FINAL CONSERVATION STRATEGY FOR THE GRIZZLY BEAR IN THE YELLOWSTONE ECOSYSTEM

Developed by the Interagency Conservation Strategy Team

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Executive Summary

Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area

Chapter 1 Introduction and Background

The future management of the Yellowstone grizzly bear population is envisioned as one in which the grizzly and its habitat are conserved as integral parts of the Greater Yellowstone Area.

Within the Greater Yellowstone Area (GYA), the grizzly bear population and its habitat will be managed utilizing a management approach that identifies a Primary Conservation Area (PCA) and adjacent areas where occupancy by grizzly bears is anticipated and acceptable. The PCA is the existing Yellowstone grizzly bear recovery zone as identified in the 1993 *Grizzly Bear Recovery Plan (Recovery Plan)* (USFWS 1993). The size of the recovery zone is not being expanded in this approach. Upon implementation of this Conservation Strategy, management using a recovery zone line and grizzly bear Management Situations described in the Interagency Grizzly Bear Guidelines (IGBC 1986) will no longer be necessary[1]. The PCA boundary will replace the recovery zone boundary.

In the Conservation Strategy, management direction is described for both the PCA and adjacent areas within the GYA. State grizzly bear management plans, forest plans, and other appropriate planning documents will provide specific management direction for the adjacent areas outside the PCA.

This Conservation Strategy was developed to be the document guiding management and monitoring of the Yellowstone grizzly bear population and its habitat upon recovery and delisting. This approach will remain in place beyond recovery and delisting. Ongoing review and evaluation of the effectiveness of this Conservation Strategy is the responsibility of the state and federal managers in the GYA. This Conservation Strategy will be updated by the management agencies every five years or as necessary, allowing public comment in the updating process.

Upon implementation of the Conservation Strategy, the Yellowstone Grizzly Coordinating Committee (YGCC) will replace the Yellowstone Ecosystem Subcommittee.

The Conservation Strategy and the State Management Plans

The purpose of this Conservation Strategy (Strategy) and the state plans is to:

- Describe and summarize the coordinated efforts to manage the grizzly bear population and its habitat to ensure continued conservation in the GYA
- Specify the population, habitat, and nuisance bear standards to maintain a recovered grizzly bear population for the foreseeable future
- Document the regulatory mechanisms and legal authorities, policies, management, and monitoring programs that exist to maintain the recovered grizzly bear population
- Document the commitment of the participating agencies

Implementation of the management strategies requires continued cooperation between federal and state agencies.

[1] An exception is the Caribou-Targhee National Forest. The use of Management Situation lines is an integral part of management under the 1997 Targhee National Forest revised Forest Plan.

The GYA is a dynamic environment; monitoring systems in the Strategy allow for dynamic management as environmental issues change. The agencies are committed to be responsive to the needs of the grizzly bear by dynamic management actions based on the results of detailed annual population and habitat monitoring.

The vision of the Strategy can be summarized as follows:

- The PCA will be a secure area for grizzly bears, with population and habitat conditions maintained to ensure a recovered population is maintained for the foreseeable future and to allow bears to continue to expand outside the PCA.
- Outside of the PCA, grizzly bears will be allowed to expand into biologically suitable and socially acceptable areas.
- Outside of the PCA, the objective is to maintain existing resource management and recreational uses and to allow agencies to respond to demonstrated problems with appropriate management actions.
- Outside of the PCA, the key to successful management of grizzly bears lies in bears utilizing lands that are not managed solely for bears but in which their needs are considered along with other uses.
- Expand public information and education efforts.
- Provide quick responsive management to deal with grizzly bear conflicts.
- Manage grizzly bears as a game animal; including allowing regulated hunting when and where appropriate.

Relationship to Other Plans

By integrating state plans into the Strategy, it was ensured that the plans and the Strategy are consistent where necessary and complementary. The state plans are formally incorporated in the Conservation Strategy as Appendices K, L, and M.

