23	24	18	+1
37	Jewel Basin Graves	HH	22	22	19	
38	Wheeler Quintonkon (amended 25)	HH/SB	27	27	25	
39	Logan Dry Park	HH/SB	33	30	30	-3
40	Lower Twin	SB	9	9		
41	Twin Creek	SB	0	0		
42	Moccasin Crystal	HH	7	7		
43	Stanton Paola	HH	12	6		-6
44	Dickey Java	HH	10	9		-1
45	Long Dirtyface	HH	0	0		
46	Tranquil Gelfer	HH	0	0		
47	Skyland Challenge	HH	15	20		+5
48	Plume Mtn Lodgepole	HH/SB	0	0		
49	Flotilla Capitol	HH/SB	0	0		
50	Ball Branch	SB	41	12	12	-29
51	Kah Soldier	SB	39	21	19	-18
52	Spotted Bear Mtn	SB	20	20	20	
53	Big Bill Shelf	SB	12	11	11	-1
54	Jungle Addition	SB	38	29	28	-9
55	Bunker Creek	SB	12	12	12	
56	Gorge Creek	SB	0	0		
57	Harrison Mid	SB	1	1		

## Shading

	Subunits meet or will meet LMRP A19 10-year objective of $\leq 19\%$ Open Route Density.
	Subunits meet or will meet amended A-19 objectives

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed or will change open route density within a subunit.

\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Open Route Density.
+	A positive number (+) indicates an increase in % Open Route Density.
	A blank cell indicates no change for that variable for that subunit.

Table 2b. Subunit % Open Route Density for the 14 BMU Subunits where NF ownership &lt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
9	State Coal Cyclone	GV	39	30		-9
13	Cedar Teakettle	GV	31	26	26	-5
18	Noisy Red Owl	SL	26	20		-6
20	South Fork Lost Soup	SL	60	54		-6
21	Goat Creek	SL	27	28		+1
22	Lion Creek	SL	24	22		-2
23	Meadow Smith	SL	23	22		-1
24	Buck Holland	SL	25	25		
26	Porcupine Woodward	SL	48	46	46	-2
27	Piper Creek	SL	21	20		-1
28	Cold Jim	SL	21	19		-2
29	Hemlock Elk	SL	13	8	8	-5
30	Glacier Loon	SL	25	25	25	
34	Coram Lake Five	HH	30	29		-1

**Shading**

 Subunits meet LMRP A19 objective of NO NET INCREASE due to Forest Service actions.

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed open route density within a subunit.

\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Open Route Density.
+	A positive number (+) indicates an increase in % Open Route Density (#21 increase is not due to any Forest Service actions).
	A blank cell indicates no change for that variable for that subunit.

Table 3a. Subunit % Total Route Density for the 40 BMU Subunits where NF ownership &gt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
1	Frozen Lake	GV	6	4	4	-2
2	Ketchikan	GV	4	3		-1
3	Upper Trail	GV	5	5	5	
4	Lower Whale	GV	44	25	16	-19
5	Upper Whale Shorty	GV	13	10	10	-3
6	Red Meadow Moose	GV	25	17	17	-8
7	Hay Creek	GV	21	16		-5
8	Coal and South Coal	GV	37	26		-11
10	Werner Creek	GV	48	22	19	-26
11	Lower Big Creek	GV	39	32	19	-7
12	Canyon McGinnis (amended 33)	GV/TL	44	42	33	-2
17	Peters Ridge	HH/SL	22	25		+3
19	Swan Lake	SL	33	30		-3
25	Crane Mountain	SL	74	59	27	-15
31	Beaver Creek	SL	24	26		+2
32	Doris Lost Johnny	HH	31	22	19	-9
33	Wounded Buck Clayton (amended 30)	HH	49	37	30	-12
35	Emery Firefighter	HH	42	30	19	-12
36	Riverside Paint	HH	39	34	15	-5
37	Jewel Basin Graves	HH	26	23	19	-3
38	Wheeler Quintonkon	HH/SB	33	23	19	-10
39	Logan Dry Park	HH/SB	40	36	35	-4
40	Lower Twin	SB	2	2		
41	Twin Creek	SB	0	0		
42	Moccasin Crystal	HH	1	1		
43	Stanton Paola	HH	3	3		
44	Dickey Java	HH	1	0		-1
45	Long Dirtyface	HH	0	0		
46	Tranquil Geifer	HH	2	2		
47	Skyland Challenge	HH	18	16		-2
48	Plume Mtn Lodgepole	HH/SB	0	0		
49	Flotilla Capitol	HH/SB	0	0		
50	Ball Branch	SB	21	9	3	-11
51	Kah Soldier	SB	45	35	18	-10
52	Spotted Bear Mtn	SB	32	17	18	-15
53	Big Bill Shelf	SB	7	2	2	-5
54	Jungle Addition	SB	31	18	20	-13
55	Bunker Creek	SB	6	4	4	-2
56	Gorge Creek	SB	0	0		
57	Harrison Mid	SB	0	0		

## Shading

	Subunits meet or will meet LMRP A19 10-year objective of ≤19% Total Route Density.
	Subunits meet or will meet amended A-19 objectives

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed or will change total route density within a subunit.


