

# NCDE Grizzly Bear Conservation Strategy

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**April 2013**



Photo by Rick Mace, Montana Fish Wildlife and Parks.

**Draft NCDE Grizzly Bear Conservation Strategy**

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**ACRONYMS USED IN THIS DOCUMENT**

APD – Application for Permit to Drill  
BE – Bitterroot Ecosystem  
BIA – Bureau of Indian Affairs  
BIR – Blackfeet Indian Reservation  
BLM – Bureau of Land Management  
BMU – Bear Management Unit  
BNSF – Burlington Northern Santa Fe Railroad  
CEM – Cumulative Effects Model  
CYE – Cabinet Yaak Ecosystem  
DNRC – Montana Department of Natural Resources and Conservation  
DPS – Distinct Population Segment  
EIS – Environmental Impact Statement  
FIR – Flathead Indian Reservation  
GIS – Geographic Information System  
GNP – Glacier National Park  
GYA – Greater Yellowstone Area  
HCP – Habitat Conservation Plan  
IGBC – Interagency Grizzly Bear Committee  
IRA – Inventoried Roadless Area  
MEPA – Montana Environmental Policy Act  
MOU – Memorandum of Understanding  
MVUM – motor vehicle use map  
NCASC – North Cascades Ecosystem  
NCDE – Northern Continental Divide Ecosystem  
NEPA – National Environmental Policy Act  
NF – National Forest  
NPS – National Park Service  
PCA – Primary Conservation Area  
OMRD – Open Motorized Route Density  
RSF – Resource Selection Function  
SE – Selkirk Mountains Ecosystem  
TMRD – Total Motorized Route Density  
TNC – The Nature Conservancy  
USFS – United States Forest Service  
USFWS – United States Fish and Wildlife Service  
USGS – United States Geological Survey  
WMA – Wildlife Management Area

## Executive Summary

### Northern Continental Divide Ecosystem Grizzly Bear Conservation Strategy

#### CHAPTER 1 – INTRODUCTION AND BACKGROUND

This Conservation Strategy was developed by an interagency team of managers and scientists to describe the coordinated management and monitoring efforts necessary to maintain a recovered grizzly bear population in the NCDE and document the commitment of these agencies to this shared goal. This Conservation Strategy provides a cohesive umbrella for all signatories to operate under and reference but each signatory has their own legal process and authority to implement the Strategy. This Conservation Strategy would remain in effect beyond recovery, delisting, and the five year Monitoring period required by the Endangered Species Act (ESA). The agencies are committed to be responsive to the needs of the grizzly bear through adaptive management actions based on the results of detailed annual population and habitat monitoring.

***The purposes of this Conservation Strategy are to:***

- Describe and summarize the coordinated strategies, standards, and guidelines developed for managing the grizzly bear population, grizzly bear/human conflicts, and grizzly bear habitat to ensure their continued conservation in the NCDE.
- Document the regulatory mechanisms, legal authorities, policies, management documents, and monitoring programs that will maintain the recovered grizzly bear population.
- Document the commitments agreed to by the participating agencies.

Within the NCDE, the grizzly bear population and its habitat will be managed using an approach that identifies a Primary Conservation Area (PCA) and three additional management zones (Zone 1, Zone 2, and Zone 3: see Figure 1). The PCA is the area currently known as the NCDE Grizzly Bear Recovery Zone. This is where the most conservative habitat protections would remain, with habitat conditions that were compatible with the increasing grizzly bear population from 2004-2011 being maintained. Grizzly bears are also expected to occupy habitat outside the PCA in Zones 1 and 2 where they may serve as a source population to other grizzly bear ecosystems in the lower 48 States. Habitat and population protections would vary by management objective in these Zones with more protections in areas identified as “Demographic Connectivity Areas.” While Management Zone 3 primarily consists of areas where grizzly bears do not have enough suitable habitat to support population growth, they were included in this Conservation Strategy because a bear living in Zone 3 most likely originated from the NCDE population. Grizzly bear occupancy will not be actively discouraged in Zone 3 and the management emphasis will be on conflict response.

#### **Relationship to Other Plans**

By integrating the Montana state plan into the Strategy, it was ensured that this plan and the Strategy are consistent and complementary. The state plan is formally incorporated in the Conservation Strategy as an Appendix. Relationships with national forest and national park plans are also mentioned throughout the Strategy. Our intent is to have signatories of this Conservation Strategy representing the

land management agencies incorporate the habitat standards and guidelines described in this Conservation Strategy into their respective management plans.

## CHAPTER 2 – DEMOGRAPHIC CRITERIA

To maintain a healthy (recovered) grizzly bear population in the NCDE, it is necessary to have adequate numbers of bears that are well distributed with a balance between reproduction and mortality. This section details the demographic criteria necessary to maintain and enhance a recovered grizzly bear population in the NCDE. The standards and monitoring protocol focus on the Recovery Zone and the area immediately around it identified in this Conservation Strategy as the NCDE Primary Conservation Area (PCA) and Management Zone 1 (Zone 1) respectively. Because grizzly bears are a difficult species to monitor, multiple criteria are identified to provide sufficient information upon which to base management decisions.

This Conservation Strategy sets an objective of maintaining a recovered grizzly bear population in the NCDE area sufficient to maintain a healthy population in biologically suitable habitats within the PCA and Zone 1. This Conservation Strategy sets both demographic *goals*, which may be difficult to quantify and demographic *standards*, which are objective and measurable criteria of population status and health. It is the goal of the agencies implementing this Conservation Strategy to maintain a genetically diverse NCDE grizzly bear population with at least 800 grizzly bears. We will achieve this goal by including specific standards to document a widely distributed population, a high adult female survival rate, and sustainable mortality limits that will not result in long-term population decline.

## CHAPTER 3 – HABITAT MANAGEMENT AND MONITORING

The goal of habitat management on public lands is to maintain conditions compatible with a stable to increasing grizzly bear population in the NCDE. This Conservation Strategy identifies a Primary Conservation Area (PCA) and three additional management zones (Zone 1, Zone 2, and Zone 3: see Figure 1), each with varying levels of habitat protections depending on their relative importance to the NCDE grizzly bear population. Each management zone is a mosaic of land ownerships, with different types of habitat protections reflecting the mandates and interests of each agency or Tribal government. Our intent is to incorporate habitat standards into GNP's Superintendent's Compendium, and National Forest and BLM Land and Resource Management Plans. If adopted, these standards would replace existing regulatory standards included in those land management plans.

The **PCA** would have the most conservative habitat protections so it can be managed as a source area where the goal is continual occupancy by grizzly bears. Within the PCA, the overall goal for habitat management on public Federal lands is to maintain or improve habitat conditions that existed as of 2011, while maintaining options for resource management activities at approximately the same levels that existed in 2011. Here, secure habitat, road densities, developed sites, and livestock allotments would be maintained at levels known to be compatible with a stable to increasing grizzly bear population.

**Management Zone 1** is similar in concept to the 10-mile buffer around the Recovery Zone within which population data were recorded while listed under the ESA. Population and mortality data will be collected in all of the PCA and Zone 1. On the northwest and southwest corners of Zone 1, there will be two **Demographic Connectivity Areas** (DCAs) with specific habitat measures to support female grizzly bear occupancy and eventual dispersal to other ecosystems in the lower 48 States (i.e., the Cabinet-Yaak and Bitterroot ecosystems). In these DCAs, habitat protections will focus on limiting miles of open road and managing current roadless areas as stepping stones to other ecosystems.

**Management Zone 2** will be managed to provide the opportunity for grizzly bears, particularly males, to move between the NCDE and adjacent ecosystems (e.g., the GYA) via the multiple large blocks of habitat with motorized use restrictions that already exist as of 2011. Here, the management emphasis will be on conflict prevention and response.

**Management Zone 3** does not have enough suitable habitat to contribute meaningfully to the long-term survival of the NCDE population but grizzly bears are sometimes found here. In contrast to Zones 1 and 2, Zone 3 does not lead grizzly bears to other suitable habitat or recovery ecosystems. It was included as part of this Conservation Strategy because any grizzly bear found in Zone 3 to date has originated from the NCDE and this will likely remain the case for the vast majority of Zone 3.

#### **CHAPTER 4 – CONFLICT PREVENTION, RESPONSE, AND NUISANCE BEAR MANAGEMENT**

For grizzly bear conservation to be successful, providing habitat on the landscape is not enough. For grizzly bears to survive, people must accept the grizzly as a cohabitant of the land. Tolerance can be maintained when the public has confidence in management agencies to respond quickly and appropriately to grizzly bear-human conflicts and the public is equipped with the knowledge to understand and avoid grizzly bear-human conflicts. The objective of conflict management is to maximize human safety and minimize property losses while maintaining a viable population of grizzly bears (Dood et al. 2006). When grizzly bear-human conflicts are not adequately addressed, there are negative consequences for the individual bear and the people involved, and support for grizzly bear management and conservation in the NCDE is undermined.

The emphasis of grizzly bear conflict management will be quick response by management authorities, removal of the source of the conflict where possible, and the use of non-lethal solutions. Depending on the circumstances of the conflict, appropriate responses may include:

- Removing or securing attractants,
- Public education and outreach,
- Discouraging the bear from visiting the site using non-lethal methods (e.g., **aversive conditioning**),
- Reactively or preemptively capturing and relocating a nuisance bear to a new area,
- **Removing** the bear from the wild, including lethal control.

The focus and intent of nuisance grizzly bear management inside and outside the PCA will be predicated on strategies and actions to prevent grizzly bear/human conflicts. Securing potential attractants is the single most effective way to prevent bears from becoming habituated or food conditioned, thereby

limiting human-caused grizzly bear mortality, grizzly bear-human encounters, and other grizzly bear-human conflicts. Rules requiring attractants to be stored in a bear-resistant manner on most public lands already exist and will continue under this Conservation Strategy. The NCDE's existing I&E subcommittee will continue to coordinate outreach efforts in the NCDE to ensure the consistency of messages. All grizzly bear conflicts, relocations, and removals will be documented and reported annually in the NCDE Annual Report.

## **CHAPTER 5 – IMPLEMENTATION AND EVALUATION**

Upon implementation of this Conservation Strategy, the NCDE Coordinating Committee will replace the current NCDE Grizzly Bear Subcommittee although its membership will remain largely the same. The Coordinating Committee will evaluate implementation of this Conservation Strategy, promote the exchange of data and information about the NCDE grizzly bear population among agencies and the public, and make recommendations to the management agencies regarding implementation of this Conservation Strategy. The NCDE Coordinating Committee will communicate with the IGBC about the NCDE grizzly bear population. The Coordinating Committee is not a decision-making body, although it may provide recommendations to member agencies from time to time. The Coordinating Committee does not supersede the authority of the management agencies beyond the specific actions agreed to as signatories to this Conservation Strategy.

Once adopted by the agencies, this Conservation Strategy's standards, guidelines, and/or monitoring procedures may only be changed through a clear demonstration of need based on biological data, the best available science, and/or new techniques. Any such amendments will be subject to public review and would be guided by and consistent with the agreements reached in this Strategy and its overall goal to maintain a recovered grizzly bear population in the NCDE and conserve its habitat.

The Coordinating Committee will be supported and informed by the NCDE Monitoring Team and Information and Education Team. The NCDE Monitoring Team will take the lead in preparing an annual monitoring report with staff support from the Coordinating Committee member agencies. Monitoring results and analysis will be provided to the Coordinating Committee and the public. If there are deviations from any of the population and/or habitat standards stipulated in this Conservation Strategy, a Biology and Management Review will be initiated. A Biology and Management Review examines management of habitat, populations, or efforts of participating agencies to complete their required monitoring. The NCDE Monitoring Team is not responsible for completing impact analyses for projects proposed by any agency; such analyses are the responsibility of the agency making the proposal. The Coordinating Committee will respond to the Biology and Monitoring Review with actions to address the deviations from the population or habitat standards. If desired population and habitat standards specified in this Conservation Strategy are not being met, and cannot be met in the opinion of the Coordinating Committee, then the Committee may petition the Fish and Wildlife Service for relisting.

## **CHAPTER 6 – REGULATORY AND CONSERVATION FRAMEWORK**

The management of grizzly bears and the habitats they require for survival are dependent upon the laws, regulations, agreements, and management plans of the State, Tribal, and Federal agencies in the NCDE. This chapter documents the regulatory mechanisms and conservation framework that would continue to exist if/when they are removed from the Endangered Species Act's Federal List of Endangered and Threatened Wildlife. These laws, regulations, and agreements provide the legal basis for coordinating management, controlling mortality, providing secure habitats, managing grizzly bear/human conflicts, regulating hunters and hunting seasons, limiting motorized access where necessary, controlling livestock grazing, regulating oil and gas development, mitigating large scale mining operations, maintaining education and outreach programs to prevent conflicts, monitoring populations and habitats, and requesting management and petitions for relisting when necessary.



## Memorandum of Understanding Detailing Agency Agreement to Implement this Conservation Strategy

The agencies signing this Conservation Strategy agree to use their authorities to maintain and enhance the recovered status of the grizzly bear in the Northern Continental Divide Area by implementing the regulatory mechanisms, interagency cooperation, population and habitat management and monitoring, and other provisions of the Conservation Strategy as per the details and responsibilities described in this document. All signatories recognize that each has statutory responsibilities that cannot be delegated and that this agreement does not and is not considered to abrogate any of their statutory responsibilities. This agreement is subject to and is intended to be consistent with all appropriate federal and state laws. Funding of this MOU is subject to approval and appropriations by state, tribal, and federal entities. All agencies will take appropriate steps to seek funding to implement this document. The adequacy of the regulatory mechanisms demonstrated by this Conservation Strategy are dependent upon funding being available to fully implement the management and monitoring actions detailed in this document. This Conservation Strategy does not go into effect until all agencies have signed this document and the final rule delisting the NCDE grizzly population has been published in the Federal Register.

Regional Forester U.S. Forest Service, Northern Region	Date
Director Montana Fish, Wildlife & Parks	Date
Director National Park Service, Intermountain Region	Date
Regional Chief Biologist Central Region, USGS Biological Resources Division	Date
State Director Bureau of Land Management Montana	Date
State Director Montana Department of Natural Resources	Date
Regional Director U.S. Fish and Wildlife Service, Region 6	Date

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Tribal Council Chairman	Date
Confederated Salish and Kootenai Tribes	

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Tribal Business Council Chairman	Date
Blackfeet Nation	

## Chapter 1 – Introduction and Background

### THIS CONSERVATION STRATEGY

Development of the Conservation Strategy began in 2009, when representatives from the Montana Department of Fish, Wildlife and Parks (MFWP); the Montana Department of Natural Resources and Conservation (DNRC); the Blackfoot Nation; the Confederated Salish and Kootenai Tribes (CS&KT); Glacier National Park (GNP); the U.S. Forest Service (USFS); the U.S. Fish and Wildlife Service (USFWS); U.S. Geological Survey (USGS); and the Bureau of Land Management (BLM) were appointed by members of the NCDE subcommittee to the Interagency Conservation Strategy Team. These authorities will document their commitment to implementing the Strategy by signing a Memorandum of Understanding before it is finalized.

We (the signatories of this Conservation Strategy) envision the future management of the Northern Continental Divide Ecosystem (NCDE) grizzly bear population as one in which the grizzly and its habitat are conserved as functional and healthy parts of the ecosystem. This Conservation Strategy describes the management and monitoring direction to maintain a recovered grizzly bear population in the NCDE and documents the commitment of signatory agencies to implement these measures. It describes the regulatory framework for management and monitoring of the NCDE grizzly bear population and its habitat upon recovery and removal from the Endangered Species Act's Federal List of Endangered and Threatened Wildlife (i.e., delisting). Recovery of the grizzly bear population in the NCDE has been possible because of the partnerships between Federal and State agencies, multiple Tribes, county and city governments, educational institutions, numerous organizations, private landowners, and the public who live, work, and recreate in the NCDE and surrounding lands. We developed this Conservation Strategy because maintenance of a healthy, recovered grizzly population depends on the effective continuation of these partnerships to manage and conserve the NCDE grizzly bear population and its habitat.

This Conservation Strategy would remain in effect beyond recovery, delisting, and the five year Monitoring period required by the Endangered Species Act (ESA) as grizzly bears will always be a "conservation-reliant" species in the NCDE (Scott et al. 2005) and the need to coordinate management of the population across multiple land ownerships and jurisdictions will remain. The Strategy is a dynamic document. Given the Strategy's scope and expected duration, it is likely that management and monitoring will require adjustments as new information becomes available. Any adjustments will be based on the best available science and, where appropriate, public involvement.

The key to public support and successful management of grizzly bears is to balance multiple land uses, public safety, and careful consideration of grizzly bear needs. Human-caused mortality is the limiting factor for nearly all grizzly bear populations in the world and this Conservation Strategy aims to manage mortality at sustainable levels through habitat protections that minimize mortality risk while emphasizing conflict prevention, conflict response, and decisions grounded in scientific data and monitoring. On both public and private lands, public information and education efforts have played, and will continue to play, an integral role in minimizing grizzly bear/human conflicts. Similarly, the responsive management of nuisance grizzly bears that increased public support and tolerance while

grizzly bears have been listed as a “threatened” species under the ESA, will continue. In a recovered, delisted population of grizzly bears, management as game animals is a valuable conservation tool that can increase public support among those living in grizzly bear habitat. As such, management may include regulated hunting when and where appropriate.

Within the NCDE, the grizzly bear population and its habitat will be managed using a management approach that identifies a Primary Conservation Area (PCA) and three additional management zones (Zone 1, Zone 2, and Zone 3: see Figure 1). This approach of differential protections in areas depending on their relative importance to the grizzly bear population is similar to the approach used in the NCDE while listed as “threatened” under the ESA. Different “Management Situations” and levels of flexibility were applied on different public lands based on their relative importance to the population and the sometimes competing needs of humans. The PCA is the area currently known as the NCDE Recovery Zone. Habitat protections in the PCA were compatible with an increasing population and this is where the most conservative habitat protections would remain. Grizzly bears are also expected to occupy habitat outside the PCA in Zones 1 and 2 where they may serve as a source population to other recovery ecosystems in the lower 48 States that remain “threatened” by small population size (e.g., the Cabinet-Yaak ecosystem) or other threats. In these adjacent management zones, habitat and population protections would vary by management objective. Our intent is to have signatories of this Conservation Strategy representing the land management agencies incorporate the habitat standards and guidelines described in this Conservation Strategy into their respective management plans. The USFWS will not approve and sign the Conservation Strategy’s MOU until this process is complete. Upon implementation of this Conservation Strategy, management using the NCDE recovery zone line and grizzly bear Management Situations as described in the Interagency Grizzly Bear Guidelines (USFS 1986) would no longer be necessary and would no longer apply.

The Montana Grizzly Bear Management Plan for Western Montana (Dood et al. 2006), the Montana Grizzly Bear Management Plan for Southwestern Montana (MFWP 2002), Tribal grizzly bear management plans (Servheen et al. 1981; Blackfoot Nation, in process), Federal land and resource management plans, Tribal Forest management plans (CS&KT 2000; Blackfoot Nation 2008), State Habitat Conservation Plan (DNRC 2010), and other appropriate planning documents such as the Montana Comprehensive Fish and Wildlife Conservation Strategy (MFWP 2005) provide specific management direction both inside and outside the PCA and ensure implementation of and consistency with this Conservation Strategy. Ongoing review and evaluation of the effectiveness of this Conservation Strategy would be the responsibility of the State, Federal, and Tribal managers in the NCDE. This NCDE Conservation Strategy will be updated by the management agencies as necessary using the best available science, allowing for public comment in the updating process.

***The purposes of this Conservation Strategy are to:***

- Describe and summarize the coordinated strategies, standards, and guidelines developed for managing the grizzly bear population, grizzly bear/human conflicts, and grizzly bear habitat to ensure continued conservation in the NCDE.
- Document the regulatory mechanisms, legal authorities, policies, management documents, and monitoring programs that will maintain the recovered grizzly bear population.

- Document the commitments agreed to by the participating agencies.

Implementation of this Conservation Strategy requires continued cooperation between Federal, State, and Tribal agencies. To facilitate this cooperation, upon delisting, the NCDE Grizzly Coordinating Committee (hereafter referred to as the Coordinating Committee) will replace the NCDE Ecosystem Subcommittee (See Chapter 5 for more information about the activities of the Coordinating Committee). Because the NCDE is a dynamic environment, monitoring systems in this Conservation Strategy allow for adaptive management as environmental conditions change. The agencies are committed to being responsive to the needs of the grizzly bear through adaptive management actions based on the best available science and the results of detailed population and habitat monitoring.

### **Legal Framework for Habitat and Population Management**

This Conservation Strategy provides a cohesive umbrella for all signatories to operate under but each signatory has their own legal process and authority to implement the Strategy. Any updates to the Conservation Strategy in the future will be governed by these same, agency-specific processes. The legal framework and authority to manage grizzly bear populations (i.e., establish population goals, hunting quotas, mortality limits, and respond to grizzly bear/human conflicts) within the state of Montana is given to Montana Fish Wildlife and Parks by Montana Code Annotated § 87-1-201(9)(a)(ii). Rangers and law enforcement personnel on public lands, National Forests and in Glacier National Park also have the authority to respond to and manage grizzly bear/human conflicts on lands under their management jurisdictions (see 36 CFC 1.7(B) 1.2 (d); 16 USC § 551, 553, and 559). The legal framework and authority to manage roads and other human activities in grizzly bear habitat is provided to GNP by the Glacier National Park Enabling Act (36 Stat., 354) and the National Park Service Organic Act (16 U.S.C. §1); to the USFS by the Forest and Rangeland Renewable Resources Act of 1974, and the National Forest Management Act of 1976 (36 CFR 219); to the BLM by the Federal Lands Policy and Management Act (43 U.S.C. §§ 1701-1777); to the CS&KT and Blackfeet Nation by the National Indian Forest Resources Management Act (25 USC Chapter 33); to Montana Fish Wildlife and Parks by Montana Code Annotated § 87-1-201(9)(b) and related Administrative rule (ARM 12.9.103); and to the Montana DNRC, by virtue of its status as the administrative arm of the Montana Board of Land Commissioners, by the Enabling Act of 1889, 25 Stat. 676, as amended, Article X, §§ 2 and 11 of the 1972 Montana Constitution, and Title 77 of the Montana Code Annotated, by the Executive Reorganization Act of 1971 (Chapter 272, Laws of Montana, 1971; Title 82A, R.C.M. 1947) and related Administrative Rules (ARM 36.11.401 – 36.11.471). In summary, this Conservation Strategy is the guiding document describing the concepts, principles, goals, requirements, and monitoring to maintain a recovered grizzly bear population in the NCDE, but the legal mechanisms and authority necessary to implement this Conservation Strategy are provided by numerous State, Federal, and Tribal laws (see Ch. 6 for more information about these regulatory mechanisms).

## **DESCRIPTION OF THE MANAGEMENT ZONES**

The area within which grizzly bear management will be directed by this Conservation Strategy and associated management plans covers 27,338,696 acres (110,636 sq km) in central and western Montana. This large area is divided into a PCA and three management zones (Figure 1). In general, habitat management is implemented on public lands (State, Tribal, and/or Federal) whereas population management is implemented on all lands (State, Tribal, Federal, and/or private). Management direction for the PCA and adjacent management zones within the NCDE is described below:

- The **PCA** (5,712,862 acres; 23,119 sq km) will be managed as a source area where the objective is continual occupancy by grizzly bears and maintenance of habitat conditions that are compatible with a stable to increasing grizzly bear population. This is the area where the most conservative habitat protections apply. Here, large blocks of secure habitat would be maintained and no net increases in motorized route densities, developed sites, or livestock allotments would be allowed on Federal lands. Attractant storage rules would be implemented on Federal, Tribal, and most State lands.
- **Management Zone 1** (4,808,719 acres; 19,460 sq km) is similar in concept to the 10-mile buffer delineated around the Recovery Zone under listed status within which demographic recovery criteria apply. The objective in Zone 1 is continual occupancy by grizzly bears but at expected lower densities than inside the PCA. Here, habitat protections will focus on managing motorized route densities within levels specified in current Federal and Tribal land use plans because these are known to be compatible with a stable to increasing grizzly bear population. Attractant storage rules would be implemented on Federal, Tribal, and most State lands.
- The PCA and Zone 1 together (10,521,581 acres; 42,579 sq km) will be the area within which population data are collected and sustainable mortality limits apply. Regulated, sustainable grizzly bear hunting could be allowed and would be managed to promote social tolerance of grizzlies.
  - There will be two **Demographic Connectivity Areas** (DCAs) (987,256 acres; 3,995 sq km) on the western side of Zone 1 to benefit other grizzly bear populations within the lower 48 States that retain their “threatened” status (i.e., the Cabinet-Yaak and Bitterroot ecosystems) by supporting female occupancy and potential dispersal to these other populations. In these areas, habitat protections on Federal and Tribal lands will focus on limiting miles of open road and managing current roadless areas as stepping stones to other ecosystems. Hunting opportunities in these areas in the foreseeable future would be compatible with the objective of female occupancy.
- In **Management Zone 2** (4,658,932 acres; 18,854 sq km), the objective is to maintain existing resource management and recreational opportunities and allow agencies to respond to demonstrated conflicts (as defined in the nuisance bear management section) with appropriate management actions. Public lands in Zone 2 will be managed to provide the opportunity for grizzly bears, particularly males which are more likely to disperse long distances, to move between the NCDE and adjacent ecosystems (i.e., the Greater Yellowstone ecosystem or the Bitterroot ecosystem) via current direction in USFS and BLM Resource Management Plans. Here, the management emphasis will be on conflict prevention and response. Attractant

storage rules would be implemented on most Federal and State lands. Grizzly bears would not be captured and removed unless there are conflicts that can only be solved by capture and relocation or removal of the offending bear. MFWP would manage grizzly bear hunting opportunities in these areas in the foreseeable future to be compatible with grizzly bear occupancy, albeit at lower densities than in the PCA or Zone 1.

- **Management Zone 3** (*12,158,183 acres; 49,202 sq km*) primarily consists of areas where grizzly bears do not have enough suitable habitat for long-term survival and occupancy (see "GRIZZLY BEAR HABITAT MANAGEMENT" section below). Grizzly bear occupancy will not be actively discouraged. Management emphasis will be on conflict response. Grizzly bears will not be captured and removed just because they occur in Zone 3, nor will they be captured and removed from Zone 3 unless there are conflicts that can only be resolved by capture and relocation or removal of the offending bear. Regulated grizzly bear hunting would be allowed.

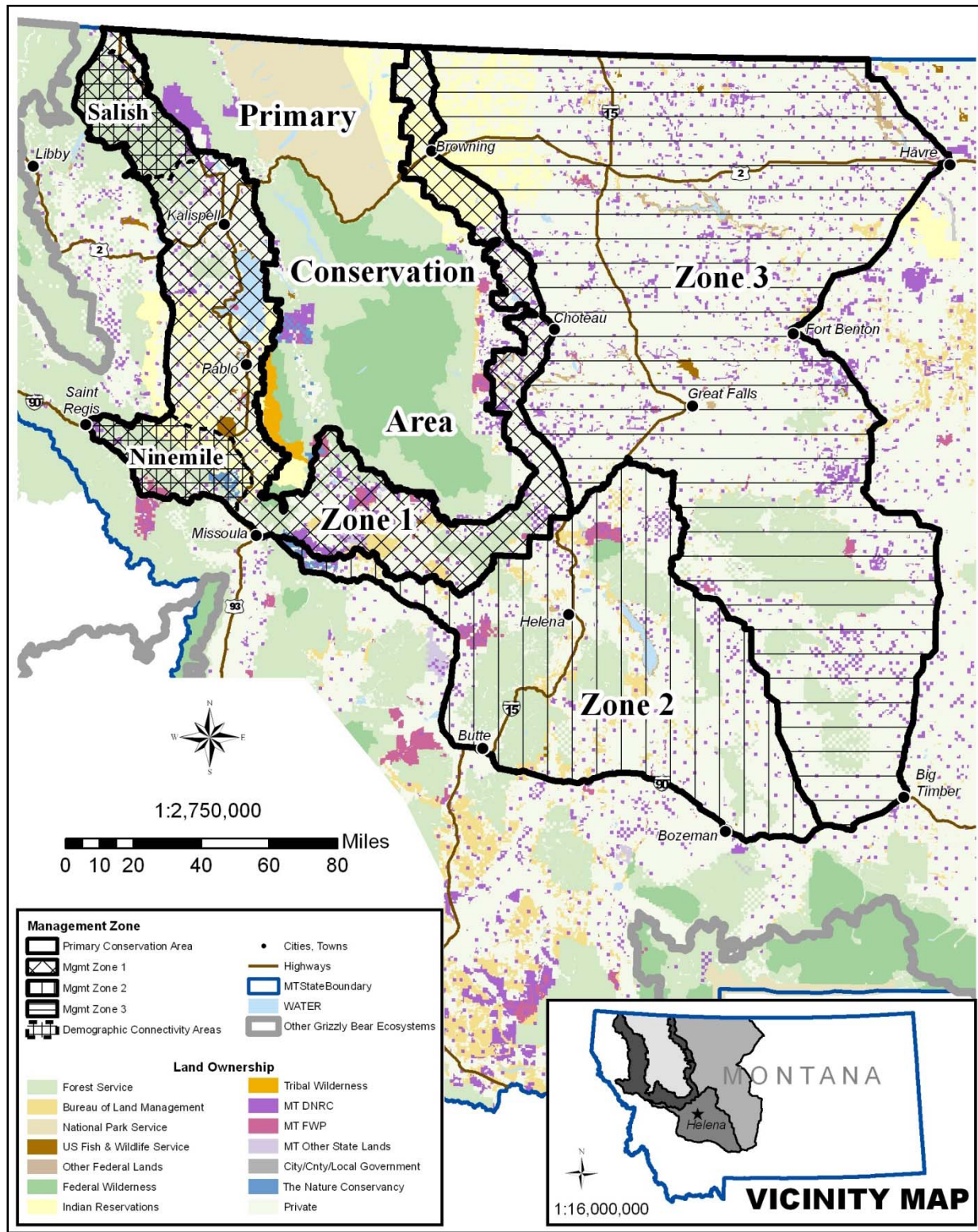


Figure 1. Grizzly bear management zones specified in this Conservation Strategy. The Salish and Ninemile Demographic Connectivity Areas within Zone 1 are delineated by cross-hatching.



## **GRIZZLY BEAR STATUS & ECOLOGY**

### **Current Status**

Thanks to the ongoing efforts of multiple agencies and partners, the grizzly bear population in the NCDE is strong, healthy, and recovered. Although numerous activities may impact individual grizzly bears, the management commitments contained in this Conservation Strategy ensure these will not threaten the population in the foreseeable future.

Using non-invasive sampling methods and capture-mark-recapture models, Kendall et al. (2009) estimated there were 765 grizzly bears in the NCDE in 2004. Between 2004 and 2009, Mace et al. (2012) radio-collared and monitored 83 different female grizzly bears in the NCDE to determine that the population was increasing at a rate of 3.06% per year during this time (95% CI = 0.928–1.102). This estimate of average annual population growth was re-calculated in 2012 using data through 2011 with a resulting rate of 3.03% per year across this time period (2004-2011). Applying this 3.03% rate of annual growth from Mace (2012, personal communication) to the 2004 DNA-based population estimate over the eight years from 2004 to 2011 yields a 2011 population estimate of 942 bears. The NCDE population of grizzly bears is contiguous with grizzly bears in Canada, resulting in high genetic diversity (Proctor et al. 2012). Grizzly bears are well distributed throughout the PCA and Zone 1 although density is higher inside the PCA (see Kendall et al. 2008, 2009; Mace and Roberts 2011). Further evidence of the wide distribution of grizzly bears across the NCDE is the documentation of females, or females with young, in at least 21 of 23 Bear Management Units (BMUs) between 1999 and 2010 (Dood et al. 2006; Kendall et al. 2009; Mace and Roberts 2011) (Figure 2). While the Recovery Plan (USFWS 1993, p. 62) identified sightings of females with cubs as a method to estimate minimum population size, it also recognized that “Because of the forested nature of much of the NCDE...the calculated minimum number of females with cubs will underestimate the actual number [population size].” Kendall et al.’s (2009) estimate of total population size was more than double the minimum population size estimate based on sighting of females with cubs, further corroborating the difficulty of using this parameter as an indicator of population size in this ecosystem. Therefore, since 2004, sightings of females with cubs have not been consistently collected, and this method is no longer used to estimate minimum population size. Instead, radio-telemetry, DNA samples, and mortalities are used to provide distribution data and annual population growth rates that are applied to Kendall et al.’s (2009) population size estimate to project an index of total population size since 2004.

Using the same data used to estimate trend, Mace et al. (2012) calculated dependent cub survival to be 0.612 (95% CI = 0.300–0.818); yearling survival to be 0.682 (95% CI = 0.258–0.898); subadult female survival to be 0.852 (95% CI = 0.628–0.951); and adult female survival to be 0.952 (95% CI = 0.892–0.980). These survival rates and Mace et al.’s (2012) estimate of trend indicate mortality was not only within sustainable limits between 2004 and 2009, but actually allowed an increasing population.

Grizzly bear densities within the NCDE vary but generally decrease toward the south and on the periphery of the ecosystem (Kendall et al. 2009). Grizzly bear population densities were highest inside Glacier National Park with approximately 30 bears per 1,000 sq km (247,105 acres) (Kendall et al. 2008). This is equivalent to approximately one bear per 33 sq km (8,154 acres). This estimate is similar to Mace

et al.'s (1994) estimate of one bear per 25-30 sq km (6,177–7,413 acres) in the Swan Mountain Range in the west central portion of the NCDE.

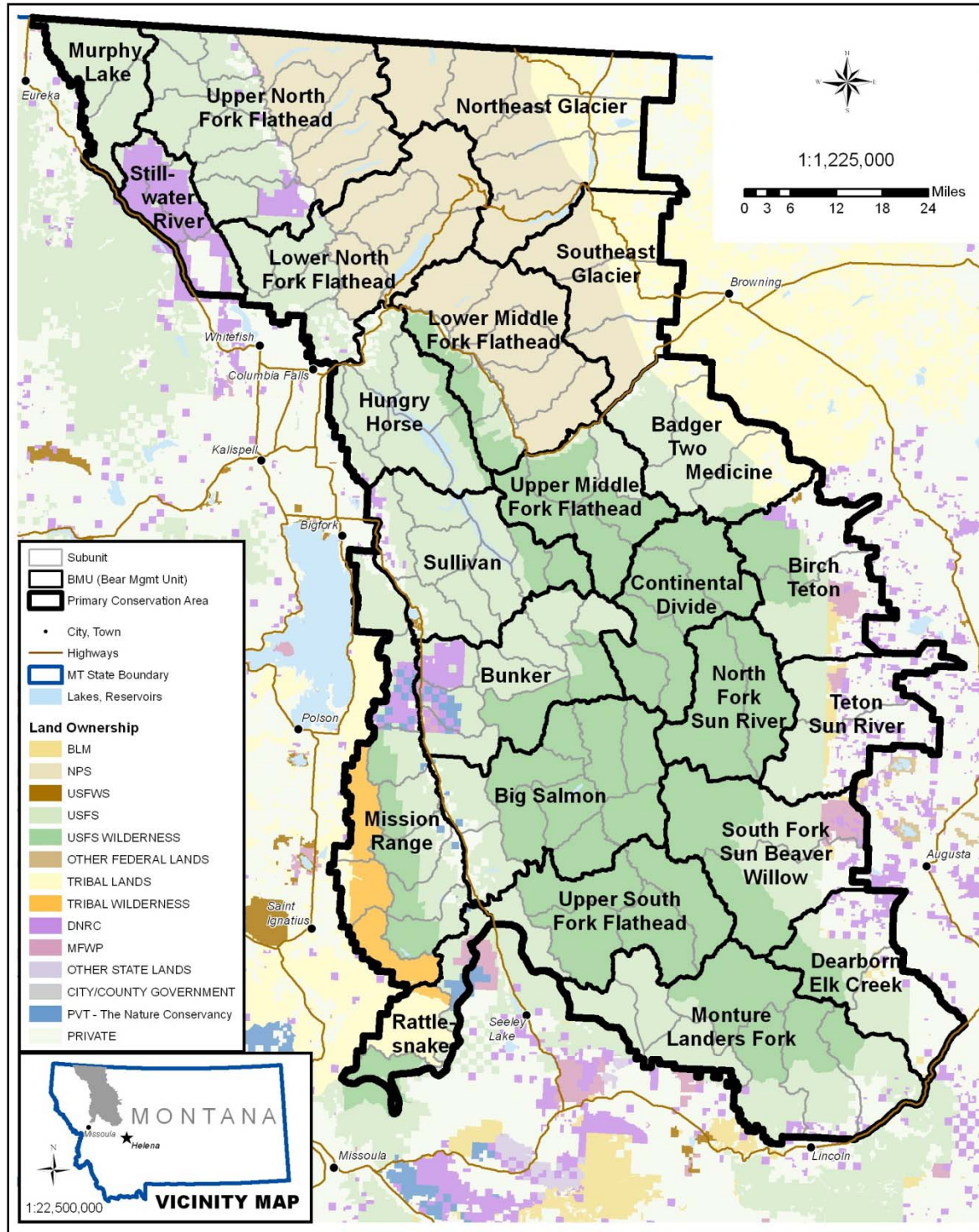


Figure 2. Bear Management Units (BMUs) in the NCDE Primary Conservation Area. BMU subunits are outlined in light gray.

## Behavior & Life History

Adult grizzly bears are normally solitary except when females have dependent young (Nowak and Paradiso 1983) but they are not territorial and home ranges of adult bears frequently overlap (Mace and Waller 1997a Schwartz et al. 2003b). Home range size is affected by resource availability, sex, age, and reproductive status (LeFranc et al. 1987; Blanchard and Knight 1991; Mace and Waller 1997b). Generally, females with cubs-of-the-year or yearlings have the smallest home range sizes (Aune and Kasworm 1989; Blanchard and Knight 1991; Mace and Waller 1997b; Mace and Roberts 2011).

The annual home range of adult male grizzly bears in the NCDE ranges from 146–588 sq mi (377–1,522 sq km), while female ranges are typically smaller, between 26–94 sq mi (74-242 sq km) (Aune and Kasworm 1989; Mace and Waller 1997a; Waller 2005; Mace and Roberts 2011). Females inside GNP generally had smaller home range sizes than those outside the Park, which is likely due to the higher density of both bears and resources inside GNP (Mace and Roberts 2011). In the Swan Mountains of the NCDE, home range size was largest in the spring and smallest in the fall for both sexes, (Mace and Waller 1997a). The large home ranges of grizzly bears, particularly males, enhance genetic diversity in the population by enabling males to mate with numerous females (Blanchard and Knight 1991; Craighead et al. 1995).

Grizzly bears display a behavior called natal philopatry in which dispersing young establish home ranges within or overlapping their mother's (Waser and Jones 1983; Schwartz et al. 2003b). This type of movement makes dispersal across landscapes a slow process. Radio-telemetry and genetic data suggest females establish home ranges an average of 6.1 to 8.9 mi (9.8 to 14.3 km) away from the center of their mother's home range, whereas males generally disperse further, establishing home ranges roughly 29.9 to 42.0 km (18.6 to 26.0 mi) away from the center of their mother's (McLellan and Hovey 2001; Proctor et al. 2004).

Grizzly bears have a promiscuous mating system (Hornocker 1962; Craighead and Mitchell 1982; Schwartz et al. 2003b). Mating occurs from May through July with a peak in mid-June (Craighead and Mitchell 1982; Nowak and Paradiso 1983). Although females mate in spring and early summer, their fertilized embryos do not implant in their uterus until late fall. This delayed implantation only occurs if the female grizzly bear obtains enough fat over the summer and fall to survive the winter and nurse cubs for 2-3 months inside the den (Schwartz et al. 2003a; Schwartz et al. 2003b; Schwartz et al. 2006). Age of first reproduction and litter size may be related to nutritional state (Stringham 1990; McLellan 1994; Hilderbrand et al. 1999; Mattson 2000). Average age of first reproduction in the NCDE is 5.4 years old but can vary from 3-8 years of age (Mace et al. 2012). Mean litter size in the NCDE is 2.2 with a range from one to four cubs (Mace and Waller 1997b; Schwartz et al. 2003b). Cubs are born in the den in late January or early February and remain with the female for 1.5 to 2.5 years, making the average time between litters in the NCDE (i.e., the interbirth interval) 3.0 years (Mace and Waller 1997b; Schwartz et al. 2003b). Grizzly bears have one of the slowest reproductive rates among terrestrial mammals, resulting primarily from the reproductive factors described above: late age of first reproduction, small average litter size, and the long interval between litters (Nowak and Paradiso 1983; Schwartz et al. 2003b). Given the above factors, it may take a single female 10 years to replace herself

in a population (USFWS 1993). Grizzly bear females cease reproducing some time in their mid- to late 20s (Aune et al. 1994; Schwartz et al. 2003a).

Grizzly bears usually dig dens on steep slopes where wind and topography cause an accumulation of deep snow and where the snow is unlikely to melt during warm periods. Grizzly bears in the NCDE occupy dens for 4-6 months each year, beginning in October or November (Mace and Waller 1997b; Linnell et al. 2000). Most of these dens are above 6,400 feet (> 1,942 m) in elevation (Mace and Waller 1997b). More than 29% (1,684,220 acres; 6,815 sq km) of the PCA is potential denning habitat so its availability is not considered a limiting factor for grizzly bears in the NCDE. Denning increases survival during periods of low food availability, deep snow, and low air temperature (Craighead and Craighead 1972). During this period, they do not eat, drink, urinate, or defecate (Folk et al. 1976; Nelson 1980). Hibernating grizzly bears exhibit a marked decline in heart and respiration rate, but only a slight drop in body temperature (Nowak and Paradiso 1983). Due to their relatively constant body temperature in the den, hibernating grizzly bears can be easily aroused and have been known to exit or re-locate dens when disturbed by seismic or mining activity (Harding and Nagy 1980) or other human activities (Swenson et al. 1997). Dens are rarely used twice by an individual although the same general area may be used multiple times (Schoen et al. 1987; Mace and Waller 1997b; Linnell et al. 2000). Females display stronger area fidelity than males and generally stay in their dens longer, depending on reproductive status (Judd et al. 1986; Schoen et al. 1987; Mace and Waller 1997b; Linnell et al. 2000). In the NCDE, females with new cubs typically emerge from their dens from early April to early May (Mace and Waller 1997b).