Relationships with national forest and national park plans are also mentioned throughout the Strategy. Land and resource management plans for some national forests, national parks, and the Bureau of Land Management (BLM) in the GYA have incorporated the habitat standards and other relevant provisions of the Conservation Strategy. For those standards and provisions not yet incorporated into management plans, the agencies will implement the habitat standards and monitoring requirements in this conservation strategy through their established planning processes, subject to NEPA or other legal requirements

Chapter 2 Population Standards and Monitoring

To maintain a healthy (recovered) grizzly bear population in the GYA, it is necessary to have adequate numbers of bears that are widely distributed with a balance between reproduction and mortality. This section details the population criteria in the *Recovery Plan* that were necessary to achieve recovery, and the population standards necessary to maintain it. *Recovery Plan* criteria focus on the PCA and a 10-mile perimeter, whereas standards in the Strategy and the parameters in appended state plans focus beyond the PCA and encompass the entire GYA. Because grizzly bears are a difficult species to monitor and manage, multiple standards with additional monitoring items are identified to provide sufficient information upon which to base management decisions. It is the goal of the agencies implementing this Conservation Strategy to manage the Yellowstone grizzly population in the entire GYA at or above a total of 500 grizzly bears.

Population standards and monitoring items include:

- Monitoring unduplicated females with cubs-of-the-year for the entire GYA

- Calculation of a total population estimate for the entire GYA that will be used to set mortality limits
- Maintaining a total population for the entire GYA above 400 bears to assure the genetic needs of the population
- Monitoring the distribution of females with young of all ages and having a target of at least 16 of 18 BMUs (Bear Management Units) within the PCA occupied at least one year in every six, and no two adjacent BMUs can be unoccupied over any six-year period
- Monitoring known and probable total human-caused mortality within the entire GYA and limiting mortality to no more than 4% of the total population estimate to be human-caused mortality calculated as a six-year running average
- Monitoring known and probable human-caused mortalities of female bears within the entire GYA and allowing no more than 30% of the total mortality limit (4% of the total population estimate) to be females
- Monitoring population trend using female survivorship and reproductive rate data
- Ensure meeting defined genetic management objectives

Chapter 3 Habitat Standards and Monitoring

The habitat standards identified in this document will be maintained at identified levels inside the PCA. In addition to the habitat standards, several other habitat factors will be monitored and evaluated to determine the overall condition of habitat for bears. It is the goal of the habitat management agencies to maintain or improve habitat conditions existing as of 1998, as measured within each subunit within the PCA, while maintaining options for management of resource activities at approximately the same level as existed in 1998. The habitat standards in this document are subject to revision based on the best available science and will be reviewed and updated as necessary.

Habitat standards include:

- Maintenance of secure habitat at 1998 levels in each BMU subunit through management of motorized access route building and density, with short-term deviations allowed under specific conditions. Secure habitat is defined as more than 500 meters from an open or gated motorized access route or reoccurring helicopter flight line and must be greater than or equal to 10 acres in size.
- The number of commercial livestock allotments and number of permitted domestic sheep will not exceed 1998 levels inside the PCA. Existing sheep allotments will be phased out as the opportunity arises with willing permittees.
- Management of developed sites at 1998 levels within each BMU subunit, with some exceptions for administrative and maintenance needs

Habitat criteria that will be monitored and reported include:

- Monitoring open and total motorized access route density in each BMU subunit inside the PCA
- Monitoring of four major food items throughout the Yellowstone area: winter ungulate carcasses, cutthroat trout spawning numbers, bear use of army cutworm moth sites, and whitebark pine cone production. The incidence of white pine blister rust in sampled areas will also be monitored.
- Monitoring of habitat effectiveness in the PCA using the databases from the Yellowstone Grizzly Bear Cumulative Effects Model
- Monitoring the number of elk hunters inside the PCA

- Monitoring the number of grizzly bear mortalities throughout the Yellowstone area on private lands and development of a protocol to monitor private land status and condition
- Land managers will ensure that habitat connectivity is addressed throughout the Yellowstone area as part of any new road construction or reconstruction

Chapter 4 Management and Monitoring of Grizzly Bear/Human Conflicts

The management of grizzly bear/human conflicts inside the PCA is based upon the existing laws and authorities of the state wildlife agencies and federal land management agencies. Outside the PCA, state management plans will direct the management of nuisance bears. Management of nuisance bears usually falls into one or more of the following categories:

- Removing or securing the attractant
- Deterring the bear from the site through the use of aversive conditioning techniques
- Capturing and relocating the nuisance bear
- 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. It is recognized that active management aimed at individual nuisance bears will be required in both areas. Management actions outside the PCA will be implemented according to state management plans. These actions will be compatible with grizzly bear population management objectives for each state for the areas outside the PCA.