\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Total Route Density.
+	A positive number (+) indicates an increase in % Total Route Density.
	A blank cell indicates no change for that variable for that subunit.

Table 3b. Subunit % Total Route Density for the 14 BMU Subunits where NF ownership &lt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
9	State Coal Cyclone	GV	29	21		-8
13	Cedar Teakettle	GV	30	23	23	-7
18	Noisy Red Owl	SL	18	16		-2
20	South Fork Lost Soup	SL	47	44		-3
21	Goat Creek	SL	49	49		
22	Lion Creek	SL	39	38		-1
23	Meadow Smith	SL	52	50		-2
24	Buck Holland	SL	43	41		-2
26	Porcupine Woodward	SL	59	51	43	-8
27	Piper Creek	SL	30	30		
28	Cold Jim	SL	56	55		-1
29	Hemlock Elk	SL	29	29	29	
30	Glacier Loon	SL	39	39	39	
34	Coram Lake Five	HH	49	46		-3

## Shading

 Subunits meet LMRP A19 objective of NO NET INCREASE due to Forest Service actions.

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed or will change total route density within a subunit.

\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Total Route Density.
+	A positive number (+) indicates an increase in % Total Route Density.
	A blank cell indicates no change for that variable for that subunit.

Table 4a. Subunit % Security CORE for the 40 BMU Subunits where NF ownership &gt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
1	Frozen Lake	GV	80	81	80	+1
2	Ketchikan	GV	65	68		+3
3	Upper Trail	GV	84	85	88	+1
4	Lower Whale (amended 47)	GV	7	28	47	+14
5	Upper Whale Shorty	GV	80	85	86	+5
6	Red Meadow Moose	GV	47	52	52	+5
7	Hay Creek	GV	41	48		+7
8	Coal and South Coal	GV	59	71		+12
10	Werner Creek (amended 63)	GV	35	42	62	+7
11	Lower Big Creek	GV	38	57	69	+19
12	Canyon McGinnis (amended 53)	GV/TL	31	31	53	
17	Peters Ridge	HH/SL	30	34		+4
19	Swan Lake	SL	29	31		+2
25	Crane Mountain	SL	0	27	33	+27
31	Beaver Creek	SL	67	67		
32	Doris Lost Johnny (amended 36)	HH	35	31	36	-4
33	Wounded Buck Clayton (amended 65)	HH	33	39	65	+6
35	Emery Firefighter	HH	38	38	51	
36	Riverside Paint	HH	58	59	71	+1
37	Jewel Basin Graves	HH	50	56	68	+6
38	Wheeler Quintonkon	HH/SB	49	57	68	+8
39	Logan Dry Park	HH/SB	50	50	51	
40	Lower Twin	SB	91	92		+1
41	Twin Creek	SB	97	100		+3
42	Moccasin Crystal	HH	79	79		
43	Stanton Paola	HH	74	80		+6
44	Dickey Java	HH	80	81		+1
45	Long Dirtyface	HH	95	100		+5
46	Tranquil Geifer	HH	75	85		+10
47	Skyland Challenge	HH	58	63		+5
48	Plume Mtn Lodgepole	HH/SB	79	97		+18
49	Flotilla Capitol	HH/SB	78	99		+21
50	Ball Branch	SB	50	73	82	+23
51	Kah Soldier	SB	43	54	68	+11
52	Spotted Bear Mtn	SB	49	61	68	+12
53	Big Bill Shelf	SB	70	80	80	+10
54	Jungle Addition	SB	53	60	62	+7
55	Bunker Creek	SB	69	85	86	+16
56	Gorge Creek	SB	87	90		+3
57	Harrison Mid	SB	91	95		+4

## Shading

Subunits meet or will meet LMRP A19 10-year objective of ≤19% Security Core.

Subunits meet or will meet amended A-19 objectives

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed or will change total route density within a subunit.

\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Security Core.
+	A positive number (+) indicates an increase in % Security Core.
	A blank cell indicates no change for that variable for that subunit.

Table 4b. Subunit % Security CORE for the 14 BMU Subunits where NF ownership &lt;75%.

#	BMU Subunit	RD	Jan 1995 existing	2004 existing	NEPA decision*	% Change 2004 - 1995**
9	State Coal Cyclone	GV	47	58		+11
13	Cedar Teakettle	GV	22	21	21	-1
18	Noisy Red Owl	SL	48	56		+8
20	South Fork Lost Soup	SL	6	26		+20
21	Goat Creek	SL	42	43		+1
22	Lion Creek	SL	55	55		
23	Meadow Smith	SL	42	43		+1
24	Buck Holland	SL	34	36		+2
26	Porcupine Woodward	SL	21	30	34	+9
27	Piper Creek	SL	57	57		
28	Cold Jim	SL	42	44		+2
29	Hemlock Elk	SL	66	66	66	
30	Glacier Loon	SL	40	47	50	+7
34	Coram Lake Five	HH	19	18		-1

## Shading

 Subunits meet LMRP A19 objective of NO NET DECREASE due to Forest Service actions.