In preparation for hibernation, bears increase their food intake dramatically during a stage called hyperphagia (Craighead and Mitchell 1982). Hyperphagia is defined simply as eating in excess of daily metabolic demands and occurs throughout the 2-4 months prior to den entry (i.e., August – November). During hyperphagia, excess food is deposited as fat, and grizzly bears may gain as much as 1.65 kg/day (3.64 lb/day) (Craighead and Mitchell 1982). Grizzly bears must consume foods rich in protein and carbohydrates in order to build up fat reserves to survive denning and post denning periods (Rode and Robbins 2000). These layers of fat are crucial to the hibernating bear as they provide a source of energy and insulate the bear from cold temperatures, and are equally important in providing energy to the bear upon emergence from the den when food is still sparse relative to metabolic requirements (Craighead and Mitchell 1982).

### **Nutritional Ecology**

The NCDE is a highly diverse landscape encompassing a wide array of habitat types and bear foods. Plant communities vary from short grass prairie and wheat fields on the eastern foothills to extensive conifer forests at mid-elevation and sub alpine and alpine meadows in the mountainous core. Although the digestive system of bears is essentially that of a carnivore, bears are successful omnivores, and in many areas of the NCDE are almost entirely herbivorous (Jacoby et al. 1999; Schwartz et al. 2003b). Grizzly bear diets are characterized by high variability among individuals, seasons, and years (Servheen 1981; Mattson et al. 1991a; Mattson et al. 1991b; Schwartz et al. 2003b; LeFranc et al. 1987; Felicetti et al. 2003; Felicetti et al. 2004). They opportunistically seek and consume the most nutritious plant and animal foods available to them. Grizzly bears will consume almost any food available including living or

dead mammals or fish, insects, worms, plants, human-related foods, and garbage (Knight et al. 1988; Mattson et al. 1991a; Mattson et al. 1991b; Schwartz et al. 2003b). In areas where animal matter is less available, berries, grasses, roots, bulbs, tubers, seeds, and fungi are important in meeting protein and caloric requirements (LeFranc et al. 1987; Schwartz et al. 2003b).

Grizzly bears display great diet plasticity and switch food habits according to which foods are available (Servheen 1981; Kendall 1986; Mace and Jonkel 1986; Martinka and Kendall 1986; LeFranc et al. 1987; Aune and Kasworm 1989). Mattson et al. (1991a) hypothesized that grizzly bears are always sampling new foods in small quantities so that they have alternative options in years when preferred foods are scarce. In the GYA, Blanchard and Knight (1991) noted that, "After 10 years of food habits data collection, new feeding strategies continued to appear annually in this population."

Fecal analysis, direct observation, and stable isotope analyses have been used to determine diets of grizzly bears in the NCDE and nearby areas (Kendall 1986, Mace and Jonkel 1986; Martinka and Kendall 1986, Hamer and Herrero 1987; LeFranc et al. 1987; Aune and Kasworm 1989; Hilderbrand et al 1996; White et al. 1998; Robbins et al. 2004). Using scat analysis and direct observation, many studies have confirmed that NCDE grizzlies eat different foods in different seasons, depending on their availability (Servheen 1981; Kendall 1986; Mace and Jonkel 1986; Martinka and Kendall 1986; LeFranc et al. 1987; Aune and Kasworm 1989). Although scat analysis typically underestimates the contribution of animal matter in diets because it is more thoroughly digested, it allows direct comparison of other foods among seasons and individuals.

Using stable isotope analysis, Jacoby et al. (1999) investigated the proportion of meat and vegetation in grizzly bear diets in Glacier National Park and surrounding National Forest lands, concluding that males consume more meat than females or subadults. Adult female and subadults diets were 100% and 94% plant matter, respectively while adult male diets included 33% meat. Similarly, Mowat and Heard (2006) used stable isotope analysis to document that in the Swan Mountains, GNP, and the Canadian portion of the North Fork of the Flathead River, the amount of plant matter consumed when all age and sex classes were pooled ranged from 78-88%. On the Blackfoot and Flathead Indian Reservations, which flank the eastern and western edges of the mountainous core that characterizes the PCA, adult female diets consisted of 27% plant matter; adult male diets included 31% plant matter; and subadult males and females derived 34% of their diets from plant matter. The remaining proportions of diets were comprised of animal matter including insects, fish, livestock, wild ungulates, and other mammals. This increase in the amount of animal matter consumed when living within the foothills and prairies adjacent to mountainous areas is consistent with other studies of bear diet. Using fecal analysis, Aune and Kasworm (1989) found that meat was the 3<sup>rd</sup> most important food source during spring for grizzly bears on the Rocky Mountain Front (foothills) of the NCDE. Similarly, using fecal analysis, Munro et al. (2006) found that at the peak of meat consumption in early June in Alberta, the diets of foothills bears contained more than double the amount of meat (49%) than those of mountain bears (20%).

Upon den emergence, bears in the NCDE may search avalanche chutes for animal carcasses before descending to lower elevations seeking newly emerging vegetation. From den-emergence until early summer, grizzlies typically subsist on the roots of sweet vetches (*Hedysarum boreale* and *H. sulfurescens*), biscuit root (*Lomatium* species), glacier lilies (*Erythronium grandiflorum*) and western

spring beauty (*Claytonia lanceolata*); berries from the previous year's crop of bearberry (*Arctostaphylos uva-ursi*); vegetation from grasses, sedges, cow parsnip (*Heracleum* species), and angelica (*Angelica* species); and ungulate meat (Servheen 1981; Kendall 1986; Mace and Jonkel 1986; Martinka and Kendall 1986; LeFranc et al. 1987; Aune and Kasworm 1989).

During summer, before berry crops are available, grizzlies in the NCDE may eat the roots of western spring beauty and glacier lilies and the vegetation of *Ligusticum* species, sweet cicely (*Osmorhiza* species), grasses, *Equisetum* species, cow parsnip, and *Angelica* species (LeFranc et al. 1987; Aune and Kasworm 1989; McLellan and Hovey 1995). Many grizzlies also begin to feed on army cutworm moths (*Euxoa auxiliaris*) in GNP from late June through mid-September (White et al. 1998). In the Mission Mountains, grizzlies may feed on army cutworm moths and ladybird beetles (*Coccinella* species) from the beginning of July through the end of August (Chapman et al. 1955; Servheen 1983; Klaver et al. 1986). Grizzlies have also been observed feeding on army cutworm moths in the Scapegoat Wilderness (Sumner and Craighead 1973; Craighead et al. 1982) and the Rocky Mountain Front of Montana (Aune and Kasworm 1989). Once berries become available, grizzlies in the NCDE may consume huckleberries (*Vaccinium* species), soap berries (*Shepherdia canadensis*), service berries (*Amelanchier alnifolia*), hawthorn berries (*Crataegus douglasii*), and choke cherries (*Prunus* species); and to a lesser degree alderleaf buckthorn berries (*Rhamnus alnifolia*) and mountain ash (*Sorbus scopulina* and *S. sitchensis*) (Servheen 1981; Kendall 1986; Mace and Jonkel 1986; Martinka and Kendall 1986; LeFranc et al. 1987; McLellan and Hovey 1995). The amount and species of berries in bear diets vary annually based on annual fruit production and distributions (McLellan and Hovey 1995).

During late summer to fall, grizzlies in the NCDE may continue to eat berries but will also consume more meat (mostly from hunter gut piles and hunter wounded animals) and the roots/bulbs/corms of sweet vetches and biscuit roots (Kendall 1986; Mace and Jonkel 1986; Martinka and Kendall 1986; LeFranc et al. 1987; Aune and Kasworm 1989; McLellan and Hovey 1995). While the roots of sweet vetches are used by grizzly bear populations in Canada, Alaska, GNP and the northern reaches of the lower 48 States during spring and fall (Hamer and Herrero 1987; LeFranc et al. 1987; McLellan and Hovey 1995; Munro et al. 2006), where *Hedysarum* is less common in the southern and eastern edges of the PCA, grizzlies can consume biscuit roots and glacier lily bulbs instead (LeFranc et al. 1987; Aune and Kasworm 1989). Prior to the spread of whitepine blister rust (*Cronartium ribicola*) in the NCDE, grizzlies fed on whitebark pine seeds from late summer through fall when and where they were available, primarily in the Whitefish Mountain range and along the Rocky Mountain Front (Shaffer 1971; Mace and Jonkel 1986; Aune and Kasworm 1989; Kendall and Arno 1990). Whitebark pine mortality rates from the early to mid-1990s indicate that 42-58% of all trees surveyed within the NCDE were dead with 48-83% of trees surveyed showing signs of blister rust infection (Kendall and Keane 2001). Due to this widespread mortality from blister rust, whitebark pine seeds have been lost in the NCDE as a food source for bears. Despite this loss, the grizzly bear population is larger in size than once thought and increasing, a testament to the habitat diversity and flexibility of grizzly bear diets in the NCDE. In summary, the varying climate, topography, and vegetative conditions in the NCDE provide for a variety of habitats and foods for bears to consume.

### **Grizzly connectivity, genetic health, and population structure**

Because grizzly bears live at relatively low population densities, disperse slowly, and are vulnerable to human-caused mortality, anthropogenic fragmentation of historically contiguous grizzly bear populations is common where grizzly bear populations occur in proximity to human population centers (Forman and Alexander 1996; Proctor et al. 2012; Lindenmayer and Fischer 2006). Small, isolated populations are vulnerable to extinction through genetic drift, demographic processes (e.g., human-caused mortality, decreased birth rates, etc.) and environmental processes (e.g., poor food years, climate change, habitat loss, etc.). It is widely accepted that extinction risk due to genetic drift is reduced even through minimal levels of connectivity (Soule 1987). For example, experimental and theoretical data suggest that one to two successful migrants per generation is an adequate level of gene flow to maintain or increase the level of genetic diversity in isolated populations (Mills and Allendorf 1996; Newman and Tallmon 2001; Miller and Waits 2003).

Genetic sampling and radio telemetry have been used to examine movements, genetic diversity, and population structure within the NCDE (see Kendall et al. 2008; Kendall et al. 2009; Mace et al. 2012; Proctor et al. 2012). Heterozygosity values are a useful, relative measure of genetic diversity. Higher values indicate greater genetic variation. Mean observed heterozygosity in the NCDE population was 0.73 in 2004, the year of sampling (Kendall et al. 2009). Similarly, Proctor et al. (2012) documented heterozygosity values of 0.67-0.68 for the NCDE for samples obtained between 1990 and 2004. These values approach levels found in relatively undisturbed grizzly bear populations in northern Canada and Alaska and indicate good genetic diversity.

Connectivity in grizzly bear populations should be examined in a genetic and demographic framework (Proctor et al. 2012). While male or female movements can enhance genetic diversity and reduce genetic fragmentation (i.e., provide genetic connectivity) (Miller and Waits 2003; Proctor et al. 2005), female movements are necessary to enhance a small population's growth rate (i.e., provide demographic connectivity) (Proctor et al. 2012). Proctor et al. (2012) used genetic assignment testing and movement data from radio-collared grizzly bears between 1979 and 2007 to assess fragmentation in grizzly bear populations in the U.S. and Canada. Both male and female grizzlies moved freely across the US/Canadian border on the northern edge of the NCDE. Proctor et al. (2012) documented 11 movements (10 males and 1 female) between the NCDE and grizzly bear populations north of Hwy. 3 in Canada, indicating the NCDE appears to be well connected to Canadian populations and its population size means there is currently little risk of significant reduction in the present high levels of genetic diversity.

Kendall et al. (2009) identified six subpopulations in the NCDE based on genetic analyses. However, the genetic differentiation values observed among the different areas within the NCDE was generally low. There are few geographical barriers thought capable of creating genetic discontinuities in the NCDE and generally the subpopulation boundaries did not coincide with natural or anthropogenic geographic features. Genetic differentiation between subpopulations decreased when genetic data from 1976-1998 was compared to data from 1999-2006, a finding consistent with demographic recovery of the population (Kendall et al. 2009). The only suggestion of human-caused fragmentation was on the western side of the U.S. Hwy. 2 / Burlington Northern Santa Fe (BNSF) rail line corridor between Glacier

National Park and National Forest lands where human-caused mortality is high. There was little genetic differentiation across the eastern portion of the corridor but at the western end where highway traffic volumes and human densities are three times higher, differentiation indicated reduced gene flow (Kendall et al. 2009). While this genetic differentiation north and south of the highway does not indicate complete absence of genetic interchange, it suggests fragmentation may be starting to occur. While managers remain vigilant about the possible fragmenting effects of the Hwy. 2 corridor, both male and female movements were documented across this corridor and the current state of fragmentation is within levels that ensure both demographic and genetic connectivity (Miller and Waits 2003; Waller and Servheen 2005).

Overall, the NCDE is well connected to Canadian populations genetically and its population size ensures demographic and genetic health. Accordingly, the NCDE should eventually serve as a source population for genetic and demographic rescue of other grizzly populations in the lower 48 States.

### **GRIZZLY BEAR POPULATION & HABITAT MANAGEMENT**

In these sections, we provide background on the factors that need to be considered to successfully manage and conserve grizzly bears in the NCDE. These factors and their potential impacts to grizzlies provide the basis and logical framework for our population and habitat standards described in Chapters 2 and 3, respectively.

#### **Grizzly Bear Population Management**

Wildlife population managers are interested in a number of factors when gauging the status of a population including population size, trend (i.e., increasing, decreasing, or stable), density, distribution, levels of genetic diversity, reproductive rates, survival rates, and mortality causes. While population size is a well-known measure of population resilience, it is extremely challenging to obtain a reliable population estimate on an annual basis within the NCDE due to the difficulty of sighting individual bears and the high costs of more intensive methods. However, it is not necessary to estimate population size every year if its value at a given time is known and there is a reliable estimate of population trend. In the NCDE, we know the population consisted of 765 (95%CI = 715 – 831) individuals in 2004 and that it has been increasing approximately 3% annually since then (Kendall et al. 2009; Mace et al. 2012). This trend estimate incorporates all sources of mortality both known and unknown, and assures managers that grizzly bear mortality has been within sustainable levels.

Survival and reproduction are the two demographic vital rates driving whether the grizzly bear population increases, decreases, or remains stable (i.e., trend). Demographic parameters influencing trend include age-specific survival, sex-specific survival, age of first reproduction, average number of cubs per litter, the time between litters, age ratios, sex ratios, and immigration and emigration. These data are used to determine if and why the population is increasing or decreasing (Anderson 2002; Mills 2007; Mace et al. 2012).



### **Grizzly Bear Survival in the NCDE**

Survival in the NCDE is influenced by age, sex, reproductive status, and home range location (i.e., proximity to humans and human activities). While grizzly bears in the NCDE die from natural causes on occasion, human-caused mortality is the driving force behind grizzly bear survival rates. Of 337 grizzly bear mortalities documented between 1998 and 2011 86% (290 of 337) were human-caused (Table 1). Despite these mortalities, the survival rate for adult females, the single most important cohort affecting population trend, is high: 0.952 (95% CI = 0.892–0.980) (Mace et al. 2012).

In the NCDE, the top three sources of human-caused mortality are: management removals (31%), illegal kills (21%), and defense of life (15%) (Table 1). Management removals of nuisance bears following grizzly bear/human conflicts are sometimes necessary. These removals benefit the conservation of grizzly bear populations by minimizing illegal killing of bears, providing an opportunity to educate the public about how to avoid conflicts, and promoting tolerance of grizzly bears by responding promptly and effectively when bears pose a threat to public safety. When making decisions about nuisance bears, this Conservation Strategy emphasizes consideration of the cause, severity, and location of the incident, the conflict history of the bear (if any), health, age, sex, and reproductive status of the bear, and the demographic standards regarding mortality limits. While removal of nuisance bears is sometimes necessary to protect the public, the ultimate source of the conflict that leads to nuisance bear behavior is usually manageable. The management agencies emphasize removal of the human cause of the conflict when possible and spend considerable time and money on outreach actions and materials teaching the public how to prevent conflicts before they occur.

The majority of management removals result from conflicts at sites associated with frequent or permanent human presence. Unsecured attractants such as garbage, human foods, pet/livestock foods, bird food, livestock carcasses, wildlife carcasses, barbeque grills, compost piles, orchard fruits, or vegetable gardens are usually the source of these conflicts and subsequent removals. Of the 89 management removals in the NCDE between 1998 and 2011, at least 57% (51 of 89) were related to attractants and may have been avoided if preventative measures had been taken. These conflicts involved food conditioned bears actively seeking out unsecured attractants or bears that were habituated to human presence seeking natural sources of food in areas near human structures or roads. While these mortalities are clearly related to human attractants, they are also related to attitudes and personal levels of knowledge about and tolerance toward grizzly bears. State, Tribal, and Federal agencies will continue to work with organizations such as the Swan Ecosystem Center and Blackfoot Challenge to prevent grizzly bear/human conflicts by educating the public and local governments about potential grizzly bear attractants, bear behavior, and bear ecology. The remaining management removals in the NCDE between 1998 and 2011 were related to bears depredating on livestock (23%; 21/89) or displaying unacceptable aggressive behavior (19%; 17/89).

Table 1. Grizzly bear mortalities and causes in the NCDE, 1998-2011. This table includes all known, probable, and possible mortalities for all age classes, including 99 dependent young (< 2 years old).

cause (all sources)	# mortalities	avg. / year	% total
natural	24	1.7	7%
unknown/undetermined	23	1.6	7%
human-caused	290	20.7	86%
<b>total mortalities</b>	<b>337</b>	<b>24.1</b>	
human-caused mortalities	# mortalities		% human-caused
augmentation*	6	0.4	2%
automobile collision	28	2.0	10%
capture related	15	1.1	5%
defense of life	43	3.1	15%
illegal	60	4.3	21%
management removal	89	6.4	31%
mistaken identification	18	1.3	6%
train	31	2.2	11%

\* When bears are relocated from the NCDE to augment the Cabinet Yaak Ecosystem population, they are counted as mortalities in the NCDE.

Illegal killing of grizzly bears is a significant source of mortality in the NCDE (Table 1). People may kill grizzly bears for several reasons, including a general perception that grizzly bears in the area are dangerous, frustration over depredations of livestock, or to protest land use and road use restrictions associated with grizzly bear habitat management (Servheen et al. 2004). While we recognize illegal killings will never be eliminated entirely, reducing this source of human-caused mortality is worth pursuing. Ways to minimize illegal killings include a regulatory framework making them illegal and prosecutable under State law or Tribal law (i.e., designation as a game species), managing conflicts quickly and efficiently to increase assurance that conflicts will be properly addressed, and by using outreach and education to influence human attitudes and knowledge about grizzly bears and Federal regulation of public lands (Servheen et al. 2004). Additionally, we believe the flexible management provided in this Conservation Strategy and associated documents, including the use of regulated hunting, will help alleviate some of these illegal, malicious killings.

Humans kill grizzly bears unintentionally with vehicles or by mistaking them for black bears when hunting. From 1998 to 2011, 31% (92/290) of all human-caused grizzly bear mortalities in the NCDE were accidental or unintentional. This includes 28 mortalities due to collisions with vehicles, 31 from collisions with trains, 18 associated with mistaken identification, and 15 related to capturing and handling. Measures to reduce vehicle and train collisions with grizzly bears include removing wildlife carcasses from the road or tracks so that grizzly bears are not attracted to these areas (Servheen et al. 2004), keeping the tracks clean of spilled grain, constructing wildlife crossing structures over or under highways, and reducing human-caused mortality in nearby residential areas by providing bear resistant

garbage containers where needed. All of these measures are already being implemented to varying degrees in different parts of the ecosystem.

Grizzly bear mortalities related to hunting accounted for 17 percent (50/290) of human-caused mortalities in the NCDE between 1998 and 2011. While many of these were related to people incorrectly identifying their targets during black bear or big game hunting seasons (18/290), the majority involved people shooting a grizzly bear in self-defense (28/290) while hunting other species (e.g., elk, pheasants, etc.). Mistaken identification is a preventable type of grizzly bear mortality. Many outreach programs are targeted at hunters to emphasize patience, awareness, and correct identification of targets so that grizzly bear mortalities from inexperienced black bear and ungulate hunters are reduced. The State of Montana requires all black bear hunters to pass a Bear Identification Test before receiving a black bear hunting license (see <http://fwp.state.mt.us/bearid/>). While it is more difficult to prevent grizzly bears being killed in self-defense during encounters with hunters, targeted outreach efforts may reduce this type of human-caused mortality. Montana includes grizzly bear encounter management as a core subject in basic hunter education courses (Dood et al. 2006) and in all big game hunting regulations, and encourages hunters to carry and know how to use bear spray.

To minimize grizzly bear mortality risk and increase human safety associated with bear capture and handling, managers and researchers adhere to the protocols first described by Jonkel (1993) when trapping grizzly bears. The latest veterinary medical research and anesthetic therapies are incorporated into these protocols annually and taught to trappers and field technicians at annual workshops with wildlife veterinarians. These protocols are designed to minimize restraint time, minimize capture-related stress, monitor the health of captured animals, administer appropriate levels of anesthesia, and minimize the duration of anesthesia through the use of appropriate antagonists. Additionally, new technologies that focus capture efforts (e.g. cameras), reduce non-target captures, and alert personnel when an animal has been captured (e.g. automatic text alerts) are incorporated as they become available.

### **Food Storage Orders**

One of the most effective ways to prevent grizzly bear/human conflicts and increase grizzly bear survival on public lands is to require users and recreationists in grizzly habitat to store their food, garbage, and other bear attractants so that they are inaccessible to bears. Securing potential attractants can prevent bears from becoming food conditioned and displaying subsequent unacceptable aggressive behavior. Storing attractants in a manner that prevents bears from accessing them is effective in limiting grizzly bear mortality, grizzly bear/human encounters, and grizzly bear/human conflicts. Legally enforceable attractant storage requirements on public lands have been implemented or will be implemented on 87% of lands within the PCA. Attractant storage requirements for contractors or permitted activities occur on 91% of lands inside the PCA. These provisions will continue under this Conservation Strategy.

## Grizzly Bear Habitat Management

### Overview

Grizzly bears use a variety of habitats in the NCDE. In general, a grizzly bear's daily movements are largely driven by the search for food, mates, cover, security, and/or den sites. In the western portion of the ecosystem, Waller and Mace (1997) and Mace et al. (1997) demonstrated that avalanche chutes are important to bears during spring, summer, and autumn. Other open-canopied habitats such as shrub lands and places where timber has been harvested are also frequented by bears throughout the year. Mid- to high-elevation slabrock and meadow habitats possess many foods dug by bears. Grizzly bears use closed canopy forests less than expected during all seasons. Along the Rocky Mountain Front on the east side of the PCA, grizzly bears selected riparian zones during all seasons, up to 20 miles from the mountain front (Aune and Kasworm 1989), and occasionally over 50 miles (Mace and Roberts 2011). Shrub lands were important during autumn to bears in this area. As in other locales (e.g. McLellan and Shackleton 1988; 1989), grizzly bear habitat selection in the NCDE was negatively influenced by vehicular traffic (Mace et al. 1996; Waller and Servheen 2005) and at times non-motorized foot traffic (Mace and Waller 1996), both of which displaced grizzly bears.

Grizzly bears are long-lived opportunistic omnivores whose food and space requirements vary depending on a multitude of environmental and behavioral factors and on variation in the experience and knowledge of each individual bear. Grizzly bear home ranges overlap and change seasonally, annually, and with reproductive status. While these factors make the development of threshold habitat criteria difficult, habitat criteria may be established by assessing what habitat factors in the past were compatible with a stable to increasing grizzly population in the NCDE, and then using these habitat conditions as threshold values to be maintained to ensure a healthy population.

The available habitat for bears is determined largely by people and their activities. Human activities are the primary factor impacting habitat security. Human activities and the social structure and relationships among resident bears are the two major influences on the accessibility of available foods for bears. The question of how many grizzlies can live in any specific area is a function of overall habitat productivity (e.g., food distribution and abundance), the availability of habitat components (e.g., denning areas, cover types), the levels and types of human activities, grizzly bear social dynamics, learned behavior of individual grizzly bears, and stochasticity. Because carrying capacity in such an omnivorous and opportunistic species can vary annually and even day to day, there is no known way to calculate carrying capacity for grizzly bear populations. Therefore, controlling human-caused mortality, monitoring both population and habitat parameters, and responding when necessary with adaptive management (Walters and Holling 1990) are the best ways to ensure a healthy grizzly population. The USFWS defined adaptive management as "a method for examining alternative strategies for meeting measurable biological goals and objectives, and then, if necessary, adjusting future conservation management actions according to what is learned." This Conservation Strategy allows for modification of management practices in response to new or changing conditions.

*Primary Conservation Area (PCA)*

The PCA (known as the Grizzly Bear Recovery Zone while grizzlies are listed as threatened under the ESA) provides the habitat conditions necessary to accommodate a stable to increasing grizzly bear population in the NCDE. Between 2004 and 2011, the NCDE grizzly population was increasing at a rate of 3% per year (Mace et al. 2012; Mace 2012, personal communication). Due to this measured increasing population trend and the fact that motorized route density decreased between 2004 and 2011, 2011 was chosen as the baseline year for measuring levels of human activities. Decreases in motorized route density made between 2004 and 2011 were not reversed. While this approach contains some level of uncertainty related to how long changes in habitat translate into detectable changes in population parameters (i.e., lag time), it is the best option since we cannot calculate carrying capacity for such an omnivorous and opportunistic species. Furthermore, we are monitoring changes in multiple demographic rates other than population size, as recommended by Doak (1995). The PCA will continue to be managed and monitored carefully to maintain habitat conditions at 2011 levels through the management of motorized use, developed sites, and livestock allotments on most public lands. The 2011 habitat baseline values for secure habitat and motorized access route density are shown in Appendix 3; developed sites are in Appendix 4; and livestock allotments are shown in Table 7.

*Management Zone 1*

Outside of the PCA on the western side of Zone 1, two Demographic Connectivity Areas (DCAs) have been identified to provide opportunities for female grizzly bears to establish home ranges and exist at low densities: the Salish DCA and the Ninemile DCA (Figure 1). Males may also use these areas as part of their home ranges but are tangential to the main objective of these DCA's: to support female dispersal to other ecosystems within the lower 48 States that retain their threatened status (i.e., the Cabinet-Yaak and Bitterroot ecosystems). Unlike males who have large home range sizes, sometimes travel long distances, and establish home ranges nearly three times further away from their mother's home ranges than female offspring; female emigration to other ecosystems is a multi-generational process during which female offspring establish overlapping home ranges with their mothers. Females must be able to live year-round in an area to successfully reproduce and allow offspring to disperse into adjacent, unoccupied habitat. As such, habitat protections are more restrictive in the DCA's than in Zone 2 but still less rigorous than inside the PCA.

*Management Zone 2*

Grizzly bear occupancy within Zone 2 is not necessary to maintain the recovered status of the NCDE but it would be beneficial to other ecosystems if bears were able to occupy Zone 2 in low densities and successfully emigrate to these other ecosystems where grizzly bears remain "threatened." Because both male and female grizzly bears are already known to occur on occasion in Zone 2 without any protections specifically in place for grizzly bears, maintaining a healthy population in the PCA and Zone 1 while reducing the potential for conflicts in Zone 2 will be an effective way to ensure this continues in the foreseeable future. Because the objective in Zone 2 is not necessarily continual occupancy but

instead, to have a few males (or females) move through this area into other ecosystems, less rigorous habitat protections are appropriate.

### *Management Zone 3*

Due to the use of highways as easily described boundaries, some areas of habitat were included in this Conservation Strategy that will likely never support self-sustaining populations of grizzly bears in the foreseeable future. Specifically, much of the short-grass prairie on the east side of the Rocky Mountains within Zone 3 has been converted to agricultural land (Woods et al. 1999). Although lands east of Highway 89 were historically occupied, high densities of traditional food sources are no longer available due to land conversion and human occupancy of urban and rural lands. Traditional food sources such as bison and elk have been dramatically reduced and replaced with domestic livestock attractants such as cattle, sheep, chickens, goats, pigs, and bee hives, which can become anthropogenic sources of prey for grizzly bears. While food sources such as grasses and berries are abundant in some years in the riparian zones within which the bears travel, these are not reliable every year and can only support a small number of bears. These nutritional constraints and the potential for human-bear conflicts limit the potential for a self-sustaining population of grizzly bears to develop in the prairies, although we expect some grizzly bears to live in these areas. Grizzly bears in Zone 3 are not biologically necessary to the NCDE population. As such, habitat protections on Federal lands in Zone 3 are not necessary to maintain a recovered grizzly bear population in the NCDE. Grizzly bears in Zone 3 will likely always rely on the core population within the PCA of the NCDE to serve as a source for more bears, similar to the source-sink dynamic observed in Alberta between the mountain and prairie habitats along the Rocky Mountain Front (Proctor et al. 2012).

#### **Secure Habitat**

The negative impacts of humans on grizzly bear survival and habitat use are well documented (Harding and Nagy 1980; McLellan and Shackleton 1988; Aune and Kasworm 1989; McLellan 1989; McLellan and Shackleton 1989; Mattson 1990; Mattson and Knight 1991; Mattson *et al.* 1992; Mace *et al.* 1996; McLellan *et al.* 1999; White *et al.* 1999; Woodroffe 2000; Boyce *et al.* 2001; Johnson *et al.* 2004). These effects range from temporary displacement to actual mortality. History has demonstrated that grizzly bear populations survived where the frequency of contact with humans was very low (Mattson and Merrill 2002). Populations of grizzly bears persisted in those areas because the large expanses of relatively secure habitat without permanent human presence resulted in lower human-caused mortality. These areas are primarily associated with national parks, wilderness areas, and large blocks of public lands (Interagency Grizzly Bear Committee 1998). Maintaining habitat security is a major goal of this Conservation Strategy.

#### **Motorized Access**

The management of human use levels through motorized access route management is one of the most powerful tools available to balance the needs of grizzly bears with the needs and activities of humans. Open motorized route density is a predictor of grizzly bear survival on the landscape (Schwartz et al.

2010) and is useful in evaluating habitat potential for and mortality risk to grizzly bears (Mace et al. 1996).

Managing motorized access to maintain large blocks of secure habitat is important to the survival and reproductive success of grizzly bears, especially adult female grizzly bears (Mattson et al. 1987; Interagency Grizzly Bear Committee 1994; Schwartz et al. 2010). Managing motorized access (1) minimizes human interaction and reduces potential grizzly bear mortality; (2) minimizes displacement from important habitat; (3) minimizes habituation to humans; and (4) provides habitat where energetic requirements can be met with limited disturbance from humans (Mattson et al. 1987; McLellan and Shackleton 1988; McLellan 1989; Mace et al. 1996; Mattson et al. 1996).

Information and research specific to the NCDE indicated that 83% of documented locations of radio-collared females were in habitat that did not have motorized access (USFWS 1997). These areas were usually at least 2,200 acres in size. Additionally, approximately 62–64% of the composite home range of female grizzly bears studied in the South Fork of the Flathead River drainage was in habitat without motorized access (Mace and Waller 1997b). These values led National Forests west of the Continental Divide in the NCDE to manage most Bear Management Units (BMUs) so that at least 68% of each BMU was secure “core” habitat. In BMUs where the National Forests administered less than 75% of the lands and in National Forests east of the Continental Divide, BMUs were managed so that there was no net loss of secure “core” habitat. Core areas were defined at the time to include those areas more than 500 m (0.3 miles) from open or gated wheeled motorized access routes and high-use non-motorized trails, and at least 2,500 acres in size.

### **High Intensity Use Non-Motorized Trails**

In 1994 and 1998, the IGBC task force charged with creating standard definitions and procedures for managing motorized access in grizzly bear recovery zones recommended that the impacts of “high intensity use” non-motorized trails be considered in calculations of “core” habitat (IGBC 1998, p. 4) but emphasized that “Motorized access is also one of the more influential parameters affecting habitat security” (IGBC 1998, p. 5). Because there were no data or literature available to determine what the threshold number of parties was that defined a “high intensity use” trail or how this number may relate to grizzly bear population parameters, the threshold value was determined by a panel of experts. In the NCDE, “high intensity use” non-motorized trails were defined as those receiving > 20 parties per week for at least one month during the non-denning season. Since 1995, National Forests in the NCDE have considered non-motorized trails meeting this definition of high intensity use as the equivalent of an open road. In other words, these high use non-motorized trails were buffered by 500 m (0.3 miles) and this area was not counted as core habitat.

The original recommendation to exclude areas within 500 m of high use non-motorized trails (e.g., foot or horse trails) from core area calculations was based on several untested assumptions regarding the potential impacts of such trails on grizzly bears. The approach is not clearly supported by the existing scientific literature. Multiple studies document displacement of individual grizzly bears from non-motorized trails to varying degrees (Schallenberger and Jonkel 1980; Jope 1985; McLellan and Shackleton 1989; Kasworm and Manley 1990; Mace and Waller 1996; White et al. 1999). However,

none of these studies documented increased mortality risk from foot or horse trails or population level impacts to grizzly bears from displacement. For example, while Mace and Waller (1996) found that grizzly bears were further than expected (i.e., displaced) from high-use trails (90 visitors/day) in the Swan Mountains, they reported there were no historic or recent records of grizzly bear/human conflict in their study area. Similarly, while grizzlies in GNP are displaced to some degree by non-motorized trails (Jope 1985; White et al. 1999), conflicts and grizzly bear mortalities there are extremely low and related almost exclusively to campgrounds and other human-use areas. Furthermore, the recommendation that core blocks be a minimum of 2,500 acres in size was based on research regarding *road* density (see “Motorized Access” section immediately above) and did not address high intensity use non-motorized trails in the analyses. While we recognize that displacement merits concern because it can affect individual grizzlies through habitat loss and disrupted foraging or social behaviors, there are no data demonstrating that these impacts translate into detectable impacts to population-level variables such as grizzly bear survival or reproduction. Until such effects are documented, our primary concern with high-use trails is whether or not they are strongly associated with grizzly bear mortality, as motorized routes are. At this point, there are no data or research indicating non-motorized trail use results in disproportionate grizzly bear mortality or population declines.

In addition to the lack of data documenting a relationship between heavily used non-motorized trails and grizzly bear mortality, the difficulty of accurately measuring human use on non-motorized trails also undermines the usefulness of this habitat parameter when assessing habitat security for grizzly bears. Measuring human use on non-motorized trails is difficult for a number of reasons, including: (1) the high number of trails on the more than 5,000,000 acres (20,234 sq km) of public lands inside the PCA; (2) limited funding and personnel for monitoring trails; and (3) the need to address higher management priorities for grizzly bears, it is not feasible to directly measure human use on all non-motorized trails throughout the NCDE. Therefore, high intensity use trails are identified by on-the-ground land managers based on their expert opinion and professional familiarity. Because the amount of use on non-motorized trails is determined by the expert opinion of local USFS, GNP, or Tribal personnel, these decisions are affected by variations in annual use, changes in personnel, familiarity with an area, and personal judgment. The difficulty in obtaining actual data on use levels has led to the inconsistent assignment of use levels on the same trail in the past and highlights the subjectivity of this method.

Due to the lack of literature supporting the threshold value of 20 parties per week to define “high intensity use” in the NCDE, the subjectivity of quantifying use levels, and the lack of literature documenting population-level impacts from these heavily used non-motorized trails, we revised the definition of “core area” in this Conservation Strategy to remove consideration of high intensity use non-motorized trails. In other words, this Conservation Strategy considers the area surrounding non-motorized trails as “core” habitat. This Conservation Strategy uses the term “**Secure Core**” to represent this revised definition. Differences in the levels of Secure Core versus Core habitat in each BMU subunit are shown in Appendix 6.

- **Secure Core:** areas more than 500 m (0.3 miles) from an open or gated wheeled motorized access route, at least 2,500 acres in size, and in place for 10 years



This approach and revised definition are consistent with the decision reached by managers in the Greater Yellowstone ecosystem to treat high intensity use non-motorized trails as secure habitat: “Research addressing grizzly interactions with high use, non-motorized trails is very limited and has not identified impacts to grizzly bears, particularly when other management practices are employed to reduce conflicts i.e. food storage orders. ...Further research is needed to address the potential impact of high use non-motorized trails...As such research information becomes available, an adaptive management approach will be used as necessary to incorporate any new information.” (USFWS 2007). The increasing grizzly bear populations in both the GYA and NCDE during a time when recreational use of trails was also increasing lend further support to the decision to no longer count high intensity use non-motorized trails as the equivalent of an open road.

While growing human populations ensure that human use of non-motorized trails in the NCDE will continue to increase, the effects of these future increases will be adequately mitigated through motorized access and developed site standards, conflict prevention outreach and education, food storage orders, and continued presence of law enforcement and field staff as described in this Strategy. If research demonstrates that high intensity use non-motorized trails do significantly impact grizzly bear populations or that there are areas of significantly higher mortality risk near high intensity use non-motorized trails (as opposed to other trails or roads), this new information will be appropriately considered and incorporated through an adaptive management approach. Revisions to this Conservation Strategy will be made if necessary to conserve the NCDE grizzly bear population.

### **Snowmobiling**

Snowmobiling has the potential to disturb bears while in their dens and after emergence from their dens in the spring. Because grizzly bears are easily awakened in the den (Schwartz et al. 2003b) and have been documented abandoning den sites after seismic disturbance (Reynolds et al. 1986), the potential impact from snowmobiling should be considered. We found no studies in the literature specifically addressing the effects of snowmobile use on any denning bear species and the information that is available is anecdotal in nature (USFWS 2002; Hegg et al. 2010).

Disturbance in the den could result in energetic costs (increased activity and heart rate inside the den) and possibly den abandonment which, in theory, could ultimately lead to a decline in physical condition of the individual or even cub mortality (Graves and Reams 2001). Although the potential for this type of disturbance while in the den certainly exists, Reynolds et al. (1986) found that grizzly bears denning within 1.4-1.6 km (0.9-1.0 mi) of active seismic exploration and detonations moved around inside their dens but did not leave them. Harding and Nagy (1980) documented two instances of den abandonment during fossil fuel extraction operations. One bear abandoned its den when a seismic vehicle drove directly over the den (Harding and Nagy 1980). The other bear abandoned its den when a gravel mining operation literally destroyed the den (Harding and Nagy 1980). Reynolds et al. (1986) also examined the effects of tracked vehicles and tractors pulling sledges. In 1978, there was a route for tractors and tracked vehicles within 100 meters (m) (328 feet (ft)) of a den inhabited by a male. This male was not disturbed by the activity nor did he abandon his den at any point. Reynolds et al. (1986) documented only one instance of *possible* den abandonment due to seismic testing (i.e., detonations) within 200 m of

a den (Reynolds et al. 1986). This bear was not marked but an empty den was reported by seismic crews.

Swenson et al. (1997) monitored 13 different grizzly bears for at least five years each and documented 18 instances of den abandonment, 12 of which were related to human activities. Although many of these instances (n=4) were hunting related (i.e., gunshots fired within 100 m (328 ft) of the den), two occurred after “forestry activity at the den site,” one had moose and dog tracks within 10 m of a den, one had dog tracks at the den site, one had ski tracks within 80-90 m from a den, one had an excavation machine working within 75 m of a den, and two were categorized as “human related” without further details (Swenson et al. 1997). Swenson et al. (1997) found that 72% (13 of 18) of dens were abandoned between November and early January, before pregnant females give birth. After abandoning a den, bears moved an average of 5.1 km (3.2 mi) before establishing another den site, although 56% of bears moved  $\leq 2$  km (1.2 mi) (Swenson et al. 1997). Despite these relatively short distances, Swenson et al. (1997) found that 60% (n=5) of female bears that abandoned a den site before giving birth (i.e., in November or December) lost at least one cub in or near their new den site whereas only 6% (n=36) of pregnant females that did not abandon their dens during the season lost a cub in or near their den. In summary, the available data about the potential for disturbance while denning and den abandonment from nearby snowmobile use is extrapolated from studies examining the impacts of other human activities and is identified as “anecdotal” in nature (Swenson et al. 1997) with sample sizes so small they cannot be legitimately applied to assess population-level impacts (Harding and Nagy 1980, Reynolds et al. 1986; Hegg et al. 2010). The one documented observation of snowmobile use at a known den site in the lower 48 States found the bear did not abandon its den, even though snowmobiles were operating directly on top of it (Hegg et al. 2010). Again though, this is only an anecdotal observation because it is based on a sample size of one. There are no reports of litter abandonment by grizzlies in the lower 48 States due to snowmobiling activity (Hegg et al. 2010; Servheen 2010). Additionally, monitoring of den occupancy for three years on the Gallatin National Forest in Montana (2006) did not document any den abandonment (Gallatin National Forest 2006).

Our best information suggests that current levels of snowmobile use are not appreciably reducing the survival or recovery of grizzly bears. Yet, because the potential for disturbance exists, monitoring will continue to support adaptive management decisions about snowmobile use in areas where disturbance is documented or likely to occur.

### **Developed Sites on Public Lands**

**Developed sites** refer to sites or facilities on public Federal lands with features that are intended to accommodate public use and recreation. Examples include, but are not limited to: campgrounds, trailheads, lodges, rental cabins and lookouts, summer homes, restaurants, visitor centers, and ski areas. Developed sites are generally associated with frequent, overnight or prolonged human use that may increase both the levels of bear attractants and grizzly bear mortality risk.

Developed sites can impact bears through temporary or permanent habitat loss and displacement but the primary concern regarding developed sites is direct bear mortality or removal from the ecosystem

due to bear/human conflicts caused by unsecured bear attractants, habituation, and food conditioning (Mattson et al. 1987; Knight et al. 1988; Gunther et al. 2004; Servheen et al. 2004). **Habituation** occurs when grizzly bears encounter humans or developed sites frequently, and without negative consequences, so that the bears no longer avoid humans and areas of human activity (USFWS 1993). Habituation does not necessarily involve human-related food sources. **Food conditioning** occurs when grizzly bears receive human-related sources of food and thereafter seek out humans and human use areas as feeding sites (USFWS 1993). As discussed above, the majority of grizzly bears removed by management agencies were involved in conflicts at developed sites with unsecured attractants such as garbage, bird feeders, pet/livestock feed, and human foods. Although the majority of these mortalities occurred on private lands, this Conservation Strategy has no authority to regulate developed sites on private lands and applies only to public lands.

### **Livestock Allotments**

Livestock operations can benefit the long-term conservation of grizzly bears through the maintenance of large blocks of open rangeland and habitats that support a variety of wildlife species (Dood et al. 2006). However, when grizzlies were listed in 1975, the USFWS identified "...livestock use of surrounding national forests" as detrimental to grizzly bears "...unless management measures favoring the species are enacted." (40 CFR 31734, p. 31734). Impacts to grizzly bears from livestock operations potentially include:

- direct mortality from control actions resulting from livestock depredation;
- direct mortality due to control actions resulting from grizzly bear habituation and/or learned use of bear attractants such as livestock carcasses and feed;
- increasing the chance of a grizzly bear livestock conflict;
- displacement due to livestock or related management activity;
- direct competition for preferred forage species.