In circumstances that result in a nuisance bear situation outside the PCA, more consideration will be given to existing human uses. Site-specific conflict areas within and outside the PCA will be documented and prioritized to focus proactive management actions to minimize grizzly bear/human conflicts and address existing and potential human activities that may cause future conflicts. Past conflict management has demonstrated that grizzly bears can coexist with most human activities.

Management of all nuisance bear situations will emphasize resolving the human cause of the conflict. Relocation and removal of grizzly bears may occur if other management actions are not successful.

Before any removal, except in cases of human safety, management authorities will consult with each other prior to judging the adequacy of the reason for removal.

Captured grizzly bears identified for removal may be given to public research institutions or public zoological parks for appropriate non-release educational or scientific purposes as per regulations of states and national parks. Grizzly bears not suitable for release, research, or educational purposes will be removed as described in appropriate state management plans or in compliance with national park management plans. .

All grizzly bear relocations and removals will be documented and reported annually in the IGBST (Interagency Grizzly Bear Study Team) Annual Report.

Chapter 5 Information and Education

The purposes of the information and education aspects of this cooperative effort are to support the development, implementation, and dissemination of a coordinated information and education program. This program should be understandable and useful for the people who visit, live, work, and recreate in bear habitat to minimize grizzly bear/human conflicts and to provide for the safety of people while building support for viable bear populations.

Information made available to the public will be open and responsive to public concerns. Open discussions with the public will increase credibility of the grizzly bear management program.

These efforts will be reviewed periodically and program adjustments will be made as necessary. In addition, efforts will be expanded as the bear population expands and additional efforts will be needed in areas that could become occupied in the near future.

The current information and education (I & E) working group within the Greater Yellowstone Area will continue. Members of this I & E team include public affairs personnel from Forest Service Regions 1, 2, and 4; Grand Teton and Yellowstone National Parks; the BLM; representatives from each state wildlife agency; and the information and education specialist from the IGBC. This team will continue to work with all affected interests to ensure consistency of information, efficient funding strategies, identifying and targeting audiences, developing partnerships, and identifying new tools for implementation.

Chapter 6 Implementation and Evaluation

A new committee, the Yellowstone Grizzly Coordinating Committee (YGCC), will replace the Yellowstone Ecosystem Subcommittee. YGCC meetings will be open to the public.

Some primary activities of the YGCC are:

- Coordinate implementation of this Conservation Strategy
- Ensure that population and habitat data are collected annually by the IGBST, as specified in this Conservation Strategy, and evaluated to assess current status of the grizzly bear population
- Share information and implement management actions in a coordinated fashion
- Identify management, research, and financial needs to successfully implement the coordinated Conservation Strategy
- Implement a Biology and Monitoring Review as necessary and submit a petition for relisting as appropriate to ensure agency responsiveness to changing circumstances of the grizzly or its habitat in the Greater Yellowstone Area
- Appoint a chairperson and members of the Information and Education Team, and coordinate information and education efforts

This committee does not supersede the authority of the management agencies beyond the specific actions agreed to as signatories of this Conservation Strategy.

YGCC membership consists of representatives of the following:

Federal	National parks: Yellowstone and Grand Teton
	National forests: Beaverhead-Deerlodge, Bridger-Teton, Caribou-Targhee, Custer, Gallatin, and Shoshone
	One Bureau of Land Management representative
	The Biological Resources Division of the U.S. Geological Survey
State wildlife agencies	Idaho, Montana, and Wyoming
Local government	One representative
Tribal	One representative from each Native American tribe with sovereign powers over reservation lands within the ecosystem

Three teams, the Interagency Grizzly Bear Study Team (IGBST), the Habitat Modeling Team (CEM), and the Information and Education Team (I & E) will perform necessary tasks and report to the YGCC.

As detailed in the monitoring portion of this Strategy, the IGBST will take the lead in preparing an annual monitoring report with staff support from the YGCC. Agencies responsible for monitoring major demographic and habitat parameters are listed in Appendix I. Monitoring results and analysis will be presented to the YGCC by the IGBST.

If there are deviations from any of the population and/or habitat standards stipulated in this Conservation Strategy, a Biology and Monitoring Review will be initiated.