\*Numbers in the NEPA decision column show where the Forest has made NEPA decisions that changed or will change Security Core within a subunit.

\*\*Percent Change number shows the difference between Jan 1995 existing to 2004 existing.

-	A negative number (-) indicates a decrease in % Decrease in Security Core (decreases in #13 and 34 are not due to Forest Service Actions).
+	A positive number (+) indicates an increase in % Increase in Security Core.
	A blank cell indicates no change for that variable for that subunit.

Figure 1. Histogram of Existing 2004 OPEN Route Density for BMU Subunits where NF Ownership >75%. Standard is  $\leq 19\%$  >1.0 mi/mi<sup>2</sup>, unless amended (lighter shaded bars).

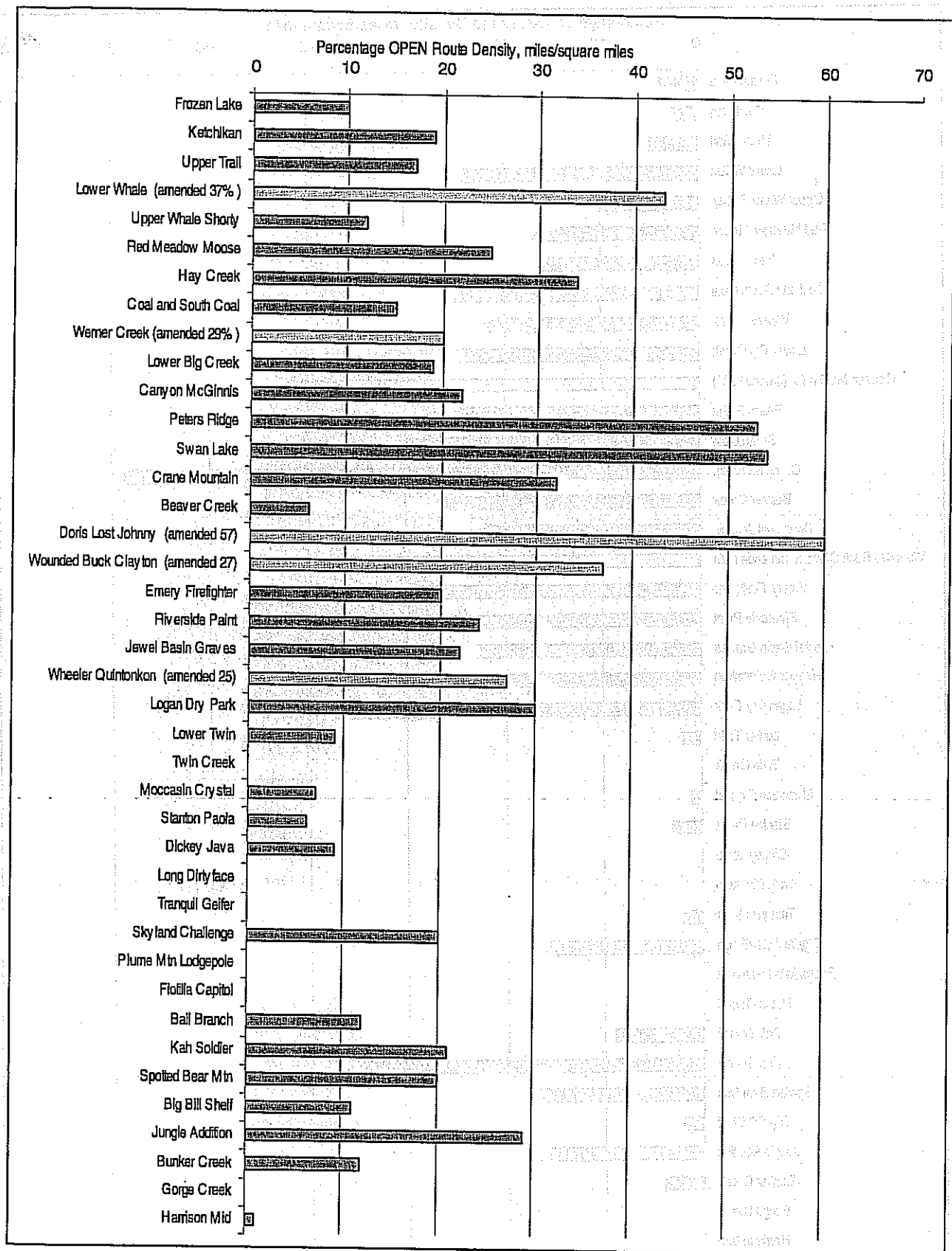


Figure 2. Histogram of Existing 2004 TOTAL Route Density for BMU Subunits where NF Ownership >75%. Standard is  $\leq 19\%$  >2.0 mi/mi<sup>2</sup>, unless amended (lighter shaded bars).