Approximately 7% (21/290) of all human-caused grizzly bear mortalities in the NCDE between 1998 and 2011 were due to management removal actions associated with livestock depredations. This human-caused mortality is the main impact to grizzly bears in the NCDE associated with livestock. Most livestock-related grizzly bear mortalities occur on private lands or on the Blackfoot Indian Reservation (BIR) along the Rocky Mountain Front, east of the Continental Divide. The PCA in this area extends up to 18.5 miles east of Federal management boundaries and includes large areas of private ranchlands and Tribal grazing allotments. Indirect impacts on grizzly bears due to attractants can be effectively minimized with requirements to securely store and/or promptly remove attractants associated with livestock operations (e.g., livestock carcasses, livestock feed, etc.). Current levels of grazing intensity in forested environments are not displacing grizzly bears in significant ways and are not likely to affect vegetation structure enough to result in direct competition for forage species on public lands within the NCDE, as evidenced by the increasing population trend in the NCDE.

In the NCDE, most livestock depredations by grizzly bears occur on sheep or young cattle. While grizzly bears frequently coexist with large livestock such as adult cattle without preying on them, when grizzly bears encounter smaller animals such as calves, domestic sheep, goats, or chickens, they will often

attack and kill them (Jonkel 1980; Knight and Judd 1983; Orme and Williams 1986; Anderson et al. 2002). Honeybees, classified as livestock in Montana (MCA 15-24-921), can also be attractants to some grizzly bears. If repeated depredations occur, managers may relocate bears or remove them from the population. As such, areas with domestic livestock have the potential to become population sinks (Knight et al. 1988). Because of the increased risk to grizzly bears posed by actions taken to protect sheep and other small livestock, the IGBC Guidelines emphasized the reduction of these types of allotments. In contrast, there are a number of permitted grazing operations for horses and mules in the NCDE, primarily on National Forest land and generally associated with outfitter and guide operations or Forest Service administrative use. There is no evidence of conflict with bears due to attractants, depredation, or forage competition related to these horse and mule permits.

A number of regulations and practices related to livestock allotments while grizzly bears are listed as threatened under the ESA promoted grizzly bear recovery through minimization of bear-livestock and related bear-human conflicts. These include but are not limited to:

- Forest Plan standards that require prioritization of wildlife concerns over other resource uses in grizzly bear habitat
- Clauses in grazing permits providing for the cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly conflict situation
- Reduction of the number of open and active sheep grazing allotments when opportunities with willing permittees arise
- Reduction in the potential for grizzly-human conflicts due to livestock food, carcasses, and poor or inadequate livestock management practices through implementation and enforcement of Attractant Storage rules, which require bear-resistant storage of all livestock food and reporting of all livestock carcasses within 24 hours of discovery.
- Use of the IGBC Guidelines to reduce livestock impacts to important grizzly bear habitats
- Use of the IGBC Guidelines for management of grizzly bear-livestock conflict situations
- Stratification of National Forest (NF) lands into Management Situations with specific recommendations for livestock conflict management

Most of these measures would carry forward either directly or indirectly under delisted status through this Conservation Strategy and associated management plans. Furthermore, it will be illegal for a member of the public to kill a grizzly bear to protect livestock unless it is “in the act” of attacking or killing livestock, as evidenced by an injured or dead animal.

### **Vegetation Management and Cover**

Vegetation management occurs throughout the NCDE on lands managed by the US Forest Service, GNP, Montana DNRC, BLM, the Flathead Indian Reservation (FIR), the BIR, MFWP, and both corporate and small private lands. Vegetation management projects typically include timber harvest, thinning, prescribed fire, and salvage of burned, diseased, or insect-infested stands. Nearly 68% of the PCA is unavailable for general, commercial timber harvest through Federal or Tribal designations.

The relative importance of cover to grizzly bears was documented by Blanchard (1978) in a four-year study in the Greater Yellowstone ecosystem. Blanchard found grizzly bears needed an interspersed of open areas to be used as feeding sites and nearby areas with cover. Similarly, grizzlies in the NCDE thrive in landscapes with numerous different habitat types, including those with cover and those without (Aune and Kasworm 1989; Mace et al. 1997; Waller and Mace 1997), but generally prefer to forage in areas with some type of hiding cover nearby, particularly in daylight hours. If not implemented properly, vegetation management programs can negatively affect grizzly bears by (1) removing cover; (2) disturbing or displacing bears from habitat during the logging period; and (3) increasing human/grizzly bear conflicts or mortalities as a result of unsecured attractants; (4) increasing mortality risk or displacement due to new roads into previously roadless areas and/or increased vehicular use on existing restricted roads, especially if roads are open to the public after vegetation management is complete.

Conversely, vegetation management may result in positive effects on grizzly bear habitat once the project is complete, provided key habitats such as riparian areas and known food production areas are maintained or enhanced. For instance, tree removal for thinning or timber harvest and prescribed burning can result in localized increases in bear foods through increased growth of grasses, forbs and berry-producing shrubs (Zager et al. 1983; Kerns et al. 2004). Vegetation management may also benefit grizzly bear habitat by controlling undesirable invasive species, improving riparian management, and limiting livestock grazing in important food production areas.

Changes in the distribution, quantity, and quality of cover are not necessarily detrimental to grizzly bears as long as they are coordinated on a grizzly BMU or subunit scale to ensure that grizzly bear needs are addressed throughout the various projects occurring on multiple jurisdictions at any given time. Although there are known, usually temporary impacts to individual bears from timber management activities, these impacts have been managed acceptably using the IGBC Guidelines in place since 1986 (USFS 1986). Under these Guidelines, the grizzly bear population increased and recovered by following these two guiding principles: (1) maintain and improve habitat and (2) minimize the potential for grizzly bear/human conflict.

### **Mineral and Energy Development**

Mineral and energy development have the potential to directly and indirectly affect grizzly bears and/or their habitat. For the purposes of this Conservation Strategy, mineral development refers to surface and underground hardrock mining and coal production whereas energy development refers to the production of oil and natural gas. As with vegetation management, the primary concerns are related to increased grizzly bear mortality risk from associated motorized use, habituation, and/or increased grizzly bear/human encounters and conflicts. Other impacts may include permanent habitat loss, habitat fragmentation, and displacement due to surface disturbance.

Mortality risk will be largely mitigated through motorized access standards, food storage requirements, and other habitat standards described in Chapter 3. Additionally, being designated a “sensitive species” on BLM, USFS, and DNRC lands ensures a higher level of scrutiny for future projects within the NCDE so that “viable populations” can be maintained “throughout their geographic ranges” (Forest Service

Manual 2672.32). To accomplish this objective, any project proposed on Forest Service, BLM, or DNRC lands would require a biological evaluation to analyze the effects on the population or habitat within the area of concern and the activity “must not result in loss of species viability or create significant trends toward Federal listing.” (Forest Service Manual 2670-32).

While land management plans identify large areas considered “suitable” for oil and gas production, site-specific environmental analyses and mitigation measures occur at the project level. This environmental analysis involves two separate NEPA (or MEPA on State lands) processes. A NEPA process (or MEPA) is initiated when the decision is made to offer certain lands for leasing. Stipulations that would be required in order for leases to meet requirements of land and resource management plans, or to meet other policy or regulation, are identified when the decision is made to offer lands for lease. These stipulations remain with the lease even if it is sold, and would be placed on any leases issued for that area in the future. A second, site-specific NEPA analysis is completed if, and when, a lease holder submits an application for a permit to drill. At this point, site-specific mitigation measures are incorporated to address any environmental concerns associated with the surface use plan of operations. These mitigation measures may be incorporated as additional lease stipulations or as conditions of approval for the surface use plan. Until this application for a permit to drill is submitted, no exploration or development can occur.

In 1997, the Lewis and Clark National Forest decided to make the entire Rocky Mountain Ranger District unavailable for future leasing. In 2006, lands outside of Designated Wilderness Areas on the Rocky Mountain Ranger District, some areas of the Flathead National Forest, and BLM lands along the Rocky Mountain Front were withdrawn permanently from any future mineral, oil, natural gas, or geothermal leasing and all forms of location, entry and patent under mining laws, by Public Law 109-432, the Tax Relief and Health Care Act of 2006 (Figure 3). It was not necessary to withdraw lands inside Designated Wilderness Areas from future leasing because new leases are already prohibited by the Wilderness Act in these areas.

While Public Law 109-432 prohibited the establishment of new leases, it did not eliminate leases that existed at the time the law was passed. Many leases on Federal lands that existed at the time Public Law 109-432 was passed have been voluntarily retired. As of 2012, there were 247 oil and gas leases in the PCA and another 140 in Management Zone 1. Over 94% (365 of 387) of these leases are on USFS lands, with 88% (339 of 387) of them on the Flathead NF. Of the 247 existing leases inside the PCA, 235 are currently suspended, pending Forestwide leasing analyses (the first of two NEPA/MEPA processes described in the previous paragraph). Similarly, 87% (122 of 140) of the oil and gas leases in Zone 1 are on USFS lands, with 98% (119 of 122) currently suspended. Regional priorities for initiating the NEPA/MEPA process for these leases are based on available funding for analysis, public demand for action, and/or applications for permits to drill on existing leases.

Of the 247 oil and gas leases inside the PCA, nine lease holders have submitted Applications for Permit to Drill (APDs) to the BLM, one of which is on private lands. There have been 11 APDs submitted in Zone 1, only 3 of which are on USFS lands. The APDs include surface use plans of operation, which will require

evaluation and analysis in compliance with NEPA and this Conservation Strategy. No action is currently being taken on these APDs pending decisions on funding and work priorities.

Stipulations included in existing leases would not be changed without agreement by lease holders, nor can additional stipulations be added to existing leases. Additional mitigations that may be needed to address environmental concerns, land and resource management plan requirements, or other policy or regulation would be included as conditions of approval of surface use plans of operation when permits to drill are issued. The majority of existing leases already contain stipulations that address maintaining grizzly bear security through such things as limits on timing or location of specific activities. When or if APDs are submitted on existing leases, the access standards as described in this document for the PCA would apply unless specific language in a lease superseded that requirement.

There have been several proposals before the Canadian government for large-scale industrial coal and gas developments in the upper North Fork Flathead River basin in British Columbia directly north of and upstream from Glacier National Park and the Flathead National Forest. If these proposals were fully implemented there could be significant impacts on grizzly bear connectivity between the NCDE and contiguous grizzly populations in Canada north of Canadian Highway 3. On February 18, 2010, the B.C. Premier announced that mining, oil, gas, and coal development were no longer permissible land uses in the Canadian portion of the North Fork Flathead River (British Columbia Office of the Premier 2010).

As with oil and gas, Public Law 109-432 made lands outside of Designated Wilderness Areas on the Rocky Mountain Ranger District of the Lewis and Clark National Forest, some areas of the Flathead National Forest, and BLM lands along the Rocky Mountain Front unavailable to future location and entry under the General Mining Act of 1872. While this law prohibited the establishment of new claims, it did not eliminate claims that existed at the time the law was passed. However, there are no Plans of Operation or Notices of Intent to explore or operate any commercial mines inside the PCA on National Forest or BLM lands, with one exception: the Cotter Mine on the Helena NF. There is some copper and silver exploration occurring at this mine but activity is low and mitigation measures to protect grizzly bears were included in the Plan of Operation (Shanley 2009). This Conservation Strategy ensures that appropriate mitigation measures will continue to be implemented in any future Plans of Operation inside the PCA.

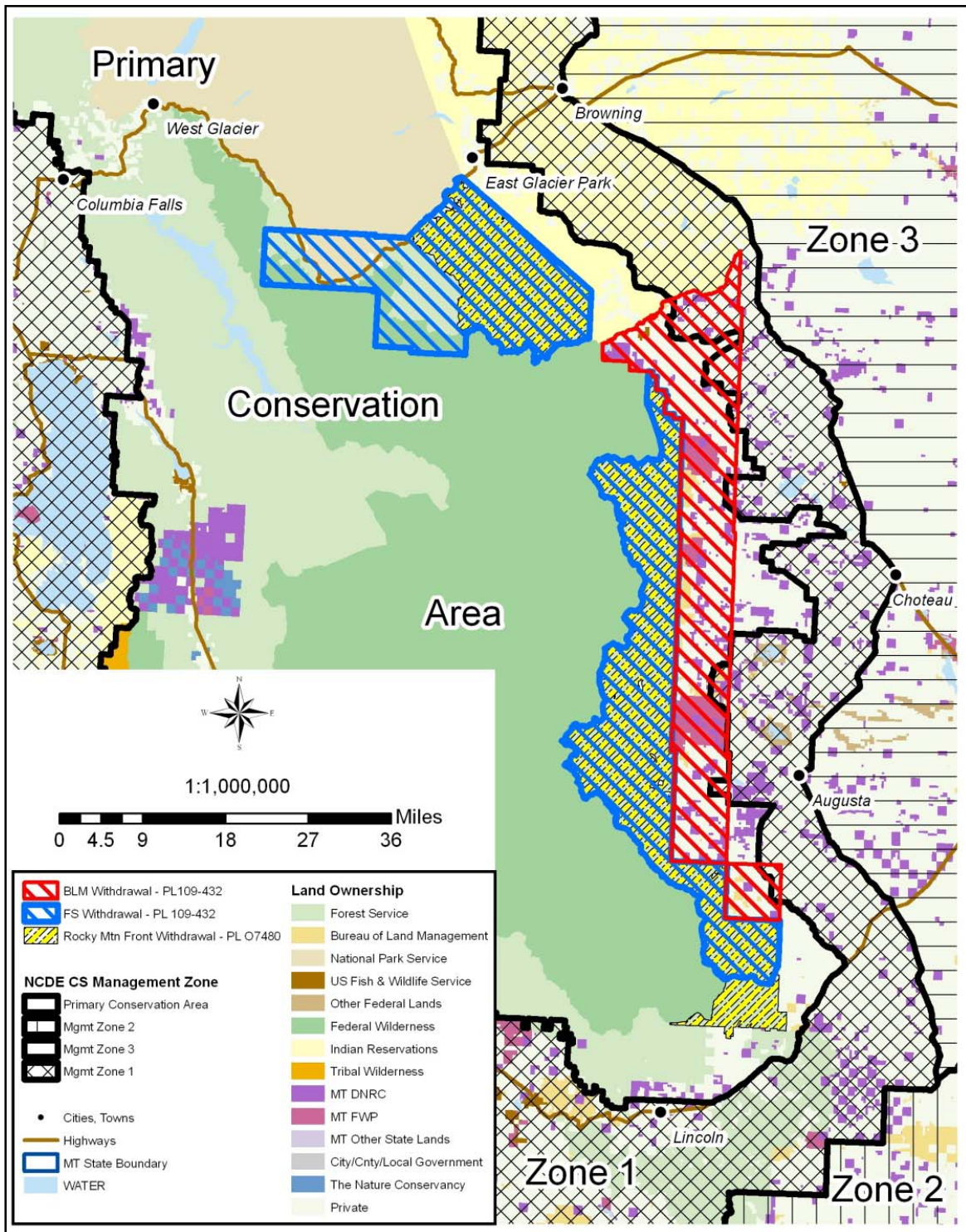


Figure 3. Rocky Mountain Front Mineral Withdrawal Area, where no new energy leases or mineral claims may be made on USFS or BLM managed lands.



## Climate Change

Climate change may result in a number of changes to grizzly bear habitat, including a reduction in snowpack levels, shifts in denning times, shifts in the abundance and distribution of some natural food sources, and changes in fire regimes. Most grizzly bear biologists in the U.S. and Canada do not expect habitat changes predicted under climate change scenarios to directly threaten grizzly bears (Servheen and Cross 2010). These changes may even make habitat more suitable and food sources more abundant. However, these ecological changes may also affect the timing and frequency of grizzly bear/human interactions and conflicts (Servheen and Cross 2010). In this Conservation Strategy, the **denning season** is considered to be December 1- April 1 west of the continental divide and December 1- April 15 east of the continental divide. These dates will be adjusted if 10-year average den emergence data for females or females with offspring shows a shift of at least a week.

The hydrologic regime in the northern Rockies has changed with global climate change, and is projected to change further (Bartlein et al. 1997; Cayan et al. 2001; Leung et al. 2004; Stewart et al. 2004; Pederson et al. 2011). The western U.S. will likely experience milder, wetter winters with warmer, drier summers and an overall decrease in snowpack (Leung et al. 2004). While some climate models do not demonstrate significant changes in total annual precipitation for the western U.S. (Duffy et al. 2006), an increase in “rain on snow” events is expected (Leung et al. 2004; McWethy et al. 2010). The amount of snowpack and the timing of snowmelt may also change, with an earlier peak stream flow each spring (Cayan et al. 2001; Leung et al. 2004; Stewart et al. 2004). Although there is some disagreement about changes in the water content of snow under varying climate scenarios (Duffy et al. 2006), reduced runoff from decreased snowpack could translate into decreased soil moisture in the summer (Leung et al. 2004). However, Pederson et al. (2011) found that increased spring precipitation in the northern Rocky Mountains is buffering total annual stream flow thus far from these expected declines in snowpack.

Because timing of den entry and emergence is at least partially influenced by food availability and weather (Craighead and Craighead 1972; Van Daele et al. 1990), less snowpack would likely shorten the denning season as foods become available later in the fall and earlier in the spring. In the GYA, Haroldson et al. (2002) reported later den entry times for male grizzlies corresponding with increasing November temperatures from 1975 to 1999. This increased time outside of the den could increase the potential for conflicts with humans (Servheen and Cross 2010).

Climate change could create temporal and spatial shifts in grizzly bear food sources (Rodriguez et al. 2007). Changes in plant community distributions have already been documented, with species’ ranges shifting further north and higher in elevation due to environmental constraints (Walther et al. 2002; Walther 2003; Walther et al. 2005) or outbreaks of insects or disease (Bentz et al. 2010). Decreased snowpack could lead to fewer avalanches thereby reducing avalanche chutes, an important habitat component to grizzlies, across the landscape. However, increases in “rain on snow” events may decrease the stability of snowpack resulting in increases in avalanches. Changes in vegetative food distributions also may influence other mammal distributions, including potential prey species like ungulates. While the extent and rate to which individual plant species will be impacted is difficult to foresee with any level of confidence (Walther et al. 2002; Fagre et al. 2003), there is general consensus

that grizzly bears are flexible enough in their dietary needs that they will not be impacted directly by ecological constraints such as shifts in food distributions and abundance (Servheen and Cross 2010).

Fire regimes can affect the abundance and distribution of some vegetative bear foods (e.g., grasses, berry producing shrubs) (LeFranc et al. 1987). For instance, fires can reduce canopy cover which usually increases berry production. However, on steep south or west aspects, excessive canopy removal due to fires or vegetation management may decrease berry production through subsequent moisture stress and exposure to sun, wind, and frost (Simonen 2000). Fire frequency and severity may increase with late summer droughts predicted under climate change scenarios (Nitschke and Innes 2008; McWethy et al. 2010). Increased fire frequency has the potential to improve grizzly bear habitat, with low to moderate severity fires being the best. For example, fire treatment most beneficial to huckleberry shrubs is that which results in damage to stems, but does little damage to rhizomes (Simonen 2000). High intensity fires may reduce grizzly bear habitat quality immediately afterwards by decreasing hiding cover and delaying regrowth of vegetation but Blanchard and Knight (1996) found that increased production of forb foliage and root crops in the years following the high intensity, widespread Yellowstone fires of 1988 benefited grizzly bears. We do not anticipate altered fire regimes will have significant negative impacts on grizzly bear survival or reproduction in the NCDE, despite its potential effects on vegetation.

### **Habitat Connectivity**

One way to mitigate potential impacts from climate change is through well-connected populations of grizzly bears in the NCDE, Canada, and the lower-48 States. Connectivity among grizzly populations also mitigates genetic erosion and increases resiliency to demographic and environmental variation. This Conservation Strategy envisions the NCDE serving as a “source population” for grizzly bear populations in the Cabinet-Yaak, Bitterroot, and Greater Yellowstone ecosystems. Maintaining habitat connectivity between these areas would benefit multiple wildlife species and would be consistent with the USFWS Grizzly Bear Recovery Plan (USFWS 1993, pp. 24-25), the Grizzly Bear Management Plan for Western Montana (Dood et al. 2006, pp. 54-56), the Grizzly Bear Management Plan for Southwestern Montana (MFWP 2002, p. 44), the interagency statement of support for the concept of linkage zones signed by the state wildlife agencies in Montana, Washington, Idaho, and Wyoming and the USFS, USFWS, USGS, NPS, and BLM (IGBC 2001), and the Western Governors’ Association Resolution 07-01 (2007). Although connectivity to the west and south would benefit other grizzly bear populations in the lower 48 States, it is not required for a healthy NCDE grizzly bear population because of this population’s large size and connectivity with populations in Canada.

Based on existing data, sighting records, and the observations of current bear managers, we identified areas outside of the PCA already supporting low levels of grizzly bears to serve as connectivity areas to adjacent ecosystems. Two of these areas are within Management Zone 1 (the Salish and Ninemile DCAs) while the third area is all of Management Zone 2. The two DCAs in Zone 1 would be managed to allow female grizzly bear dispersal to other recovery ecosystems whereas Zone 2 would be managed to allow the dispersal of males (or females) to either the Greater Yellowstone or possibly the Bitterroot ecosystem.

Although lacking the large blocks of Wilderness Areas and National Parks that provide secure habitat to support dense populations of grizzly bears in the PCA, the DCAs will support lower densities of grizzly bears, and many reproductive females have already been documented in these areas. Because both DCA's contain human population centers and rural private lands, it is not expected, nor is it necessary, for grizzly bears to occupy these areas in high densities. As such, less rigorous habitat protections are appropriate. Therefore, management in the DCA's will focus on reducing risk of human-caused mortality and minimizing erosion of habitat security.

Similarly, Zone 2 will support lower densities of grizzly bears than the PCA because it lacks the large, contiguous Wilderness Areas and National Parks that support more dense populations in the PCA. Mortality risk in these areas will likely be higher due to greater human activities and presence than in the PCA but wary bears will be able to live in low densities in these areas, as demonstrated by the confirmed presence of several different males in Zone 2 already. Mortality risk and grizzly bear/human conflicts will be minimized through food storage orders on public lands and the current Forest Plan direction for managing the multiple Inventoried Roadless Areas, Wilderness Areas, and Wilderness Study Areas in Zone 2.

### **Private Land Development**

Human population growth in Montana is expected to result in increased recreational use and increased residential development in important wildlife habitat adjacent to public lands. This increased human presence and residential development can result in loss of wildlife habitat, habitat fragmentation, and increases in grizzly bear/human conflicts, which can result in higher bear mortality rates. Activities associated with permanent human presence often result in management actions that adversely impact bears. Many of these activities occur on or are associated with private lands. Private lands account for a disproportionate number of bear deaths and conflicts.

The impacts of private land development on grizzly bears may be mitigated and minimized through appropriate residential planning, outreach and education about avoiding conflicts, tools and infrastructure that prevent conflicts (e.g., bear resistant trash containers and electric fencing for bee hives and chicken coops), and assistance in managing conflicts when they do occur. To assist counties and developers with residential development plans, MFWP developed a comprehensive GIS planning tool that identifies "Crucial Areas" for wildlife connectivity throughout the State. MFWP also developed the "[Fish and Wildlife Recommendations for Subdivision Development in Montana: A Working Document](#)" (MFWP 2012). This document describes how to mitigate the potential impacts of new private land development on wildlife, including bears. Management agencies have devoted significant efforts toward private landowner outreach programs to minimize grizzly bear/human conflicts and to manage bears and potential conflict situations on such sites, and are committed to continuing those efforts. MFWP, the Confederated Salish and Kootenai Tribes, and the Blackfeet Nation employ bear management specialists to manage and prevent grizzly bear/human conflicts on private lands. Similarly, the USDA Forest Service and National Park Service employ bear rangers, and recreation technicians to work with recreational users and owners of residences on the forests to minimize conflicts.

## Chapter 2 – Demographic Criteria

To maintain a healthy (recovered) grizzly bear population in the NCDE, it is necessary to have adequate numbers of bears that are well distributed with a balance between reproduction and mortality. This section details the demographic criteria necessary to maintain and enhance a recovered grizzly bear population in the NCDE. The standards and monitoring protocol focus on the Recovery Zone and the area immediately around it identified in this Conservation Strategy as the NCDE Primary Conservation Area (PCA) and Management Zone 1 (Zone 1) respectively. Because grizzly bears are a difficult species to monitor, multiple criteria are identified to provide sufficient information upon which to base management decisions.

Intensive information has been generated in the NCDE about the status of the population. These data indicate that the demographic and distribution criteria, as outlined in the Revised *Grizzly Bear Recovery Plan* (USFWS 1993) have been greatly surpassed. Agencies responsible for management will continue their commitment to careful population monitoring and data collection to demonstrate that a healthy and biologically viable population is being maintained.

Under this Conservation Strategy, all known and probable human-caused mortalities, a calculated number of unknown/unreported mortalities, and all natural mortalities will be monitored and reported annually in the PCA and in all three Management Zones (see Figure 1), but the mortality standards will only apply in the PCA and Zone 1. All reports of females accompanied by young of any age will be reported in the PCA and Zone 1 but will only be used for the occupancy standard inside the PCA (currently the Recovery Zone).

### COMMENTS ABOUT THE ISSUE OF UNCERTAINTY

All wildlife management and conservation entails recognizing and accommodating a certain level of uncertainty. In fact, uncertainty is pervasive through all management constructs, from uncertainty around identifying social and conservation desires, establishing population goals and objectives, to measuring population parameters. At each level, point estimates are accompanied by other possible values. Sometimes, uncertainty can be explicitly identified and measured, then incorporated into models. In other cases, we don't know what we don't know, but the uncertainty remains nonetheless. Despite our recognition that uncertainty exists, the need for action remains. Being unsure does not relieve us of responsibility to act to conserve and manage wildlife. Because grizzly bears are long-lived, slow-reproducing, and inherently rare, it is difficult to get enough data to accurately estimate population parameters. As data accumulates over time, estimates become more reliable, but this can take many decades. Key uncertainties in these demographic management standards are the wide confidence intervals around  $\lambda$ <sup>1</sup> and survival. As of 2012, point estimates of  $\lambda$  and survival indicate that the population is increasing 3% ( $\lambda = 1.03$ ) annually, and that survival is over 95% for adult females. However, if one were to apply the lower or upper confidence limits around these estimates, the

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<sup>1</sup> Lambda symbolized by the Greek letter  $\lambda$  denotes the long-term intrinsic growth rate of a population. Lambda greater than 1 indicates an increasing population,  $\lambda = 1$  indicates a stationary population, and lambda less than 1 indicates a decreasing population. Thus,  $\lambda = 1.02$  equates to a population growing at 2% per year while  $\lambda = 0.97$  equates to a population declining at 3% per year.

population would appear to be either catastrophically falling or wildly erupting. These are the limits of the confidence intervals because they are statistically less likely. The point estimates are the 'best approximation of reality' statistically, so that is what we plan to use to make management decisions. To further control for uncertainty, other lines of evidence are used to temper the limits of confidence. These other lines of evidence include monitoring the distribution of breeding females and female mortality across the landscape, measuring range expansion, and exploring and applying alternative methodologies, for example using DNA collected from bear rub trees. Convergent results from independent methodologies and observations improve confidence in predictions of future population performance.

Grizzly bear recovery in the NCDE has been achieved without any reliable method for measuring demographic performance. Only recently have we been able to measure population size and trend across the NCDE. The key population management element that allowed recovery was conservative habitat and mortality standards. The grizzly population has recovered to the point where managers can afford to be less conservative than in the past, however, in light of the uncertainty around population performance, standards will continue to be conservative. Under conservative management regimes, the population may decline over certain intervals of time, but not quickly, and observed declines will be balanced against periods of population increase.

### **Management Zones and Their Objectives**

The area this Conservation Strategy applies to stretches from central Montana to the western edge of the NCDE, within which there are three different Management Zones outside of the PCA (Figure 1 – p. 6, Chapter 1).

The PCA and Zone 1 comprise the area within which habitat and population management will be most protective of grizzly bears. They are over 10.5 million acres (42,605 km<sup>2</sup>; 16,450 mi<sup>2</sup>) including 28% private, 42% USFS, 11% tribal, 9.4% GNP, 9.6% other).

Zone 2 is the area managed for genetic connectivity between the NCDE and the Yellowstone. It is over 4.5 million acres (18,855 km<sup>2</sup>; 7,280 mi<sup>2</sup>), and is predominantly privately owned (63% private; 25% USFS; and 12% other ownerships).

Zone 3 is the area where grizzly bear occupancy occurs. Grizzly bear occupancy will not be encouraged in this area, but bears that occur here will not be actively removed unless they are causing problems. This area is over 12 million acres (49,202 km<sup>2</sup>; 18,997 mi<sup>2</sup>), and is 78% private; 9% USFS; 4% Tribal; and 9% other ownerships.

The demographic standards for population trend, survival and mortality will be monitored and maintained within the PCA and Zone 1. Grizzly bear mortalities occurring in Zone 2 or Zone 3 will not be counted against the NCDE survival standards as these areas are not necessary to maintain a recovered

grizzly bear population in the NCDE. Federal public lands within Zone 2 will be managed to provide the opportunity for grizzly bears to move between the NCDE and adjacent ecosystems (e.g., the Yellowstone) through implementing Food Storage Orders and emphasizing outreach and education, conflict response, and management when necessary. Zone 3 includes peripheral areas where the feasibility of long-term occupancy and viability of grizzly bears is less than in Zones 1 and 2 because of the large extent of private agricultural lands. It is expected that grizzly bears will occasionally use or occupy areas within Zone 3. Grizzly bear management in Zone 3 will consist of primarily minimizing bear/human conflicts.

While this Conservation Strategy aims to demonstrate a clear commitment to establish the NCDE as a source population to the Greater Yellowstone, Bitterroot, and Cabinet-Yaak grizzly bear recovery ecosystems, such connectivity is not required for the health or recovery of the NCDE population because of its large size and connectivity with Canadian populations. This Conservation Strategy allows the opportunity for movement between the NCDE and other ecosystems and in doing so, is consistent with the revised USFWS Grizzly Bear Recovery Plan (USFWS 1993), the Grizzly Bear Management Plan for Western Montana (Dood et al. 2006), and the Grizzly Bear Management Plan for Southwestern Montana (MFWP 2002).

## POPULATION MANAGEMENT

Management and monitoring protocols for this population will focus on ensuring a recovered population is maintained and ensuring that demographic standards for the Conservation Strategy are being achieved. Additional monitoring or research may be conducted as determined by the NCDE Coordinating Committee.

### Objectives of Population Management in this Conservation Strategy

This Conservation Strategy sets an objective of maintaining a recovered grizzly population in the NCDE area sufficient to maintain a healthy population in biologically suitable habitats within the PCA and Zone 1. This Conservation Strategy sets management goals, which may not necessarily be measurable. It includes demographic standards, which are objective and measurable criteria of population status and health.

### Demographic and Genetic Management Goals:

- Maintain a population with genetic diversity. This can be accomplished by maintaining a minimum of 400 grizzly bears (400 is the population size required for an isolated grizzly population to maintain a minimal loss of genetic diversity over time (see Miller and Waits (2003)). Note that the NCDE population is not currently an isolated population.
- Maintain a demographic and genetic connection with Canada.

**Management Goals**  
These are the overall desired outcomes of the management agencies regarding the status and distribution of the population. These goals are difficult to quantify because monitoring methods may be extremely expensive or invasive.

- Maintain a minimum of 800 grizzly bears in the PCA and Zone 1 to achieve dispersal and connectivity goals<sup>2</sup>.
- Maintain demographic linkage opportunities to the west and south toward the Cabinet/Yaak and Bitterroot ecosystems.
- Maintain genetic linkage opportunities between the NCDE south toward Yellowstone with consistent grizzly bear presence in these intervening areas.

### **Demographic Standards:**

#### Standard 1: Maintain a well-distributed population.

Adherence to this standard is determined by the presence of reproductive females in at least 21 of 23 BMUs at least once every six years (see Figure 2). A reproductive female is a bear accompanied by young (cubs, yearlings, or 2-year-old offspring). If this distribution standard is not met, then a management review<sup>3</sup> will be completed.

#### Demographic Standards

These are objective and measurable criteria that will be monitored and reported annually. If any demographic standard is not met, it requires a management review as described in the Implementation Chapter.

#### Standard 2: Manage for survival of independent females generally > 0.90 in the PCA and Zone 1.

Generally, independent females will be managed so that each of the consecutive 6-year estimates of their survival is  $\geq 0.90$ . Survival of independent females will be calculated and reported annually using the most recent 6 years of survival data from known-fate monitoring (Appendix 1). If independent female survival estimates remain  $\geq 0.90$ , no management review is warranted. If annual independent female survival estimates are between 0.89 and 0.90 for the 12 most recent annual (using the most recent 6 years of survival data from known-fate monitoring) estimates, then all discretionary mortality will be curtailed until a management review is completed. If independent female survival estimates are between 0.88 and 0.89 for the 10 most recent annual estimates (using the most recent 6 years of survival data from known-fate monitoring data), then all discretionary mortality will be curtailed until a management review is completed. If independent female survival estimates are between 0.87 and 0.88 for the eight most recent annual (using the most recent 6 years of survival data from known-fate monitoring data), then all discretionary mortality will be curtailed until a management review is completed. If independent female survival estimates are  $< 0.87$  for the five most recent annual estimates (using the most recent 6 years of survival data from known-fate monitoring) then all discretionary mortality will be curtailed until a management review is completed. Examples of the effects of different survival rates on population growth and the application of this standard can be seen in Tables 2 and 3.

<sup>2</sup> On the northwest and southwest corners of Zone 1, there would be 2 Demographic Connectivity Areas (DCAs) with specific habitat protection measures to support dispersal to other ecosystems in the lower 48 States (i.e., the Cabinet-Yaak and Bitterroot ecosystems) (see Figure 1).

<sup>3</sup> If there are deviations from any of the population or habitat standards stipulated in this Conservation Strategy, a Management Review will be completed by an interagency team of scientists and outside experts as necessary, appointed by the members of the Coordinating Committee. See Chapter 5 for details about this process.

Table 2. Examples of the effects of different survival levels on the rate of population growth. Confidence intervals are not reflected in this table. For more information, see Harris in Appendix 2, Section C.

Survival rates from 6-years of data	Management review response	Mean Lambda from Harris Table 9 in Appendix 2
.89-.90	After the 12 <sup>th</sup> most recent 6-yr block (12 years)	1.002-1.009
.88-.89	After the 10th most recent 6-yr block (10 years)	0.992-1.002
.87-.88	After the 8th most recent 6-yr block (8 years)	0.983-0.992
<.87	After the 6 <sup>th</sup> most recent 6-yr block (6 years)	<0.983

Table 3. The 6-year survival estimates and how they have already started and will be available to apply the management review trigger criteria as per Table 2. For example, in 2014, 6-year survival interval 1 is available; in 2015 6-year interval 2 is available, etc. As an example of the application of the management review triggers, if independent female survival was between .89 and .90 for 12 consecutive 6-year intervals such as 2014-2025, a management review would be triggered. If, for another example, independent female survival was less than .87 for 6 consecutive 6-year intervals such as 2016-2021, then a management review would be triggered.

Intervals	Years 2009-2026																	
	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	X	X	X	X	X	1												
2		X	X	X	X	X	2											
3			X	X	X	X	X	3										
4				X	X	X	X	X	4									
5					X	X	X	X	X	5								
6						X	X	X	X	X	6							
7							X	X	X	X	X	7						
8								X	X	X	X	X	8					
9									X	X	X	X	X	9				
10										X	X	X	X	X	10			
11											X	X	X	X	X	11		
12												X	X	X	X	X	12	
13													X	X	X	X	X	13

Standard 3: Independent female mortality will not exceed 10% of the estimated number of independent females in either of the following two areas, whichever is reached first: 1) all independent females inside the PCA or Zone 1; and 2) all independent females excluding those whose annual home range is entirely within Glacier National Park (See Appendix 2, Section F). The average number of independent female mortalities from all causes, in the areas described above including grizzly bears dying from known and probable human-caused, natural, calculated unknown and unreported, and undetermined causes, will not exceed 10% of the projected population size of independent females estimated in either of the two areas described above whichever is reached first, as averaged over the most recent 6-year period (e.g.,



2006-2011, 2007-2012, and so on). Annual mortality reports will be used by population managers to determine maximum annual discretionary mortality.

Standard 4: Independent male mortality will not exceed 20% of the estimated number of independent males outside of Glacier National Park but inside the PCA or Zone 1 (see Appendix 2, Section D, Table 13). The average number of independent male mortalities outside of GNP but inside the PCA and Zone 1 from all causes, including grizzly bears dying from known and probable human-caused, natural, calculated unknown and unreported, and undetermined causes, will not exceed 20% of the projected population size of independent males outside GNP as averaged over the most recent 6-year period (e.g., 2006-2011, 2007-2012, and so on). Annual mortality reports will be used by population managers to determine maximum annual discretionary mortality.

### **Departure from Demographic Standards**

Departure from any of the demographic standards will trigger a management review by a review team appointed by the NCDE Coordinating Committee. Who completes a management review; the specifications of a management review; and what happens to the resulting report are stated in the implementation chapter. If a management review recommends changes in monitoring or management techniques these recommended changes would be based on the best available science and subject to public review before they were implemented.

### **Monitoring Protocol for the Demographic Standards**

Standard 1: Maintain a population well distributed with adult female reproduction documented in at least 21 of 23 BMUs (Figure 2) - Monitoring for distribution of family groups of grizzly bears will be accomplished by compiling verified sightings based on marked bears (radio-collared bears), aerial sightings from telemetry flights by MFWP grizzly bear specialists, verified sightings in Glacier National Park by Park staff, verified sightings by Tribal bear biologists and managers on the Confederated Salish and Kootenai and Blackfoot Indian Reservations, and records of bear/human conflicts. Additional occurrence records will be compiled through follow-up and validation of sighting and occurrence information from other non-agency sources when these can be validated. These records will be compiled and validation of occurrence information will be completed by MFWP. Validation of sightings will be done by evaluation of the credibility of each record and the origin of the record.

Standard 2: Manage for survival of independent females generally > 0.90 in the PCA and Zone 1. Generally, maintain a point estimate of independent female survival  $\geq .90$  averaged over the most recent 6-year period in the PCA and Zone 1. Independent female survival and population trajectory calculations will be accomplished annually using accumulated known fate radio telemetry data and the staggered-entry Kaplan–Meier method (Mace et al. 2012) or other appropriate methods. Radio-collared independent females will be distributed throughout the PCA and Zone 1. Survival and trajectory will be calculated for the most recent 6-year period to ensure adequate sample sizes for these estimates. The calculation of independent female survival will be done annually by the NCDE Monitoring Team led by

MFWP. The known fate monitoring system is described in Appendix 1. Background information specific to Standard 2 is given in Appendix 2.

Standards 3 and 4: Mortalities of independent females will be tallied and reported for the PCA and Zone 1, including Glacier National Park each year. Independent female mortalities will be reported for: 1) all independent females inside the PCA or Zone 1; and 2) all independent females excluding those whose annual home range is entirely within Glacier National Park (See Appendix 2, Section F). Independent male mortalities will be reported for: 1) all independent males inside the PCA and Zone 1; and 2) that portion of independent males outside of Glacier National Park but inside the PCA or Zone 1 (see Appendix 2, Section D, Table 13). Annual mortality reports of all bears (males and females) will include all mortalities from all causes including grizzly bears dying from known and probable human-caused, natural, calculated unknown and unreported, and undetermined causes. Mortalities of independent males and females will be tallied and reported for the entire Zone 1, including Glacier National Park each year. Mortality records will be collected and maintained by the NCDE Monitoring Team led by MFWP.

To calculate allowable male and female mortality, managers will use estimates of the population as extrapolated from estimates of lambda ( $\lambda$ ). Lambda will be calculated for the entire population inside the PCA and Zone 1 using the most recent 6 years of cumulative independent female survival and reproduction data as a 6-year running average. The values of lambda ( $\lambda$ ) for each successive 6-year time period will be estimated using standard deterministic demographic analyses of survival and reproduction, including estimates of sampling uncertainty. To ensure mortality doesn't exceed the male and female survival and mortality standards described above, annual discretionary mortality limitations will be developed using independent male and female mortality limits based on projected population size each year. These limits will be used by State and Tribal population managers when determining allowable discretionary mortality that will ensure the standards for survival and mortality are met. Background information specific to Standards 3 and 4 is given in Appendix 2.

Grizzly bears killed by collisions with vehicles on a highway completely within the Park (e.g., Going to the Sun Road) will be counted against the mortality limits inside GNP. If a bear is killed by a collision with a vehicle on a highway that is the boundary of GNP or Management Zone 1, it will be counted against the mortality limits outside GNP.

### **Hunting**

Regulated hunting that reflects the best available science, is adaptable to changing factors, is established in a public process, and is consistent with meeting the demographic standards in this Conservation Strategy may be one of the tools used to manage the recovered NCDE grizzly bear population.

## Chapter 3 – Habitat Management and Monitoring

### **HABITAT MANAGEMENT IN THE NCDE – OVERVIEW**

The Northern Continental Divide Ecosystem (NCDE) and surrounding lands to which this Conservation Strategy apply are divided into four management zones, each with varying importance to the grizzly bear population (Figure 1). Each management zone is a mosaic of land ownerships, with different types of habitat protections reflecting the mandates and interests of each agency or Tribal government. In general, the goal of habitat management in this Conservation Strategy is to provide reasonable assurance to the USFWS that habitat on public lands will continue to be managed at levels present when there was a stable to increasing grizzly bear population in the NCDE. Consistent with habitat management while listed as “threatened” under the ESA, this means that rigorous habitat protections will be institutionalized on most public lands inside the PCA while less stringent protections will be adequate in other management zones. Additionally, all projects on Forest Service, BLM, and DNRC managed lands that could affect the grizzly bear will continue to consider potential impacts to grizzlies through project and site-specific analysis as required under the National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA) through designation of the grizzly bear as a “sensitive species” upon delisting.