Biology and Monitoring Review

Under this Conservation Strategy, Biology and Monitoring Review is a process carried out by the IGBST. A Biology and Monitoring Review examines management of habitat, populations, or efforts of participating agencies to complete their required monitoring. Biology and Monitoring Reviews would normally be undertaken after the annual summary of monitoring information presented to the YGCC and in response to deviations from required population or habitat standards. Any YGCC member agency can request that a Biology and Monitoring Review be considered. Such consideration would be a topic for discussion by the YGCC and the review would be initiated based on the decision of the YGCC. The Biology and Monitoring Review process will be completed within six months and the resulting written report presented to the YGCC and made available to the public. The IGBST 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 purposes of a Biology and Monitoring Review are:

- To identify the reasons why particular demographic or habitat objectives have not been achieved and to modify management as necessary, or
- To consider potential impacts of a proposed action of concern to one or more members of the YGCC, or
- To consider departures by one or more agencies 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 possible changes in management due to changed conditions in the ecosystem

Biology and Monitoring Reviews will be submitted as written reports by the IGBST to the Yellowstone Grizzly Coordinating Committee and made available to the public.

The YGCC will respond to the Biology and Monitoring Review with actions to address the deviations from the population or habitat standards. If the situation, after completion of the Biology and Monitoring Review, is such that some or all of the desired population and habitat standards specified in this Conservation Strategy are not being met, and cannot be met in the opinion of the YGCC, then the YGCC will petition the Fish and Wildlife Service for relisting. In the case of a vote on this issue, a simple majority is necessary.

Petition for Relisting

The YGCC can petition for relisting and a resulting status review from the U.S. Fish and Wildlife Service. A status review is a process that requires the U.S. Fish and Wildlife Service to review the status of the GYA grizzly bear population and is triggered by a petition to list a species. This petitio from the YGCC will be accompanied by the available specific biological data on the

population and its habitat sufficient to judge its status as a recovered population as per the requirements of this Conservation Strategy. A status review will evaluate all factors affecting the population and result in a finding that summarizes the current status of the population. For purposes of a status review, the status of the entire Greater Yellowstone Area grizzly bear population will be considered.

Additionally, the Fish and Wildlife Service can initiate a status review to determine if the grizzly bear in the Yellowstone ecosystem should be added to the list of candidate species for listing independent of the YGCC based on concerns about the population and/or its habitat. Under Section 4 of the Endangered Species Act, a petition from an individual or organization can also initiate a status review, as long as the petition is deemed to be warranted. To be warranted, such a petition must present credible scientific information to support the petition.

If, as the result of the status review for candidate status or the petition for relisting, the population is found to be warranted for listing, as per the criteria of the Endangered Species Act in Section 4(a)(1), then the species could be immediately considered for relisting and could be relisted under emergency regulations, per Section 4(b)(7) if the threat were severe and immediate.

Chapter 7 Existing Authorities

The existence of adequate regulatory mechanisms that serve to maintain the Yellowstone grizzly bear population as recovered is one of the five factors required to change the status of the population to delisted and to assure a healthy grizzly bear population.

This chapter lists applicable federal and state (Idaho, Montana, and Wyoming) acts, statutes, regulations, rules, plans, and guidelines.

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 Greater Yellowstone 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 approved state 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 Yellowstone grizzly population has been published in the Federal Register.

Regional Forester — Date
U.S. Forest Service, Northern Region

Regional Forester — Date
U.S. Forest Service, Rocky Mountain Region

Regional Forester — Date
U.S. Forest Service, Intermountain Region

Director — Date
Idaho Department of Fish and Game

Director — Date
Montana Fish, Wildlife & Parks

Director — Date
Wyoming Game and Fish Department

Director National Park Service, Intermountain Region	Date
Regional Chief Biologist Central Region, USGS Biological Resources Division	Date
State Director Bureau of Land Management Idaho	Date
State Director Bureau of Land Management Montana	Date
State Director Bureau of Land Management Wyoming	Date
Regional Director U.S. Fish and Wildlife Service, Region 1	Date
Regional Director U.S. Fish and Wildlife Service, Region 6	Date

Chapter 1 Introduction and Background

Introduction

The future management of the Yellowstone grizzly bear population is envisioned as one in which the grizzly and its habitat are conserved as integral parts of the Greater Yellowstone Area.