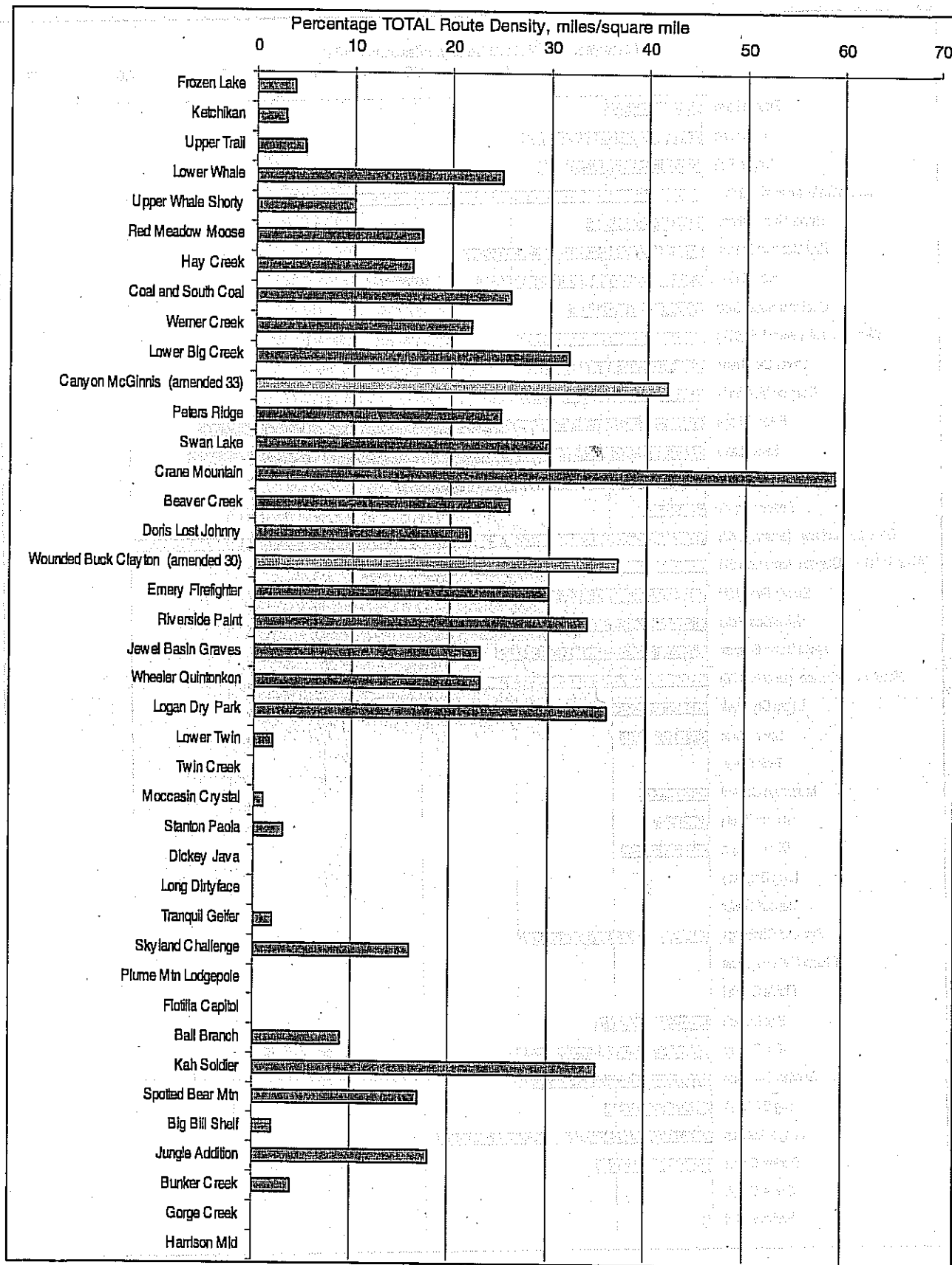


Figure 3. Histogram of Existing 2004 Security CORE for BMU Subunits where NF Ownership >75%. Standard is  $\geq 68\%$  CORE, unless amended (lighter shaded bars).