The Primary Conservation Area (PCA) will be managed as a source area where the goal is continual occupancy by grizzly bears. This is the area where the most rigorous habitat protections apply. Management Zone 1 is similar in concept to the 10-mile buffer around the Recovery Zone within which population data were recorded while listed under the ESA. Population and mortality data will be collected in all of the PCA and Zone 1. On the northwest and southwest corners of Zone 1, there will be two Demographic Connectivity Areas (DCAs) with specific habitat measures to support female occupancy and eventual dispersal to other ecosystems in the lower 48 States (i.e., the Cabinet-Yaak and Bitterroot ecosystems). In these DCAs, habitat protections will focus on limiting miles of open road and managing current roadless areas as stepping stones to other ecosystems. Management Zone 2 will be managed to provide the opportunity for grizzly bears, particularly males, to move between the NCDE and adjacent ecosystems (e.g., the GYA) via the multiple large blocks of habitat with motorized use restrictions that already exist as of 2011. Here, the management emphasis will be on conflict prevention and response. Management Zone 3 does not have enough suitable habitat to contribute meaningfully to the long-term survival of the NCDE population but grizzly bears are sometimes found here (see “GRIZZLY BEAR HABITAT MANAGEMENT”\_section in Chapter 1 for more details). In contrast to Zones 1 and 2, Zone 3 does not lead grizzly bears to other suitable habitat or recovery ecosystems. It was included as part of this Conservation Strategy because any grizzly bear found in Zone 3 to date has originated from the NCDE and this will likely remain the case for the vast majority of Zone 3.

### **ORGANIZATION OF THIS CHAPTER & LAND OWNERSHIP TABLES**

This chapter is organized by Management Zone, with a side header on each page indicating what zone the protections described on that page apply to: the PCA, Zone 1, Zone 2, or Zone 3. Within each management zone section, habitat features important to grizzly bears are listed, with protections from each agency or Tribal government provided afterwards. For Management Zones 2 and 3, land

ownership tables are provided but there are no habitat standards specifically related to grizzly bears described because the objectives in these zones do not require them (see section “DESCRIPTION OF THE MANAGEMENT ZONES” and “GRIZZLY BEAR HABITAT MANAGEMENT” sections in Chapter 1). Many standards and guidelines in the current GNP General Management Plan, Forest Plans, and BLM Resource Land Management Plans benefit grizzly bears (see Appendices 10, 11), even though they are related to other resource concerns (e.g., elk habitat security, riparian health, etc.). Food storage orders on most public lands in Zone 2 will be adequate to allow for low densities of male and female grizzly bears and that is sufficient to facilitate connectivity with other ecosystems in this management zone.

Each section begins with a land ownership table for that management zone. Each land ownership table also contains information about how many acres in each management zone are considered “protected lands” due to a management classification that restricts road construction, motorized use, livestock allotments, hardrock mine development, and timber harvest, or some combination thereof. Altogether, 5,251,918 acres (21,254 sq km) of lands within the PCA, Zone 1, Zone 2, and Zone 3 are considered “protected lands” in ways that benefit grizzly bears (i.e., some restrictions on motorized access and/or new road construction) (Figure 4). These “protected lands” are reported in the land ownership tables in three categories: Congressionally Designated Wilderness, Other wilderness, and Other non-motorized areas.

Congressionally designated Wilderness Areas are part of the National Wilderness Preservation System that was established by the Wilderness Act of 1964 (16 U.S.C. 1131–1136). The Wilderness Act provides protections from road construction, permanent human habitation, increases in developed sites, new livestock allotments, new mining claims, and new oil and gas leases. There is no motorized use allowed in Wilderness Areas and these areas will not experience decreases in habitat security. While the Wilderness Act allows livestock allotments existing before the passage of the Wilderness Act and mining claims established before January 1, 1984, to persist within wilderness areas, no new grazing permits or mining claims are allowed. If pre-existing mining or oil and gas claims are pursued, the plans of operation are subject to Wilderness Act restrictions on road construction, permanent human habitation, and developed sites.

Additionally, there are thousands of acres in the NCDE that are managed similarly to wilderness areas based on relevant forest and resource management plans but have not been designated as Wilderness Areas by an Act of Congress. These areas are reported as “Other wilderness” in the land ownership tables. Generally, these areas (e.g., Recommended Wilderness, Proposed Wilderness, Wilderness Study Areas, Research Natural Areas, etc.) possess wilderness characteristics and individual National Forests, BLM Field Offices, National Parks, or Tribal governments manage these areas to maintain these characteristics until Congress decides to make them Designated Wilderness Areas. These areas are protected from new road construction and thereby safeguarded from decreases in habitat security. Wheeled, motorized use is not allowed. Activities such as timber harvest, mining, and oil and gas development are much less likely to occur in these areas because the road networks required for these activities are unavailable.

Other areas with motorized use restrictions include Inventoried Roadless Areas, Tribal roadless areas, Tribal Primitive Areas, & some National Recreation Areas, depending on their specific management direction. All of these classifications contain restrictions on motorized use, new road construction, and timber harvest to varying degrees. The 2001 Roadless Areas Conservation Rule prohibits road construction, road re-construction, and timber harvest in Inventoried Roadless Areas on National Forest lands (66 FR 3244–3273, January 12, 2001). This restriction on road building makes mining activities and oil and gas production much less likely because access to these resources becomes cost-prohibitive or impossible without new roads. Potential changes in the management of these areas are not anticipated, but are a possibility due to ongoing litigation regarding the 2001 Roadless Rule. The Flathead Indian Reservation (FIR) Forest Management Plan, in effect until 2030, designated several roadless and primitive areas that are unavailable to forest management activities completely or only allow helicopter timber harvest. Finally, when Forest Plans contain restrictions on road construction and motorized use in their National Recreation Areas, these were considered “protected lands” in ownership tables.

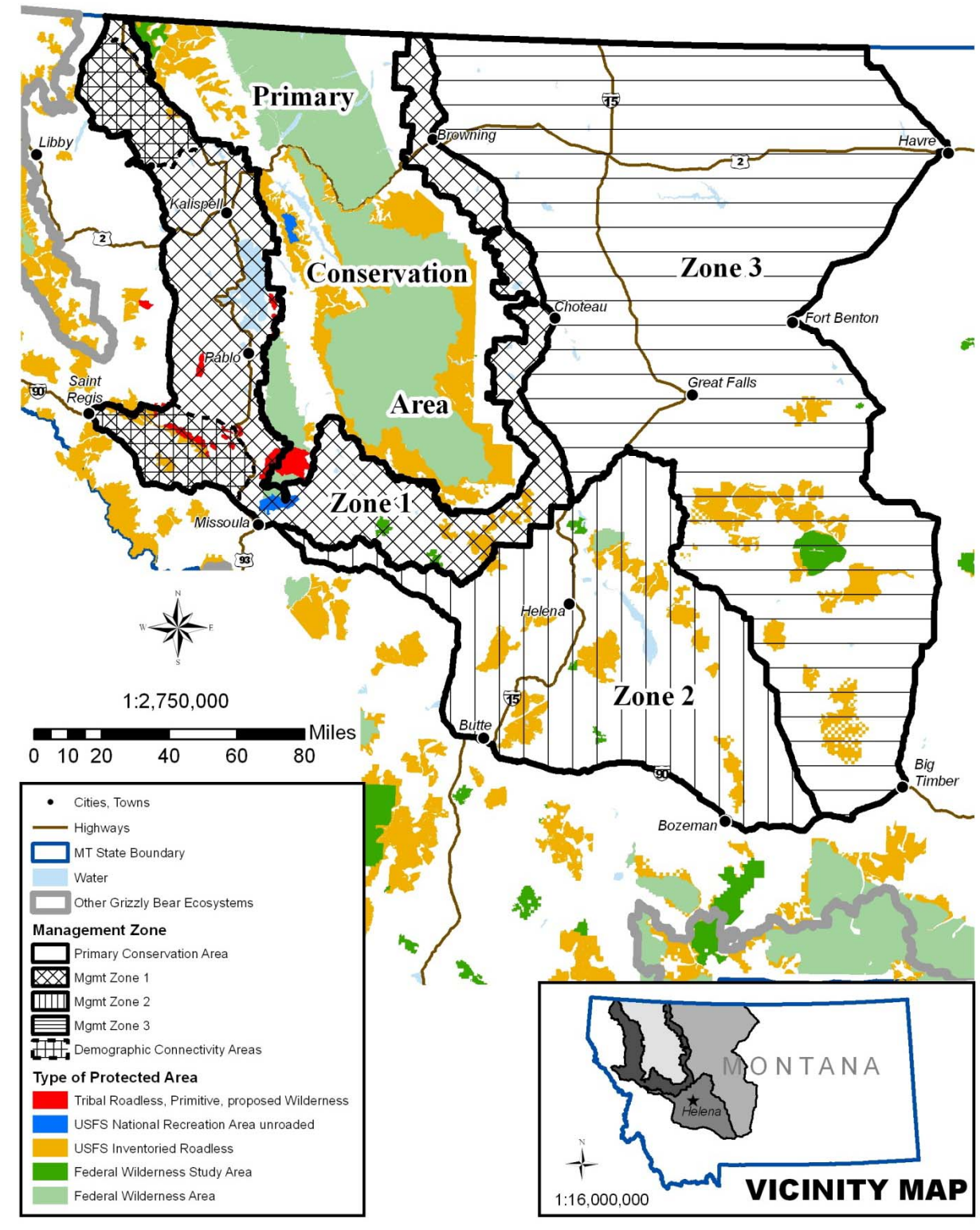


Figure 4. Map of “Protected areas” in the NCDE PCA and Management Zones

## **IMPLEMENTATION OF HABITAT STANDARDS**

The intent is to have signatories of this Conservation Strategy representing the land management agencies incorporate the habitat standards and guidelines described in this chapter into their respective management plans. **Standards** refer to mandatory constraints on project and activity decision making whereas **guidelines** are constraints that allow for departure from their terms, so long as the purpose of the guideline is met. Guidelines in this Conservation Strategy serve to mitigate and minimize undesirable effects to grizzly bears or their habitat. The National Forest and BLM Resource Management Plans, the Glacier National Park Superintendent's Compendium, the Montana Department of Natural Resources (DNRC) Habitat Conservation Plan, and the Tribal Forest Management Plans largely dictate how grizzly bear habitat management will occur, and, in doing so, they serve to ensure against excessive grizzly bear mortality by minimizing human-caused mortality risk. Because amending or revising management plans will require an analysis under NEPA for some agencies, the USFWS will not sign the Conservation Strategy until this NEPA process is complete and satisfactory to ensure grizzly bear conservation in the foreseeable future. Implementation of this Conservation Strategy and any associated Amendments to land management plans would not occur until the USFWS signed the Conservation Strategy's MOU and determined the grizzly bear in the NCDE either (a) no longer meets the definition of threatened or endangered under the Endangered Species Act or (b) if the USFWS amended the Grizzly Bear Recovery Plan (USFWS 1993) with the management direction described in this Strategy for the NCDE.

While National Forest and BLM Resource Management Plans and National Park Superintendent Compendiums direct management on these Federal lands, habitat management on the FIR, Blackfoot Indian Reservation (BIR), and State lands is guided by other, legally enforceable management plans already in place. On the FIR, habitat management is directed by the Tribes' Forest Management Plan, as authorized by the Tribal Council and the Bureau of Indian Affairs. Of the 1,373,451 acres (5,558 sq km) of lands within the FIR, 459,408 acres (1,859 sq km) are forested with management directed by the Forest Management Plan. This Plan is in effect until 2030 and, in unison with this Conservation Strategy, establishes habitat management direction relevant to grizzly bears on the FIR. Management of forested grizzly bear habitat on Blackfoot Tribal lands is implemented through the Blackfoot Nation's Forest Management Plan, as authorized by the Tribal Business Council and the Bureau of Indian Affairs. Of the 1,525,691 acres (6,174 sq km) of lands within the BIR, there are 174,963 forested acres (708 sq km) whose management is directed by the Blackfoot Nation Forest Management Plan, nearly all of which occur within the PCA or Management Zone 1. This Plan is in effect until 2023 and establishes habitat management direction relevant to grizzly bears on the BIR.

On DNRC lands, management direction and policies are largely driven by a legal requirement to generate revenue to support state schools and educational institutions. In 1889, the United States Congress approved the Enabling Act, which granted lands to the State of Montana for support of common schools. Initially, sections 16 and 36 in every township within the state were set aside. Some parcels were consolidated by the State to address lands previously homesteaded, or situated within Indian reservations. DNRC lands can occur in large blocks or small, isolated parcels, surrounded by private or public lands. The acreage of State trust lands in Montana totals about 5.1 million acres.

Management actions on State Trust lands are carried out under the direction of the State Board of Land Commissioners, which consists of Montana's top elected officials. In cooperation with the State Board of Land Commissioners, DNRC's obligation for management of trust lands is to obtain the greatest monetary returns for beneficiaries. In 2011, DNRC entered into a habitat conservation plan (HCP) with the USFWS to clarify obligations under the Endangered Species Act, and to provide long-term certainty for their timber management program. Conservation measures contained in the HCP were designed to avoid, minimize, and/or mitigate the impacts of incidental take as a result of timber harvest and related activities to the maximum extent practicable. Measures contained in the HCP that pertain to conservation of grizzly bears address vegetation management, unnatural foods, information education, habitat displacement, habitat security, access management, habitat connectivity, den sites, foraging areas and monitoring. The DNRC HCP is in effect until 2061 and will guide management of grizzly bear habitat across forested State trust lands in western Montana during that time (DNRC 2010; USFWS 2011) (<http://dnrc.mt.gov/HCP/Documents.asp>).

Ultimately, the effectiveness of the commitments in this Conservation Strategy, including the habitat protections, will be demonstrated by the response of the grizzly bear population relative to predicted responses. Habitat protections in this Conservation Strategy may be subject to revision in the future, if appropriate, based on the best available science. Changes to the Strategy could be recommended to the agencies by the NCDE Coordinating Committee (see Chapter 5 – Implementation). Any such changes to habitat management on Federal lands would be evaluated through the NEPA process.

## **PRIMARY CONSERVATION AREA (PCA)**

The primary land management entities responsible for habitat management in the PCA are the USFS, GNP, the Montana DNRC, the Blackfoot Nation on the BIR, and the Confederated Salish and Kootenai Tribes (CS&KT) on the FIR. Collectively, these entities manage 86% of lands within the PCA. Other resource management agencies in the PCA include the MFWP, the BLM, and the USFWS. By signing this Conservation Strategy, these entities have agreed to continue collectively managing grizzly bear habitat through ongoing actions and undertake the necessary processes to incorporate the habitat standards and monitoring items described herein into their respective management plans.

The most important issues in grizzly bear habitat management across a landscape are related to managing the types and levels of human activities. Human activities resulting in mortality were the main reasons the grizzly bear was listed as threatened in 1975. Since then, management of human activities has allowed the NCDE grizzly bear population to thrive. The key habitat features in the NCDE that are managed on the landscape to mitigate the impacts of human activities on grizzly bears are: (1) the amount and distribution of secure habitat, (2) motorized access route densities, (3) developed sites, (4) livestock allotments, (5) vegetation management practices, and (6) oil and gas and/or hardrock mining development. These are important features to consider because these activities can result in grizzly bear mortality and/or underuse of key habitat. For example, between 1998 and 2011, nearly 74% (157/213) of all known grizzly bear mortalities in the NCDE Recovery Zone occurred within 500m of a developed site or motorized route.



Of the more than 5.7 million acres (5,712,862 acres; 23,119 sq km) within the PCA, 61% is managed by the USFS across five different National Forests (the Flathead, Kootenai, Lewis and Clark, Helena, and Lolo National Forests); 17% is managed by Glacier National Park (GNP); 9% is privately owned or managed, and the remaining lands are managed by a variety of other agencies (Table 4). Nearly 68% of all lands inside the NCDE PCA are considered “Protected lands” in this Conservation Strategy because of their status as Congressionally designated Wilderness Areas (30%) or other non-motorized areas (38%) (Table 4, Figure 4).

Since 1986, the Interagency Grizzly Bear Guidelines (Guidelines) have shaped habitat management for grizzly bears on Federal lands in the PCA. These Guidelines (USFS 1986) focused on improving habitat quality and limiting human-caused mortality resulting from grizzly bear/human conflicts. The Guidelines used motorized access management as the primary habitat management tool and these restrictions were instrumental in recovery of the grizzly bear in the NCDE. To implement these Guidelines, Bear Management Units (BMUs) and subunits were identified to provide a basis for ensuring that adequate habitat for grizzly bears was well-distributed across the recovery zone (now known as the PCA). The recovery zone was divided into 23 BMUs and 126 BMU subunits (Figure 2). Because subunits are approximately the size of a female grizzly bear’s home range, they provide a suitable scale at which to analyze and regulate impacts of human activities within grizzly bear habitat.

Table 4. Land ownership and management within the NCDE Primary Conservation Area (PCA)<sup>1</sup>.

Ownership	Sub-category Acres	Acres	Sq Km	Percent of PCA
<b>US Forest Service</b>		3,480,415	14,085	60.9%
Flathead National Forest	2,133,638			
Helena National Forest	183,626			
Kootenai National Forest	118,538			
Lewis and Clark National Forest	776,096			
Lolo National Forest	268,516			
<b>Glacier National Park</b>		987,755	3,997	17.3%
<b>Other federal<sup>2</sup></b>		22,973	93	0.4%
<b>Blackfeet Indian Reservation</b>		254,731	1,031	4.5%
Tribally managed lands <sup>3</sup>	111,094			
Individual allotments <sup>4</sup>	142,730			
Other government	907			
<b>Flathead Indian Reservation, CS&amp;KT</b>		144,897	586	2.5%
Tribally managed lands <sup>3</sup>	143,750			
Individual allotments <sup>4</sup>	1,146			
<b>DNRC</b>		204,413	827	3.6%
<b>MFWP</b>		36,506	148	0.6%
<b>Total Private lands</b>		525,860	2,128	9.2%
Private land on the BIR	82,036			
Private land on the FIR	4,219			
All other Private lands	439,605			
<b>Water</b>		55,311	224	1.0%
<b>TOTALS</b>		<b>5,712,862</b>	<b>23,119</b>	
<b>PROTECTED AREAS WITHIN THE PCA</b>				
<i>Congressionally Designated Wilderness</i>		1,728,184	6,994	30.3%
<i>Other wilderness<sup>5</sup></i>		1,014,408	4,105	17.8%
<i>Restricted motorized-use areas<sup>6</sup></i>		1,125,291	4,554	19.7%

<sup>1</sup> Acres are based on GIS layers from several Federal and State sources, dated 1 July 2012, at the 1:100,000 scale. When these layers were not in agreement, efforts were made to identify the correct owner but there may still be some discrepancies.

<sup>2</sup> Includes BLM (20,691 acres), Bureau of Reclamation (85 acres), and the USFWS (2,197 acres)

<sup>3</sup> Tribal lands managed by the respective Tribes through coordination with the BIA and Council approved management plans

<sup>4</sup> Allotted lands managed by individual Tribal members through coordination with the BIA

<sup>5</sup> Other Wilderness includes areas managed to maintain their wilderness traits such as Wilderness Study Areas, Proposed Wilderness (GNP), and CS&KT Wilderness outside the Mission Mountains Tribal Wilderness

<sup>6</sup> Restricted motorized-use areas include Inventoried Roadless Areas, Tribal roadless areas, Tribal Primitive Areas (limited to Tribal member use only), & the Jewel Basin and Rattlesnake National Recreation Areas; all of which contain restrictions on new motorized use, new road construction, and timber harvest.

## SUMMARY OF HABITAT PROTECTIONS INSIDE THE PCA

Within the PCA, the overall goal for habitat management on public Federal lands is to maintain or improve habitat conditions that existed as of 2011, while maintaining options for resource management activities at approximately the same levels that existed in 2011. We propose using 2011 as the baseline year because the habitat conditions that existed on Federal lands in 2011 accommodated a grizzly bear population (approximately 942 animals) that was increasing at a rate of about 3% annually (Kendall et al. 2009; Mace et al. 2012; Mace 2012, personal communication). The habitat standards to maintain 2011 baseline values apply only to those lands under USFS, NPS, or BLM jurisdiction. Our intent would be to incorporate the following standards into GNP's Superintendent's Compendium, and National Forest and BLM Land and Resource Management Plans. If adopted, these standards would replace existing regulatory standards included in those land management plans.

### Habitat **Standards** on Public Federal lands in the PCA (78.6% of lands inside the PCA):

- no net decrease in 2011 levels of Secure Core (Appendix 3)
- no net increase in 2011 levels of open motorized route densities (Appendix 3)
- no net increase in 2011 levels of total motorized route densities (Appendix 3)
- limit the number of developed sites in each BMU to 2011 levels or less (Appendix 4)
- limit the capacity of overnight developed sites in each BMU to 2011 levels or less (Appendix 4)
- no net increase in the number of livestock allotments from 2011 levels
- no net increases in the capacity of sheep allotments from 2011 levels

On other public lands within the PCA, the goal is to institutionalize habitat protections that benefit grizzly bears while maintaining opportunities for resource use and development. The long-term nature of the plans guiding grizzly bear habitat management on DNRC, Blackfeet Nation, and CS&KT lands increases our certainty about how these State and Tribal lands will be managed in the foreseeable future.

### Habitat **Standards** on DNRC, Blackfeet Nation, and CS&KT lands in the PCA <sup>4</sup>:

- limits on net increases in open roads and/or road densities
- limits on net increases in total roads and/or road densities
- limits on the types and numbers of livestock allotments on DNRC & CS&KT lands

In addition to these habitat standards, there would be **guidelines** to minimize impacts to grizzly bears from vegetation management, grazing, and energy or mineral development on Federal and most State and Tribal lands. Trends in private land development and conservation easements would also be monitored. To assess the adequacy of food production and the types of foods grizzlies use across the landscape each year, we would monitor grizzly bear body condition and food habits using the most appropriate and available technology.

<sup>4</sup> Specific habitat protections on these different land ownerships vary but generally fall into the categories listed. Please see details in the Motorized Access Management, Livestock, and Vegetation Management sections below.

### MOTORIZED ACCESS MANAGEMENT ON FEDERAL LANDS<sup>5</sup>

In 1994 and again in 1998, the Interagency Grizzly Bear Committee chartered a task force to evaluate State and Federal procedures for analyzing the effects of motorized access management on grizzly bears. The task force recommended that each recovery zone develop their own specific levels of acceptable (1) open motorized route densities (OMRD); (2) total motorized route densities (TMRD); and (3) core areas. These levels were based on female grizzly bears monitored in that recovery zone, other research results, and social or other management considerations. **OMRD** includes roads and trails that are open to wheeled motorized use without restriction. **TMRD** includes roads and trails open to motorized wheeled access and those with temporary restrictions, such as gates. OMRD is reported as the percentage of each BMU subunit that has more than 1 mi/sq mi of open routes and TMRD is reported as the percentage of each BMU subunit that has more than 2 mi/sq mi of total routes (e.g., 12% of the Bunker Creek subunit has OMRD values greater than 1 mi/sq mi and 4% of this subunit has TMRD values greater than 2 mi/sq mi). This Conservation Strategy defines **Secure Core** habitat as those areas more than 500 m (0.3 miles) from a motorized access route during the non-denning period and at least 2,500 acres in size. Secure Core is expressed as a percentage of the BMU subunit that meets this definition (e.g., 86% of the Bunker Creek subunit is Secure Core habitat). The habitat standards below address these three parameters. Following the description of each habitat standard for Federal lands, **Application Rules** specify how they will be implemented within the PCA.

**Federal Motorized Access Habitat Standard 1.** On National Park, National Forest, and BLM lands in the PCA, there will be no net decrease in the amount of Secure Core within each BMU subunit from levels that existed in 2011 (Appendix 3), unless temporarily decreased to allow projects according to the Application Rules.

**Federal Motorized Access Habitat Standard 2.** On National Park, National Forest, and BLM lands in the PCA, there will be no net increase in levels of open motorized route densities (OMRD) or total motorized route densities (TMRD) within each BMU subunit above 2011 baseline values (Appendix 3), unless increased temporarily to allow projects according to the Application Rules.

Appendix 3 documents the 2011 baseline values for the percent of Secure Core habitat, OMRD greater than one mi/sq mi, and TMRD greater than two mi/sq mi in each BMU subunit. Any changes since 2011 to on-the-ground conditions have been evaluated through the USFWS consultation process and were shown to be acceptable while grizzly bears were considered threatened under the ESA.

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<sup>5</sup> The Federal lands these standards apply to comprise 78.6% (4,488,861 / 5,712,862 acres) of the PCA. These motorized access management standards would not apply to the subunits within the Swan Valley that are included in the Swan Valley Grizzly Bear Conservation Agreement or those involved in TNC fiber agreements. If the Swan Valley Grizzly Bear Conservation Agreement is dissolved at some point in the future, the USFS would continue to manage these affected subunits in accordance with Appendix 11.

### **Application Rules for Temporary Changes in Motorized Access on Federal Lands**

While the grizzly bear was listed as threatened under the ESA, projects and activities on Federal lands occurred through compliance with standards and guidelines in land management plans. When projects could not meet existing standards and guidelines, site-specific amendments and mitigation measures to projects occurred through consultation with the USFWS. Consultation allowed for temporary modifications to existing standards and guidelines. To allow for activities and projects to continue at levels similar to those that occurred while the grizzly population was listed under the ESA, the following Application Rules were developed for temporary changes to motorized access management.

Table 6 provides a summary of the Application Rules for motorized access management in the PCA. The rule set in Table 6 will be used by the agencies in management and evaluation of projects and habitat management actions as appropriate under this Conservation Strategy. Appendix 5 provides additional information on definitions and Application Rules for implementation of standards.

These Application Rules are based on an analysis of six Federal land projects that were conducted while grizzly bears were listed as a threatened species under the ESA. This includes five projects that occurred on the Flathead NF and one on the Lolo NF, affecting 18 subunits. The projects were reviewed and allowed through consultation with the USFWS. They occurred between 2003 and 2010, a period during which the NCDE grizzly bear population is known to have been increasing (Kendall et al. 2009; Mace et al. 2012). Therefore, the duration of these projects and the associated increases in OMRD and TMRD are known to be compatible with an increasing grizzly bear population in the NCDE. Types of projects included salvage work, timber harvest, and road management. During the life of these six Federal projects, the OMRD temporarily increased an average of 5.4%, TMRD temporarily increased an average of 2.9%, and Secure Core fluctuated by 2%.

For the Application Rules, a **project** refers to any temporary activity requiring construction of new roads, reconstruction or opening of a restricted road, use of a restricted road above administrative levels allowed, or **recurring** helicopter flights at low elevations (< 500m above ground level). For helicopter use, we define “**recurring**” as multiple trips per day for more than two consecutive days (see Montana/Northern Idaho Biologists Team 2009). Approximately 79% of lands managed by the USFS and 99% of lands managed by GNP inside the PCA are protected areas (i.e., Wilderness Areas, Proposed Wilderness, Wilderness Study Areas, or Inventoried Roadless Areas) that preclude most projects requiring motorized access (Figure 4). Any proposed projects would require analyses of OMRD, TMRD, and Secure Core to ensure compliance with the habitat standards and with the following Application Rules. To provide evaluation of projects requiring temporary changes to the 2011 motorized access baseline, automated GIS programs and spreadsheets are available for use by affected agencies in each grizzly bear subunit (Appendix 5).

#### **Temporary Changes in Motorized Access Route Density and Secure Core for Projects.**

Temporary changes to 2011 baseline values for OMRD, TMRD, and Secure Core will be allowed for projects if the 10-year running averages for these parameters in each subunit do not exceed the following limits (see Table 5 below for an example of how these would be implemented):

- 5% temporary increase in OPEN Route Density (i.e., OMRD baseline plus 5%)
- 3% temporary increase in TOTAL Route Density (i.e., TMRD baseline plus 3%)
- 2% temporary decrease for Secure Core (i.e., Secure Core baseline minus 2%)

Additionally, the following conditions must be met for any temporary projects:

- 1) Secure Core and road density values must be restored within one year after completion of the project (i.e., when the road is no longer being used for project implementation beyond administrative levels).
- 2) Projects will be planned so that they do not exceed five years (with the exception of gravel pits). If extensions are necessary beyond five years, the reasons must be documented in writing and reviewed by the NCDE Coordinating Committee to recommend appropriate additional mitigation, if needed.
- 3) If a project cannot occur within administrative use levels (6 trips/week OR a 30-day window) on restricted routes, the temporary limits on increases for OMRD, TMRD, and Secure Core apply. If the project can occur completely within administrative use levels, the project will not count toward temporary allowable increases because it does not meet the definition of a “project” as defined in this Conservation Strategy (Table 6).

Table 5. Hypothetical example of how temporary changes in OMRD, TMRD, and Secure Core would be implemented for a project. Part (A) shows the baseline values in a BMU subunit for OMRD, TMRD, and Secure Core from previous years and anticipated increases during the project (i.e., years 11 – 14). Part (B) uses the data from Part (A) to show the 10 year running averages for OMRD, TMRD, and Secure Core before, during, and after project completion, demonstrating that these 10-year running averages do not violate the Application Rules for Temporary Changes in Motorized Access. It should be noted that in this hypothetical example, another project in this subunit would not be possible until yr 24, unless that project did not require any changes in values for OMRD, TMRD, or Secure Core.

(A)

	BASELINE Value	Allowed Value for Project	yr 1	yr 2	yr 3	yr 4	yr 5	yr 6	yr 7	yr 8	yr 9	yr 10	project yr 11	project yr 12	project yr 13	project yr 14	yr 15	yr 16	yr 17
OMRD	19	24	19	19	19	19	19	19	19	19	19	19	31	31	31	31	19	19	19
TMRD	19	22	19	19	19	19	19	19	19	19	19	19	22	22	22	22	19	19	19
Secure Core	69	67	69	69	69	69	69	69	69	69	69	69	63	63	63	63	69	69	69

(B)

	BEFORE	DURING				AFTER		
	yr 1-10	yr 2-11	yr 3-12	yr 4-13	yr 5-14	yr 6-15	yr 7-16	yr 8-17
OMRD	19	20	21	23	24	24	24	24
TMRD	19	19	20	20	20	20	20	20
Secure Core	69	69	68	67	67	67	67	67

Changes in Secure Core	A project may mitigate its impact on Secure Core by providing replacement Secure Core habitat of equal size and similar quality (if possible) and function in the same grizzly subunit. The replacement habitat must either be in place before project initiation or be provided concurrently with project development as an integral part of the project plan. Alternatively, a project may also mitigate its impacts by adhering to the allowed levels of temporary changes summarized above and detailed in this Table.
Secure Core Habitat	More than 500 meters from an open motorized route (road or motorized trail), or helicopter flight line meeting the definition of “recurring.” Must be greater than or equal to 2,500 acres in size. “Recurring” is defined as multiple trips per day for more than two consecutive days.
Open Motorized Route Density (OMRD)	Open motorized route density includes: all Federal, State, and Tribal roads and motorized trails that are open to public use for any part of the year and motorized routes closed by sign only. All roads are included in the database. However non-motorized trails, highway, county, private, decommissioned, or revegetated roads are not included in the calculations.
Total Motorized Route Density (TMRD)	Total motorized route density includes: all Federal, State, and Tribal roads and motorized trails, whether they are open or closed. All roads are included in the database. However, non-motorized trails, highway, county, private, decommissioned, or revegetated roads are not included in the calculations.
Motorized Access Routes in Database	All routes, regardless of ownership or jurisdiction, having motorized use or the potential for motorized use to exceed administrative use levels (restricted roads) including: motorized trails; highways; county/city, Federal, State, Tribal, corporate and private roads.
Lands in Database	All lands are included in database. However, large lakes ( $\geq 320$ acres) and private lands are not included in calculations of Secure Core, OMRD, or TMRD.
Season Definitions	Denning season on the west side of the continental divide is from 1 December through 31 March. Denning season on the east side of the continental divide is from 1 December through 15 April. Wheeled motorized access standards do not apply during the denning season.
Project	A temporary activity requiring construction of new roads, reconstructing or opening a restricted road or recurring helicopter flights at low elevations (< 500m).
Activities Allowed in Secure Core	Activities that do not require road construction, reconstruction, opening a restricted road, or recurring, low-elevation helicopter flights. Aircraft used in emergency firefighting are allowed. Non-wheeled, over the snow use (i.e., snowmachines) allowed until research identifies a concern. Projects that remain within the limits established by the Application Rules for Temporary Changes in Motorized Access Management on Federal Lands.
Inclusions in Secure Core	Roads restricted with permanent physical barriers (not gates), decommissioned or obliterated roads, and/or non-motorized trails are allowed in Secure Core.
Administrative Use Levels	Motorized administrative use is permitted as either 6 trips (3 round trips) per week OR one 30-day unlimited use period during the non-denning season (Apr. 1 – Nov. 30).

ederal



Motorized Access Management – PCA

<p>Temporary Changes in Motorized Access Management</p>	<p>Temporary changes to baseline values for OMRD, TMRD, and Secure Core will be allowed for projects if the 10-year running averages for these parameters in each subunit do not exceed a 5% increase in OMRD, a 3% increase in TMRD, or a 2% decrease in Secure Core. During these projects, changes in OMRD, TMRD, and Secure Core may exceed these limits in individual years but the 10-year running average will not exceed these limits. Secure Core and road density values must be restored within one year after completion of the project (i.e., when the road is no longer being used for project implementation beyond administrative levels). On occasion, unforeseen events affecting thousands of acres (e.g., fires, long-term mine clean-up, insect or disease-killed trees, flooding, avalanches, mudslides, etc.) may require a response action that would not stay within these Application Rules for Temporary Changes in Motorized Access Management. In such cases, site-specific NEPA analysis would be completed and effects considered. Due to the nature of these events and the need to quickly and efficiently resolve the impacts of these disturbances to maintain project, recreational, and administrative opportunities, such circumstances would not be considered a violation of this Conservation Strategy’s habitat standards. Any responses to these unforeseen events would, however, be considered when proposing other projects in affected subunits.</p>
<p>Gravel Pits</p>	<p>The Forest Service and National Park Service will use all available resources at existing gravel pits before constructing new pits.</p>
<p>Permanent Changes to OMRD, TMRD, and Secure Core Values</p>	<p>Permanent changes in OMRD, TMRD, or Secure Core may occur due to unforeseen circumstances, natural events, or other reasonable considerations. Such changes will change the baseline values but will not be considered a violation of the motorized access management habitat standards and will not require mitigation responses. Acceptable changes that may permanently change baseline values include the following:</p> <ul style="list-style-type: none"> <li>- the agency acquired better information or updated/improved the road information in their respective database(s) resulting in changed calculations without actual change on the ground;</li> <li>- technology or projections changed, resulting in changed calculations without actual change on the ground (e.g., a switch from NAD27 to NAD83);</li> <li>- the agency moved a road closure location a short distance (often &lt;0.25 miles) to a better location for turn-arounds, less vandalism, or to improve enforcement of the road closure;</li> <li>- the agency acquired or sold land;</li> <li>- the agency built/opened a road for either handicapped access in a campground, or administrative site road;</li> <li>- the agency moved a road to increase human safety or to decrease resource damage</li> <li>- an adjacent, non-federal landowner made changes to their motorized access management which decreased Secure Core or increased motorized route densities on Federal lands.</li> </ul>

### **Legacy Lands and Cooperative Habitat Management in the Swan Valley**

The Montana Legacy Project was a cooperative effort with the Nature Conservancy, The Trust for Public Land, Plum Creek Timber, and multiple State and Federal partners throughout western Montana. The Legacy Project facilitated the purchase and transfer of over 310,000 acres (1,257 sq km; 485 sq mi) of private Plum Creek Timber Company lands into mostly public ownership. Although the Legacy Project was not specifically designed to conserve grizzly bear habitat, it benefits grizzly bears by consolidating land ownership patterns and management so that sustainable timber harvest, public access to these lands for recreation, and important wildlife habitat are maintained in public ownership while the possibility of private land development on these lands was largely eliminated.

The Nature Conservancy and The Trust for Public Land agreed to purchase the land from Plum Creek Timber Company initially, and then sell or donate these lands to Federal, State, and private owners. The vast majority of these lands have become Federal (USFS) or State (DNRC) owned and any lands that were sold to private owners have safeguards attached to them so that the integrity of wildlife habitat is maintained. There are still some lands owned and managed by the Nature Conservancy. Until transfer to other owners is completed, the actual number of acres continues to shift regularly as land is sold and traded to the described agencies.

As of May 2012, of the 310,585 acres of lands purchased from Plum Creek Timber Company, 203,994 acres are inside the NCDE Conservation Strategy Area while the remaining 106,591 acres are outside of the NCDE south of I-90. Of the 203,994 acres, 75,530 acres are inside the PCA; 101,097 acres are in Management Zone 1 of which 37,216 are within the Ninemile DCA; and 27,366 acres are within Management Zone 2. In the Swan Valley, the Flathead National Forest acquired 44,816 acres (181 sq km; 70 sq mi), the DNRC added 1,918 acres (8 sq km; 3 sq mi), and MFWP added 454 acres (1.8 sq km; 0.7 sq mi) to their land base. There are 18,160 acres yet to be transferred to federal or state land management agencies. There are also 63,721 acres that remain in private or transitory ownership but with conservation easements in place to maintain the integrity of wildlife habitat.

In the Swan Valley, the subunits affected by the Legacy Project are: the South Fork Lost Soup, Goat Creek, Lion Creek, Meadow Smith, Buck Holland, Porcupine Woodward, Piper Creek, Cold Jim, Hemlock Elk, Glacier Loon, and Beaver Creek subunits. Lands acquired by the National Forest system or MFWP require a 10-year fiber supply agreement in which timber will be sustainably harvested and sold to Plum Creek Timber Company. This fiber agreement requires the use of the road system as it currently exists and does not allow changes (reductions) until the terms of the fiber agreement have been satisfied. To fulfill the terms of the fiber agreement, management of these lands will continue to follow the terms of the Swan Valley Grizzly Bear Conservation Agreement (Appendix 7). The Swan Valley Conservation Agreement has coordinated timber harvest activities and associated road management across the multiple land ownerships in the Swan since 1997 and in doing so, contributed to the recovery of the grizzly bear. Once the 10-year term of fiber agreements end, DNRC may shift to management according to their HCP. If this occurs, the USFS would continue to manage its lands by the terms described in the Swan Valley Conservation Agreement.

### **MOTORIZED ACCESS MANAGEMENT ON TRIBAL LANDS IN THE PCA**

#### **Blackfoot Indian Reservation**

On the 174,963 forested acres (708 sq km) of lands within the Blackfoot Indian Reservation managed under the Blackfoot Nation Forest Management Plan, no net increase in overall road density levels are allowed. If approved by the Tribal Business Council, the Blackfoot Nation would sign this Conservation Strategy, committing to monitor and maintain records of motorized routes on all of their lands and coordinate with other agencies to report and update these data annually.

#### **Flathead Indian Reservation**

Within the PCA, 91% of FIR lands are within the Mission Mountains Tribal Wilderness Area (91,368 acres) or the South Fork Jocko Primitive Area (44,684 acres), both of which are unavailable to commercial forest activities. In the Mission Mountains Tribal Wilderness, there will be no permanent increases in open or total road densities and there will be no permanent decreases in Secure Core. In the South Fork Jocko Primitive Area, there will be no net increase in open roads.

On the remaining 7,698 acres managed by the CS&KT in the PCA, habitat management is directed by their Forest Management Plan, as authorized by the Tribal Council and the BIA. On these lands, the following motorized access management direction applies:

- Open road densities shall not exceed 4 mi/sq mi.
- Total road miles shall remain at or below what existed in 1999.
- Total road densities will be reduced by removing 15% of road spurs in currently roaded areas over the life of the Plan (2000-2030).
- Roads in timber sale areas will be closed after the harvest is complete.

If approved by the Tribal Council, the CS&KT would sign this Conservation Strategy, committing to monitor and maintain records of motorized routes on all of their lands and coordinate with other agencies to report and update these data annually.

### **MOTORIZED ACCESS MANAGEMENT ON DNRC LANDS IN THE PCA**

The DNRC will manage motorized access on the 145,589 acres of their forested lands within the PCA by their final Habitat Conservation Plan (HCP). DNRC lands within the PCA occur in either large blocks of State Forest or small, isolated parcels surrounded by other land ownerships. On all lands within the PCA, DNRC will:

- Minimize construction of new open roads, particularly in riparian areas, wetlands, and avalanche chutes.
- Inspect and repair all primary road closure devices annually.
- Suspend motorized activities within 1 km (0.6 mi) of a known, occupied den site.
- During the Spring Period, prohibit commercial activities and minimize motorized activities on restricted roads associated with low-intensity forest management activities.

On isolated parcels of DNRC lands inside the PCA, DNRC will not exceed baseline values for linear miles of open road at the administrative unit level.

On large blocks of DNRC land within the PCA on the Stillwater, Coal Creek, and Swan River State Forests (131,007 acres combined), DNRC will manage motorized access according to their HCP and approved transportation plans which remain in effect until 2061. These transportation plans cap the total miles of open and restricted road that can be constructed or re-opened for forest management activities over this time period. On the Swan River State Forest, there could be 70 miles of permanent new roads constructed, none of which would be open to the public for motorized use. There would be minimal net increase in linear open road miles in the Swan River State Forest. An additional 41.4 miles of road would become seasonally restricted to commercial forest management activities during the spring season (Apr. 1 – June 15) to provide grizzly bear security during this season. On the Stillwater and Coal Creek State Forests, 19.3 more miles of permanent road could be constructed and there will be a 15% reduction in the miles of roads that are open year-round (reduced from 125.3 miles to 107 miles). The HCP also identifies “subzones” on 59,100 acres of these State Forests where 4-year limits on commercial forest management activities followed by required 8-year rest periods apply (DNRC 2010). On the 19,400 acres of “subzones” identified on the Stillwater and Coal Creek State Forests, no new permanent roads will be constructed.

By signing on to this Conservation Strategy, the DNRC has committed to monitoring and maintaining records of motorized routes on all of their lands and coordinating with other agencies to report and update these data annually.

#### **Monitoring Protocol in the PCA**

Secure Core habitat, OMRD greater than 1 mi/sq mi, and TMRD greater than 2 mi/sq mi will be monitored using each individual land management agency’s Geographic Information System (GIS) database of motorized access routes, and reported biennially within each subunit in the NCDE Monitoring Team’s Annual Report. While an annual report would be prepared each year, motorized access will not be reported every year. Instead, it will be reported on a biennial basis. The reporting for OMRD, TMRD, and Secure Core will occur for odd-numbered years, beginning in 2011. The respective land management agencies would be responsible for maintaining their open motorized routes in a GIS database so that this information is available to run OMRD, TMRD, and Secure Core analyses, as needed.