Within the Greater Yellowstone Area (GYA), the grizzly bear population and its habitat will be managed utilizing a management approach that identifies a Primary Conservation Area (PCA) and adjacent areas where occupancy by grizzly bears is anticipated and acceptable. The PCA is the existing Yellowstone grizzly bear recovery zone as identified in the 1993 *Grizzly Bear Recovery Plan (Recovery Plan)* (USFWS 1993). The size of the recovery zone is not being expanded in this approach. Upon implementation of this Conservation Strategy, management using a recovery zone line and grizzly bear Management Situations as described in the Interagency Grizzly Bear Guidelines (IGBC 1986) will no longer be necessary[2]. The PCA boundary will replace the recovery zone boundary.

The Conservation Strategy contains the following sections:

Chapter 1 Introduction and Background

Chapter 2 Population Standards and Monitoring

Chapter 3 Habitat Standards and Monitoring

Chapter 4 Management and Monitoring of Grizzly/Bear Human Conflicts

Chapter 5 Information and Education

Chapter 6 Implementation and Evaluation

Chapter 7 Existing Authorities

Literature Cited
Terms Used in this Document
Strategy Team Members
Appendices

In this Conservation Strategy, management direction is described for both the PCA and adjacent areas within the GYA. State grizzly bear management plans, forest plans, and other appropriate planning documents provide specific management direction for the adjacent areas outside the PCA.

This Conservation Strategy was developed to be the document guiding management and monitoring of the Yellowstone grizzly bear population and its habitat upon recovery and delisting. This approach will remain in place beyond recovery and delisting. Ongoing review and evaluation of the effectiveness of this Conservation Strategy is the responsibility of the state and federal managers in the GYA. This Conservation Strategy will be updated by the management agencies every five years or as necessary, allowing public comment in the updating process.

Upon implementation of this Conservation Strategy, the Yellowstone Grizzly Coordinating Committee (YGCC) replaces the Yellowstone Ecosystem Subcommittee. (*See* Chapter 6 for more information about the activities of the YGCC.)

The Conservation Strategy

The purpose of this Conservation Strategy (Strategy), which includes the state plans, is to:

- Describe and summarize the coordinated efforts to manage the grizzly bear population and its habitat to ensure continued conservation in the GYA

[2] An exception is the Caribou-Targhee National Forest. The use of Management Situation lines is an integral part of management under the Targhee National Forest 1997 revised Forest Plan.

- Specify the population, habitat, and nuisance bear standards to maintain a recovered grizzly bear population
- Document the regulatory mechanisms and legal authorities, policies, and management and monitoring programs that exist to maintain the recovered grizzly bear population
- Document the commitment of the participating agencies

Implementation of the management strategies requires continued cooperation between federal and state agencies.

The GYA is a dynamic environment; monitoring systems in the Strategy allow for dynamic management as environmental issues change. The agencies are committed to be responsive to the needs of the grizzly bear by dynamic management actions based on the results of detailed annual population and habitat monitoring.

Development of the Conservation Strategy and State Plans

Development of the Strategy began in1993, when biologists representing the National Park Service; U. S. Forest Service; U. S. Fish and Wildlife Service; Interagency Grizzly Bear Study Team; Idaho Department of Fish and Game; Montana Fish, Wildlife & Parks; and the Wyoming Department of Game and Fish were appointed to the Interagency Conservation Strategy Team[3]. In March 2000, a draft Conservation Strategy was released to the public for review and comment. Later the same year, a Governors' Roundtable was organized to provide recommendations from the perspectives of the three states that would be involved with management of grizzly bears after delisting. The Governors' Roundtable recognized the need to have state management plans that would give direction for grizzly bear management outside the PCA. The state management plans apply to management of grizzly bears outside the PCA, and describe the general areas that grizzly bears are likely to occupy in the foreseeable future.

In 2002, this Conservation Strategy was developed, and the state plans were completed.

The vision of the Strategy can be summarized as follows:

- The PCA will be a secure area for grizzly bears, with population and habitat conditions maintained that have allowed the grizzly bear population to achieve recovery and expand outside the PCA.
- Outside of the PCA, grizzly bears will be allowed to expand into biologically suitable and socially acceptable areas.
- Outside of the PCA, the objective is to maintain existing resource management and recreational uses and to allow agencies to respond to demonstrated problems with appropriate management actions.
- Outside of the PCA, the key to successful management of grizzly bears lies in bears utilizing lands that are not managed solely for bears but in which their needs are considered along with other uses.
- Expand public information and education efforts.
- Provide responsive management to deal with nuisance grizzly bears.
- Manage grizzly bears as a game animal, including allowing regulated hunting when and where appropriate.