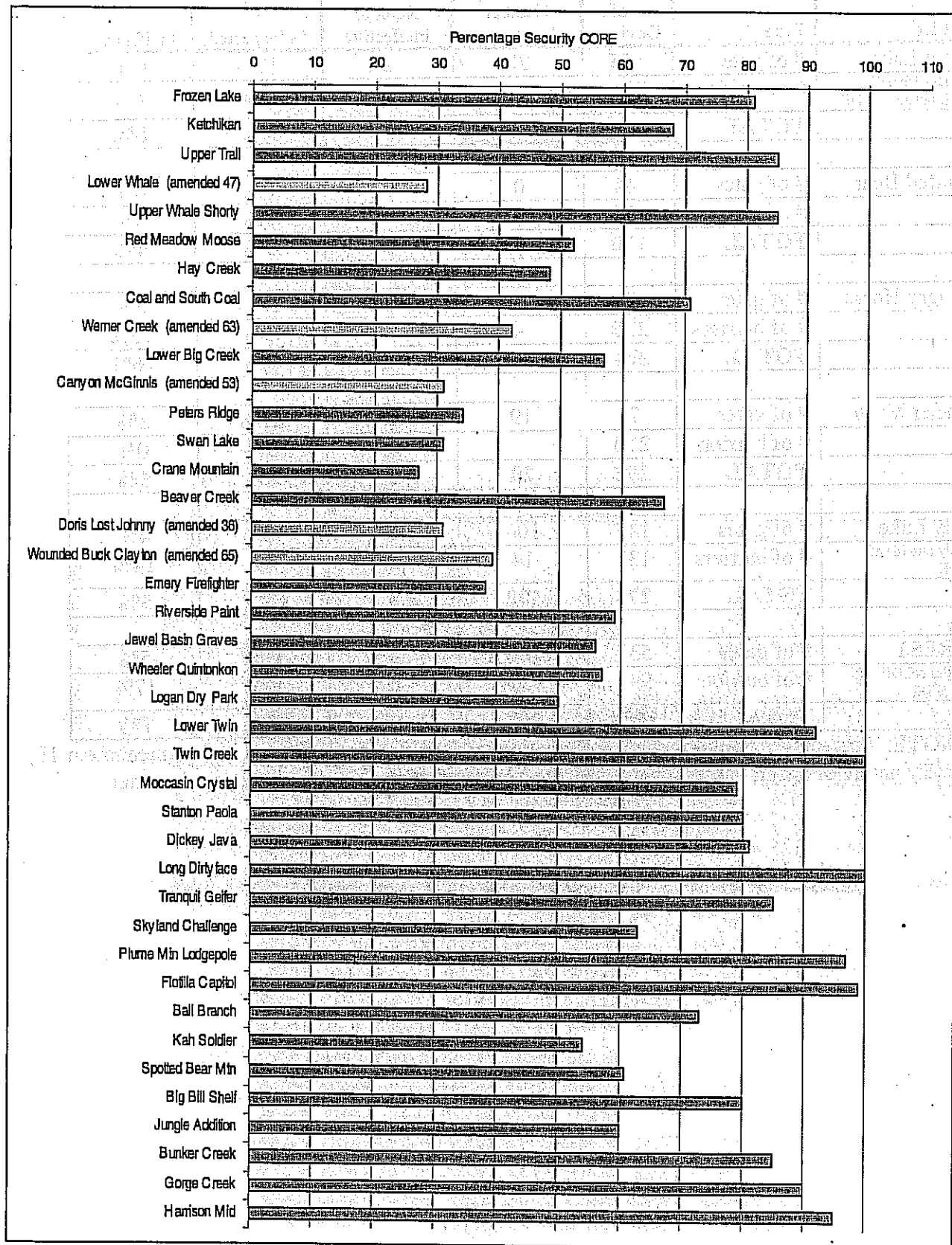


Table 5. Summary of Closure Device Monitoring for 2004.

District	Type	# of Devices	Number Inspected	Number Ineffective	% Inspected	Of Inspected, % Ineffective <sup>1</sup>
Swan Lake	# of gate	155	20	2	13%	10%
Includes Island Unit that is outside NCDE	# of barriers	295	17	1	6%	6%
	<b>TOTAL</b>	<b>456</b>	<b>37</b>	<b>3</b>	<b>8%</b>	<b>8%</b>
Spotted Bear	# of gates	44	0	0	0%	0%
	# of barriers	126	0	0	0%	0%
	<b>TOTAL</b>	<b>170</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0%</b>
Hungry Horse	# of gates	120	21	1	18%	5%
	# of barriers	235	4	3	2%	75%
	<b>TOTAL</b>	<b>364</b>	<b>25</b>	<b>4</b>	<b>7%</b>	<b>16%</b>
Glacier View	# of gates	71	19	1	27%	5%
	# of barriers	210	1	0	0%	0%
	<b>TOTAL</b>	<b>292</b>	<b>20</b>	<b>1</b>	<b>7%</b>	<b>5%</b>
Tally Lake	# of gates	147	106	4	72	4%
Mostly outside of NCDE	# of barriers	131	14	2	11	14%
	<b>TOTAL</b>	<b>278</b>	<b>120</b>	<b>6</b>	<b>43%</b>	<b>5%</b>
FOREST	# of gates	537	166	8	31%	5%
Includes NCDE and non-NCDE	# of barriers	997	36	6	4%	17%
	<b>TOTAL</b>	<b>1534</b>	<b>202</b>	<b>14</b>	<b>13%</b>	<b>7%</b>

<sup>1</sup> - NOTE: Percentages do not include information on sign closure devices. Under Amendment 19, the very nature of a sign makes it an ineffective closure device as it is not a physical barrier.