## DEVELOPED SITE MANAGEMENT ON FEDERAL LANDS

**Developed sites** refer to sites or facilities on public Federal lands with features that are intended to accommodate public use and recreation. Examples include, but are not limited to: campgrounds, trailheads, lodges, rental cabins, summer homes, restaurants, visitor centers, boat launches, and ski areas. Developed sites are generally associated with frequent and/or prolonged human use that may result in increased bear attractants and grizzly bear mortality risk. Improvements typical of developed sites include, but are not limited to: restrooms, fire rings, fresh water availability, picnic tables, horse loading areas, horse feed storage buildings, garbage storage, camp host presence, and/or a pavilion. There is general agreement that developed sites that support overnight use may pose higher risks to bears than day use sites since people spend more time at these areas, usually cook or eat meals, and produce garbage. In contrast to developed sites, **dispersed sites** have no permanent constructed features, are temporary in nature, have minimal to no site modifications, and have informal spacing, primitive roads, and/or informal interpretive services. These include many car camping sites along public roads, user-established camping areas accessible only by non-motorized means, and/or outfitter camps. Because dispersed sites do not contain permanently constructed features, they will not be subject to this developed site standard or count against the baseline for developed sites.

**Administrative sites** are sites or facilities constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples include headquarters, ranger stations, dwellings, warehouses, guard stations, and Park entrances. For this Conservation Strategy, Federal, State, County, and municipal administrative sites are not subject to the developed site standards because agencies have direct control over the employees using these areas and can therefore minimize the presence of attractants and grizzly bear mortality risk. Nevertheless, increases in the number of administrative sites on Federal lands will be minimized and any proposed increases will be evaluated on a site-specific or individual basis. For this Conservation Strategy, we evaluate and report 2011 levels and types of developed sites on public Federal lands (Appendix 4) because we know these levels were compatible with an increasing grizzly bear population (Mace et al. 2012). This baseline does not include oil and gas wells, production wells, or large-scale hardrock mining operations because these types of permitted resource development do not involve public use or recreation and these activities will be regulated at the project level through separate requirements identified in this Conservation Strategy. Any changes in developed sites since 2011 have been determined acceptable through consultation with the USFWS while grizzly bears in the NCDE were listed under the ESA. While these changes in developed sites are minor, they allowed managers to actively respond to resource damage, safety, and attractant concerns, and modify problematic dispersed sites. Because the USFWS considered these changes in developed sites to be reasonable when grizzly bears were listed under the ESA, we modeled our Application Rules after them.

### **Developed Site Standards**

The intent of the developed site standard is to not increase the number of developed sites or capacity at most overnight developed sites on public Federal lands within each BMU above levels known to have occurred at a time when there was a stable to increasing grizzly bear population. On USFS, GNP, and BLM lands inside the PCA:

- Within each BMU, the number of developed sites on USFS, GNP, and BLM lands will be maintained at or below levels known to have occurred at a time when there was a stable to increasing population.
- Within each BMU, the capacity at developed sites with overnight use campgrounds, guest lodges, cabin rentals, and hotels on USFS, GNP, and BLM lands will be maintained at or below levels known to have existed when the population was stable or increasing.
- While the NCDE grizzly bear population was listed as threatened under the ESA, there were occasional increases in developed sites that would not have met the Application Rules below but were approved through consultation with the USFWS. To allow a similar level of increase in developed site numbers or capacity that occurred under listed status, one increase in the capacity or number of developed sites would be allowed per BMU per 10 years, even if it did not meet the Application Rules below. Any such changes proposed to developed sites that did not meet the Application Rules below would be reviewed by the Coordinating Committee and a position statement issued (see chapter 5 – Implementation).

### Application Rules

- If changes are proposed that increase, expand, or change use of developed sites beyond the baseline year in the PCA (Appendix 4), they will be analyzed by the agency proposing the change, and the potential detrimental and positive impacts documented through project evaluation or assessment. Such changes would be allowed if there is a corresponding reduction in the number and capacity at developed sites in that BMU through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s) within that BMU; or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby
- When the elimination of other developed sites or reductions in their capacity is not feasible, other mitigation measures may be adequate to offset proposed increases in *capacity* at existing developed sites. Appropriate mitigation tools to offset increases in *capacity* at existing developed sites may include, but are not limited to:
  - increased information and education;
  - increased conflict prevention resources (e.g., improved sanitation, backcountry food-hanging poles, etc.); or
  - increased law enforcement and patrols.
- If mitigation is achieved through measures other than direct reduction in the capacity or number of existing developed sites, a member of the NCDE Coordinating Committee may request that the Coordinating Committee review the proposed mitigation measures and release a position statement about whether they are adequate.
- Mitigation measures allowing for changes in developed sites must be implemented within the same BMU as the changes are proposed.
- Mitigation measures will be in place before the initiation of the project or included as an integral component of the project, including required funding.

- If land managers reduce the number or capacity of developed sites below 2011 baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that BMU.
- Capacity at campgrounds will be measured as the number of sites available for public use.
- Capacity at overnight sites will be measured as the number of beds, rooms, cabins, or bunkhouses, depending on the type of overnight site.
- Increases in capacity at trailheads will be minimized.
- Maintenance to existing developed sites is allowed.
- Changes to the baseline values for the number and capacity of developed sites may occur due to a variety of reasonable circumstances listed below. Such changes could permanently increase the number or capacity of developed sites but would not require mitigation. Examples of allowed changes that may affect the developed site baseline include, but are not limited to, the following:
  - 1) the agency acquired better information or updated/improved information in its database(s);
  - 2) the agency acquired or sold land which contained developed sites;
  - 3) the agency complied with Federal laws (e.g., Americans With Disabilities Act);
  - 4) the agency modified an existing developed site or dispersed campsite to reduce resource damage, environmental impacts, or the potential for grizzly bear conflicts (e.g., installing a pit toilet at a heavily used dispersed site to avoid damage to water resources or installing a bear-resistant food storage structure to reduce conflicts);
  - 5) the agency modified an existing human use area to enhance human safety.
- Increases in the number and capacity of developed sites during the **denning season** are not counted against this standard.
- While increases in the number of administrative sites on Federal lands will be allowed, they will be minimized. Any proposed increases will be specifically evaluated for impacts and appropriate mitigation measures for grizzly bears will be implemented as necessary.
- Temporary work camps for major projects or wildland firefighting are exempt from human capacity mitigation if other viable alternatives are not available. Food storage facilities or attractant management plans must be in place to ensure food storage compliance (i.e., regulations established and enforced, camp monitors, hosts, permit administrators, etc.). All other factors resulting in potential detrimental impacts to grizzly bears will be mitigated as identified for other developed sites.
- Public community infrastructure sites, such as electronic sites, radio towers, gravel pits, utility corridors, and treatment plants are exempt from the developed site standard because these are not commonly associated with public use or grizzly bear attractants. The Forest Service and its Permittees will place additional towers, buildings, etc. at existing electronic sites before constructing new electronic sites
- Increases in the number or capacity of developed sites on private, State, or Tribal lands are not counted against this standard because Federal land management agencies have no authority over such developments.

### Monitoring Protocol

The number and capacity of developed sites on Federal public lands in the PCA will be reported every two years and compared to the baseline in the Monitoring Team's annual report, which is publicly available. Developed sites will be reported for even-numbered years, starting in 2014. Developed sites are inventoried in existing GIS databases and placed into seven broad categories: (1) residences; (2) sites with overnight use; (3) campgrounds; (4) trailheads; (5) day-use only; and (6) administrative sites. While administrative sites are exempt from the developed site standard, increases are to be minimized so they will be tracked and reported with other developed sites. Appendix 4 displays the number of developed sites in the PCA in these six categories and will serve as the baseline. Changes in developed sites and subsequent mitigation measures on public Federal lands will be tracked and maintained in a database to facilitate coordination and compliance with this standard across the multiple Federal jurisdictions in the PCA (5 National Forests, GNP, and BLM).



**LIVESTOCK ALLOTMENTS IN THE PCA**

Levels of grazing on public lands inside the PCA in 2011 were compatible with an increasing grizzly bear population. The number and type of livestock allotments present in 2011 are reported in Table 7. These values will serve as the baseline values on Federal lands listed. Because there is no evidence of conflicts between grizzly bears and horse/mule allotments due to attractants, depredation, or forage competition, these types of allotments are not considered in this Strategy.

Table 7. Active cattle and/or sheep grazing allotments in the NCDE PCA, December 2011.

Land Manager	No. of Allotments	Type	AUMs*	Additional Info.
Flathead NF	3	Cattle	320	
Lewis and Clark NF	21	Cattle	9241	2 additional allotments are currently inactive – AUMs not included
Helena NF	3	Cattle	616	
	1	Sheep	133	
Lolo NF	1	Cattle	30	
Kootenai NF	1	Cattle	373	2 additional allotments are currently inactive – AUMs not included
Glacier NP	0	n/a	n/a	GNP does not permit commercial livestock grazing allotments within Park boundaries
BLM	23	Cattle	1942	
DNRC	128	Predominantly cattle	17,147	62,335 acres in grazing leases/licenses
MFWP	5	Cattle	2884	22,353 acres in grazing leases
FIR				no grazing in the PCA
BIR				BIR is fully allotted; numbers of allotments and AUMs not available

\* AUM's (Animal Unit Months) are calculated by multiplying the permitted number of sheep or cow/calf pairs times the months of permitted use. Actual use by sheep or other livestock in many cases may have been less than the permitted numbers identified for 2011.

**Livestock Allotment Standards in the PCA****On USFS, BLM, GNP, and FIR lands (81.1% of PCA):**

- There will be no increases in the number of cattle allotments.

**On USFS, BLM, GNP, DNRC, MFWP, and FIR lands (85.3% of PCA):**

- There will be no increases in the number of sheep allotments or in permitted sheep AUM's, from the identified baseline (Table 7).
- Existing sheep allotments will be monitored, evaluated, and phased out as the opportunity arises with willing permittees.

- Apiaries permitted on State, Federal, or FIR lands must be enclosed within an approved and operating electric fence as defined in the National Forest Food Storage Order in the NCDE.
- New permits for use of small livestock (smaller than a cow, such as sheep, goats and llamas) for the purposes of weed control may occur but will follow existing Federal, State, or Tribal permitting processes. Such permits will stipulate that if the small livestock are subject to depredation by grizzly bears, consideration will be given to removing the small livestock from the area. Permits for the use of small livestock to control weeds will also stipulate that any grizzly bear(s) depredating on these small livestock will not necessarily be removed unless additional circumstances indicate removal is warranted (as described in the nuisance bear management chapter).
- Permits for existing livestock allotments will include requirements to store bear attractants in a bear-resistant manner, report livestock carcasses within 24 hours of discovery and work with the appropriate agencies to remove them, and establish bone yards in areas that will minimize the risk of habituating grizzly bears to human presence.
- Grazing permits will include clauses allowing for cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly conflict situation.

### **Application Rules**

Allotments include both vacant and active commercial grazing allotments.

- Reissuance of permits for vacant cattle allotments may increase the number of permitted cattle, but the total number of allotments would remain the same as the indicated baseline.
- Combining or dividing existing allotments would be allowed as long as it does not result in grazing allotments in currently unallotted lands.
- Inactive allotments would not be increased from the allowable AUM included in the existing permit.
- Any use of vacant cattle allotments resulting in an increase in permitted cattle numbers will be allowed only after an analysis by the action agency to evaluate impacts on grizzly bears.
- Where chronic conflicts occur on cattle allotments inside the PCA, and an opportunity exists with a willing permittee, the permitting agency may consider phasing out cattle grazing or moving the cattle to a vacant allotment where there is less likelihood of conflict.
- Increases in allotment numbers on State or Federal lands in the PCA that result from land acquisitions or exchanges will be added into the baseline rather than being counted as deviations from the baseline.
- If depredations by grizzly bears occur to sheep during sheep trailing operations across public lands within the PCA, the grizzly bear(s) causing the depredation will not necessarily be removed unless additional circumstances indicate removal is warranted (as described in the nuisance bear management chapter).

#### On BIR lands (4.4% of PCA):

- All lands inside the PCA on the BIR are currently allotted for livestock grazing. Therefore there will be no increase in the number of permitted grazing allotments within the PCA on the BIR.

- One or more Bear Management Specialists on the BIR will continue to work with livestock producers to minimize and manage bear-livestock conflicts.
- Existing sheep allotments will be monitored, evaluated, and phased out if the opportunity arises with willing permittees.
- All provisions in the Blackfeet attractant storage order, (Blackfeet Fish and Wildlife Code Chapter 3, Section 17) including management of livestock carcasses, will be adhered to by grazing permittees, apiary permit holders, and their agents.

### **Monitoring Protocol**

To ensure no increase from the 2011 baseline, numbers of commercial livestock grazing allotments and numbers of sheep AUM's within the PCA will be monitored and reported every two years by the permitting agencies on the same schedule as developed sites (i.e., reports for even-number years, starting in 2014).

### **VEGETATION MANAGEMENT ON NATIONAL FOREST LANDS INSIDE THE PCA**

Although there are known impacts to individual bears from timber management activities, these impacts have been managed acceptably using the IGBC guidelines in place since 1986. These guidelines result in vegetation management projects that are compatible with the needs of grizzly bears. The two guiding principles are to (1) maintain and improve habitat and (2) minimize the potential for grizzly bear/human conflict.

Under this Conservation Strategy, vegetation management projects will be directed by the following guidelines, similar to those followed under listed status.

- All proposed vegetation management activities will be evaluated for their effects upon grizzlies and/or their habitat.
- Vegetation management prescriptions and contracts will include specific measures to protect, maintain and/or improve grizzly habitat and meet grizzly management goals and objectives. Timber sale contracts will include a clause providing for cancellation or temporary cessation of activities if needed to resolve a grizzly-human conflict situation. Contractors' full cooperation in meeting grizzly management goals and objectives will be a condition to their receiving and holding contracts.
- Vegetation and/or fire management activities that will have detrimental impacts on the grizzly bear population or their habitat, as determined in a project-specific environmental analysis, will not be permitted. Detrimental population effects are population reductions (as specified in the demographics section of this document) and/or grizzly bear food-conditioning.
- Grizzly habitat may be improved through vegetation manipulation. Silvicultural treatments such as tree harvest or thinning, sale area improvement and restoration, and prescribed burning are some of the methods by which grizzly bear habitat improvement can be accomplished. Detrimental habitat effects are permanent reductions in habitat quantity and/or quality and will not be permitted.
- Vegetation and fuels management activities should occur at a time or season when the area is of least biological importance to grizzlies, as determined by a biological evaluation or other environmental analysis. Winter logging is preferred, but if it is not feasible to complete activities during this time period, logging operations will be restricted in time and space to reduce significant disruptions of normal or expected grizzly activities. Logging is often restricted during the spring time period, to favor the needs of grizzly bears. Other forest management activities such as pre-commercial thinning, burning, weed spraying, and road best management practices may need to be completed during the spring time period in order to meet objectives (especially if needed to prevent resource damage), but may also be restricted in time or space, as determined by a biological evaluation.
- Silvicultural treatments in forested cover should provide a mosaic of all successional stages over the long term. Group selection cuts and irregularly shaped regeneration harvests, in which prescribed fire slash removal is used to mimic wildfire, are desirable for creating high grizzly food producing openings in some stand types and habitat types. Yarding methods should be designed to minimize soil disturbance, minimize weed invasion, and promote bear foods, where appropriate. Desirable regeneration harvest and slash disposal includes options such as: (1) methods to minimize the

distance to cover such as oblong or irregularly shaped harvest units or retention of one or more leave patches in units larger than 10 acres that won't be broadcast burned; (2) minimum soil scarification in habitat types where soil disturbance impedes the reestablishment of grizzly foods (consistent with Management Plans); (3) slash disposal by broadcast burning or whole-tree yarding to maintain or improve grizzly foods in suitable habitat types and terrain; and (4) protection of hydric stream bottoms, wet meadows, marshes, and bogs from soil disturbance and excessive cover removal (as specified in Design Criteria for Riparian Habitat Conservation Areas and Stream-side Management Zones).

- Sale Area Improvement Timber sale receipts, collected for post-sale area improvement (Knudsen-Vandenberg Act and other funds collected under Stewardship Contract projects) should be used, when practical, to enhance or restore the grizzly habitat quality of a logged area. Pre-commercial thinning can help maintain light to the forest floor and lengthen the time that bushes produce berries. Grizzly habitat enhancement through vegetation management is not recommended in or next to campgrounds and other developed sites frequented by people.
- All roads newly constructed for timber sales will be single purpose roads and will be closed to public motorized access not associated with timber sale operation and administration. Exceptions to this could include seasonal openings for other important resource uses or for short periods of time such as firewood gathering.
- Roads used for project implementation must comply with the Motorized Access Standards described elsewhere in this Conservation Strategy.
- Prior to beginning work, all contractors, operators and their employees will be informed of safe procedures for working and recreating in grizzly country.
- If contractors elect to camp on public Federal lands other than public campgrounds, written permission shall be obtained. Camp locations may be determined by appropriate site evaluation or other analysis. Contractors, operators and employees of contractors associated with fire camps must follow appropriate food storage orders.
- Cover will be maintained along meadows and other open feeding sites, riparian areas, past harvest units that do not yet provide hiding cover, and known travel corridors; as specified in a biological evaluation or other environmental document. Un-thinned strips or patches will be retained within harvest units and pre-commercial thinning units if needed for cover adjacent to open roads, as determined by a biological evaluation.

### **VEGETATION MANAGEMENT ON FORESTED TRIBAL LANDS**

#### **Blackfeet Indian Reservation**

Of the 1,525,712 acres (6,174 sq km) of lands within the Blackfeet Indian Reservation, there are 174,963 forested acres (708 sq km) whose management is directed by the Blackfeet Nation Forest Management Plan. This Plan is in effect until 2023 and establishes the following habitat management direction for timber harvest relevant to grizzly bears:

- Timber harvesting activities will be limited to single drainages when possible
- Timber harvesting will be concentrated in one or two forest management units per year instead of being spread across the landscape

- No timber harvest or road construction will occur between April 1 and June 15 annually, allowing grizzlies secure access to spring foraging habitat
- Dense cover will be maintained adjacent to main roads
- All streams will be protected with Streamside Management Zones 100 feet in width on both sides of the stream with restrictions on how much vegetative cover and timber may be removed
- All workers on timber projects are prohibited from carrying firearms on or near the sale area
- All workers on timber projects are required to follow the attractant storage regulations described below (Blackfoot Fish and Wildlife Code Chapter 3, Section 17)

### **Flathead Indian Reservation**

On the Flathead Indian Reservation, management of their 459,408 acres (1,859 sq km) of forested lands is directed by the Forest Management Plan, as authorized by the Tribal Council and the BIA. This Plan establishes the following habitat management direction relevant to grizzly bears:

- 36% (166,383 acres; 673 sq km) of these forested lands are unavailable to timber harvest
- 12% (57,011 acres; 231 sq km) contain restrictions on the locations and methods of harvest that may occur
- Hiding cover along major highways near identified crossing areas (e.g., Evaro, Hog Heaven, Ferry Basin, and the Ravalli Corridor) will be retained and managed to provide movement opportunities and promote population expansion along the western edges of the NCDE
- Adjacent drainages must remain undisturbed during the duration of a timber sale and for two years afterwards
- Roads in timber sale areas will be closed after the harvest is complete

### **VEGETATION MANAGEMENT ON DNRC LANDS**

The DNRC will manage grizzly bear habitat within and outside the PCA according to their final HCP. For non-HCP lands, current administrative rules for forest management activities would apply, which would offer similar protections for grizzly bears. The DNRC HCP specifically establishes the following habitat management direction for timber harvest relevant to grizzly bears:

- DNRC shall consider grizzly bears during planning and environmental review on all forest management-related projects occurring on covered lands, and shall incorporate mitigation measures to minimize impacts to grizzly bears or their habitat to the extent possible;
- Development of site-specific mitigation measures to minimize the impacts to important grizzly bear habitat elements (berry fields, avalanche chutes, riparian areas, wetlands, WBP stands, and feeding/congregation areas);
- Retention of visual cover for grizzly bears in riparian and wetland areas by maintaining a 50 foot no-harvest buffer, and through additional measures restricting removal of trees within defined Riparian Management Zones;
- Retention of up to 100 feet of vegetation between open roads and clearcut or seed tree harvest units to provide **visual screening**;

- Must design regeneration harvest units to have no points in them that are >600 feet to visual screening cover;
- Restriction of commercial forest management activities during the spring period (Apr. 1-June 15) in spring habitat (lands < 5,200 feet in the Swan State Forest; < 4,900 feet on scattered parcels; areas associated with roads possessing restricted status during the spring period on the Stillwater State Forest);
- Prohibition of pre-commercial thinning and heavy equipment slash treatments during the spring period in spring habitat.

## HARDROCK MINING & MINERAL DEVELOPMENT

Forty-seven percent (2,707,793 of 5,712,862 acres) of PCA lands are unavailable to new mining claims due to their status as Federally designated Wilderness, National Parks (i.e., Glacier National Park), or other special designations (see Figures 3 and 4). Mortality risk to grizzly bears from mineral development on Federal and DNRC lands outside of these protected areas will be largely mitigated through the motorized access standards described earlier in this chapter and food storage requirements, but additional mitigation measures that are project specific will also be implemented. The purpose of the guidelines described in this section is to avoid, minimize and mitigate environmental impacts to grizzly bears and their habitat from mining activities occurring on Federal (as authorized under the Mining Law of 1872) and State lands. The guidelines would be applied during review and approval of a site-specific *plan of operations* under 36 CFR 228A for locatable mineral activities on National Forest Lands, and under 43 CFR 3809 for locatable mineral activities on BLM-managed lands. Operating procedures, reclamation plans, or other mitigating measures necessary to meet the guidelines would be incorporated into the Operating Plan, or could become agency-imposed operating conditions, provided such measures were consistent with the rights provided for under applicable mining laws. All exploration, development production, mitigation measures, reclamation, and closure activities for locatable minerals on Federal, State and private lands are also under the regulatory permitting authority of the Montana Department of Environmental Quality (DEQ). The term “agencies” in this section refers to BLM/DEQ for BLM administered lands, FS/DEQ for National Forest lands and DNRC/DEQ for state lands. The agencies work cooperatively in the administration and management of mining operations. Mitigation measures may not conflict with the regulatory permitting authority of the DEQ. The following measures would apply to all new mining Plans of Operation on lands managed by the USFS, BLM, or DNRC in both the PCA and Zone 1.

### **Project Evaluation**

The potential effects to grizzly bears and bear habitat, and the necessary mitigation measures will be determined at the project level by the authorizing or permitting agency through project review, an Environmental Assessment or Environmental Impact Statement. For projects with the potential to significantly, negatively affect grizzly bears or their habitat, operating plans, notices and permits will include a mitigation plan with measures to protect grizzly bears and minimize detrimental impacts to them during and after operations. Operators are required to comply with the mitigation plan through the agencies’ approval of the Operating Plan.

Mitigation plans will include specific measures to reasonably mitigate potential impacts to grizzly bears or their habitat from the following activities:

- Land surface and vegetation disturbance,
- Water table alterations,
- Construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, roads, pipelines, canals, transmission lines or other structures,
- Food storage and sanitation.



Performance of operating and reclamation measures, and site-specific mitigation measures used to protect grizzly bears or bear habitat will be enforced through the respective DEQ and Federal surface management regulations. Operators who fail to comply with mitigation measures for grizzly bear protection in the DEQ approved operating plan will be subject to a noncompliance order or notice issued by the DEQ, Forest Service, or BLM. Noncompliance orders specify the noncompliance and what is needed for the operator to come into compliance. Ultimately, the Forest Service or BLM may seek civil and/or criminal enforcement through the Federal Court system. The financial assurance (bond) for reclamation performance will be calculated and managed by the agencies. Bonding may include the cost of implementing the reclamation measures required to mitigate impacts to grizzly bears and bear habitat. The financial assurance instrument for reclamation performance will be held by the Montana DEQ for mining operations on private lands. For mining operations on mixed private/Federal lands or entirely on Federal lands, the agencies will develop joint financial assurance instruments that are frequently held by the Montana DEQ.

For operations where it is determined there is potential for significant impacts (“significance” as determined through environmental review and permitting) to the grizzly bear population or its habitat, a monitoring plan will be developed by the operator with approval by the DEQ or Federal regulatory permitting agency, and in close coordination with MFWP for the life of the project. The monitoring plan will outline how changes in habitat and disturbance to bears will be measured and include monitoring of reclamation measures. The plan will identify trigger levels or criteria to determine if direct research of local grizzly bears (i.e., capturing and radio-collaring bears) is warranted and to what extent the monitoring should be conducted.

### **Food and Attractants**

For projects with the potential to significantly affect grizzly bears or their habitat, mitigation plans will include food storage/handling and garbage disposal measures and will incorporate any existing food storage measures for human occupancy. Mitigation plans for grizzly bears will include the following measures regarding food and attractants:

- Bear resistant food storage and garbage containers will be used at mine sites and at any campgrounds or dispersed sites where mining-related human occupancy is anticipated.
- Garbage will be removed in a timely manner.
- Road kills will be removed daily to a designated location determined in close coordination with and permitted by MFWP.
- The use of clover will be discouraged as part of any reclamation seed mixes used during mine construction, operation, or when reclamation activities are concurrent with operations. Native seed mixes will be promoted and used whenever practicable.
- No feeding of any wildlife will be allowed.

Implementation of the Food and Attractants measures is the sole responsibility of the operator. Compliance with these requirements will be evaluated during site inspections conducted by the authorizing agencies. The number and type of inspections as well as the mechanism for inspections will

be identified through the planning process (MEPA or NEPA). Failure to comply with the measures will subject the operator to a noncompliance process as noted above.

### **Motorized Access**

For projects with the potential to significantly affect grizzly bears or their habitat, mitigation plans will include the following measures regarding motorized access:

- New roads constructed for mineral exploration and/or development will be single-purpose roads only and will be closed to public use not associated with mineral activities.
- On USFS, NPS, and BLM managed lands inside the PCA, new roads or closed roads that are re-opened for mineral exploration will be consistent with this Conservation Strategy's motorized access standards
- A traffic management plan will be developed as part of any proposed activity to identify when and how mine roads will be used, maintained, and monitored, if required, and how roads will be closed after mineral activities have ended. The management agencies retain the right to impose speed limits on these roads if needed to prevent or reduce collisions with bears.
- On State lands only, roads constructed for mineral operations may be retained by the land management agency for use associated with other concurrent or future activities (such as timber sales or rights-of-ways). However, impacts associated with all uses of the road(s) must be analyzed in a MEPA environmental review, and impacts to grizzly bears minimized to the extent practicable.

### **Habitat**

For projects with the potential to significantly affect grizzly bears or their habitat, Operating Plans will include the following mitigation measures regarding habitat:

- Mineral exploration and/or development activities will occur at a time or season when the area is of least biological importance to grizzlies. If timing restrictions are not practicable, reasonable and appropriate measures will be taken to mitigate negative impacts of mineral activity to grizzly bears.
- Reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration or mitigation of functioning aquatic systems and riparian zones will be implemented. State and Federal regulatory permits may include reasonable and appropriate measures as part of a riparian reclamation plan identifying how reclamation will occur, vegetation species used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria.
- Reclamation and revegetation of roads, drilling pads, and other areas disturbed from mineral exploration and development activities will be completed as soon as practicable by the operator.

For projects with the potential to significantly affect grizzly bears or their habitat, the following tiered measures will be considered to mitigate impacts to grizzly bear habitat. Beginning at Step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.

- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities as the original suitable habitat (such as the same native vegetation).
- Step 2: If Step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat in the PCA. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of >1:1 on an acreage basis, depending on the quality of habitat degraded and habitat available for acquisition. The State or Federal land management agency and MFWP may provide input on the location of these habitats. Location of these habitats will be approved by the land management agency in close coordination with MFWP, and the easement/deeds will be transferred to the appropriate Federal or State agency or private conservation organization.
- Step 3: If Steps 1 or 2 are not achievable, the next option is to consider offsetting negative effects to bears and grizzly bear habitat with other appropriate types of actions. This could involve radio telemetry monitoring of grizzly bear movements in the affected area (in coordination with MFWP), other grizzly bear research (with MFWP involvement), funding a bear management specialist or enforcement officer or other appropriate actions as needed to develop site-specific mitigation.

### **Human Conflict**

For projects with the potential to significantly affect grizzly bears or their habitat, the mitigation plan will include the following measures regarding human conflict:

- Firearms will be prohibited on site during operations except for security personnel and other designated persons. Carrying of bear spray will be recommended to the operator.
- The operator should require employees to attend training related to living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.

## **OIL & GAS DEVELOPMENT**

Forty-seven percent (2,707,793 of 5,712,862 acres) of PCA lands are unavailable to oil and gas leasing due to their status as Federally designated Wilderness, National Park, (i.e., Glacier National Park), or other special designations (see Figures 3 and 4). The only place where oil and gas development is currently being actively pursued in the PCA or Zone 1 is along the Rocky Mountain Front on the eastern side of the ecosystem on lands managed privately or by the Lewis and Clark NF, Helena NF, BLM, DNRC, or BIR (see “Mineral and Energy Development” section in Chapter 1; Portner 2003). For operations where it is determined there is potential for significant impacts (“significance” as determined through environmental review and regulatory permitting) to the grizzly bear population or its habitat, the following standards and guidelines apply to any future permits to drill issued on the Lolo, Flathead, Lewis and Clark, Kootenai and Helena National Forests in the PCA, and on BLM and DNRC managed lands in the PCA and Zone 1. The Blackfoot Nation is working directly with the Bureau of Indian Affairs, and the USFWS to create a management plan and mitigation package for oil and gas development on BIR lands. We have no authority over private lands.

### **DNRC**

On all trust lands managed by the DNRC in the PCA, Montana Oil and Gas Stipulations will apply and measures related to grizzly bears and their habitat described in the “Interagency Rocky Mountain Front, Wildlife Monitoring/Evaluation Program, Management Guidelines for Selected Species” (Appendix 8) would be incorporated into mitigation plans.

### **BLM**

On lands or oil and gas mineral estate managed by the BLM in the PCA, no new leases will be permitted in the Rocky Mountain Front Mineral Withdrawal Area (Public Law 109-432) (Figure 3). For new leases outside of this Mineral Withdrawal Area, no surface occupancy would be allowed in the PCA or Zone 1. Motorized access standards described previously in this Chapter would apply for the PCA. Exceptions could be granted if no detrimental impacts to grizzlies are determined through an environmental analysis. Additionally, the stipulation for no surface occupancy could be modified if the authorized officer, in consultation with MFWP determines the area is no longer important to grizzly bears.

### **USFS**

Stipulations already included in existing leases on National Forest lands in the PCA would not be changed, nor would additional stipulations be added to existing leases, without the lease holder’s agreement. The majority of existing leases already contain stipulations that address maintaining grizzly bear security through such things as limits on timing or location of specific activities. When or if APDs are submitted on existing leases, the motorized access standards and the following mitigation measures would be included in the permit and Surface Use Plan of Operations, unless specific language in a lease superseded that requirement.

The following standards would be incorporated as stipulations in new leases, and when possible as surface use criteria in any Surface Use Plans for proposed wells or operations, or as conditions in any permits for seismic activity.

### **USFS – Project Evaluation**

The potential effects to grizzly bears and bear habitat, and the necessary mitigation measures will be determined at the project level by the authorizing or permitting agency through project review, an Environmental Assessment or Environmental Impact Statement. For projects with the potential to significantly, negatively affect grizzly bears or their habitat, permits will include a mitigation plan with measures to protect grizzly bears and minimize detrimental impacts to them during and after operations. Operators are required to comply with the mitigation plan through the agency's approval of the application for permit to drill.

In addition to a mitigation plan for operations where it is determined there is potential for significant impacts ("significance" as determined through environmental review and permitting) to the grizzly bear population or its habitat, a monitoring plan will also be developed in close coordination with MFWP for the life of the project. The monitoring plan will outline how changes in habitat and disturbance to bears will be measured (and include monitoring of reclamation measures). The plan will identify trigger levels or criteria for habitat parameters to determine if direct research of local grizzly bears (i.e., capturing and radio-collaring bears) is warranted and to what extent monitoring should be conducted.

### **USFS – Food and Attractants**

For projects with the potential to significantly affect grizzly bears or their habitat, permits will include stipulations for food storage and garbage disposal measures and will incorporate existing food requirements for human occupancy. Mitigation plans for grizzly bears will include the following measures regarding food and attractants:

- Bear resistant food storage and garbage containers will be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
- Garbage will be removed in a timely manner;
- Road kills will be removed daily to a designated location determined in close coordination with MFWP;
- The use of clover will be discouraged as part of any reclamation seed mixes used during operations (i.e., construction, operation). Native seed mixes will be promoted and used whenever practicable;
- No feeding of any wildlife will be allowed;
- Any permits for seismic activity or drilling will include a clause providing for cancellation or temporary cessation of activities if such are needed to resolve a grizzly-human conflict situation;

- Analysis of potential impacts of work camps would be included in the site-specific Biological Evaluation, and locations of any work camps would be approved in advance of operations. Food storage requirements will be strictly adhered to in any work camps.

Implementation of the Food and Attractants measures is the sole responsibility of the operator. Compliance with these requirements will be evaluated during site inspections conducted by the authorizing agencies. The number and type of inspections as well as the mechanism for inspections will be identified through the planning process (NEPA). Failure to comply with the measures will subject the operator to the noncompliance process established in 36 CFR 228.112 thru .114.

### **USFS – Motorized Access**

For projects with the potential to significantly affect grizzly bears or their habitat, permits will include the following mitigation measures regarding motorized access:

- New roads constructed for mineral exploration and/or development will be single-purpose roads only and will be closed to public use not associated with mineral activities;
- On USFS managed lands inside the PCA, new roads or closed roads that are re-opened for gas and oil/seismic will be consistent with this Conservation Strategy’s motorized access standards;
- A traffic management plan will be developed as part of any proposed activity to identify when and how development roads will be used, maintained, and monitored, if required, and how roads will be closed after activities have ended;
- Helicopter use associated with seismic activity, exploration, drilling or development will follow an approved plan using criteria identified in the Application Rules below.

### **USFS – Habitat**

For projects with the potential to significantly affect grizzly bears or their habitat, permits will include the following mitigation measures regarding motorized access:

- Mineral exploration and/or development activities will occur at a time or season when the area is of little or no biological importance to grizzlies. If timing restrictions are not practicable, reasonable and appropriate measures will be taken to mitigate negative impacts of mineral activity to the bear;
- Reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration or mitigation of functioning aquatic systems and riparian zones will be implemented;
- Reclamation and revegetation of roads, drilling pads, and other areas disturbed from mineral exploration and development activities will be completed as soon as practicable by the operator;
- The leaseholder must appoint or designate a local agent who can be served notices and who has the authority to act for the leaseholder/permittee;

- Require notification of activities and proposals to deviate from operations plans, and regular activity logs documenting all surface activities.

### **USFS – Human Conflict**

- Firearms will be prohibited on site during operations except for security personnel and other designated persons. Carrying of bear spray will be recommended to the operator;
- The operator should require employees to attend training related to living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter;
- Permits for seismic activity or drilling will include a clause providing for cancellation or temporary cessation of activities if such are needed to resolve a grizzly-human conflict situation.

### **USFS Application Rules**

1. Mitigations, stipulations, and surface use criteria will include, as appropriate to the site and operating plan:
  - a. Avoidance of ground-disturbance activity in identified grizzly bear spring habitat between 1 April and 30 June.
  - b. No seismic activity in identified denning habitat from December 1 – April 1 (west of the Continental Divide) and from December 1 – April 15 (east of the Continental Divide).
  - c. Timing restrictions to limit the cumulative impacts of multiple, concurrent seismic and/or drilling operations
2. Helicopter use plans will include:
  - a. Recurring flights only at >500 feet above ground level
  - b. Avoid construction of landing zones. If a landing zone is deemed necessary for safe implementation of the seismic or surface use plan or permit to drill, construct zones only in areas that have been analyzed and approved in the site-specific analysis and Biological Evaluation.
  - c. Avoid establishing recurring flight lines or landing zones in spring habitats or other known important grizzly bear habitats or use areas.
3. Permits to Drill will include a clause stating that the leaseholder’s and operator’s full cooperation in meeting grizzly bear management goals and objectives will be a condition to their receiving and holding approved permits and plans.

In addition to the above standards, any new leases, and any proposed surface use plans or permits to conduct seismic exploration or to drill, should adhere to the following **guidelines**:

1. Wherever possible, use the best available noise-reduction technology on all equipment and motorized vehicles.
2. Maintain hiding cover at regular intervals along constructed roads, seismic corridors, and pipelines.

## **HABITAT CONDITION**

Because of the wide variation in diets of NCDE grizzly bears and the spatial breadth of the ecosystem, it is infeasible to maintain on-the-ground monitoring of availability and use of individual foods. With sufficient sample sizes, it is possible to use ratios of stable isotopes in food items to infer assimilated diets (i.e., that which is digested and metabolically used) of grizzly bears (Robbins et al. 2004). As an example, ratios of  $^{15}\text{N}$  to  $^{14}\text{N}$  ( $\delta^{15}\text{N}$ ) become higher with increasing trophic level, allowing distinction between a plant-based, animal-based, or mixed diet. Ratios of naturally occurring nitrogen, sulfur, and carbon isotopes will allow us to estimate the assimilated diet of grizzly bears in the NCDE.

Within the animal, metabolically active tissues (hair, blood components, etc.) incorporate material that reflects the isotopic ratio of the animals' diet. Hence, ratios of hair provide a catalogue of the assimilated diet during its growth period (approximately, summer to fall). Further, hairs can be segmented by length to assess changes in ingestion during the time of growth. In comparison, the turnover rate of blood components allows for shorter-term estimates of assimilated diet; ratios from blood plasma reflect the 1–2 weeks of digested diet prior to collection, while red blood cells reflect the recent 2–3 months of diet.

Habitat health and gross availability of high-quality foods can be measured indirectly by assessing the physiological condition of animals. Bioelectrical impedance analysis methods allow for direct estimation of fat content of captured grizzly bears (Farley and Robbins 1994, Hilderbrand et al. 1998). Ratios of lean body mass to fat mass vary widely from spring to fall, depending on available foods; these values provide insight into past nutrition of individual bears. Monitoring fat content and lean body mass to fat ratios in all bears captured will allow a better understanding of how body condition varies by sex and age of the bear, as well as season. Further, these estimates can provide information on whether females meet physiological requirements (primarily, high body fat content before denning, > 20%) for bearing offspring (Robbins et al. 2012).

Ideally, maintenance and accumulation of lean tissue and fat for all bears would occur when they are in secure habitat. In reality however, occasional scarcity of high-quality foods in secure areas or the seasonal availability of some habitats (i.e. low elevation areas free of snow in spring) may drive bears to seek foods found in lower elevations nearer human-development (Gunther et al. 2004). Ingested foods and body condition data will also allow managers to better understand, predict, and respond with management action or public information efforts when temporal and spatial changes in food availability may cause increased risk of human/bear conflicts. Further, continued monitoring of body condition in the future will assist in understanding possible changes in food availability as climate change continues.

### **Monitoring Protocol**

*Isotope ratio ( $\delta^{15}\text{N}$  and  $\delta^{34}\text{S}$ ) analysis* – Existing monitoring efforts will be continued. Representative hair and blood samples from all captured bears, both research and management, will be analyzed annually. These isotope data will be analyzed to determine relative intake of plant matter and meat, then characterized by month, sex, age, reproductive status, area of capture, and management status.



*Body condition* – Bioelectrical impedance values will continue to be measured on all captured bears, both research and management. Body condition indices (body fat content, lean body mass to fat mass ratios) will be measured on all captured bears and will be characterized by sex, age, reproductive status, area of capture, and management status. .

Bioelectrical impedance analysis and stable isotope methods: 1) offer insight into the quality of habitat used by the sampled bear over a specific time period; and 2) estimate the proportions of digested foods. For example, if mean annual projections of October female body fat are greater than 1 standard error below baseline values, we can conclude that habitat and food base for the year was poor. Similarly, decreases in mean annual  $\delta^{15}\text{N}$  isotope values for each region greater than 1 standard error below baseline regional averages would indicate a reduction in meat consumption, a high-quality food in certain regions.

Results of these analyses will be presented in the NCDE annual monitoring report. We will continue to monitor relationships between food use, management status, reproductive status, sex-age class, bear/human conflict rates, and body condition on a regional level, and report these findings annually in the NCDE annual monitoring report. We will monitor whether marked decreases in body condition, trophic level, or specific food sources are related to changes in numbers of human-caused mortality and females with dependent young, as well as other measureable population standards. These annual isotope and body condition data will be used in conjunction with demographic vital rate data to assess the health of the NCDE population. This monitoring program is designed to adapt to changing use and availability of foods and body conditions. Future monitoring will incorporate new techniques and knowledge as these become available.

## **PRIVATE LAND DEVELOPMENT**

Federal land management and State wildlife agencies do not have management authority over private lands and these agencies do not have the ability to mitigate for private land development through management actions on their lands. As private lands are developed, State, Federal, and Tribal agencies will work together and with counties or other organizations to explore options that address impacts from private land development such as increased outreach efforts and proper storage of potential bear attractants. To this end, MFWP completed its "Fish and Wildlife Recommendations for Subdivision Development: A Working Document" in 2012. We encourage private land owners, counties and agencies to cite and use these recommendations when developing and reviewing subdivision applications and regulations. MFWP also developed a GIS planning tool for developers and counties to use that identifies "crucial areas" for wildlife connectivity. This GIS tool provides an easy-to-use and understandable way to plan for development and conserve land by including wildlife considerations from the beginning stages of planning and letting developers know in advance where to expect greater expense and potential mitigation costs.

### **Monitoring Protocol**

As with monitoring developed sites on public Federal lands, tracking development on private lands can be valuable to indirectly assess potential risks to grizzly bears associated with displacement from habitat, habituation to human activities and attractants, and increased mortality risk. Every five years, MFWP will report changes in private land development and conservation easements on private lands within the PCA and compare these to 2011 conditions (Appendix 9). Specifically, MFWP will report the acres of conservation easements in place, and the number of residences, businesses, and miscellaneous structures on private lands within each BMU in 2011, then again in 2016, 2021, etc. This information will be gathered from various public sources such as Census Block data, county governments, and the Montana Natural Resource Information System (<http://gis.mt.gov/>). The quality and type of land parcel data varies greatly but will be useful in documenting relative changes and identifying areas where conflict prevention efforts should be directed. Private non-profits (e.g., Headwaters Economics) and other entities also gather data that can be used to categorize land development and these resources may be used to supplement county data.