[3] See pages 85 and 86 for the list of Interagency Conservation Strategy Team members.

Relationship to Other Plans

Since the state plans for Idaho, Montana, and Wyoming guide state management of a delisted grizzly bear population outside the PCA where grizzly bears will be allowed to occupy lands that are biologically suitable and socially acceptable, key linkages between the state plans and the Strategy are described throughout this document. The state plans are integrated into the Strategy to ensure that the plans and the Strategy are consistent where necessary and complementary. The state plans are formally incorporated in the Conservation Strategy as Appendices K, L, and M.

Relationships with national forest and national park plans are also mentioned throughout the Strategy. Land and resource management plans for some national forests, national parks, and the Bureau of Land Management in the GYA have incorporated the habitat standards and other relevant provisions of the Conservation Strategy. Those standards and provisions not yet incorporated into management plans will be integrated into future land management plan amendments or revisions.

Background

The Grizzly Bear Population

The grizzly bear population in the lower 48 states was listed as threatened in 1975 pursuant to the Endangered Species Act of 1973.

The *Recovery Plan* established several demographic (population) recovery targets that must be achieved for a recovered grizzly bear population. All recovery targets are currently being met. Demographic recovery targets and the 2001 status of the population are displayed in Chapter 2.

As required in the *Recovery Plan*, monitoring of females with cubs-of-the-year occurred within the PCA and the 10-mile perimeter. There were 35 females with cubs-of-the-year (69 cubs) for the year 2000, 42 females with cubs-of-the-year (78 cubs) for the year 2001 (Haroldson and Schwartz 2002), and 50 females with cubs-of-the-year (97 cubs) in 2002 (IGBST 2002 files, unpublished). The number of females and the number of cubs documented in 2002 are the highest recorded.

In the GYA, there were 37 females with cubs-of-the-year (72 cubs) in 2000, 42 females with cubs-of-the year (78 cubs) in 2001 (Haroldson and Schwartz 2002), and 52 females with cubs-of-the-year (102 cubs) in 2002 (IGBST 2002 files, unpublished).

Schwartz et al. (2002) documented the distribution of grizzly bears in the GYA from 1990 to 2000. They state: “A comparison of our results from the 1990s to previously published distribution maps shows an approximate increase in occupied habitat of 48% and 34% from the 1970s and 1980s respectively.”

The 2001 *minimum* population estimate for this ecosystem is 365 grizzlies with a *total* population estimate of 531 (Figure 9).

The Primary Conservation Area

The PCA (formerly the recovery zone) contains the minimum seasonal habitat components needed to support the recovered grizzly bear population, as defined in the *Recovery Plan*. A recovered population is one having a high probability of existence into the foreseeable future (greater than 100 years) and for which the five factors in Section 4(a)(1) of the Endangered Species Act have been successfully addressed. These factors are:

- The present or threatened destruction, modification, or curtailment of its habitat or range

- Overutilization for commercial, recreational, scientific, or educational purposes
- Disease or predation
- The inadequacy of existing regulatory mechanisms
- Other natural or human-caused factors affecting the population's continued existence