Table 6. Summary of Closure Device Monitoring, entire Flathead National Forest from 1995.

Description	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
# of Gates	536	537	550	550	539	nodata	nodata	531	532	537
# Inspected	319	314	252	451	nodata	386	nodata	294	152	166
# Not Inspected	217	223	298	99	nodata		nodata	237	380	371
# Ineffective	17	28	19	9	nodata	16	nodata	28	9	8
# of Barriers	792	848	897	818	786	nodata	nodata	915	927	997
# Inspected	229	77	142	524	nodata	449	nodata	156	43	36
# Not Inspected	563	771	755	294	nodata		nodata	759	884	961
# Ineffective	27	29	27	20	nodata	14	nodata	14	5	6
Total # of Devices	1328	1385	1447	1368	1325	nodata	nodata	1446	1459	1534
Total # Inspected	548	391	394	975	nodata	835	nodata	450	195	202
# Ineffective	44	57	46	29	nodata	30	nodata	42	14	14
% Inspected <sup>1</sup>	41%	28%	27%	71%	nodata	nodata	nodata	31%	13%	13%
Of Inspected, % Ineffective	8%	14%	12%	3%	nodata	4%	nodata	9%	7%	7%

<sup>1</sup> - NOTE: Percentages do not include information on sign closure devices. Under Amendment 19, the very nature of a sign makes it an ineffective closure device as it is not a physical barrier.

Table 7. Administrative Use.

<u>RD</u>	<u>BMU Subunit</u>	<u>Project/Activity</u>	<u>ORD existing</u>	<u>ORD admin.use</u>
GV	Upper Trail	Mostly Robert Wedge fire projects	17	17
GV	Lower Whale	Mostly Robert Wedge fire projects	43	48
GV	Upper Whale Shorty	Mostly Robert Wedge fire projects	12	16
GV	Red Meadow Moose	Mostly Robert Wedge fire projects	25	28
GV	State Coal Cyclone	<i>research activity</i>	30	32
GV	Werner Creek	Moose, Robert Wedge	20	35
GV	Lower Big Creek	Moose, Robert Wedge	19	29
GV	Canyon McGinnis	Big Mtn, Moose, Robert Wedge	22	42
GV	Cedar Teakettle	Mostly Robert Wedge fire projects	26	30
HH	Wounded Buck Clayton	West Side Reservoir fire projects	37	56
HH	Coram Lake Five	<i>recreation &amp; fire activities</i>	29	37
HH	Emery Firefighter	<i>fire activity</i>	20	21
HH/SB	Wheeler Quintonkon	West Side Reservoir fire projects	27	27
HH	Skyland Challenge	<i>road management activity</i>	20	21
SB	Ball Branch	Spotted Beetle, West Side Res.	12	25
SB	Kah Soldier	Spotted Beetle, West Side Res.	21	42
SB	Spotted Bear Mtn	Spotted Beetle, SB River Trailheads	20	22
SB	Jungle Addition	Spotted Beetle	29	35
SL	Hemlock Elk	Crazy Horse	8	14
SL	Glacier Loon	Crazy Horse	25	36
SL	Beaver Creek	<i>traffic counter, unauthorized entries</i>	6	12
			<u>TRD existing</u>	<u>TRD admin.use</u>
GV	Lower Whale	Mostly Robert Wedge fire projects	25	25
GV	Red Meadow Moose	Mostly Robert Wedge fire projects	17	19
HH	Wounded Buck Clayton	West Side Reservoir fire projects	37	42
SB	Jungle Addition	Spotted Beetle	18	20
			<u>CORE existing</u>	<u>CORE admin.use</u>
GV	Lower Whale	Mostly Robert Wedge fire projects	28	25
GV	Red Meadow Moose	Mostly Robert Wedge fire projects	52	48
GV	State Coal Cyclone	<i>research activity</i>	58	56
SB	Jungle Addition	Spotted Beetle	60	55

Table 8. Annual Miles of Road Decommissioned.