Human-caused mortality related to private land conflicts will be monitored and must be controlled to meet the population/demographic standards in this Conservation Strategy. This requires ongoing efforts to limit grizzly bear/human conflicts on private lands inside and outside the PCA. As in the past, MFWP will continue to monitor and report annual human-caused mortality related to private land conflicts throughout the NCDE ecosystem (PCA + Zones 1, 2, and 3). Additionally, all bear-related conflicts in the PCA and Zone 1 will be reported annually. The entities responding to conflicts (MFWP, GNP, Blackfeet Nation, and Confederated Salish and Kootenai Tribes) will provide their raw data about conflicts to MFWP who will compile and report them annually. This information will be used to assess the efficacy of conflict reduction efforts and identify areas where conflicts are concentrated so preventative outreach can be directed there. MFWP, Confederated Salish and Kootenai Tribes, and the Blackfeet Nation will continue ongoing efforts to limit grizzly bear/human conflicts on private lands

inside and outside the PCA in order to keep human-caused grizzly bear mortality within sustainable levels (see Chapter 4 – Conflict Prevention and Management). Upon request, MFWP and Federal agencies will continue to assist private non-profits and other entities to categorize and prioritize potential lands suitable for permanent conservation such as land exchanges, acquisitions, and conservation easements.

## MANAGEMENT ZONE 1

In this section, we describe habitat management in the Demographic Connectivity Areas (DCAs), followed by a brief summary of draft measures the USFS, BLM, and DNRC would develop (or maintain) for grizzly bear habitat in the rest of Management Zone 1 (Figure 1). The primary land management entities responsible for habitat management in Zone 1 are the USFS, the BLM, DNRC, the Blackfoot Nation on the BIR, and the CS&KT on the FIR. Collectively, these entities manage 47% of the 2,240,663 acres (9,068 sq km) in Zone 1 (Table 8). Within Zone 1, another 47% of lands are privately managed. Approximately 5.7% of lands inside Zone 1 are considered “protected lands” because of their status as congressionally designated Wilderness Areas or other non-motorized areas (Table 8, Figure 4).

Management Zone 1 is similar in concept to the 10-mile buffer around the Recovery Zone within which population data are recorded while grizzly bears are listed as threatened under the ESA. The demographic standards and mortality limits described in Chapter 2 would be collected in all of the PCA and Zone 1. On the northwest and southwest corners of Zone 1, there would be two DCAs with specific habitat protection measures to support dispersal to other ecosystems in the lower 48 States (i.e., the Cabinet-Yaak and Bitterroot ecosystems) (see Figure 1). In these DCAs, habitat protections will focus on limiting miles of open road and maintaining current Roadless Areas as stepping stones to other ecosystems. Outside of these DCA’s on USFS and BLM lands, there are either limits on open road miles and/or densities in current land management plans (Appendices 10, 11) or affected National Forests and BLM offices would incorporate motorized access management measures consistent with the intent of this Conservation Strategy when amending or revising their management plans. Similarly, on DNRC lands, the current HCP will provide conservation measures on 126,285 acres of forested trust lands (Appendix 12 provides a brief summary of these measures) and additional draft measures would be implemented on other trust lands not covered by the HCP (Appendix 13).

Of the five National Forests managing lands in Zone 1, four of them contain motorized access management standards in their current Forest Plans. On the **Flathead NF** in Zone 1, open motorized route densities are limited to maximum levels of 1.8 to 3.2 mi/sq mi, depending on the management unit. On the **Helena NF**, there are currently limits on open road densities during the general big game hunting season that are tiered to the availability of hiding cover (see Appendix 10). In areas with high amounts of hiding cover, open road densities may not exceed 2.4 mi/sq mi. In areas of lower amounts of hiding cover, open road densities cannot exceed 1.9, 1.2, or 0.1 mi/sq mi, depending on levels of hiding cover. Additionally, there is a forest-wide standard limiting open road densities to 0.55 mi/sq mi for areas of occupied grizzly habitat. Occupied grizzly habitat is defined as having verified grizzly bear observations over the last 6 of 10 years, including females with offspring in at least five of the last 10 years. On the **Kootenai NF**, linear miles of both open and total roads are limited to baseline values that have been compatible with successful occupancy by female grizzly bears with offspring. Because the **Lewis and Clark NF** manages only six acres in Zone 1, their motorized access management is not discussed here. While the **Lolo NF** currently has restrictions on open road densities of 1.1 mi/sq mi in “highly productive big game summer range,” it does not have explicit language limiting open motorized routes or densities across Zone 1. Similarly, the **BLM** currently has guidelines to minimize new road

construction and not allow increases above 1 mi/sq mi on many of their lands in Zone 1 but there are not uniform limits on open motorized routes across Zone 1.

Because we know current levels of open motorized routes on USFS and BLM lands in Zone 1 have not precluded an increasing grizzly bear population, our intent is to maintain these conditions on the landscape into the foreseeable future. By signing this Conservation Strategy, the USFS and BLM have committed to maintaining or establishing limits on motorized access routes in current and future management plans at levels guided by the agreements reached in this Strategy and consistent with the intent to maintain open motorized routes in Zone 1 at levels known to be compatible with a stable to increasing grizzly bear population in the NCDE. Changes to land management plans through future revisions will be guided by the agreements reached in this Strategy and will be consistent with this intent. In addition to standards and guidelines in current BLM management plans (Appendix 11), BLM developed draft standards and guidelines for management on large blocks of BLM lands in Zone 1 (Appendix 14). Similarly, DNRC has also developed specific measures to guide habitat management on non-HCP trust lands in portions of Zone 1 and Zone 2 (Appendix 13).

Table 8. Land ownership and management within NCDE Management Zone 1. <sup>1</sup>

Ownership	Sub-category Acres	Acres	Sq Km	Percent of Zone 1
<b>US Forest Service</b>		1,047,989	4,241	21.8%
Flathead National Forest	230,988			
Helena National Forest	149,095			
Kootenai National Forest	282,681			
Lewis and Clark National Forest	6			
Lolo National Forest	385,219			
<b>BLM</b>		109,720	444	2.3%
<b>Other government <sup>2</sup></b>		65,594	265	1.3
<b>Blackfeet Indian Reservation</b>		268,858	1,088	5.6%
Tribally managed lands <sup>3</sup>	54,931			
Individual allotments <sup>4</sup>	213,927			
<b>Flathead Indian Reservation, CS&amp;KT</b>		517,860	2,096	10.8%
Tribally managed lands <sup>3</sup>	492,495			
Individual allotments <sup>4</sup>	25,366			
<b>DNRC</b>		296,206	1199	6.2%
<b>MFWP</b>		57,919	234	1.2%
<b>Total Private lands</b>		2,283,668	9,242	47.5%
Private land on the BIR	125,715			
Private land on the FIR	362,988			
All other Private lands	1,794,965			
<b>Water</b>		160,905	651	3.3%
<b>TOTALS</b>		<b>4,808,719</b>	<b>19,460</b>	
<b>PROTECTED AREAS WITHIN MGMT ZONE 1</b>				
<i>Congressionally Designated Wilderness</i>		15,804	64	0.3%
<i>Other wilderness <sup>5</sup></i>		43,537	176	0.9%
<i>Restricted motorized-use areas <sup>6</sup></i>		213,775	865	4.4%

<sup>1</sup> Acres are based on GIS layers from several Federal and State sources, dated 1 July 2012, at the 1:100,000 scale. When these layers were not in agreement, efforts were made to identify the correct owner but there may still be some discrepancies.

<sup>2</sup> includes the USFWS (31,808 acres), Bureau of Reclamation (7,819 acres), "other" government on the BIR (1,831 acres), US Government (291 acres), Dept. of Defense (45 acres), City government (40 acres), Montana State University System (23,760 acres).

<sup>3</sup> Tribal lands managed by the respective Tribes through coordination with the BIA and Council approved management plans

<sup>4</sup> Allotted lands managed by individual Tribal members through coordination with the BIA

<sup>5</sup> Other Wilderness includes areas managed to maintain their wilderness traits such as Wilderness Study Areas, Proposed Wilderness (GNP), and CS&KT Wilderness outside the Mission Mountains Tribal Wilderness

<sup>6</sup> Non-motorized areas include Inventoried Roadless Areas, Tribal roadless areas, Tribal Primitive Areas, & the Rattlesnake National Recreation Areas; all of which contain restrictions on new motorized use, new road construction, and commercial timber harvest.

### **HABITAT MANAGEMENT IN DEMOGRAPHIC CONNECTIVITY AREAS (DCAs)**

Outside of the PCA on the western side of Zone 1, two DCA's have been identified to provide opportunities for female grizzly bears to establish home ranges and exist at low densities: the Salish DCA and the Ninemile DCA (Figure 1). In these areas, habitat protections will focus on limiting miles of open road and maintaining current IRAs as stepping stones to other ecosystems. Because the study areas of Kendall et al. (2009) and Mace et al. (2012) extended beyond the boundaries of the PCA and these are the data we base our demographic standards on, maintenance of current conditions in Zone 1 is a reasonable approach. From radio-collar data, we know that current levels of relatively high open road miles and low levels of secure habitat in the Salish DCA (compared to levels in the PCA) are adequate to support females with offspring. There have been at least eight different females with offspring documented here between 2001 and 2010 (Manley 2011, personal communication).

#### **Salish Demographic Connectivity Area**

Within the Salish DCA, 79.2% of lands (372,020/469,887 acres) are managed by the USFS. National Forest land management activities within this DCA will be regulated by the goals, objectives, and standards of the Kootenai and Flathead National Forest Plans.

**Kootenai NF:** On the 276,190 acres (1,118 sq km) managed by the Kootenai NF, the following protective measures to facilitate occupancy by female grizzly bears would apply:

1. There is one IRA (1,260 acres; 5 sq km) on the Kootenai NF in the Salish DCA. This IRA would be managed according to Forest Plan direction. Future management of this IRA will be guided by the agreements reached in this Strategy which are to maintain open motorized routes in Zone 1 at levels known to have been compatible with a stable to increasing grizzly bear population in the NCDE.
2. The majority of the Kootenai NF acres within the Salish DCA (266,947 acres of 276,190) will be managed according to the Kootenai National Forest's Motorized Access Amendment within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones (USFS 2011). Road management in this document states there would be no increases in permanent linear miles of open or total roads, with listed exceptions, as described in the Record of Decision for the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones (USFS 2011).
3. The remaining USFS acres within the KNF portion of the Salish DCA lies outside the area covered by the Access Amendment and will be managed according to Kootenai Forest Plan standards.

**Flathead NF:** On the 95,829 acres (388 sq km) managed by the Flathead NF, the following protective measures to facilitate occupancy by female grizzly bears would apply:

1. There is one Inventoried Roadless Area (5,443 acres; 22 sq km) on the Flathead NF in the Salish DCA. This IRA would be managed according to Forest Plan direction. Future management of this IRA will be guided by the agreements reached in this Strategy which are to maintain open motorized routes in Zone 1 at levels known to have been compatible with a stable to increasing grizzly bear population in the NCDE.

2. Road density standards in the current Forest Plan restrict open road densities to 1.3 – 2.2 mi/sq mi, depending on the geographic unit. Future management of road densities will be guided by the agreements reached in this Strategy which are to maintain open motorized routes in Zone 1 at levels known to have been compatible with a stable to increasing grizzly bear population in the NCDE.

### **Ninemile Demographic Connectivity Area**

Within the Ninemile DCA, 70.2% of lands (363,351/517,369 acres) are managed by the USFS and the CS&KT. National Forest land management activities within this DCA will be regulated by the goals, objectives, and standards of the Lolo National Forest Plan while forested land management by the CS&KT will be regulated by their Forest Management Plan.

**Lolo NF:** On the 231,436 acres (937 sq km) managed by the Lolo NF, the following protective measures to facilitate occupancy by female grizzly bears would apply:

1. Within the Ninemile DCA, 22.5% of National Forest lands are in IRAs. These IRAs would be managed according to Forest Plan direction. Future management of these IRAs will be guided by the agreements reached in this Strategy which are to maintain open motorized routes in Zone 1 at levels known to have been compatible with a stable to increasing grizzly bear population in the NCDE. Four IRAs are located within the Ninemile DCA:
  - a) Reservation Divide (16,865 acres; 68 sq km)
  - b) Stark Mountain (12,559 acres; 51 sq km)
  - c) North Siegel (9,197 acres; 37 sq km)
  - d) South Siegel – South Cutoff (13,458 acres; 54 sq km)
2. There would be no net increase above 2011 baseline values in linear miles of permanent open roads allowed on National Forest System lands within this DCA, unless they are within the circumstances listed below. Permanent changes in linear miles of open roads may occur due to unforeseen circumstances, natural events, or other reasonable considerations. Such changes will not be considered a violation of this habitat standard and will not require mitigation responses. Acceptable changes that may permanently change linear miles of open road in the Ninemile DCA include the following:
  - the agency acquired better information or updated/improved the road information in their respective database(s) resulting in changed calculations without actual change on the ground;
  - technology or projections changed, resulting in changed calculations without actual change on the ground (e.g., recently a switch in the datum from NAD27 to NAD83 was required);
  - the agency moved a road closure location a short distance (often <0.25 miles) to a better location for turn-arounds or less vandalism or to improve enforcement of the road closure;
  - the agency acquired or sold land;
  - the agency built/opened a road for handicapped access at an existing campground or day-use area;
  - the agency moved a road to address resource damage or human safety concerns.



3. Projects requiring high levels of administrative or commercial use of closed roads (i.e., greater than an average of ten round trips per day) will be designed to minimize adverse effects to the grizzly bear. Actions to minimize impacts may include restricting public use during project activities, establishing project subdivisions and scheduling project activities to allow alternative areas for bear dispersal and security, limiting seasons of use, and limiting project duration.
4. There would be no restrictions, except those defined in number three above, on the total number of miles of temporary roads (or trails) that are determined necessary for emergency operations or that are authorized by contract, permit, lease or other written authorization. Temporary roads and trails (defined in FSM 7505) are not considered part of or included in the forest transportation atlas (36 CFR 212.1).

**Flathead Indian Reservation:** On the 131,195 acres (531 sq km) managed by the CS&KT, the following protective measures to facilitate occupancy by grizzly bears would apply:

1. Tribally identified wilderness and roadless areas comprise 18.2% of Tribal lands within the Ninemile DCA. These areas would be managed according to Forest Plan direction. In general, these areas will be retained in their current, non-motorized condition. These include:
  - a) Tribally designated wilderness area: Sleeping Woman (Ninemile Divide) (16,495 acres; 67 sq km)
  - b) Tribally designated roadless area unavailable to logging or motorized use: Ravalli/Valley (Hewolf) Complex (7,841 acres; 32 sq km) and Burgess (1,750 acres; 7 sq km)
2. Open road densities shall not exceed 4 mi/sq mi;
3. Total road miles shall remain at or below what existed in 1999;
4. Hiding cover adjacent to Hwy. 93 at Evaro and the Ravalli Corridor will be retained and managed to provide movement corridors between ecosystems;
5. Roads in timber sale areas will be closed after the harvest is complete.

**BRIEF SUMMARY OF HABITAT MANAGEMENT DIRECTION IN ZONE 1**  
**ON BLM, USFS, & DNRC LANDS**

### Overview

Grizzlies will be classified as a “sensitive species” (or the equivalent legal term) by the DNRC, USFS, and BLM. This designation requires all proposed management activities to be evaluated for their effects on grizzlies and their habitat. For lands managed by the USFS, motorized access management in current plans is either adequate or will be modified to be consistent with the intent of this Conservation Strategy where motorized access is not formally incorporated into land management plans (i.e., the Lolo NF). The USFS would also incorporate habitat standards and guidelines regarding hardrock mining and oil and gas development. Measures consistent with the intent of this CS are summarized briefly in the sections below.

### Motorized Access

**BLM:** There are roughly 92,500 acres (374 sq km) of BLM lands in Zone 1 that are large enough (i.e., > 2,500 acres) to provide Secure Core habitat. These blocks are found in four areas, all located within the Missoula Field Office:

- (1) Chamberlain/Murray Douglas (42,500 acres; 172 sq km);
- (2) Hoodoos (26,000 acres; 105 sq km);
- (3) Lower Blackfoot Corridor (11,000 acres; 45 sq km); and
- (4) the Marcum Mountain area (13,000 acres; 53 sq km).

In these four areas, there would be no decrease in current levels of Secure Core habitat and levels would be increased in the Marcum Mountain area. Additionally, open road densities would be maintained below 1 mi/sq mi in the first three areas and would be improved to be less than 2.5 mi/sq mi in the Marcum Mountain area.

**DNRC:** The HCP would regulate motorized access management on 126,285 acres (511 sq km) in Zone 1. On these lands, DNRC has agreed to minimize construction of new open roads and prohibit commercial forest activities during the spring period (April 1 – June 15) in identified spring habitat, and to suspend any motorized forest management activity within 0.6 miles of an active den site until May 31 or earlier if DNRC can confirm the bear has left the den site vicinity. On the remaining 169,921 acres (688 sq km) of other lands managed by DNRC in Zone 1, grizzly bears would be considered a sensitive species and administrative rules for management activities would be in place that would provide protective measures including minimization of new open motorized access routes.

**USFS:** Motorized access management in Zone 1 on lands managed by the USFS has been compatible with an increasing grizzly bear population. The Lolo is the only National Forest in Zone 1 that does not contain specific measures for motorized access to facilitate and maintain grizzly bear recovery in their Land Management Plan. Despite this, their motorized access management in Zone 1 has been compatible with an increasing grizzly bear population. This

National Forest would update their Forest Plan to include protective habitat measures for the Ninemile DCA and to institutionalize motorized access management in both the PCA and Zone 1.

### **Livestock Allotments/grazing**

**BLM:** No new sheep allotments would be allowed in Zone 1. Additionally, no new livestock allotments of any kind would be created in Zone 1 with some minor exceptions for cows if new lands are acquired that previously allowed livestock grazing.

**DNRC:** On HCP lands in Zone 1, DNRC would discourage small livestock allotments and would allow them only if an adequate mitigation plan were developed and implemented. On all lands within Zone 1, grazing leases and licenses issued would require the following language:

- Re-locate livestock carcasses in areas with high risk of bringing grizzlies into conflict with humans within 24 hours of discovery to minimize risk of human/bear conflicts. Lessee shall cooperate with DNRC managers and FWP bear management specialists as necessary to address prompt removal of problem livestock carcasses.
- Bone yards that would promote habituation and frequent use by grizzly bears are prohibited.

### **Hardrock Mining**

On lands managed by the USFS, BLM, and DNRC in Zone 1, habitat protections for mining projects are identical to those found in the PCA. Please see section earlier in this chapter (pp. 70-73) for more details.

### **Oil and Gas**

**Overview:** Due to the low geological potential for occurrence in most of Zone 1 (Portner 2003), the only place where oil and gas development is currently being actively pursued is on the Rocky Mountain Front.

#### **USFS Standards**

1. Carry out site-specific analysis, including a Biological Evaluation, documenting potential impacts of proposed seismic or other activities on grizzly bears and grizzly bear habitat. Analysis will include potential impacts of proposed work camps or operation centers.
  - a. Analyze the cumulative impacts to grizzly bears and grizzly bear habitat of concurrent seismic or other exploration or development activity proposed or occurring on the lease or adjacent leases.
  - b. Where impacts to grizzly bears or grizzly bear habitat may occur, apply stipulations, or surface use criteria as described in the Application Rules below
2. All leaseholders and their agents, employees and contractors must adhere to all provisions of the Food Storage Order described elsewhere in this document.
3. Leaseholders and their agents, employees, and contractors will not be allowed to carry firearms while involved in activities associated with implementation of the operating plans or permits on NF lands.

4. Permits for seismic activity or drilling will include a clause providing for cancellation or temporary cessation of activities if such are needed to resolve a grizzly-human conflict situation.
5. The leaseholder must appoint or designate a local agent who can be served notices and who has the authority to act for the leaseholder/permittee
6. Require notification of activities and proposals to deviate from operations plans, and regular activity logs documenting all surface activities

#### **USFS Application Rules**

1. Mitigations, stipulations, and surface use criteria will include, as appropriate to the site and operating plan:
  - a. Avoidance of ground-disturbance activity in identified grizzly bear spring habitat between April 1 and June 30.
  - b. No seismic activity in identified denning habitat from December 1 – April 1 (west of the Continental Divide) and from December 1 – April 15 (east of the Continental Divide).
  - c. Use timing restrictions to limit the cumulative impacts of multiple, concurrent seismic and/or drilling operations
2. Permits to Drill will include a clause stating that the leaseholder's and operator's full cooperation in meeting grizzly bear management goals and objectives will be a condition to their receiving and holding approved permits and plans.

**BLM:** On all lands managed by BLM in Zone 1, the mitigation measures for oil and gas would be identical to those described for the PCA earlier in this chapter (p. 74). These include a stipulation for no surface occupancy on all lands managed by the BLM or where the BLM owns the subsurface rights unless it is clearly demonstrated that the proposed action will not affect grizzly bears or their habitat.

**DNRC:** On all trust lands managed by DNRC in Zone 1, the mitigation measures for oil and gas would be identical to those described for the PCA (p. 74) earlier in this chapter.

## LAND OWNERSHIP & MANAGEMENT IN ZONE 2

Because we know that management direction in current USFS and BLM land management plans in Zone 2 did not preclude male grizzly bears from occupying this area in low densities, existing direction will continue to apply. Land management plans on lands managed by the BLM or USFS contain numerous standards to benefit other species or resource values that will also benefit grizzly bears. Existing direction for USFS and BLM land management plans is summarized in Appendices 10 and 11. Measures in the DNRC HCP pertaining to food storage, retention of riparian cover, and minimization of open roads in riparian areas, would apply to most forested DNRC lands in Zone 2. These and additional measures for DNRC lands in Zone 2 that would require food storage and livestock carcass disposal clauses in future permits, leases, licenses, and operating plans are summarized in Appendix 13.

Table 9. Land ownership and management within NCDE Management Zone 2. <sup>1</sup>

Ownership	Sub-category Acres	Acres	Sq Km	Percent of Zone 2
<b>US Bureau of Land Management</b>		263,256	1,065	5.7%
<b>US Forest Service</b>		1,148,218	4,647	24.6%
Beaverhead-Deerlodge National Forest	417,893			
Gallatin National Forest	89,194			
Helena National Forest	641,092			
Lewis and Clark National Forest	2			
Lolo National Forest	38			
<b>DNRC</b>		217,769	881	4.7%
<b>MFWP</b>		56,541	229	1.2%
<b>Other government</b> <sup>2</sup>		19,474	79	0.4%
<b>Private</b>		2,909,571	11,775	62.5%
<b>Water</b>		44,102	178	0.9%
<b>TOTALS</b>		<b>4,658,932</b>	<b>18,854</b>	
<b>PROTECTED AREAS WITHIN MGMT ZONE 2</b>				
<i>Congressionally Designated Wilderness</i>		28,426	115	0.6%
<i>Wilderness Study Areas</i>		21,143	86	0.5%
<i>Inventoried Roadless Areas</i>		427,794	1,731	9.2%

<sup>1</sup> Acres are based on GIS layers from several Federal and State sources, dated 1 July 2012, at the 1:100,000 scale. When these layers were not in agreement, efforts were made to identify the correct owner but there may still be some discrepancies.

<sup>2</sup> includes the USFWS (1,775 acres), Bureau of Reclamation (11,812 acres), other Federal US Govt. (106 acres), US Dept. of Defense (2,543 acres), the Montana State University System (793 acres), Montana Dept. of Transportation (31 acres), city government (1,922 acres), county government (483 acres), and other local government (8 acres)

## LAND OWNERSHIP & MANAGEMENT ZONE 3

There are no habitat standards specifically related to grizzly bears here because Zone 3 does not have a goal of grizzly bear occupancy. However, land management plans on the roughly 10% of Zone 3 lands managed by the BLM or USFS contain numerous standards to benefit other species or resource values that will also benefit grizzly bears. Prevention of and response to grizzly bear/human conflicts will be emphasized in Zone 3.

Table 10. Land ownership and management within NCDE Management Zone 3.<sup>1</sup>

Ownership	Sub-category acres	Acres	Sq Km	Percent of Zone 3
<b>US Bureau of Land Management</b>		110,268	446	0.9%
<b>US Bureau of Reclamation</b>		82,541	334	0.7%
<b>US Forest Service</b>		1,088,625	4,406	8.9%
Gallatin National Forest	115,789			
Helena National Forest	5,790			
Lewis and Clark National Forest	967,047			
<b>Other Government <sup>2</sup></b>		29,624	120	0.2%
<b>Blackfeet Indian Reservation</b>		432,882	1,752	3.6%
Tribally managed lands <sup>3</sup>	136,388			
Individual allotments <sup>4</sup>	296,494			
<b>Rocky Boy's Indian Reservation</b>		10,292	42	0.1%
<b>DNRC</b>		791,580	3,203	6.5%
<b>MFWP</b>		32,616	132	0.3%
<b>Total Private Lands</b>		9,547,023	38,635	78.5%
Private land on the BIR	355,484			
All other Private lands	9,191,539			
<b>Water</b>		32,733	132	0.3%
<b>TOTALS</b>		<b>12,158,183</b>	<b>49,202</b>	
<b>PROTECTED AREAS WITHIN MGMT ZONE 3</b>				
<i>Wilderness Study Areas</i>		82,984	336	1%
<i>Inventoried Roadless Areas</i>		550,571	2,228	5%

<sup>1</sup> Acres are based on GIS layers from several Federal and State sources, dated 1 July 2012, at the 1:100,000 scale. When these layers were not in agreement, efforts were made to identify the correct owner but there may still be some discrepancies.

<sup>2</sup> includes USFWS (21,305 acres), "other" government on the BIR (4,154 acres), US Dept. of Defense (3,787 acres), other Federal US Govt. (19 acres), Montana Dept. of Transportation (251 acres), the Montana State University System (36 acres), city government (29 acres), and county government (43 acres)

<sup>3</sup> Tribal lands managed by the respective Tribes through coordination with the BIA and Council approved management plans

<sup>4</sup> Allotted lands managed by individual Tribal members through coordination with the BIA

## Chapter 4 – Conflict Prevention, Response, and Nuisance Bear Management

**Grizzly bear-human conflicts** are incidents in which bears either do or attempt to: injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods, agricultural crops or other attractants. Most grizzly bear-human conflicts are the result of bears attempting to gain access to human-related attractants such as garbage, human foods, livestock or pet foods, hunter harvested deer or elk carcasses, orchards, compost piles, bird feeders, or vegetable gardens in areas of human presence. Although aggression towards people is uncommon, grizzly bears may occasionally injure or kill people when displaying natural defensive behavior or when they have become food-conditioned.

Within the NCDE, grizzly bear-human conflicts have increased as the frequency of bear-human encounters has gone up. This is a result of an increasing bear population with an expanding distribution in combination with increasing numbers and distribution of people living and recreating in grizzly bear habitat in western Montana. The Grizzly Bear Management Plan for Western Montana (Dood et al. 2006) addresses conflict management in the NCDE, and some of the language in this chapter is taken directly from that plan. Considering the many people who live, work, and recreate in the region, it is significant to note that levels of conflicts and grizzly bear mortalities since 2004 did not preclude an increasing grizzly bear population. Underlying attitudes toward grizzly bears are highly variable and relate to issues such as resident and recreationist safety concerns and economic impacts on local businesses and livestock producers. Local support for grizzlies on the landscape decreases if conflicts are not handled in an effective and timely manner.

The objective of conflict management is to maximize human safety and minimize property losses while maintaining a viable population of grizzly bears (Dood et al. 2006). This approach of balancing human needs with grizzly bear population considerations builds support and tolerance for grizzly bear conservation. For this approach to be effective, State, Tribal, and Federal agencies must respond to conflicts rapidly. When grizzly bear-human conflicts are not adequately addressed, there are negative consequences for the individual bear and the people involved, and support for grizzly bear management and conservation in the NCDE is undermined.

The emphasis of grizzly bear conflict management will be quick response by management authorities, removal of the source of the conflict where possible, and the use of non-lethal solutions. Depending on the circumstances of the conflict, appropriate responses may include:

- Removing or securing attractants,
- Public education and outreach,
- Discouraging the bear from visiting the site using non-lethal methods (e.g., **aversive conditioning**),
- Reactively or preemptively capturing and relocating a nuisance bear to a new area,
- **Removing** the bear from the wild, including lethal control.

Signatories to this Conservation Strategy will work to minimize the number of bears removed from the population as a result of conflict situations, recognizing that relocating or removing offending animals will be necessary to resolve some problems. Inside the PCA and Zone 1, **nuisance bear** status and response will be based on the Guidelines and Standards in this Conservation Strategy (see “Nuisance Bear Management” section in this chapter). In Management Zones 2 and 3, nuisance bear status and response will be based on relevant State or Tribal grizzly bear management plans.

Although there are a variety of situations that can result in a grizzly bear-human conflict, the primary causes are: (1) food **attractants** -- improper food storage or sanitation in either a backcountry situation (e.g., hunter camp, hiker or other backcountry recreationist), rural setting (e.g., farm/ranch, cabin, church camp, etc.) or urban setting (e.g., subdivision, town); (2) surprise encounters -- bears surprised at close range and acting defensively; (3) maternal defense -- females defending cubs; (4) natural food sources -- bears defending a kill/carcass etc.; (5) humans approaching a bear too closely (e.g., photographer, berry picker, hiker, hunter, etc.); or (6) bears responding to a noise attractant -- bears attracted to a hunter attempting to bugle or cow-call an elk, bears associating gunshots with a food source (carcass or gut pile).

The best ways to minimize these sources of conflicts are through education and outreach, food/attractant storage rules on public lands, and a variety of non-lethal methods that may be used directly by the public. In cases where Tribal, GNP, or State management authorities determine minimizing the sources of conflicts is ineffective or inadequate to address the specific circumstances of the conflict, relocation or removal of the nuisance bear is necessary and will be consistent with this Conservation Strategy and associated State and Tribal management plans.

### **EDUCATION AND OUTREACH**

For grizzly bear conservation to be successful, providing habitat on the landscape is not enough. For grizzly bears to survive, people must accept the grizzly as a cohabitant of the land. Tolerance can be maintained when the public has confidence in management agencies to respond quickly and appropriately to grizzly bear-human conflicts and the public is equipped with the knowledge to understand and avoid grizzly bear-human conflicts. Education and outreach efforts are an essential component in building and maintaining this human tolerance of grizzlies. Other management strategies outlined in this Strategy are unlikely to succeed without useful, coordinated, adaptable outreach programs. Focused outreach messages must be communicated frequently and consistently, with emphasis on the importance of: (1) hunting safely in grizzly country, (2) keeping private property (including livestock and domestic pets) bear resistant, (3) appropriate food storage when camping or living in bear country, (4) hiking and camping safely in grizzly country, (5) being able to tell the difference between black bears and grizzly bears, (6) recognizing high-risk situations regarding grizzly bear habitat, (7) knowing grizzly bear biology and behavior.

Messages for all outreach efforts will be based on bear biology and behavior and be of a positive, non-alarmist nature. Custom messages targeted at specific audiences (e.g., hunters, hikers, recreationists, homeowners, livestock operators, rural communities, commercial entities, loggers, miners, resort



operators, outfitters, etc.) have been identified and increase the efficiency of education and outreach efforts.

The following outreach actions in the NCDE are ongoing and will be continued:

- Outreach programs to local schools, businesses and community organizations;
- Lessons on human safety and conflict prevention while hunting in bear habitat presented to all hunter education classes;
- Online and in-person training to assist hunters with identification of black versus grizzly bears. MFWP implemented mandatory bear identification training for hunters purchasing black bear licenses in 2002;
- News releases and media (TV, radio and newspaper) messages, including information about helpful websites;
- Agency and partner-produced radio spots and Public Service Announcements;
- Web pages (on agency and Tribal websites) that are devoted to living and recreating in bear country;
- Dynamic websites (e.g., [www.missoulabears.org](http://www.missoulabears.org)) dedicated to reducing grizzly bear-human conflicts by disseminating information on current bear activity and how to keep neighborhood bear attractants minimized;
- Use of available tools, such as the “Bears and Bees” video to teach beekeepers about how to avoid conflicts with bears;
- Information and workshops on electric fencing to keep bears out of orchards, garbage, grain storage and bee yards;
- Meetings with homeowner groups and local communities about keeping bears out of garbage through bear-resistant garbage containers and electric fences;
- Day-to-day public contacts by agency and partner personnel during conflict situations with bears;
- Messages sent through online social networks (e.g., Facebook, Twitter, etc.);
- Bear rangers to talk with members of the public, make presentations, and post signage to proactively inform recreationists about bears and bear activity and reduce the potential for conflicts;
- Various bear safety brochures available at agency and partner offices, distributed by field personnel and given out at presentations;
- “Be Bear Aware” children’s handout/coloring book;
- Standardized “Hunters Know Your Bears” and “Food Storage” signs posted at campgrounds, trailheads, popular hunting areas, fishing access sites, etc. Public meetings to encourage citizen participation in land management decisions affecting grizzly bear habitat and management;
- Education and training of permanent and seasonal agency personnel.

### **Information & Education (I&E) Team**

To ensure the consistency of messages presented across the multiple jurisdictions in this ecosystem, the NCDE’s existing I&E subcommittee, composed of State and Federal agency staff members and information and education professionals, will continue to coordinate outreach efforts in the NCDE. This

team will identify and prioritize needed outreach efforts in the NCDE, ensure consistency and accuracy of information, facilitate partnerships with private land owners and non-profit organizations, identify and target specific audiences, identify and implement useful, new communication techniques, and adapt messages in response to public concerns. Chapter 5 contains details about the members of the I&E Team.

### **ATTRACTANT STORAGE RULES & REGULATIONS**

Securing potential attractants is the single most effective way to prevent bears from becoming food conditioned and displaying subsequent unacceptable aggressive behavior. It is effective in limiting human-caused grizzly bear mortality, grizzly bear-human encounters, and other grizzly bear-human conflicts. These actions on public lands have been ongoing and will continue under this Conservation Strategy.

#### **Federal Lands**

The USFS has implemented and monitors compliance with food storage orders that require people using grizzly bear habitat to store food and other attractants properly on public lands so that bears cannot access them. Food storage orders apply to all lands within the PCA on the Flathead, Lolo, Helena, Lewis and Clark, and Kootenai National Forests. Food storage orders also apply to all of Zone 1 for the Flathead National Forest, Lolo National Forest, Kootenai National Forest, Rocky Mountain Ranger District of the Lewis and Clark national Forest and lands on the Lincoln Ranger District, Helena National Forest. The Helena National Forest and the Beaverhead-Deerlodge National Forest are in the process of developing and are committed to implementing a food storage order on all lands in Zone 1 and Zone 2. This would be effective before adoption of the Conservation Strategy.

USFS: Existing and future food storage orders on USFS lands are governed by direction of 36 CFR 261.50 and address: (1) Human, pet, and livestock food, toiletries, beverages, and garbage; (2) wildlife and domestic animal carcasses; (3) burnable attractants; and (4) reporting the death and location of livestock to a Forest Service official. Approved means and methods for the above are included in the special orders. Bear resistant food storage facilities are provided at some recreation sites.

*Enforcement: Violations of these prohibitions are punishable by a fine of not more than \$5,000 for an individual or \$10,000 for an organization or imprisonment for not more than six months (16 U.S. C 551 and 18 U.S. C. 3559 and 3571).*

GNP: GNP enforces a food storage order governed by direction of 36 CFR 2.10 (d) which prohibits anyone from leaving food or garbage unattended or stored improperly where it could attract or otherwise be available to wildlife.

*Enforcement: In general, citations are issued whenever there are violations of 36 CFR 2.10 (d) observed and the items left out would attract and provide a food reward to a bear or other wildlife. This includes such items as coolers containing food and/or beverages, packaged or cooked food, cooking equipment/utensils with food on them, and beverage containers with*

*beverages in them. Campground managers remove any unsecured food or food coolers which may attract wildlife and provide a food reward. Only commissioned law enforcement officers may issue violation notices. In all cases it must be determined that the visitor(s) are, or have been, made aware of the food storage regulations prior to issuing a citation. If in doubt, a written warning is issued. Penalties for violations of 36 CFR 2.10 range from \$50-\$250 per violation.*

USFWS: One National Wildlife Refuge exists in the PCA (Swan River) and another exists in Zone 1 (National Bison Range complex) of the NCDE. Other refuge lands and Waterfowl Production Areas, occur in Zone 1 in the Blackfoot Valley Conservation Area and the Rocky Mountain Front Conservation Area. All refuge lands are day-use only with no overnight camping allowed; visitors generally park and hike. All provide only parking areas and no garbage containers. Use of refuge lands operates under the pack-in/pack-out policy, which has been adequate for preventing grizzly bears from accessing human sources of food at day-use sites. To date, no conflicts with grizzly or black bears have been reported at any of these sites. Administrative and housing facilities are limited, and all attractants are stored in a bear-resistant manner.

*Enforcement: Failure to comply with the pack-in/pack-out food and attractant policy results in violation of 50 CFR 27.94: Disposal of Waste - The littering, disposing, or dumping in any manner of garbage, refuse, sewage, sludge, earth, rocks or other debris on any national wildlife refuge except at points or locations designated by the refuge manager, or the draining or dumping of oil, acids, pesticide wastes, poisons, or any other types of chemicals wastes in, or otherwise polluting any waters, water holes, streams, or other areas within any national wildlife refuge is prohibited.*

BLM: The BLM manages 20,691 acres within the PCA (<1% of total area). The BLM has drafted a food storage order for all BLM managed lands in the PCA, Zone 1, and Zone 2. Modeled after the Food Storage Orders on USFS lands in the NCDE, it will address: (1) Human, pet, and livestock food, and garbage; (2) wildlife carcasses; (3) burnable attractants; and (4) reporting the death and location of livestock to a BLM official. Currently, the proposed language for this food storage order includes some exceptions for specific campgrounds and developed recreation sites in Zone 2 but employs an adaptive management approach stating that if conflicts occurred at these sites, food storage orders would be implemented.

*Enforcement: Failure to comply with food storage orders of special use permits result in the cancellation of the permit or denial of future permits. Contracts can be cancelled for failure to follow food storage orders. A Supplementary Rule will be pursued such that violations of any food storage regulations, except for provisions of 43 CFR 8365.1-7, would be punishable by a fine not to exceed \$1,000 and/or imprisonment not to exceed 12 months (43 CFR 8364.1, 8365.1-6, 8360.07, and 18 USC 3559 and 3571 and FLPMA Section 303, 43 USC 1733).*

## State Lands

MFWP: The MFWP manages anthropogenic bear attractants on State owned Wildlife Management Areas (WMAs), fishing access sites, and State Parks through mandatory food storage requirements, pack in/pack out policies, and/or bear resistant containers. Attractant management varies by habitat, season, and bear activity. All WMAs in the PCA, Zone 1, and Zone 2 have mandatory food storage orders, including the Aunt Molly (1,184 acres), Blackfoot-Clearwater (43,761 acres), Kootenai Woods (1,417 acres), Marshall Creek (24,170 acres), Nevada Lake (740 acres), Sun River (19,771 acres), Ear Mountain (3,047 acres), and Blackleaf (10,397 acres) WMAs. MFWP employs an adaptive management approach stating that if conflicts occur at these sites, food storage orders would be implemented. Similarly, fishing access sites require that users pack out all garbage. At most State Parks within the NCDE, bear-resistant garbage bins are provided (Dood et al. 2006). Informational signage of other lands such as those enrolled in the Block Management Access program is encouraged to notify users of potential grizzly bear presence.

*Enforcement: ARM 12.8.201 and 12.8.210 control the dumping, pollution or littering of lands or waters under the control, administration and jurisdiction of MFWP. The maximum penalty for a violation is \$135. These rules are enforced by official Department staff such as wardens and park management staff.*

DNRC: The Montana DNRC will rely on its HCP for forest management activities as the primary component of this Conservation Strategy for grizzly bears in the PCA and Zone 1 (DNRC HCP 2010). The HCP requires all DNRC personnel and contractors who conduct forest management activities or camp in the HCP area to store all human food, pet food, livestock feed, garbage and other attractants in a bear-resistant manner. Burnable attractants (such as food leftovers or bacon grease) shall not be buried, discarded, or burned in an open campfire. Additionally, inside the PCA, Zone 1, and Zone 2, all TLMD lease and license agreements that permit uses and/or activities that may involve the use or presence of bear attractants (e.g., leases/licenses for cabin and home sites, grazing, outfitting, group use licenses for camping, picnicking etc.) shall contain applicable clauses requiring unnatural bear foods and attractants to be contained and/or managed in a bear-resistant manner.

*Enforcement: Violations of these orders are punishable by lease or license cancellation and a civil penalty of up to \$1,000 for each day of violation. Pursuant to Montana Code Annotated § 77-1-804(8). In determining the amount of civil penalty, Administrative Rule 36.25.157 requires that DNRC consider the following factors: (1) number of previous violations, (2) severity of the infractions, and (3) whether the violation was intentional or unintentional.*

## Tribal Lands

BIR: The Blackfeet Nation implements and monitors compliance with attractant storage regulations in areas normally occupied by bears. This includes nearly all public BIR lands in the PCA and most public BIR lands in Zone 1. Blackfeet Fish and Wildlife Code Chapter 3, Section 17 requires all residents and visitors in “normally occupied” bear habitat to store food, garbage, livestock food, gut piles, big game carcasses and livestock carcasses in a bear-resistant manner. Chapter 3, Section 17 also applies to

timber harvest activities within the Reservation. Purchasers, all employees, contractors and subcontractors must store trash in bear-resistant containers, remove trash on a daily basis, and refrain from feeding wildlife.

*Enforcement: The penalty for violating this section shall be \$100 per violation per day. The penalty for commercial food businesses violating food or garbage storage regulations shall be \$500 per violation per day. Regulations are enforceable by Tribal wardens and Tribal police.*

FIR: The Confederated Salish and Kootenai Tribes implemented food storage regulations for campers and backcountry users on March 1, 2011. These regulations require that “all food, garbage, pet items or any attractants that may provide a reward to wildlife, must be stored in a bear resistant manner.”

*Enforcement: These regulations are enforceable by Tribal wardens and Tribal police. Fines for violations will range from \$50 to \$100.*

### **Other Lands**

On private lands in Montana, Montana Code Annotated § 87-6-216 prohibits the feeding of certain wildlife including grizzly bears. A person may not provide supplemental feed attractants to animals by purposely or knowingly attracting any ungulates, bears, or mountain lions with supplemental feed attractants. A person who is engaged in the recreational feeding of birds is not subject to civil or criminal liability under this section unless, after having received a previous warning by the department, the person continues to feed birds in a manner that attracts ungulates or bears and that may contribute to the transmission of disease or constitute a threat to public safety.