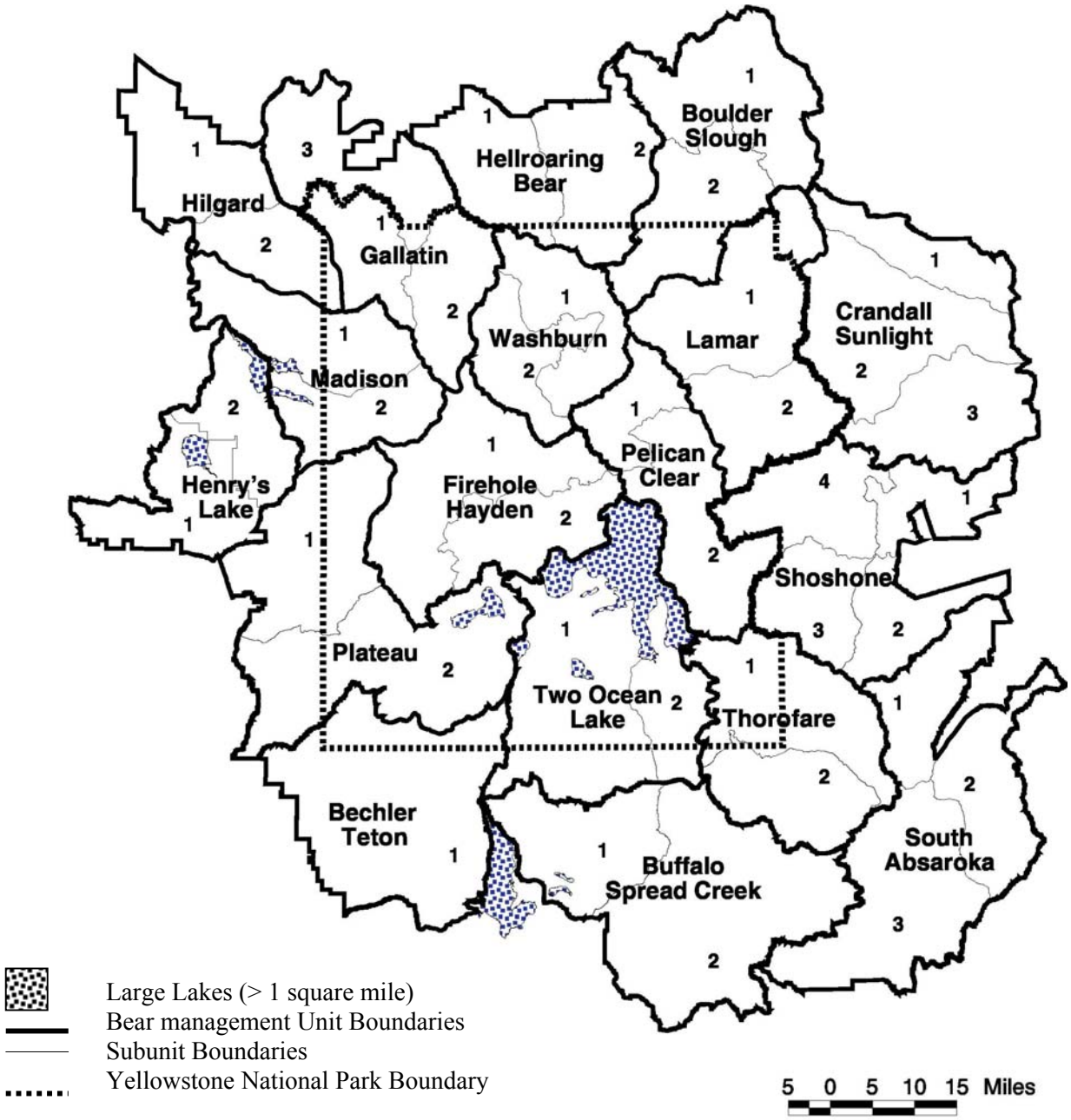
The PCA encompasses 9,209 square miles (5,893,760 acres, or 23,833 square kilometers) in three states: southeast Idaho, southwest Montana, and northwest Wyoming. The National Park Service and the U. S. Forest Service manage the majority of lands within the PCA; a small percentage of land is privately owned or managed by the states or the Bureau of Land Management (BLM).

Figure 1. Area of lands within the Primary Conservation Area by management type.

Management Type	Area (square miles)	Percent of the PCA
National Park Service	3,632	39.4
U. S. Forest Service	5,383	58.5
Private and Other Ownerships	195	2.1
TOTAL	9,210	100

The PCA has been divided into 18 bear management units (BMUs) and 40 subunits. BMUs are used to measure and monitor population and habitat conditions; subunits allow better resolution of habitat measurement (Figure 2). *See* Figure 3 for grizzly bear management areas specified in the Strategy and the state management plans. Grizzly bears occupy lands outside the PCA and their distribution has increased (Schwartz et al. 2002).

Figure 2. The Primary Conservation Area showing bear management unit and subunit boundaries.