Year	Miles of Road	Cumulative
1995	69.97	
1996	40.38	110.35
1997	28.40	138.75
1998	18.36	157.11
1999	109.20	266.31
2000	37.24	303.55
2001	1.25	304.80
2002	56.54	361.34
2003	36.43	397.77
2004	41.52	439.29
<b>Total</b>		<b>439.29</b>

# Table 1. Summary of the results of the analysis

Parameter	Estimated value	Standard error
$\beta_0$	1.00	0.05
$\beta_1$	0.50	0.05
$\beta_2$	0.25	0.05
$\beta_3$	0.10	0.05
$\beta_4$	0.05	0.05
$\beta_5$	0.02	0.05
$\beta_6$	0.01	0.05
$\beta_7$	0.00	0.05
$\beta_8$	0.00	0.05
$\beta_9$	0.00	0.05
$\beta_{10}$	0.00	0.05
$\beta_{11}$	0.00	0.05
$\beta_{12}$	0.00	0.05
$\beta_{13}$	0.00	0.05
$\beta_{14}$	0.00	0.05
$\beta_{15}$	0.00	0.05
$\beta_{16}$	0.00	0.05
$\beta_{17}$	0.00	0.05
$\beta_{18}$	0.00	0.05
$\beta_{19}$	0.00	0.05
$\beta_{20}$	0.00	0.05
$\beta_{21}$	0.00	0.05
$\beta_{22}$	0.00	0.05
$\beta_{23}$	0.00	0.05
$\beta_{24}$	0.00	0.05
$\beta_{25}$	0.00	0.05
$\beta_{26}$	0.00	0.05
$\beta_{27}$	0.00	0.05
$\beta_{28}$	0.00	0.05
$\beta_{29}$	0.00	0.05
$\beta_{30}$	0.00	0.05
$\beta_{31}$	0.00	0.05
$\beta_{32}$	0.00	0.05
$\beta_{33}$	0.00	0.05
$\beta_{34}$	0.00	0.05
$\beta_{35}$	0.00	0.05
$\beta_{36}$	0.00	0.05
$\beta_{37}$	0.00	0.05
$\beta_{38}$	0.00	0.05
$\beta_{39}$	0.00	0.05
$\beta_{40}$	0.00	0.05
$\beta_{41}$	0.00	0.05
$\beta_{42}$	0.00	0.05
$\beta_{43}$	0.00	0.05
$\beta_{44}$	0.00	0.05
$\beta_{45}$	0.00	0.05
$\beta_{46}$	0.00	0.05
$\beta_{47}$	0.00	0.05
$\beta_{48}$	0.00	0.05
$\beta_{49}$	0.00	0.05
$\beta_{50}$	0.00	0.05
$\beta_{51}$	0.00	0.05
$\beta_{52}$	0.00	0.05
$\beta_{53}$	0.00	0.05
$\beta_{54}$	0.00	0.05
$\beta_{55}$	0.00	0.05
$\beta_{56}$	0.00	0.05
$\beta_{57}$	0.00	0.05
$\beta_{58}$	0.00	0.05
$\beta_{59}$	0.00	0.05
$\beta_{60}$	0.00	0.05
$\beta_{61}$	0.00	0.05
$\beta_{62}$	0.00	0.05
$\beta_{63}$	0.00	0.05
$\beta_{64}$	0.00	0.05
$\beta_{65}$	0.00	0.05
$\beta_{66}$	0.00	0.05
$\beta_{67}$	0.00	0.05
$\beta_{68}$	0.00	0.05
$\beta_{69}$	0.00	0.05
$\beta_{70}$	0.00	0.05
$\beta_{71}$	0.00	0.05
$\beta_{72}$	0.00	0.05
$\beta_{73}$	0.00	0.05
$\beta_{74}$	0.00	0.05
$\beta_{75}$	0.00	0.05
$\beta_{76}$	0.00	0.05
$\beta_{77}$	0.00	0.05
$\beta_{78}$	0.00	0.05
$\beta_{79}$	0.00	0.05
$\beta_{80}$	0.00	0.05
$\beta_{81}$	0.00	0.05
$\beta_{82}$	0.00	0.05
$\beta_{83}$	0.00	0.05
$\beta_{84}$	0.00	0.05
$\beta_{85}$	0.00	0.05
$\beta_{86}$	0.00	0.05
$\beta_{87}$	0.00	0.05
$\beta_{88}$	0.00	0.05
$\beta_{89}$	0.00	0.05
$\beta_{90}$	0.00	0.05
$\beta_{91}$	0.00	0.05
$\beta_{92}$	0.00	0.05
$\beta_{93}$	0.00	0.05
$\beta_{94}$	0.00	0.05
$\beta_{95}$	0.00	0.05
$\beta_{96}$	0.00	0.05
$\beta_{97}$	0.00	0.05
$\beta_{98}$	0.00	0.05
$\beta_{99}$	0.00	0.05
$\beta_{100}$	0.00	0.05

## Appendix D

**Appendix D. Summary of Amendment 19 subunits 1995 to 2009 or decision ( U.S. Forest Service 2003b\*, 2004a, U.S. Forest Service in litt. 2005<sup>††</sup>) (Shaded meet A19 10-yr objective, striped shaded meet amended objective)**