*Enforcement: MCA 87-6-216 is enforced by official MFWP employees with enforcement authority. The maximum penalty for a violation is \$135.*

A technical working group coordinated by MFWP recently submitted recommendations to the Montana Department of Commerce Community Technical Assistance Program regarding a state-wide “rule set” for future subdivisions. These recommendations attempt to minimize the adverse impacts of subdivision development on wildlife and wildlife habitat. To minimize grizzly bear-human conflicts, MFWP recommended that if the proposed subdivision is located in an area of high or potentially high grizzly bear-human conflict in the opinion of the local MFWP biologist, the subdivision developer is required to provide adequate facilities for contained bear-resistant garbage collection.

Many counties and communities have improved their landfills and garbage collection systems to reduce or prevent conflicts with grizzly bears. Landfills have been made bear resistant with chain link or electric fence perimeters. Timing of garbage collection has been adjusted in some areas to limit the availability of attractants to grizzly bears. A number of private garbage disposal companies within the NCDE (e.g., Allied Waste Services) have replaced old dumpsters and cans with bear resistant containers in problem areas. Multiple non-government organizations as well as Federal, State and Tribal entities participate in grant programs that provide bear resistant containers to counties or other municipalities. For example, in 2012, the CS&KT used a Tribal Wildlife Grant from the USFWS to purchase 225 bear-resistant garbage cans to distribute to homeowners having problems with bears accessing their garbage.

### **NON-LETHAL CONFLICT MANAGEMENT & PREVENTION**

Over the past few decades considerable effort has been directed toward the development of non-lethal techniques for preventing conflicts entirely or responding to them once they have occurred. These techniques, most of which are easily used by the general public, include the use of bear spray, electric fencing, and other **aversive conditioning** tools. The best available technologies and science will be used in the NCDE to aversively condition bears and minimize bear-human conflict when appropriate.

Bear spray is an effective way to stop a threatening or attacking bear. Electric fencing is an incredibly effective tool when properly maintained and monitored. It can prevent bears from accessing potential attractants such as chicken coops, pig pens, calving or lambing corrals, orchards, bee yards, compost piles, gardens, hunter-killed carcasses, and any anthropogenic attractant a bear should not be able to access. MFWP and Tribal bear management specialists work extensively with the public and non-profit organizations to make electric fencing as cheap and effective as possible for citizens. This is accomplished through cost-share programs, loaner kits for short-term attractants, demonstrations at local community events and farm and ranch stores, and a comprehensive guide produced by MFWP on “Bears and Electric Fencing” available online (<http://fwp.mt.gov/fwpDoc.html?id=48893>). Other tools that will **aversively condition** grizzly bears to humans with the goal of reducing or eliminating **habituation** include rubber bullets, cracker shells, plastic slugs, propane noise makers, and trained Karelian bear dogs.

## **NUISANCE BEAR GUIDELINES AND STANDARDS**

**Nuisance bears** are bears that exhibit conflict behaviors which may place the public at undue risk. This includes any positively identified grizzly bear involved in a grizzly bear-human conflict that results in an agency management response activity (Dood et al. 2006). Examples of nuisance bears include, but are not limited to, grizzly bears that have become **food-conditioned**, that kill livestock or pets, damage property, or display **unacceptable aggressive behavior**. Some bears involved in conflicts that are resolved through preventive measures (i.e., removing or securing the human-related attractant) are not considered nuisance bears.

The Guidelines and Standards in this chapter of the Conservation Strategy apply to the PCA and Zone 1 only. For Zone 2 and Zone 3, relevant State and Tribal plans would guide decisions about nuisance bears and conflict response. However, grizzly bears in Zones 2 and 3 will not be captured and removed just because they are present, nor will they be captured and removed from these areas unless there are conflicts. MFWP, GNP, and Tribal management authorities make decisions regarding the appropriate management response within their respective jurisdictions. If the decision made by one of these management authorities is to relocate a bear, interagency communication and coordination will occur. The authority to manage and respond to grizzly bear-human conflicts is based upon existing State, Federal, and Tribal laws and regulations, as detailed in Chapter 6.

Within the PCA and Zone 1, decisions about nuisance bears will consider the following ***guidelines***:

- Location, cause of incident, severity of incident, history of the bear, health/age/sex of the bear, and demographic characteristics of animals involved will be considered in any decision about a nuisance bear (Dood et al. 2006)
- Recognizing that conservation of female bears is essential to maintenance of a grizzly population, removal of nuisance females will be minimized (Dood et al. 2006).
- Removal of nuisance bears will be carefully considered and consistent with mortality limits for the NCDE as described in Chapter 2 of this Conservation Strategy. While efforts will be made at all times to remain within sustainable mortality limits, nuisance grizzly bears must be removed if they pose a threat to human safety. If a decision to remove a nuisance bear violates the mortality limits, the reasons must be documented.
- Management of all nuisance bear situations will emphasize removal of the human cause of the conflict, when possible, and management and education actions to prevent future conflicts.
- Bears may be relocated as many times as judged prudent by management authorities.
- Bears may be preemptively moved when they are in areas where they are likely to come into conflict with humans if aversive conditioning and/or minimizing or removing attractant sources have failed to correct the bear's habituation. Such preemptive moves will not count against the bear when determining future management response actions or classifying that individual as a nuisance bear in the future.
- State and Tribal wildlife agencies, in coordination with the appropriate Federal agencies, will predetermine adequate and available sites for relocations. Relocation sites should be agreed upon before the need for relocation occurs. State and Tribal wildlife managers will coordinate with local Federal land managers on all relocations on Federal lands.

Within the PCA and Zone 1, the following **standards** apply to decisions about nuisance bears:

- No bear may be removed from the population for any offense, other than unacceptable aggression or a conflict resulting in a serious human injury or fatality, without at least one relocation, or documentation of the circumstances that warranted the removal decision.
- Bears displaying unacceptable aggression will be removed from the population.
- Bears displaying natural defensive behavior are not to be removed, unless management authorities judge that the particular circumstances warrant removal and document the circumstances that warranted the removal decision (e.g., the behavior resulted in a human fatality).
- State, Federal, and Tribal agencies will retain Grizzly Bear Management Specialists and law enforcement officers to rapidly respond to conflicts, perform public education, implement proactive sanitation measures such as fencing and livestock carcass redistribution, and assist with grizzly bear relocations and removals.
- Preemptive moves will not be used to stop distribution increases (Dood et al. 2006).
- To facilitate informed decisions about nuisance bears on adjacent jurisdictions, MFWP, CS&KT, the BIR, and GNP management authorities will communicate with each other to understand the origin and conflict history of any **marked bear** that is captured in a conflict situation within their respective jurisdictions, as appropriate.

### **Grizzly Bear Removals**

Captured grizzly bears identified for removal may be given to public research institutions or accredited public/non-profit zoological parks for appropriate non-release educational or scientific purposes as per State and Federal regulations. Grizzly bears not suitable for release, research, or educational purposes will be euthanized by management authorities, as described in appropriate State and Tribal management plans or in compliance with National Park rules and regulations. Orphaned cubs of euthanized female bears will not automatically be classified as nuisance bears. Depending on the circumstances of the conflict and subsequent removal decision, they may be left in the wild, taken to the MFWP rehab facility in Helena, Montana for re-release to the wild, or removed from the population (see Dood et al. 2006, MFWP 2010 Policy on Intake, Rehabilitation, Holding, and Disposition of Wildlife). Outside of GNP, individual nuisance bears deemed appropriate for lethal removal could be killed by permitted citizens under certain circumstances and in compliance with rules and regulations promulgated by the appropriate State or Tribal authorities.

### **MONITORING PROTOCOL**

MFWP will compile and report grizzly bear-human conflicts in all Management Zones across all jurisdictions. All reported conflicts and subsequent response actions, if any, will be documented and summarized annually. This reporting system will provide managers with a way to identify conflict “hot-spots” and compare trends in the frequency, location, cause, land ownership, and type of conflict so that conflict prevention efforts can be prioritized and directed at areas and user-groups more effectively.



## Chapter 5 – Implementation and Evaluation

Upon implementation of this Conservation Strategy, the NCDE Coordinating Committee will replace the current NCDE Grizzly Bear Subcommittee. The Coordinating Committee will coordinate and evaluate implementation of this Conservation Strategy, promote the exchange of data and information about the NCDE grizzly bear population among agencies and the public, and make recommendations to the management agencies regarding implementation of this Conservation Strategy. The NCDE Coordinating Committee will inform the IGBC about the NCDE grizzly bear population. The Coordinating Committee is not a decision-making body, although it may provide recommendations to member agencies from time to time. This Coordinating Committee does not supersede the authority of the management agencies beyond the specific actions agreed to as signatories to this Conservation Strategy.

### NCDE COORDINATING COMMITTEE MEMBERSHIP, ROLES, AND RESPONSIBILITIES

NCDE Coordinating Committee membership will consist of representatives from the following entities:

Federal	<p><u>National Park Service</u>: Glacier National Park (one member)</p> <p><u>U.S. Forest Service</u>: Flathead, Lewis and Clark, Helena, Lolo, and Kootenai National Forests. (two members total for the five National Forests)</p> <p><u>Bureau of Land Management</u>: (Butte, Lewistown, and Missoula Field Offices. (one member total for the three Field Offices)</p>
State of Montana	<p><u>Montana Department of Fish, Wildlife &amp; Parks</u> (two members)</p> <p><u>Montana Department of Natural Resources and Conservation</u> (one member)</p> <p><u>County representative appointed by the Montana Association of Counties</u> (one member)</p>
Tribes	<p><u>Blackfeet Nation</u> (one member)</p> <p><u>Confederated Salish &amp; Kootenai Tribes</u> (one member)</p>

#### NCDE Coordinating Committee roles include:

- Establish meeting rules, committee procedures, and chairperson election rules including how the group comes to consensus on areas of disagreement.
- Seek funding to further the conservation of the NCDE grizzly bear by implementing this Conservation Strategy.
- Communicate with the public about management decisions and annual monitoring reports.
- Appoint members to the NCDE Monitoring Team and Information and Education Team.
- Appoint, as needed, science teams, task forces, or other sub-committees to analyze or make recommendations regarding specific grizzly bear management issues.

Primary NCDE Coordinating Committee activities include:

- Coordinate implementation of this Conservation Strategy across the numerous agency jurisdictions and Tribal governments within the NCDE.
- Ensure that population and habitat data are collected and reported, as agreed to in this Conservation Strategy, and evaluated to assess current status of the grizzly bear population
- Ensure annual monitoring reports are made publicly available.
- In a coordinated fashion, share information and implement management actions.
- Use adaptive management to recommend revisions or amendments to the Conservation Strategy standards, guidelines, and/or monitoring procedures based on biological data, the best available science, and/or new techniques. Any such amendments will be subject to public review and comment.
- Identify management, research, and financial needs and prioritize these to successfully implement the Conservation Strategy.
- In specific circumstances related to the developed site standard or if requested by a Coordinating Committee member, the Coordinating Committee will provide a “position statement.”<sup>6</sup> A **position statement** would be a brief (e.g., 1-2 pages) assessment of the appropriateness of a proposed action relative to its impact on the entire NCDE population. If there is disagreement among Coordinating Committee members about the impacts to the grizzly bear population, the position statement would contain the viewpoints of both sides. While respective management agencies possess the sole authority to make decisions regarding grizzly bears within their jurisdictions, these position statements will communicate the NCDE Coordinating Committee’s recommended course of action.

**NCDE COORDINATING COMMITTEE – OPERATING PROCEDURES**

Within 30 days of a final rule delisting the NCDE grizzly bear population, the signatories to this Conservation Strategy will name their agency representatives to the NCDE Coordinating Committee. This Committee does not supersede the authority of its member agencies.

The person serving as chairperson of the NCDE Subcommittee, if and when a final rule changing status is published, will call the first meeting of the NCDE Coordinating Committee.

- At the first meeting, the NCDE Coordinating Committee will elect a chairperson. Chairpersons will be elected at intervals determined by the members of the NCDE Coordinating Committee.
- The NCDE Coordinating Committee will meet at least one time each year, with additional meetings as needed and agreed to by a majority of the Committee. Public notification of these meetings will be made by the chairperson or her/his representative. The details on locations and times of meetings and other business issues associated with the functioning of the NCDE Coordinating Committee will be determined at the first meeting.
- Signatory agencies and Tribes will support the participation of their representatives.

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<sup>6</sup> There are 2 circumstances that would lead to a position statement being issued by the NCDE Coordinating Committee: (1) if a proposed increase in the number of developed sites did not meet the Application Rules or (2) if a Coordinating Committee member requested a position statement for a specific project or proposal.

### **REVISING THIS CONSERVATION STRATEGY**

Once adopted by the agencies, this Conservation Strategy's standards, guidelines, and/or monitoring procedures may only be changed through a clear demonstration of need based on biological data, the best available science, and/or new techniques. Any such amendments will be subject to public review and comment, must be in writing, and must be signed by each signatory to this Conservation Strategy. Ultimately, any such changes would be guided by and consistent with the agreements reached in this Strategy and its overall goal to maintain a recovered grizzly bear population in the NCDE and conserve its habitat.

### **NCDE COORDINATING COMMITTEE – IMPLEMENTATION STRUCTURE**

#### **The NCDE Monitoring Team**

In order to understand the status of grizzly bears throughout the NCDE and formulate appropriate management strategies and decisions, there is a need for centralized responsibility to collect, manage, analyze, and distribute science-based information on grizzly bear trend, distribution, survival, mortality, conflicts, and habitat conditions. To meet this need, an NCDE Monitoring Team would be established to provide annual monitoring data to the Coordinating Committee as well as the USFWS (as required by Section 4(g)(1) of the ESA for the first five years after delisting any species). The NCDE Monitoring Team would consist of scientists representing GNP, USFS, BLM, MFWP, DNRC, the Blackfoot Nation, and the Confederated Salish and Kootenai Tribes. Other scientists can be added to the Monitoring Team with the agreement of the Coordinating Committee.

MFWP will oversee population monitoring, following procedures established since 2004. MFWP will house, manage, and share the grizzly bear population database within the structure defined by the Monitoring Team. The land management agencies (i.e., the USFS, BLM, or GNP) will house the maintained spatial GIS data to support analysis of the motorized access, developed site, and livestock habitat standards. These databases and GIS layers will be available to all participating agencies for analyzing impacts from proposed projects. An MFWP and a USFS representative will serve as co-chairs of the Monitoring Team and will call meetings as needed. Signatory agencies and Tribes will support the participation of their representatives.

MFWP will prepare an annual demographic monitoring report with staff support from participating agencies. This annual monitoring report will provide information about demographic monitoring efforts, mortality management, bear-human conflicts and conflict response efforts. The Monitoring Team will also produce an annual report on habitat standards and monitoring results for motorized access, developed sites, livestock allotments, and other habitat parameters on the schedules described in Ch. 3 of this Conservation Strategy. Agencies and Tribes responsible for monitoring major population and habitat parameters are listed in Appendix 15. Monitoring results and analyses will be presented by the Monitoring Team to the NCDE Coordinating Committee at their annual meeting.

To adequately assess habitat conditions, adherence to the habitat standards, and report on the habitat monitoring items identified in this Conservation Strategy, the use and intensive maintenance of GIS databases are required. Computer technology is constantly changing and assessment protocols must be updated as software and hardware are replaced. The GIS databases used to evaluate habitat parameters require continual updating, reevaluation, and testing. A coordinated approach to database maintenance and management is necessary for ongoing success. Members of the Monitoring Team will include identified biologists and GIS specialists from the signatory agencies and Tribes. All participating agencies would commit to seeking and sharing funding responsibilities for a GIS database manager position at levels similar to current levels.

As detailed in the monitoring sections of this Conservation Strategy, the NCDE Monitoring Team will:

- Coordinate grizzly bear data collection and analysis;
- Prepare annual monitoring reports with staff support from relevant agencies;
- Present monitoring results and analysis to the NCDE Coordinating Committee annually;
- Provide technical support to agencies and Tribes responsible for the immediate and long term management of grizzly bears in the NCDE to assist with project impact analyses.<sup>7</sup>
- Coordinate updates and maintenance of the motorized access, developed sites, and livestock allotments databases.
- Document and report any changes in motorized access route density, levels of Secure Core habitat, developed sites and their capacity, livestock allotments, and permitted sheep numbers biennially, according to the monitoring schedules described in Ch. 3 of this Conservation Strategy.
- Ensure that all cooperators have the tools and training to evaluate motorized access route density and Secure Core habitat for projects.
- Evaluate the need for updating or changing the methods used to evaluate habitat parameters and make recommendations to the NCDE Coordinating Committee on such changes, as necessary.
- Set and maintain standards, definitions, values, formats and processes for collecting and updating habitat data and assessment models consistently across jurisdictions.

### **The Information and Education Team**

Successful maintenance of a recovered NCDE grizzly bear population requires joint understanding of issues, sharing of knowledge (including new science and results of monitoring), and open communication among agencies, Tribes, elected officials, non-governmental organizations, and the public. Members of the Information and Education Team will be appointed by the Coordinating Committee and will include information and education specialists from signatory agencies and Tribes.

The goals of the Information and Education Team are:

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<sup>7</sup> The NCDE Monitoring Team is not responsible for completing impact analyses for projects proposed by any agency; such analyses are the responsibility of the agency making the proposal unless otherwise negotiated.

- Increase understanding of grizzly bears and their habitat.
- Increase public support for and compliance with agency management actions to maintain a secure NCDE grizzly bear population.
- Increase public knowledge about how to prevent encounters and conflicts.
- Increase public knowledge about the effectiveness and proper use of bear spray.
- Utilize all possible technology and media resources to help decrease grizzly bear/human conflicts while still maintaining maximum access to natural resources for humans and grizzly bears.
- Foster information sharing to ensure maximum resource, policy, and scientific informational exchange among agencies, Tribes, elected officials, interest groups, local residents, and the public.
- Provide for meaningful public involvement through a variety of methods to inform the public about agency decisions relating to grizzly bear habitat and population management activities and other management actions that may affect local residents, landowners, and other users.

### **EVALUATION AND CONSEQUENCES RELATED TO MONITORING RESULTS.**

The evaluation of the effectiveness of grizzly bear conservation measures detailed in this Conservation Strategy will be an ongoing process shared by all members of the NCDE Coordinating Committee and based on the results presented in the Monitoring Team's annual reports. If there are deviations from any of the population or habitat standards stipulated in this Conservation Strategy, a **Management Review** will be completed by a team of scientists appointed by the members of the Coordinating Committee.

A Management Review will be triggered by any of the following criteria:

- failure to meet any of the demographic standards for female survival, distribution, or mortality limits;
- failure to meet any of the habitat standards for motorized route densities or Secure Core habitat, as specified in the Application Rules in Chapter 3;
- failure to meet the standards for developed sites or livestock allotments in any given year;
- failure by a participating agency to provide adequate habitat or population data from their jurisdiction to meaningfully assess adherence to the habitat or population standards in this Conservation Strategy.

### **Description of the Management Review**

Under this Conservation Strategy, a Management Review is a process carried out by a team of scientists appointed by the NCDE Coordinating Committee. A Management Review examines management of habitat, populations, or efforts of participating agencies and Tribes to complete their required monitoring. The purposes of a Management Review are:

- To identify the reasons why particular demographic, habitat, or funding objectives were not achieved;

- To assess whether a deviation from demographic, habitat, or funding objectives constituted a biological threat to the grizzly bear population in the NCDE;
- To provide management recommendations to correct deviations from habitat or population standards, or to offset funding shortfalls (estimates of funding needs are shown in Appendix 16);
- To consider departures by one or more agencies or Tribes from the monitoring effort required under this Conservation Strategy and to develop plans to ensure that monitoring efforts be maintained as per the standards in this document, or;
- To consider and establish a scientific basis for changes/adaptations in management due to changed conditions in the ecosystem.

Management Reviews would normally be undertaken after the annual summary of monitoring information presented to the NCDE Coordinating Committee and in response to identified deviations from criteria listed above. Any NCDE Coordinating Committee member can request that a Management Review be initiated. This would be a topic for discussion by the NCDE Coordinating Committee and the review would be initiated based on their decision. The Management Review process would be completed within six months of initiation and the resulting written report presented to the NCDE Coordinating Committee and made available to the public.

Individual agencies on the NCDE Coordinating Committee will respond to the Management Review with actions that address the deviations from the population or habitat standards, if warranted and if possible.

### **Description of Petition for Relisting**

Under Section 4 of the ESA, an individual or an organization can petition the USFWS to change the listed status of a species. If the petition were determined to be warranted, it would initiate a status review by the USFWS. A status review evaluates all factors affecting the population and results in a finding published in the Federal Register about whether protection under the ESA is warranted. For a petition to be considered warranted, it must present credible scientific information to support its conclusions. If the NCDE Coordinating Committee determines there are imminent threats to the NCDE grizzly bear population that threaten its long-term viability and cannot be managed adequately through the post-delisting management structure, it would petition the USFWS for relisting under the ESA. Because a petition from the NCDE Coordinating Committee would be accompanied by firsthand biological data regarding the population and its habitat, such a petition would trigger a status review by the USFWS. Alternatively, the USFWS can initiate a status review at any time to determine if the grizzly bear in the NCDE should be re-listed based on concerns about the population and/or its habitat.

If, as the result of the status review or a petition for relisting, the population is found to be warranted for listing, as per the criteria of the ESA in Section 4(a)(1), then the species could be immediately considered for relisting or could be relisted under emergency regulations, per Section 4(b)(7), if the threat were severe and immediate. The USFWS may also unilaterally consider emergency relisting at

any time, without the completion of a status review. The ESA is very clear that relisting of a previously listed species shall be promptly undertaken if needed to prevent a significant risk to the well being of any recovered and delisted species (Section 4(g)(2)). Should such a situation exist, the relisting would be considered a high priority and would not be impacted by the listing backlog.

### **Criteria That Would Require the USFWS to Make a Decision about “Emergency Relisting”**

In the event that unforeseen circumstances result in an unexpected, severe decline of the NCDE grizzly bear population, as defined by the criteria below, the USFWS will exercise its discretion to make an emergency re-listing decision within 30 days of receiving notification that any of these criteria have been met or exceeded. The USFWS retains all decision making discretion to determine if there is an emergency posing a significant risk to the well-being of the species and may determine that emergency re-listing is not warranted, but the USFWS will nevertheless make a decision within 30 days of notification. The USFWS also retains discretion to initiate a review of whether emergency listing is warranted based on factors other than the criteria identified below. If the USFWS determines that emergency re-listing is warranted, it will make prompt use of the ESA’s emergency listing provisions. Biological criteria that would require the USFWS to make a decision about whether emergency re-listing is necessary are:

- 1) If a credible population estimate showed the population was less than 500<sup>8</sup> in the combined area of the PCA and Zone 1; or
- 2) If the most recent two 6-year pooled datasets showed independent female survival was less than 0.85 for two consecutive 6-year periods, as reported by the Monitoring Team; or
- 3) If the most recent three 6-year pooled datasets showed a declining population trend<sup>9</sup> of at least 5% for three consecutive time periods (e.g., 2005-2010, 2006-2011, 2007-2012), as reported by the Monitoring Team.

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<sup>8</sup> Miller and Waits (2003) identified 400 as an adequate population size to minimize the chances that genetic factors will have a substantial effect on the viability of an isolated grizzly bear population for at least several decades. Because the NCDE grizzly bear population is well connected to Canadian populations, we used a conservative approach in identifying 500 as a criterion.

<sup>9</sup> Although population trend (i.e., lambda) is not included as a demographic standard, it will be reported annually using the methods of Mace et al. (2012) to pool together the previous 6 years of data, or other appropriate methods.

## Chapter 6 – Regulatory and Conservation Framework

The management of grizzly bears and the habitats they require for survival are dependent upon the laws, regulations, agreements, and management plans of the State, Tribal, and Federal agencies in the NCDE. This chapter documents the regulatory mechanisms and conservation framework that will maintain a recovered grizzly bear population in the NCDE. These laws, regulations, and agreements provide the legal basis for coordinating management, controlling mortality, providing secure habitats, managing grizzly bear/human conflicts, regulating hunters and hunting seasons, limiting motorized access where necessary, controlling livestock grazing, regulating oil and gas development, mitigating large scale mining operations, maintaining education and outreach programs to prevent conflicts, monitoring populations and habitats, and requesting management and petitions for relisting when necessary.

Grizzly bear populations declined in part due to the lack of regulatory mechanisms to control take and protect habitat. Specifically, agencies could not develop effective management programs because they lacked data on population trends, habitat conditions, population size, annual mortality, and reproductive rates (40 FR 31734-31736, July 28, 1975). Delisting of the grizzly bear will remove the regulatory certainty provided by the ESA that prohibits the take of grizzly bears and the requirement that Federal agencies consult with the USFWS on projects that may affect grizzly bear habitat. In the absence of this regulatory framework, the USFWS must demonstrate that:

- 1) Adequate regulatory mechanisms are available for protecting grizzly bears after delisting;
- 2) These mechanisms will be effective in maintaining the recovered status of the grizzly bear; and
- 3) Any selected mechanisms will be carried forward into the foreseeable future with reasonable certainty.

This chapter documents the mechanisms to conserve grizzly bears in the NCDE that would continue to exist if/when they are removed from the ESA's Federal List of Endangered and Threatened Wildlife. Regulatory mechanisms relevant to grizzly bears consist primarily of Federal laws, regulations, USFS and BLM Resource Management Plans, GNP's Superintendent's Compendium, HCPs, and State laws. Other conservation mechanisms include Tribal and State grizzly bear management plans and other guidelines that coordinate management, population monitoring, and mortality control.

The National Forest and BLM Resource Management Plans, the Glacier National Park Superintendent's Compendium, the DNRC Habitat Conservation Plan, Tribal Forest Management Plans, Montana Code Annotated (MCA), and Administrative Rules of Montana (ARM) are regulatory mechanisms that are legally enforceable. These dictate how grizzly bear population and habitat management will occur, and, in doing so, they serve to ensure against excessive grizzly bear mortality by minimizing human-caused mortality risk. Our intent is to have signatories of this Conservation Strategy representing the land management agencies incorporate the habitat standards and guidelines described in this Conservation Strategy into their respective management plans. **Standards** are mandatory constraints on project and activity decision making whereas **guidelines** are constraints that allow for departure from their terms, so long as the purpose of the guideline is met (77 FR 21162, April 9, 2012). Guidelines in this Conservation Strategy serve to mitigate and minimize undesirable effects to grizzly bears or their habitat. Because



amending or revising management plans will require an analysis under NEPA for some agencies, the USFWS will not sign the Conservation Strategy until this NEPA process is complete and satisfactory. Decisions will be made to ensure grizzly bear conservation in the foreseeable future. Conversely, implementation of this Conservation Strategy will be contingent on the USFWS determining the grizzly bear in the NCDE no longer meets the definition of threatened or endangered under the Endangered Species Act.

### **FEDERAL LAWS**

**Glacier National Park Enabling Act, 16 U.S.C. § 161 et seq.** An Act of Congress on May 11, 1910 established Glacier National Park as a public park for the benefit and enjoyment of the people and for the preservation of the park in a state of nature and for the care and protection of the fish and game within its boundaries. GNP comprises 17.3% of the NCDE's PCA for grizzly bears.

***What it means to grizzly bears:*** In an act that pre-dates the creation of the National Park Service, Congress created Glacier National Park in recognition of the unique scenic and natural values of the area. The Act directed the Secretary of Interior to promulgate such rules and regulations necessary to preserve these values for future generations. The Act clearly states that the park will be maintained in a natural state with its wildlife protected. Glacier National Park continues to work to fulfill this directive by implementing rigorous protection programs, as is evident by maintenance of a large population of grizzly bears for decades.

**National Park Service Organic Act, 1916.** The National Park Service...shall promote and regulate the use...by such means as... to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner...as will leave them unimpaired for future generations. 16 U.S.C. §1

***What it means to grizzly bears:*** This act created a National Park Service to administer National Parks. In this act Congress specifically directs the Park Service to conserve natural values and to prevent their impairment. Modern interpretations of the act assume that principles of ecosystem management will be applied. Such principles require the maintenance of fully functional ecological systems of which large predators like grizzly bears are integral components. This interpretation precludes the Park Service from engaging in any activity that would result in the loss or substantial diminishment of any native species in a National Park, including grizzly bears.

**The Wilderness Act, 1964, 16 U.S.C. 1131- 1136.** The Forest Service and National Park Service both manage lands designated or proposed as wilderness areas under the Wilderness Act of 1964 (16 U.S.C. 1131– 1136). Within these areas, the Wilderness Act states the following: (1) New or temporary roads cannot be built; (2) there can be no use of motor vehicles, motorized equipment, or motorboats; (3) there can be no landing of aircraft; (4) there can be no other form of mechanical transport; and (5) no structure or installation may be built. The Wilderness Act allows livestock allotments existing before the passage of the Wilderness Act and mining claims staked before January 1, 1984, to persist within Wilderness Areas, but no new grazing permits or mining claims can be established after these dates. If

preexisting mining claims are pursued, the plans of operation are subject to Wilderness Act restrictions on road construction, permanent human habitation, and developed sites.

***What it means to grizzly bears:*** Over 30% (1,728,184 acres; 6,994 sq km) of grizzly bear habitat inside the PCA is within Federal and Tribal Designated Wilderness Areas. As such, a large proportion of existing grizzly bear habitat is protected from direct loss or degradation by the prohibitions of the Wilderness Act. These Wilderness Areas are considered long-term secure habitat because they do not allow motorized access and are protected from new road construction, site developments, livestock allotments, mining claims, and energy development by Federal legislation.

**Lacey Act, 16 U.S.C. § 3371 et seq.** This Act makes it illegal to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken or possessed in violation of any law, treaty or regulation of the United States or in violation of any Indian Tribal law; and to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce any fish or wildlife taken, possessed, transported, or sold in violation of any law or regulation of any state or in violation of any foreign law. 18 U.S.C. §§42-43.

***What it means to grizzly bears:*** The primary focus of the Lacey Act is the prohibition of interstate and international trafficking in protected wildlife. In the absence of ESA protection, other State, Federal, and Tribal laws remain that endeavor to protect grizzly bears or regulate hunting of the bears. Therefore, the species would continue to be protected by provisions specified under the Lacey Act because it is tied to the wildlife-related laws of Montana, Canada, and Tribal entities. Violators of the Lacey Act can face civil fines up to \$10,000, forfeiture of wildlife and equipment, and criminal penalties up to five years' incarceration and maximum fines of \$250,000 for individuals and \$500,000 for organizations. There have been several instances of convictions in North America due to violations of the Lacey Act with regard to grizzly bears. These violations included illegal purchase of live bears, selling bear gall bladders, improper tagging of harvested bears, and illegal killing of bears. The Lacey Act will continue to apply to individuals or parties involved in such activities regardless of the status of grizzly bears under the ESA.

**Fish and Wildlife Coordination Act, 16 U.S.C. §661-666c.** This Act relates to wildlife associated with water resource development. This Act also authorizes that lands and waters may be acquired by Federal construction agencies for wildlife conservation to mitigate water projects in order to preserve and assure for the public benefit the wildlife potential of the particular water project area.

***What it means to grizzly bears:*** The Fish and Wildlife Coordination Act requires that fish and wildlife conservation be given equal consideration with other aspects of water resource development. Consultation with USFWS is required if any modification of a stream or other water body is proposed by an agency under a Federal permit or license. In the absence of ESA protection, potential impacts to grizzly bears from a proposed project would still need to be evaluated. This Act also authorizes the preparation of plans to protect wildlife resources in the event that a water resource development project is undertaken. For example, mitigation plans

for hydroelectric projects within the range of the grizzly bear must consider potential impacts to the species and recommend mitigation measures. If any water resource development projects are proposed that have the potential to impact grizzly bears in the area, those impacts must be addressed.

**National Wildlife Refuge Administration Act and 1997 Refuge Improvement Act. 16 U.S.C. §668dd et seq.** The charter for the refuge system establishes a clear statutory goal of conservation, defined in ecological terms. The USFWS is directed by statutory mission to sustain, restore and enhance healthy populations of fish, wildlife, and plants on system lands. The USFWS may not permit uses to occur where they are incompatible with the conservation purpose of the system and economic uses must contribute to attaining the conservation mission. Statutes require the USFWS to maintain “biological integrity, diversity, and environmental health” on the refuges.

***What it means to grizzly bears:*** The mission of the refuge system is conservation, defined as being for animals, plants, and their habitats. This is in contrast to the more complex multiple-use, sustained yield missions that also seek to provide commodities extracted from other public lands. Further, by statute, the USFWS may not permit uses to occur where they are incompatible with conservation of wildlife and their habitat. These laws provide strong protections for grizzly bears and their habitat where they occur on refuge lands. In the PCA and Zone 1, the refuge system includes 22,072 acres of land.

**Sikes Act, 16 U.S.C. §670g.** The Secretaries of Agriculture and Interior and the State agencies will cooperate with the Department of Defense under this Act to plan, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish and game. These programs shall include, but not be limited to, specific habitat improvements projects and related activities and provide adequate protection for species considered threatened or endangered pursuant to Section 4 of the ESA.

***What it means to grizzly bears:*** The Sikes Act requires the Department of Defense to develop and implement integrated natural resource management plans for U.S. military installations. Plans must consider fish, wildlife, and habitat needs; and are prepared in cooperation with the USFWS and state wildlife agencies. In the absence of ESA protection for the grizzly bear, requirements under the Sikes Act would still need to be met. The nearest major installations are Malmstrom Air Force Base in Great Falls, Montana and Fairchild Base near Spokane, Washington. Smaller facilities include Fort Missoula near Missoula, Montana and Fort William Henry Harrison near Helena, Montana. Resource plans for these installations that may have impacts on grizzly bears have been and will continue to be reviewed under the Sikes Act, post-delisting.

**Multiple Use Sustained Yield Act, 16 U.S.C. §§528-531.** It is the policy of the Congress that the National Forests are established and shall be administered for outdoor recreation, range, timber, watershed and wildlife and fish purposes. As used in this Act, "Multiple Use" means the management of all the various resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people. It requires National Forests to make the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient

latitude for periodic adjustments in use to conform to changing needs and conditions. It allows for some land to be used for less than all of its resources while institutionalizing coordinated management of the various resources, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources. It also allows management for multiple uses that may not necessarily provide the greatest dollar return or the greatest unit output.

***What it means to grizzly bears:*** This means that while grizzly bear habitat will be managed according to the intent of this Conservation Strategy, the USFS must also balance the needs of grizzly bears with a combination of other, sometimes competing, land uses. The Multiple Use Sustained Yield Act applies to lands managed by the USFS, or approximately 60.9% (3,840,415 acres) of the PCA within the NCDE.

**National Environmental Policy Act, 42 U.S.C. §§ 4321-4370(f) (NEPA).** NEPA applies to federal agencies and requires those agencies to consider the environmental impacts of its decisions before taking federal actions. It requires agencies to take a “hard look” at the projected environmental impacts of a proposed action. The twin goals of NEPA are to provide for informed decision-making about the environmental effects of proposed actions and to make known those impacts to the public so that their views may be expressed. NEPA is a procedural statute. It does not dictate a result. Agencies must consider a range of alternatives to a proposed project, each with different levels of impacts. In addition to public review, NEPA requires federal agencies to coordinate or consult with each other prior to making decisions.

***What it means to grizzly bears:*** NEPA ensures that any project occurring on federally managed lands, requiring Federal permits or involving expenditures of Federal funds will involve analysis and disclosure of potential environmental impacts. It uses a multidisciplinary approach to consider environmental effects in federal government agency decision making. It applies to a wide range of land use actions, including most land use plan revisions and amendments. It ensures that impacts to wildlife, including grizzly bears, from activities proposed on National Forest or other Federal lands will be analyzed in advance. It also ensures that decisions will be subject to some level of public review.

**Endangered Species Act, 16 U.S.C. § 1531-1599. (ESA)** The ESA requires the Secretary of the Interior to list species that are either endangered or threatened with extinction. The listing determination is based on the analysis of five factors. . If one or more of those criteria are met, it qualifies for listing as threatened or endangered. Listed species receive legal protection against “taking,” which includes harassment, harm, hunting, killing and significant habitat modification or degradation. A major goal of the ESA is to recover endangered or threatened species to the point they can be removed from the list. In order to delist a species, the USFWS must review those same five factors to determine whether any one of them continues to threaten or endanger a species. Thus, the USFWS must find that: a) the species' habitat or range is not threatened with destruction, modification or curtailment, b) the species is not being over utilized for commercial, recreational, scientific or educational purposes, c) disease and predation are not significant problems, d) there are adequate regulatory mechanisms in place, and e) there are no significant other natural or manmade factors affecting the continued existence of the species. The USFWS must monitor recovered species for not less than five years after the species is

delisted and no longer protected under the ESA. Both listing and delisting decisions must be based solely on the best available scientific and commercial information regarding a species' status, without reference to economic or other factors. The ESA authorizes a landowner to develop an HCP to minimize and mitigate, to the maximum extent practicable, any impact to threatened and endangered species while conducting lawful activities on their lands. An HCP may continue to apply even after a species is delisted. The USFWS has the authority to issue emergency regulations any time there is a significant risk to the well-being of an animal. Emergency rules may take effect immediately upon publication in the Federal Register. The emergency rule must explain in detail the reasons why such a regulation is necessary. The USFWS must withdraw the rule if it determines it is no longer necessary, based on the best scientific and commercial data available.

***What it means to grizzly bears:*** The ESA governs the process for listing and delisting. If grizzly bears are removed from the Federal List of Threatened and Endangered Wildlife (i.e., "delisted"), the USFWS will continue to monitor the status of grizzly bears in the NCDE. Any HCP developed while grizzly bears were listed remains in effect for the life of the Plan, regardless of listed status. The USFWS must respond to any petitions for re-listing received and maintains the authority to emergency re-list at any other time if conditions warrant.

**National Forest Management Act (NFMA) of 1976, 16 U.S.C. § 1600, et seq.** NFMA provides the legal basis and direction for development of National Forest Resource Management Plans. It legally requires that standards in Forest Plans are met. NFMA specifies that the National Forest System be managed to provide for diversity of plant and animal communities to meet multiple use objectives. Subsequent regulations for planning land and resource management (36 CFR 219), adopted in 1982 and modified in 2012 (77 FR 21162, April 9, 2012), require the USFS to manage habitats to maintain viable populations of species of conservation concern. NFMA applies to lands managed by the USFS, or approximately 60.9% (3,840,415 acres) of the PCA within the NCDE.

***What it means to grizzly bears:*** This directs the USFS to create legally binding Land Management Plans that can regulate human activities (i.e., motorized route densities, developed sites, livestock allotments) on National Forest lands. Limiting these activities is the crux of successful grizzly bear habitat management and directly reduces human-caused mortality.

**Federal Land Policy and Management Act (FLPMA) of 1976.** This law applies to BLM lands and states they will be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values...that will provide food and habitat for fish and wildlife and domestic animals, and that will provide for outdoor recreation and human occupancy and use. FLPMA is also the law that gives the BLM authority to designate "Wilderness Study Areas" on their lands and manage these areas "in a manner so as not to impair the suitability of such areas for preservation as wilderness." Similar to the Wilderness Act of 1964, FLPMA allows "the continuation of existing mining and grazing uses and mineral leasing" which were in existence on or before October 21, 1976. 43 U.S.C. §§ 1701-1777.

***What it means to grizzly bears:*** Grizzly bears are a natural resource that fall under the FLPMA's umbrella of management guidelines which decrees that the resources required by grizzlies, and other species, will be provided for through appropriate management and with consideration for other land assets. The BLM will manage the natural elements that are necessary for grizzlies and other wildlife.

**Fish and Wildlife Improvement Act, 16 U.S.C. § 742(a).** This law authorizes the Secretaries of the Interior and Commerce to establish, conduct, and assist with national training programs for State fish and wildlife law enforcement personnel. It also authorized funding for research and development of new or improved methods to support fish and wildlife law enforcement. The law provides authority to the Secretaries to enter into law enforcement cooperative agreements with State or other Federal agencies, and authorizes the disposal of abandoned or forfeited items under the fish, wildlife, and plant jurisdictions of these Secretaries. It strengthens the law enforcement operational capability of the Service by authorizing the disbursement and use of funds to facilitate various types of investigative efforts. It expanded the use of fines, penalties and forfeiture funds received under the ESA and the Lacey Act to include the costs of shipping, storing and disposing of items. It specifically prohibits the sale of items whose sale is banned under other laws.

***What it means to grizzly bears:*** Law enforcement cooperative agreements between Federal agencies, Montana and the Tribes will assist in efforts to control illegal activities directed at grizzly bears.

**The National Parks Omnibus Management Act of 1998, 16 U.S.C. § 5901, et seq.** This Act requires the Secretary of Interior to improve management, protection, interpretation and research of NPS resources. It also requires the Secretary to develop comprehensive training for NPS employees. It identifies the need to enhance management and protection of national park resources by providing clear authority and direction for the conduct of scientific study in the National Park system and to use the information gathered for management purposes.

***What it means to grizzly bears:*** *This law provides further support for GNP to use scientific research to monitor and manage grizzlies within their boundaries.*

**Tax Relief and Health Care Act of 2006, PL 109-432.** This law withdrew lands on the Lewis and Clark National Forest and some areas of the Flathead National Forest from any future leasing under the mining laws and mineral leasing laws permanently. While this law prohibited the establishment of new leases, it did not eliminate leases that existed at the time the law was passed.

***What it means to grizzly bears:*** This law means that nearly all USFS and BLM lands in the NCDE with a high potential for oil and gas development are legally unavailable to such development (Figure 3).

**National Indian Forest Resource Management Act (25 U.S.C, Ch. 33).** This Federal law requires a forest management plan for Indian forest lands to describe the manner in which policies of the Tribes and Secretary will be applied. It requires the silviculture plan to support the objectives of beneficial

landowners and be based on the principle of sustained yield. It requires the approval of the Secretary of the Interior.

**What it means to grizzly bears:** Similar to NFMA for the USFS, this law provides authority for Indian Tribes to create management plans to regulate human activities such as livestock grazing (on forested lands) and road construction.

#### **Clean Water Act, Safe Drinking Water Act, Clean Air Act, and Resource Conservation and Recovery Act**

**What it means to grizzly bears:** Together, these environmental laws provide tangential benefits to grizzly bears by assuring minimum levels of environmental quality are maintained.

### **FEDERAL REGULATIONS**

**Roadless Areas Conservation Rule, 2001.** The 2001 Roadless Areas Conservation Rule prohibits road construction, road re-construction, and timber harvest in Inventoried Roadless Areas (66 FR 3244-3273, January 12, 2001).

**What it means to grizzly bears:** As it stands at the time of writing, the Roadless Areas Conservation Rule (and subsequent Court decisions) effectively ensures that Inventoried Roadless Areas will be maintained in their current state in terms of road access. This means these areas will continue to serve as secure areas for grizzlies away from constant or prolonged human presence. This restriction on road building makes mining activities and oil and gas production much less likely because access to these resources becomes cost-prohibitive or impossible without new roads.

**25 CFR 162.1 to .623.** This Federal regulation describes the authorities, policies, and procedures governing the granting of leases on Indian reservations.

**What it means to grizzly bears:** It affects grizzly bear conservation by providing for the regulation of the location and duration of leases of grazing units on land that contains grizzly bears and bear habitat.

**25 CFR 166.1.** This Federal regulation describes the authorities, policies, and procedures the Bureau of Indian Affairs uses to approve, grant, and administer permits for grazing livestock on Tribal land, individually-owned Indian land, or government land on Indian reservations.

**What it means to grizzly bears:** It affects grizzly bear conservation by regulating livestock grazing on land that contains grizzly bears and bear habitat.

**36 CFR 1.2 (d).** The regulations contained in 36 CFR parts 2 through 5, part 7, and part 13 of this section shall not be construed to prohibit administrative activities conducted by the National Park Service, or its agents, in accordance with approved general management and resource management plans, or in emergency operations involving threats to life, property, or park resources.

**What it means to grizzly bears:** Allows the NPS to manage grizzly bears and conduct research and management activities that would otherwise be prohibited.

**36 CFR 1.5 (a)(1).** Gives National Park Superintendents the authority to establish for all or a portion of a park area a reasonable schedule of visiting hours, impose public use limits, or close all or a portion of a park area to all public use or to a specific use or activity in order to protect natural resources or provide for human safety.

**What it means to grizzly bears:** Gives park superintendents the authority to limit specific activities, or human use of areas important to grizzly bears to prevent conflicts. 36 CFR 1.3 provides penalties for violations.

**36 CFR 1.5 (a)(2).** Gives National Park Superintendents the authority to designate areas for a specific use or activity, or impose conditions or restrictions on a use or activity.

**What it means to grizzly bears:** Allows superintendents to prohibit or restrict park uses that threaten grizzly bear security or other values, with penalties for violations.

**36 CFR 1.7(b).** National Park Service Superintendents shall publish in writing all designations, closures, permit requirements and other restrictions imposed under discretionary authority.

**What it means to grizzly bears:** This is the ‘Superintendents Compendium’ and is a legal record of Glacier National Park committing to management of grizzly bears by this Conservation Strategy.

**36 CFR 2.2(a)(1).** Prohibits the unauthorized taking of wildlife in National Parks.

**What it means to grizzly bears:** It protects grizzly bears by making it a Federal offense to kill them inside a National Park.

**36 CFR 2.2(a)(2).** Prohibits the feeding, touching, teasing, frightening, or intentional disturbing of wildlife in National Parks.

**What it means to grizzly bears:** This regulation is an effective way to minimize human-caused grizzly bear mortalities by making it illegal to contribute to their habituation or food-conditioning inside National Parks. This ultimately prevents conflicts and minimizes potential management removals.

**36 CFR 2.10 (d).** Gives the National Park Superintendents authority to designate all or a portion of a park area where food, lawfully taken fish or wildlife, garbage and equipment used to cook or store food must be kept to avoid bear/human conflicts. This restriction does not apply to food that is being transported, consumed, or prepared for consumption.

**What it means to grizzly bears:** This regulation provides National Parks the authority to implement and enforce food storage regulations. This important conflict prevention tool is widely applied throughout bear habitat and is strictly enforced.



**36 CFR 219.** This regulation specifies that the National Forest System be managed to provide for diversity of plant and animal communities to meet multiple use objectives. Subsections require that management prescriptions in Forest Land Management Plans provide for diversity of plant and animal communities while meeting multiple use objectives and maintaining viable populations of existing native and desired non-native vertebrate species in the planning area. A viable population is defined as one, which has the estimated numbers, and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area.

***What it means to grizzly bears:*** This regulation legally requires the USFS to design projects and include appropriate mitigation measures so that the viability of the grizzly bear population in the NCDE is not compromised.

**36 CFR 261.50 (a) and (b).** This regulation gives Forest Supervisors the authority to issue orders which close or restrict the use of described areas, or of any forest development road or trail within the area over which he has jurisdiction.

***What it means to grizzly bears:*** This authority is used to close areas to minimize grizzly bear-human conflicts and to issue food storage, carcass storage and camping requirements.

**36 CFR 261.53 (a) and (e).** States that when provided for in an order authorized under 36 CFR 261.50 (a) and (b) it is prohibited to go into or be upon any area which is closed for the protection of: (a) threatened, endangered, rare, unique, or vanishing species of plants, animals, birds or fish or; (b) for public health or safety.

***What it means to grizzly bears:*** This regulation provides the USFS with the authority to restrict human activities and entrance at specific times and/or locations to protect grizzly bears and provide for public safety, if it is deemed necessary.

**36 CFR 261.58 (e) and (s) and (cc).** States that when provided for in an order authorized under 36 CFR 261.50 (a) and (b) the following are prohibited. (a) Camping; (s) Possessing, storing, or transporting any bird, fish, or other animal or parts thereof as specified in the order; (cc) Possessing or storing any food or refuse, as specified in the order.

***What it means to grizzly bears:*** This regulation provides for restricting certain human activities in order to minimize grizzly bear-human conflicts and provides for visitor safety

## **TRIBAL LAWS, RULES, & ORDINANCES**

### **Blackfeet Indian Reservation**

**Tribal Ordinance 40(B)** – Timber Use Policy Statement with attached Timber Product Law. The Policy Statement is the driving document regulating the harvest of forest products on the Reservation. The Product Law specifies the enforcement procedures and penalties for failing to comply with Tribal regulations.

**What it means to grizzly bears:** This Ordinance provides Tribal authorities the authority to enforce conditions in their Forest Management Plans regarding road densities, food storage, and other provisions associated with individual projects. Ultimately, this reduces the potential for grizzly bear-human conflicts and therefore, human-caused grizzly bear mortality.

**Constitution and By-Laws For the Blackfoot Tribe of the Blackfoot Indian Reservation of Montana, Article VI Section 1(p).** This section of the Blackfoot Tribe’s constitution grants the Blackfoot Tribal Business Council the power to promulgate rules and regulations governing hunting, fishing, and trapping on the Blackfoot Reservation

**What it means to grizzly bears:** It is significant to grizzly bear conservation because it gives the Blackfoot Tribal Business Council the authority to govern hunting of grizzly bears on the Blackfoot Reservation. The constitution is enforced by the Blackfoot Tribe and recognized and approved by the Secretary of Interior.

**Fish and Game Rules to Govern Fishing, Hunting, and Trapping on the Blackfoot Indian Reservation.** This document describes how all wildlife on the Blackfoot Indian Reservation, including grizzly bears, are owned and managed by the Blackfoot Tribe. It describes the authority of the Blackfoot Tribe to manage wildlife and habitat on the reservation. It contains regulations regarding food storage and killing grizzly bears. It describes penalties and enforcement procedures. It is enforced by Blackfoot Tribal Game Wardens.

**What it means to grizzly bears:** It applies to grizzly bear conservation by providing the legal basis to regulate and enforce the take of grizzly bears on the reservation and implementing a food storage order.

#### **Flathead Indian Reservation**

##### **Tribal Ordinance 44D – Tribal Hunting and Fishing Conservation Ordinances**

**What it means to grizzly bears:** This ordinance prohibits hunting of grizzly bears on the FIR by anyone except Tribal members. Hunts for religious, cultural or spiritual purposes that are otherwise prohibited by regulation may be engaged in if approved by the appropriate Tribal Culture Committee and/or the Tribal Council.

#### **MONTANA STATE LAWS (MCAs) & ADMINISTRATIVE RULES (ARMs)**

##### **MCA § 87-1-217. Policy for management of large predators -- legislative intent.**

- (1) In managing large predators, the primary goals of the department, in the order of listed priority, are to:
  - (a) protect humans, livestock, and pets;
  - (b) preserve and enhance the safety of the public during outdoor recreational and livelihood activities; and
  - (c) preserve citizens' opportunities to hunt large game species.

- (2) As used in this section:
- (a) "large game species" means deer, elk, mountain sheep, moose, antelope, and mountain goats; and
  - (b) "large predators" means bears, mountain lions, and wolves.
- (3) With regard to large predators, it is the intent of the legislature that the specific provisions of this section concerning the management of large predators will control the general supervisory authority of the department regarding the management of all wildlife.
- (4) The department shall ensure that county commissioners and tribal governments in areas that have identifiable populations of large predators have the opportunity for consultation and coordination with state and federal agencies prior to state and federal policy decisions involving large predators and large game species.

**What it means to grizzly bears:** This rule provides for local government involvement in large scale decision making relative to MFWP management of predators. Local support and tolerance of grizzly bears is critical to long term grizzly conservation.

**MCA § 87-1-301. (Effective March 1, 2012) . Powers of the MFWP commission.** The commission shall set the policies for the protection, preservation, management, and propagation of the wildlife, fish, game, furbearers, waterfowl, nongame species, and endangered species of the state and for the fulfillment of all other responsibilities of the department [MFWP] as provided by law. The commission shall also establish the hunting, fishing, and trapping rules of the department [MFWP] and review and approve the budget of the department prior to its transmittal to the budget office. The commission has the authority to establish wildlife refuges, bird, and game preserves and is responsible to establishing the rules of the department governing the use of lands owned or controlled by the department and waters under the jurisdiction of the department.

**What it means to grizzly bears:** Allows MFWP to manage grizzly bears as part of the suite of wildlife within the state with the goal of species protection and preservation.

**MCA § 87-1-303. Rules for use of lands and waters.** The commission may adopt and enforce rules governing uses of lands that are acquired or held under easement by the commission or lands that it operates under agreement with or in conjunction with a federal or state agency or private owner; adopt and enforce rules governing recreational uses of all public fishing reservoirs, public lakes, rivers, and streams that are legally accessible to the public or on reservoirs and lakes that it operates under agreement with or in conjunction with a federal or state agency or private owner. These rules must be adopted in the interest of public health, public safety, public welfare, and protection of property and public resources in regulating ....hunting, fishing, trapping....picnicking, camping, sanitation, and use of firearms.

**What it means to grizzly bears:** Provides authority to the MFWP Commission to set mandatory food storage orders on state owned and/or managed lands in the interest of public safety, public welfare and protection of property.

**MCA § 87-1-304. (Effective March 1, 2012) . Fixing of seasons and bag and possession limits.** Subject to the provisions of [87-5-302](#), the MFWP commission may:

- (1) fix seasons, bag limits, possession limits, and season limits;
- (2) open or close or shorten or lengthen seasons on any species of game, bird, fish, or fur-bearing animal as defined by [87-2-101](#);
- (3) declare areas open to the hunting of deer, antelope, elk, moose, sheep, goat, mountain lion, bear, wild buffalo or bison, and wolf by persons holding an archery stamp and the required license, permit, or tag and designate times when only bows and arrows may be used to hunt deer, antelope, elk, moose, sheep, goat, mountain lion, bear, wild buffalo or bison, and wolf in those areas;
- (4) subject to the provisions of [87-1-301](#)(7), restrict areas and species to hunting with only specified hunting arms, including bow and arrow, for the reasons of safety or of providing diverse hunting opportunities and experiences; and
- (5) declare areas open to special license holders only and issue special licenses in a limited number when the commission determines, after proper investigation, that a special season is necessary to ensure the maintenance of an adequate supply of game birds, fish, or animals or fur-bearing animals. The commission may declare a special season and issue special licenses when game birds, animals, or fur-bearing animals are causing damage to private property or when a written complaint of damage has been filed with the commission by the owner of that property. In determining to whom special licenses must be issued, the commission may, when more applications are received than the number of animals to be killed, award permits to those chosen under a drawing system. The procedures used for awarding the permits from the drawing system must be determined by the commission.
- (6) The commission may adopt rules governing the use of livestock and vehicles by archers during special archery seasons.
- (7) Subject to the provisions of [87-5-302](#), the commission may divide the state into fish and game districts and create fish, game, or fur-bearing animal districts throughout the state. The commission may declare a closed season for hunting, fishing, or trapping in any of those districts and later may open those districts to hunting, fishing, or trapping.
- (8) The commission may declare a closed season on any species of game, fish, game birds, or fur-bearing animals threatened with undue depletion from any cause. The commission may close any area or district of any stream, public lake, or public water or portions thereof to hunting, trapping, or fishing for limited periods of time when necessary to protect a recently stocked area, district, water, spawning waters, spawn-taking waters, or spawn-taking stations or to prevent the undue depletion of fish, game, fur-bearing animals, game birds, and nongame birds. The commission may open the area or district upon consent of a majority of the property owners affected.
- (9) The commission may authorize the director to open or close any special season upon 12 hours' notice to the public.

**What it means to grizzly bears:** This law provides authority to the MFWP commission to set rules and regulations for grizzly bear hunting. The MFWP commission has the authority to: fix,

open, close, lengthen, or shorten hunting seasons; declare hunting arms specifications; set possession and bag limits; set tagging and license requirements; set shooting hours; open special areas, and issue special licenses to manage grizzly bears through sport harvest. The Commission process requires opportunity for public involvement.

**MCA § Section 87-5-301. (Effective March 1, 2012). Grizzly bear -- findings -- policy.** The legislature finds that: (a) grizzly bears are a recovered population and thrive under responsive cooperative management; (b) grizzly bear conservation is best served under state management and the local, state, tribal, and federal partnerships that fostered recovery; and (c) successful conflict management is key to maintaining public support for conservation of the grizzly bear. It is the policy of the state of Montana to: (a) manage the grizzly bear as a species in need of management to avoid conflicts with humans and livestock; and (b) use proactive management to control grizzly bear distribution and prevent conflicts, including trapping and lethal measures.

**What it means to grizzly bears:** Allows state management of grizzlies as a classified species. Grizzly bears are currently dually classified in Montana as a game animal with no defined harvest season and as a 'species in need of management'. A 'species in need of management' classification implies the species is either in need of intense conservation or population management.

**MCA § Section 87-5-302. (Effective March 1, 2012) . Commission regulations on grizzly bears.** The commission has the authority to regulate the hunting of grizzly bears including establishing requirements: for the tagging of carcasses, skulls, and hides; for transportation, exportation, and importation. The commission shall establish hunting season quotas for grizzlies that will prevent the population of grizzly bears from decreasing below sustainable levels and with the intent to meet population objectives for elk, deer, and antelope. The provisions of this subsection do not affect the restriction provided in 87-2-702 that limits a person to the taking of only one grizzly bear in Montana per license.

**What it means to grizzly bears:** This law provides authority to the MFWP Commission to set rules and regulations for tagging, transportation, exportation, and importation of legally harvested grizzly bears and ensures that any hunting seasons set by the MFWP Commission will not contribute to the grizzly bear population decreasing below sustainable levels.

**MCA § Section 87-2-101. Definitions.** "Game animals" means deer, elk, moose, antelope, caribou, mountain sheep, mountain goat, mountain lion, bear, and wild buffalo.

**What it means to grizzly bears:** Classifying grizzly bears as a game animal in Montana gives MFWP Commission the authority to implement a hunting season. Classification as a game animal also makes it illegal for private citizens to kill a grizzly bear without a license and outside the seasons set by the MFWP Commission. In other words, status as a game animal prevents unregulated take by citizens.

**MCA § 87-6-202. Unlawful possession, shipping, or transportation of game fish, bird, game animal, or fur-bearing animal.** A person may not possess, ship, or transport all or part of any game fish, bird, game animal, or fur-bearing animal that was unlawfully killed, captured, or taken, whether killed, captured, or taken in Montana or outside of Montana.

**What it means to grizzly bears:** This law makes it illegal to possess any unlawfully obtained part of a grizzly bear.

**MCA § 87-6-206. Unlawful sale of game fish, bird, game animal, or fur-bearing animal.** A person may not purposely or knowingly sell, purchase, or exchange all or part of any game fish, bird, game animal, or fur-bearing animal..

**What it means to grizzly bears:** This law makes it illegal to sell any unlawfully obtained part of a grizzly bear.

**MCA § 87-6-106. Lawful taking to protect livestock or person.** This law states that a citizen may kill a grizzly bear if it is "...attacking, killing, or threatening to kill a person." However, for purposes of protecting livestock, a person may not kill or attempt to kill a grizzly bear unless the grizzly bear is in the act of attacking or killing livestock." A person who takes wildlife based on this law shall notify the MFWP within 72 hours and shall surrender or arrange to surrender the wildlife to MFWP.

**What it means to grizzly bears:** By making a distinction between grizzly bears and other wildlife which may kill livestock, the State of Montana has provided additional protection to grizzly bears. It makes this type of killing only allowed under extremely rare circumstances. Additionally, if a person kills a grizzly bear based on this law, there must be injured or dead livestock associated with it.

**MCA § 87-6-216. Unlawful supplemental feeding.**

- (1) A person may not provide supplemental feed attractants to game animals by:
  - a. purposely or knowingly attracting any cloven-hoofed ungulates, bears, or mountain lions with supplemental feed attractants;
  - b. after having received a previous warning, negligently failing to properly store supplemental feed attractants and allowing any cloven-hoofed ungulates, bears, or mountain lions access to the supplemental feed attractants; or
  - c. purposely or knowingly providing supplemental feed attractants in a manner that results in an artificial concentration of game animals that may potentially contribute to the transmission of disease or constitute a threat to public safety.
- (2) A person is not subject to civil or criminal liability under this section if the person is engaged in:
  - a. the normal feeding of livestock;
  - b. a normal agricultural practice;
  - c. cultivation of a lawn or garden;
  - d. the commercial processing of garbage; or

- e. recreational feeding of birds unless, after having received a previous warning by the department, the person continues to feed birds in a manner that attracts cloven-hoofed ungulates or bears and that may contribute to the transmission of disease or constitute a threat to public safety.
- (3) This section does not apply to supplemental feeding activities conducted by the department for disease control purposes.
  - (4) A person convicted of a violation of this section shall be fined not less than \$50 or more than \$1,000 or be imprisoned in the county detention center for not more than 6 months, or both. In addition, the person, upon conviction or forfeiture of bond or bail, may be subject to forfeiture of any current hunting, fishing, or trapping license issued by this state and the privilege to hunt, fish, or trap in this state or to use state lands, as defined in [77-1-101](#), for recreational purposes for a period of time set by the court.

**What it means to grizzly bears:** This law provides MFWP with a legal framework within which to regulate attractant storage on private lands. It means that MFWP has a legal basis to require landowners to store attractants in a manner in which bears cannot access them.

**MCA § 87-2-702: Restrictions on special licenses -- availability of bear and mountain lion licenses.** “A person who has killed or taken any game animal, except a deer, an elk, or an antelope, during the current license year is not permitted to receive a special license under this chapter to hunt or kill a second game animal of the same species. The [MFWP] commission may require applicants for special permits authorized by this chapter to obtain a valid big game license for that species for the current year prior to applying for a special permit. A person may take only one grizzly bear in Montana with a license authorized by [87-2-701](#).”

**What it means to grizzly bears:** Sport harvest is limited by rules set forth by the MFWP Commission. Legislative action would be required to change this restriction in any future season setting process.

**MCA § Title 75, Chapter 1. Montana Environmental Policy Act.** Establishes policy of the State of Montana to use all practicable means and measures to create and maintain conditions under which man and nature can coexist in productive harmony.

**What it means to grizzly bears:** This policy, similar to NEPA, is procedural in nature and assures that any project proposed by the state of Montana in grizzly bear habitat will consider, in detail, the impacts to grizzly bears. It establishes the requirement for the State of Montana to consider the environmental effects of each project and allow public input.

**MCA § Title 77, Chapter 1. Administration of State Lands.** Directs the State board of land commissioners to manage State lands to support education and for the attainment of other worthy objectives helpful to the well-being of the people of Montana. It further directs the board to manage State lands under the multiple use management concept to ensure: (1) they are utilized in that combination best meeting the needs of the people and the beneficiaries of the trust; and (2) harmonious and coordinated management of the various resources.

**What it means to grizzly bears:** This law means that lands managed by DNRC must be economically viable while balancing the needs of grizzly bears.

**Administrative Rule of Montana (ARM) 12.9.103. Grizzly Bear Policy.** Whereas, the Montana Fish and Game Commission has management authority for the grizzly bear, a resident wildlife species, and is dedicated to the preservation of grizzly bear populations within the State of Montana; and Whereas the secure habitat for the grizzly has been greatly reduced as a result of human development and population growth from 1850 through 1950 in the bear's traditional range in all western States; and Whereas, a significant portion of the remaining grizzly bear habitat and population is located in Montana and these Montana populations occur in wildlands such as wilderness, primitive areas, de facto wilderness areas, national forests, national parks, Indian reservations, and seasonally, on adjacent private lands. Now, therefore, in order to promote the preservation of the grizzly bear in its native habitat, the commission establishes the following policy guidelines for the Montana Department of Fish, Wildlife and Parks action when dealing with grizzly bear.

- (a) Habitat. The department shall work to perpetuate and manage grizzly bear in suitable habitats of this State for the welfare of the bear and the enjoyment of the people of Montana and the nation. In performing this work the department should consider the following:
  - (i) the commission has the responsibility for the welfare of the grizzly and advocates the protection of the bear's habitat;
  - (ii) management of Montana's wildlands, including the grizzly bear habitat, is predominately, but not exclusively, a responsibility of various Federal agencies and private landowners;
  - (iii) land use decisions made by these agencies and individuals affect grizzly bear habitat, thus cooperative programs with these agencies and individuals are essential to the management of this species;
  - (iv) preservation of wildlands is critical to the protection of this species and the commission advocates wildland preservation in occupied grizzly bear habitat; and
  - (v) while some logging may not be detrimental to grizzly habitat, each logging sale in areas inhabited by grizzly bear should be carefully reviewed and evaluated.
- (b) Research. It is recognized by the commission that research on the habitat requirements and population characteristics of the grizzly bear is essential for the welfare of the species. Departmental research programs and proposals directed at defining those habitat requirements are encouraged and supported.
- (c) Hunting and recreational use. The commission recognizes its responsibility to consider and provide for recreational opportunities as part of a grizzly bear management program. These opportunities shall include legal hunting, recreational experiences, aesthetics of natural ecosystems, and other uses consistent with the overall welfare of the species.
  - (i) the department should consider the variability of values between individuals, groups, organizations, and agencies when management programs for various grizzly bear populations are developed.



- (ii) sport hunting is considered the most desirable method of balancing grizzly bear numbers with their available habitat, minimizing depredations against private property within or adjacent to grizzly bear habitat, and minimizing grizzly bear attacks on humans.
- (d) Depredations. Contacts between grizzly bear and humans, or property of humans, require delicate handling and consideration. When these contacts reach the stage for definite action, the following actions should be carried out:
  - (i) grizzly bear, in the process of threatening or endangering human life, shall be captured or dispatched immediately.
  - (ii) where no immediate threat to human life exists, individual bear encounters with humans shall be evaluated on a case by case basis and when the attack is abnormal or apparently unprovoked, the individual bear involved shall be captured or dispatched.
  - (iii) when the attack is normal (e.g., a female defending her cubs, any bear defending its food, or any bear defending itself) but the situation leads itself to no reasonable possibility of leaving the bear in place, then the bear should be removed.
  - (iv) grizzly bear committing depredations that do not directly endanger human life but that are causing property losses shall be evaluated on an individual case basis.
  - (v) where removal is determined to be the best resolution to the problem, depredating or nuisance bear shall be trapped, and if determined to be suitable for transplanting, shall be marked and released in suitable habitat previously approved with appropriate land management agencies.
  - (vi) reasonable efforts shall be made to inform the public of the transplant program, fully explaining the reasons for the capturing and locations of the release area. A bear 'relocation page' was created for the MFWP webpage in 2011 in the interest of public notification of all instances in which grizzly or black bears are captured and relocated. <http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/relocation/>
  - (vii) upon request by an authorized scientific investigative agency or public zoological institution, a captured bear may be given to that agency or institution, for appropriate non release research purposes. A reasonable charge may be required to cover costs of handling.
- (e) Depredating grizzly bear that are not suitable for release or research because of old age, acquired behavior, disease, or crippling, shall be killed and sent to the department's research facilities for investigation. The public shall be fully informed when these actions are taken and the reasons for these actions shall be fully explained
- (f) Coordination. The department shall consult with appropriate Federal agencies and comply with applicable Federal rules and regulations in implementation of this policy. (History: Sec.87 1 301MCA, IMP, 87 1 201, 87 1 301 MCA; Eff. 12/31/72; AMD, 1977 MAR p.257, Eff. 8/26/77.)

***What it means to grizzly bears:*** This policy guides decision making for grizzly bear conservation and management within the state of Montana with an overall goal to promote the preservation of the grizzly bear. It requires coordination with appropriate Tribal, Federal, State, and private entities and advocates protecting grizzly bear habitat.

**Administrative Rule of Montana (DNRC) (ARM) 36.11.433 GRIZZLY BEAR MANAGEMENT ON OTHER WESTERN MONTANA LANDS.** When conducting forest management activities on scattered lands

administered by the Stillwater unit, Kalispell unit, Missoula unit and Clearwater unit, within the NCDE, and in Plains and Libby unit lands within the Cabinet-Yaak ecosystem, the department shall adhere to the following:

- (a) Design projects to result in no permanent net increase of open road density on parcels that exceed an open road density of one mile per square mile using simple linear calculations. This shall apply only during the non-denning period. Temporary increases are permissible for up to two consecutive operating seasons. The department shall make efforts to reduce total road density when compatible with other agency goals and objectives.
- (b) Retain cover that provides visual screening adjacent to open roads to the extent practicable.
- (c) Maintain hiding cover where available along all riparian zones.
- (d) Prohibit contractors and purchasers conducting contract operations from carrying firearms while operating.

**Administrative Rule of Montana (DNRC) (ARM) 36.11.434 GRIZZLY BEAR MANAGEMENT ON EASTERN MONTANA LANDS.** On Bozeman unit lands within the greater Yellowstone ecosystem, and Helena unit and Conrad unit lands within the NCDE, the department shall determine appropriate methods to comply with the Endangered Species Act, 16 U.S.C. Sections 1531 through 1544 and 77-5-116, MCA, on a project level basis. Factors to consider shall include, but not be limited to:

- (a) cover retention;
- (b) duration of activity;
- (c) seasonal restrictions;
- (d) hiding cover near riparian zones;
- (e) food storage (where applicable); and
- (f) road density.

**What it means to grizzly bears:** This policy requires that considerations and protective measures be incorporated into all forest management activities conducted on state trust lands in the areas specified. Affected lands occur in portions of the PCA, Zone 1 and Zone 2. These requirements supplement those contained in DNRC's habitat conservation plan and would be required for all applicable DNRC lands not covered under that agreement.

**Montana Constitution. Article IX Environment and Natural Resources. Section 1** Protection and Improvement. The State and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations.

**What it means to grizzly bears:** This Section provides tangential benefits to grizzly bears by assuring a minimal level of environmental quality on State lands and projects.

**Montana Constitution. Article X, Section 2. Public school fund.** The public school fund of the state shall consist of:

- (1) Proceeds from the school lands which have been or may hereafter be granted by the United States,
- (2) Lands granted in lieu thereof,
- (3) Lands given or granted by any person or corporation under any law or grant of the United States,
- (4) All other grants of land or money made from the United States for general educational purposes or

without special purpose,

- (5) All interests in estates that escheat to the state,
- (6) All unclaimed shares and dividends of any corporation incorporated in the state,
- (7) All other grants, gifts, devises or bequests made to the state for general educational purposes.

**What it means to grizzly bears:** This Section describes what lands belong to the State of Montana for management under Article X, Section 11 of the Constitution and the laws and administrative rules adopted there under.

**Montana Constitution. Article X, Section 11. Public land trust, disposition.** All lands of the state that have been or may be granted by congress, or acquired by gift or grant or devise from any person or corporation, shall be public lands of the state. They shall be held in trust for the people, to be disposed of as hereafter provided, for the respective purposes for which they have been or may be granted, donated or devised.

(2) No such land or any estate or interest therein shall ever be disposed of except in pursuance of general laws providing for such disposition, or until the full market value of the estate or interest disposed of, to be ascertained in such manner as may be provided by law, has been paid or safely secured to the state.

(3) No land which the state holds by grant from the United States which prescribes the manner of disposal and minimum price shall be disposed of except in the manner and for at least the price prescribed without the consent of the United States.

(4) All public land shall be classified by the board of land commissioners in a manner provided by law. Any public land may be exchanged for other land, public or private, which is equal in value and, as closely as possible, equal in area.

**What it means to grizzly bears:** This Section requires that all State lands are held in trust and that full market payment must be made for any disposition of those lands. Thus, these considerations have the potential to influence land management policies of DNRC that may influence grizzly bears.

### **FEDERAL PLANS AND GUIDELINES**

In addition to Federal and State laws and regulations, the following plans and guidelines provide both direction and guidance for grizzly bear population and/or habitat management.

#### **National Park Service**

Glacier National Park released the **Bear Management Plan** and **Bear Management Guidelines** in May 2010 as guidance documents for managing grizzly bears. Sections in the Guidelines cover informing visitors and employees, preventive management actions, special bear management areas, preparing for management actions, and follow-up and evaluation of management actions.

**NPS 77**, Natural Resource Management Guidelines, May 16, 1991. Guides National Park managers to perpetuate and prevent from harm (through human actions) wildlife populations as part of the natural ecosystems of parks.

**Final Environmental Impact Statement, Grizzly Bear Management Program, Glacier National Park, July 1983:**

- Identifies sanitation procedures designed to ensure that human foods and attractants are kept secured from bears. Garbage and other unnatural food attractants will be eliminated before control actions are required. The solid waste handling program will encompass use of trash containers of bear-resistant design, careful and frequent garbage pickup to prevent overflow and overnight accumulations.
- The Superintendent authorizes and approves the GNP Grizzly Bear Management Program that outlines the park's Bear Management Area Program. The Bear Management Area Program restricts recreational activity in areas with seasonal concentrations of grizzly bears. The goals of these restrictions include: (1) minimize bear/people interactions that may lead to habituation of bears to people (habituation can result in bears being removed from the population for human safety), (2) prevent human caused displacement of bears from prime food sources, and (3) decrease the risk of bear-caused human injury in areas with high levels of bear activity.
- Outlines Park bear monitoring program.
- Outlines Park bear research goals and objectives.
- Leaves open the possibility for supplemental feeding of grizzly bears, if deemed necessary.
- Identifies as an objective that public awareness of exposing bears to unnatural food sources may lead to human injury, or to the bears' destruction, or both. Requires an active information program be directed at both visitors and employees to inform them of policies and goals of bear management, and the reasons for these. Provides guidelines for the distribution of bear safety warning information through entrance stations, signs, visitor contacts, and literature.

**U.S. Forest Service**

If a change of status for the NCDE grizzly bear population under the ESA takes place, Forest Service Region 1 will classify the grizzly bear as a sensitive species in the NCDE area. Grizzly bears and their habitats will then be managed as sensitive on National Forest System lands in accordance with **Forest Service Manual 2670** (specifically 2670.22, 2670.32, and 2676.1 2676.17e). In addition, National Forests will continue to follow direction established in existing land management plans until amended or revised.

Beaverhead-Deerlodge Forest Land and Resource Management Plan (2009, with amendments)

Flathead Forest Land and Resource Management Plan (1986, with amendments)

Kootenai Forest Land and Resource Management Plan (1987, with amendments)

Lewis and Clark Forest Land and Resource Management Plan (1986, with amendments)

Helena Forest Land and Resource Management Plan (1986, with amendments)

Lolo Forest Land and Resource Management Plan (1986, with amendments)

**Swan Valley Grizzly Bear Conservation Agreement** is a collaborative document that guides management of multiple use lands owned by the USFS, the Nature Conservancy, and the DNRC in the upper Swan Valley that occur within USFWS identified linkage zones. It commits the signing parties to cooperatively manage motorized access and timber harvest on these lands so that there are not too many projects occurring simultaneously. Under ESA listed status, this Conservation Agreement was successfully implemented by all parties and all affected subunits met their criteria for motorized access management. The Conservation Agreement has a clause for automatic annual renewal and is still in place. These lands will continue to be managed to balance timber harvest with wildlife habitat security. Please see Ch. 3 (“Legacy Lands and Cooperative Habitat Management in the Swan Valley” section) or Appendix 7 (Swan Valley Grizzly Bear Conservation Agreement) for more detailed information about how this Conservation Agreement will continue to be implemented in the foreseeable future.

### **Bureau of Land Management**

If a change of status for the NCDE grizzly bear population under the ESA takes place, the BLM will classify the grizzly bear as a sensitive species in the NCDE area. Currently, the Butte Field Office, Lewistown Field Office, and Missoula Field Office Resource Management Plans contain extensive guidelines that directly benefit grizzly bears and/or their habitat. While many of these are summarized in Ch. 3 (see the “Habitat Protections in Management Zone 1” or “Habitat Protections in Management Zone 2” sections), detailed descriptions are provided in Appendix 11 (Detailed summary of relevant BLM Management Plan direction for the Butte, Lewistown, and Missoula Field Offices).

### **STATE PLANS AND GUIDELINES**

**MFWP Grizzly Bear Management Plan for Western Montana.** In 2006, MFWP released a management plan and final programmatic environmental impact statement (EIS) for grizzly bear management in 17 counties in western Montana that include the entire NCDE PCA, Zone 1, and Zone 2. The plan focuses on grizzly bear management in the Northern Continental Divide, Cabinet-Yaak, and Bitterroot Ecosystems, as well as intervening areas. The goal of this management plan is “To manage for a recovered grizzly bear population in western Montana and to provide for a continuing expansion of that population into areas that are biologically suitable and socially acceptable. This should allow MFWP to achieve and maintain population levels that support managing the bear as a game animal along with other species of native wildlife and provide some regulated hunting when and where appropriate.” The Plan identifies management objectives, describes grizzly bear biology, provides strategies for reducing and responding to grizzly bear/human conflicts, and discusses both habitat and population monitoring needs.

**DNRC State Forest Land Management Plan.** The DNRC State Forest Land Management Plan was signed in May 1996 and provides specific resource management standards that apply to all forested state trust lands in Montana. The Plan contains specific standards that emphasize management of vegetation to

promote biodiversity, and it includes habitat protection measures for endangered, threatened, and sensitive species. The resource management standards were codified in Forest Management Administrative Rules in September 2003.

**DNRC Habitat Conservation Plan for Forested State Trust Lands.** The DNRC released a final decision in 2011 to implement a Habitat Conservation Plan for forest management activities on most of its forested State lands throughout western Montana, including lands occupied by grizzly bears in the NCDE (DNRC 2010). This HCP will guide management of activities on 147,843 acres (598 sq km) of State lands within the NCDE PCA and an additional 72,875 acres (295 sq km) of occupied habitat outside the PCA (DNRC 2010). The DNRC developed their HCP and habitat mitigation measures in cooperation with the USFWS to address the needs of several listed species, including the grizzly bear. This HCP provides additional outreach focused on avoiding bear encounters and storing food properly, minimizes roads in key bear habitats (avalanche chutes and riparian areas), and suspends motorized activities within 1 km (0.6 mi) of a den site (DNRC 2010). On DNRC lands included in the HCP within the PCA, there will be no new grazing allotments for small livestock (i.e., sheep or goats). Additionally, in areas outside of PCA, new open road construction would be minimized, vegetative cover would be retained, there would be spring restrictions on forest management activities, and restrictions on livestock grazing to minimize bear/livestock conflicts would be incorporated into grazing permits (DNRC 2010).

**Swan Valley Grizzly Bear Conservation Agreement** is a collaborative document that guides management of multiple use lands owned by the USFS, the Nature Conservancy, and the DNRC in the upper Swan Valley. It is described immediately above in the “U.S. Forest Service” sub-section of the “Federal Plans and Guidelines” section. Its full language is also provided as an appendix (Appendix 7).

### **TRIBAL MANAGEMENT PLANS**

**Bear Management Plan and Guidelines for Bear Management on the Blackfeet Reservation.** Pending adoption by the Blackfeet Tribal Business Council, this document describes the policies, goals, and methods for implementing bear management activities on the Blackfeet Indian Reservation. It describes how the Blackfeet Tribe will manage livestock depredations and other human/bear conflicts, what conflict preventative measures will be used, procedures for handling bears, and bear habitat protection measures. This document affects grizzly bear conservation because it directs the way grizzly bears are managed on the Blackfeet Indian Reservation. The Blackfeet Fish and Wildlife Department implements this plan.

**Blackfeet Forest Management Plan, 2008.** This document guides forest management activities on the Blackfeet Indian Reservation from 2009 to 2023. It is required by federal regulation and addresses timber harvesting, forest protection, forest development, and the organization of the forestry department. It describes special considerations for grizzly bear habitat in forest management activities. The plan is implemented by the Blackfeet Tribe with final oversight by the Bureau of Indian Affairs. It applies to grizzly bear conservation because it guides timber management, which affects the quality and quantity of grizzly bear habitat and how bears use it.

**Flathead Indian Reservation Grizzly Bear Management Plan, 1981.** A resolution by Tribal Council gave the plan its authority. It covers the Tribal Fish and Game Conservation Department, Wildland Recreation Department, and BIA Wildlife Branch. The overall goal is “to secure and/or maintain a viable, self-sustaining population [of grizzly bears] in critical habitat occupied in the Mission Mountains.” It includes subgoals of managing the population for a “stable or slightly increasing” trend; maintaining sufficient grizzly bear habitat to support a “viable bear population;” minimizing human-bear competition; and managing “natural resources to minimize adverse effects and maximize benefits for grizzly bears while meeting the natural resource needs of the Confederated Tribes.”

**Flathead Indian Reservation Forest Management Plan, 2000 (with amendments).** This plan, as authorized by the Tribal Council and the Bureau of Indian Affairs, is in effect from 2000 to 2030. It “...emphasizes restoration of the forest over the economic returns it could provide ” by identifying timber harvest standards and providing legal descriptions and designations of roadless and wilderness areas where timber harvest and road construction is limited or not allowed. It also identifies areas where hiding cover should be maintained to facilitate movement across roads and restricts total road miles to levels at or below that number existing in 1999.

**GLOSSARY OF TERMS**

**acceptable aggression** – a bear defending its young, its food, itself, or during a surprise encounter

**adaptive management** – a model for conservation that uses and incorporates information from ongoing monitoring and research to direct appropriate management actions. Specifically, it is the integration of program design, management, and monitoring to systematically test assumptions in order to adapt management measures accordingly.

**administrative sites** – sites or facilities constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples include headquarters, ranger stations, dwellings, warehouses, guard stations, and Park entrances.

**attractants** – human sources of food that may bring bears into an area including garbage, carcasses, bird seed, livestock feed, bee hives, pet food, garden vegetables, orchards, compost piles, and any other foods consumed or grown by humans

**aversive conditioning** – the use of non-lethal methods (e.g., rubber bullets, cracker shells, Karelian bear dogs, etc.) to teach bears to negatively associate humans and food

**core habitat** (former definition) – those areas at least 2,500 acres (hectares) in size and > 500m from an open road or high-use trail; this Conservation Strategy revises the definition of core habitat and changes the name of this revised term to “secure core habitat”

**denning season** – December 1- April 1 west of the continental divide and December 1- April 15 east of the continental divide; There are no restrictions on motorized use related to grizzly bears during this time.

**developed site** – sites or facilities on public Federal lands with features that are intended to accommodate public use and recreation. Examples include, but are not limited to: campgrounds, trailheads, lodges, summer homes, restaurants, visitor centers, and ski areas.

**dispersed site** – sites on public lands used frequently by the public but which have no permanent constructed features, are temporary in nature, have minimal to no site modifications, and have informal spacing, primitive roads, and/or informal interpretive services. These include many car camping sites along public roads, user-established camping areas accessible only by non-motorized means, and/or outfitter camps.

**food conditioned** – a bear that has received a significant amount of human foods such as garbage, camp food, pet food, livestock feed, or birdseed; and persistently seeks these foods

**Food conditioned** – bears that persistently seek anthropogenic foods or associate humans or their dwellings with food rewards

**grizzly bear-human conflict** – incidents in which bears either do or attempt to: injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods, attractants, or agricultural crops

**habituated** – a bear that does not display avoidance behavior near humans or in human use areas such as camps, town sites, or within 100 meters of open roads due to repeated exposure to these circumstances.

**high-use trail** – those trails with an average of 20 or more parties per week, based on expert opinion

**lambda** – a measure of annual population growth; a lambda value of 1.03 means that population of organisms is increasing at 3 percent annually



- nuisance bear** – bears that exhibit conflict behaviors which may place the public at undue risk. This includes any grizzly bear involved in a grizzly bear-human conflict that results in an agency management response action (Dood et al. 2006, p. 84).
- position statement** – a brief (e.g., 1-2 pages) document issued by the NCDE Coordinating Committee about the appropriateness of a proposed action relative to its impact on the entire NCDE population. If there is disagreement among Coordinating Committee members about the impacts to the grizzly bear population, the position statement would contain the viewpoints of both sides. While respective management agencies possess the sole authority to make decisions regarding grizzly bears within their jurisdictions, these position statements will communicate the NCDE Coordinating Committee’s recommended course of action, based on the best available science. There are 2 circumstances that would lead to a position statement being issued by the NCDE Coordinating Committee: (1) if a proposed increase in the number of developed sites did not meet the Application Rules or (2) if a Coordinating Committee member requested a position statement for a specific project or proposal.
- recurring helicopter flight** – repeated (multiple trips/passes each day), low-altitude (< 500m above-ground-level) flights for periods longer than 48 hours
- relocation** – the capture and movement by management authorities of a bear involved in a conflict with humans or human-related foods, to a remote area away from the conflict site, usually after fitting the bear with a radio collar
- removal** – capture and placement of a bear in an authorized public zoological or research facility or destruction of that bear
- resource selection function** –
- revegetated road** – one that is not drivable by motorized vehicles; It is easier to walk on the side-hill than down the road
- secure core habitat** – those areas more than 500 meters (0.3) from a motorized access route during the non-denning period and at least 2,500 acres in size
- stable isotope** –
- sustainable mortality** – the amount of mortality a population can endure without reducing overall population growth. In other words, the number of deaths do not exceed the number of individuals born and surviving to reproductive age
- unacceptable aggression** – bear behavior that includes active predation on humans, approaching humans or human use areas in an aggressive way; aggressive behavior when the bear is unprovoked by self-defense, defense of young, defense of foods, or in a surprise encounter
- visual screening** – vegetation and/or topography providing visual obstruction capable of hiding a grizzly bear from view

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