#	Subunit	Open Motorized Access Density				Total Motorized Access Density				Security Core			
		1995†	2000*	2005††	Decision or 2009†††*	1995†	2000*	2005††	Decision or 2009†††*	1995†	2000*	2005††	Decision or 2009†††*
1	Frozen Lake	10	10	10	10	6	4	4	4 (+2)	80	86	80	80
2	Ketchikan	19	19	19	19	4	3	3	3 (-1)	65	71	68	68 (+3)
3	Upper Trail	18	17	17	14 (-4)	5	4	5	5	84	85	85	88 (+8)
4	Lower Whale	60	44	43	37 (-43)	44	23	25	16 (-28)	7	43	28	47 (+40)
5	Upper Whale Shorty	17	12	12	12 (-5)	13	12	10	10 (-3)	80	83	85	86 (+6)
6	Red Meadow Moose	36	25	25	25 (-11)	25	20	17	17 (-8)	47	57	52	52 (+5)
7	Hay Creek	33	28	34	34 (+1)	21	15	16	16 (-5)	41	61	48	48 (+7)
8	Coal and South Coal	23	15	15	15 (-8)	37	26	26	26 (-11)	59	71	71	71 (+12)
10	Werner Creek	43	37	20	29 (-14)	48	41	22	19 (-29)	35	42	42	62 (+27)
11	Lower Big Creek	35	25	19	19 (-16)	39	34	32	19 (-20)	38	51	57	69 (+31)
12	Canyon McGinnis	34	32	22	18 (-16)	44	38	42	33 (-11)	31	43	31	53 (+22)
17	Peters Ridge	46	32	53	53 (+7)	22	19	25	25 (+6)	30	63	34	34 (+4)
19	Swan Lake	56	23	54	54	33	18	30	30	29	66	31	31

					(-2)					(-3)					(+2)
25	Crane Mountain	51	35	32	25 (-26)	74	60	59	27 (-47)	0	29	27	33 (+33)		
31	Beaver Creek	48	6	6	6 (-42)	24	26	26	26 (+2)	67	72	67	67		
32	Doris Lost Johnny	58	28	60	56 (-2)	31	13	22	19 (-12)	35	68	31	36 (+1)		
33	Wounded Buck Clayton	38	32	37	27 (-11)	49	40	37	30 (-19)	33	41	39	65 (+32)		
35	Emery Firefighter*	32	27	20	20 (-12)	42	38	30	19 (-23)	38	49	38	51 (+13)		
36	Riverside Paint	23	25	24	18 (-5)	39	34	34	15 (-24)	58	60	59	71 (+13)		
37	Jewel Basin Graves	22	21	22	19 (-3)	26	23	23	19 (-7)	50	57	56	68 (+18)		
38	Wheeler Quintonkon	27	22	27	26 (-1)	33	22	23	20 (-13)	49	62	57	68 (+19)		
39	Logan Dry Park	33	32	30	30 (-3)	40	36	36	35 (-5)	50	52	50	51 (+1)		
40	Lower Twin	9	9	9	9	2	2	2	2	91	91	92	92 (+1)		
41	Twin Creek	0	0	0	0	0	0	0	0	97	100	100	100 (+3)		
42	Moccasin Crystal	7	7	7	7	1	1	1	1	79	81	79	79		
43	Stanton Paola	12	7	6	6 (-6)	3	3	3	3	74	79	80	80 (+6)		
44	Dickey Java	10	9	9	9 (-1)	1	0	0	0 (-1)	80	81	81	81 (+1)		
45	Long Dirtyface	0	0	0	0	0	0	0	0	95	95	100	100 (+5)		
46	Tranquil Geifer	0	0	0	0	2	2	2	2	75	76	85	85 (+10)		
47	Skyland Challenge	15	15	20	20	18	16	16	16	58	58	63	63		



## Appendix E

## Appendix Grizzly Bear Denning Season Dates

Amendment 19 (A19) to the Forest Plan was signed in 1995 and the Decision Notice described the denning period as being "generally from November 15 to March 15." In the Glossary of the Amended Environmental Assessment for A19 on page 138, the maximum denning season is given as 10/7 - 5/7 and further states that the non-denning season for purposes of identifying security core is March 16-November 15.

In 1997 Mace and Waller published the final report on the 10 year study of grizzly bear ecology in the Swan Mountains, Montana. Chapter 4 of that report was on denning ecology and included dates of den entrance and emergence and compared them to 2 other studies in northwest Montana.

A19 contained little emphasis on inclusion of habitat quality as a factor in access management. An NCDE Access Technical Group was convened to reevaluate motorized access in grizzly bear habitat and Mace and Waller's (1997) findings were used as the basis for much of the reevaluation. In 1998, the NCDE Access Technical Group produced a proposed rule set for access management in the NCDE and that proposed rule set included a set of definitions including one called "period of application." That definition said "Grizzly bear access management will apply during the non-denning period, and include April 1 through November 30 of each year."

Although the proposed rule set has not been formally adopted, the dates they developed for application of grizzly bear access management are arguably the best to use at this time because they are based on the most recent in-depth study of grizzly bears in northwest Montana and were developed by an interagency group.

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April 11, 2003