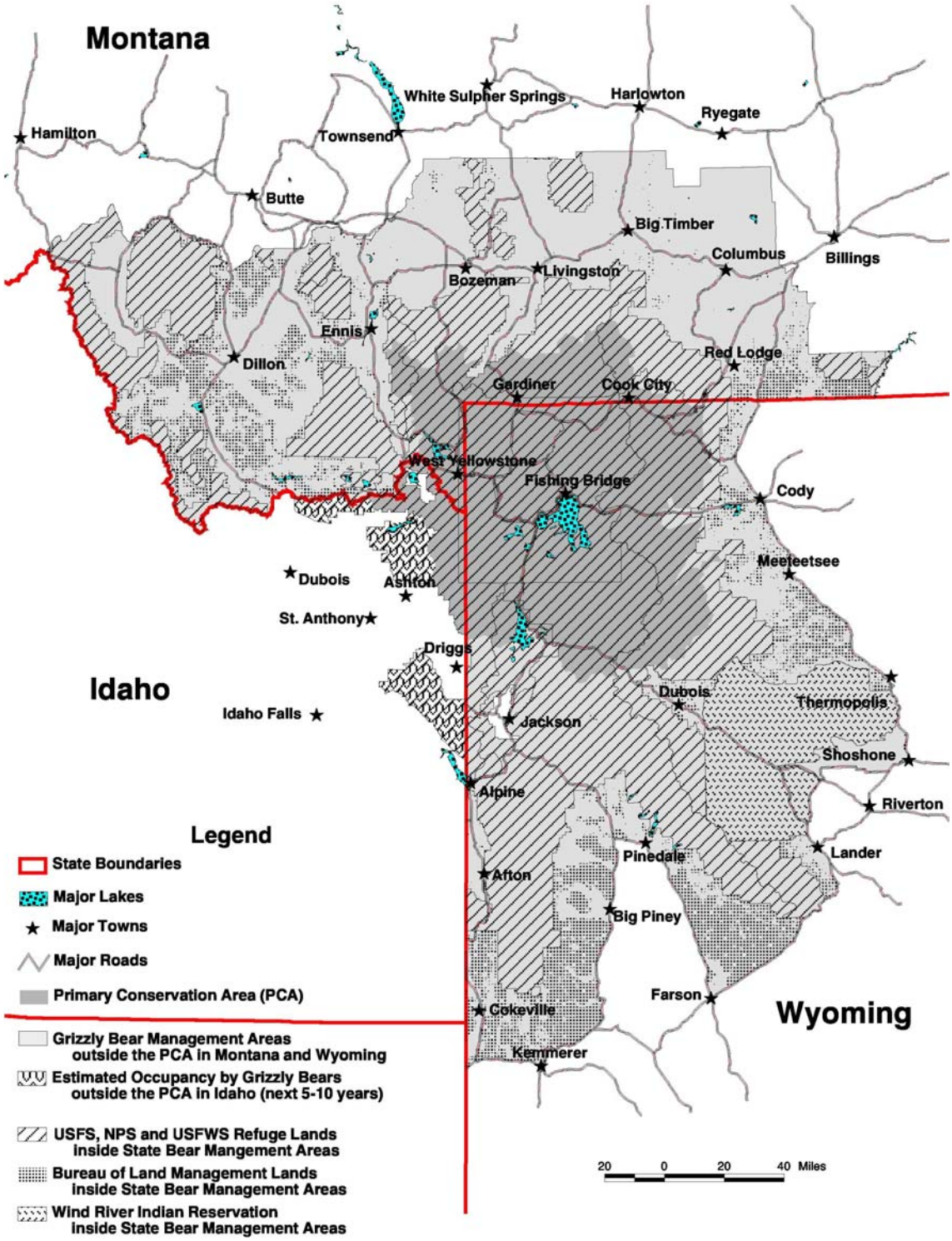


Figure 3. Potential grizzly bear management areas specified in the Conservation Strategy and state management plans.

Characterization of Grizzly Bear Habitat

Background on the Area Necessary for a Recovered Population

Grizzly bears are one of the subspecies of brown bears, which range throughout diverse areas and habitats in Europe, Asia, and North America. Brown bears have the most widespread distribution of any bear species and live in the widest range of habitats of any bear species including deserts, boreal forests, arctic tundra, coniferous forests, deciduous forests, alpine areas, and coastal rainforests. At minimum, grizzly bears need food, seasonal foraging habitat, denning habitat, and security in an area of sufficient size for survival. Bears overlap in home ranges and change densities based on a variety of social and environmental factors. However, the precise mixture of these diverse elements and the precise size of the area necessary to support a population of grizzly bears are impossible to specify. To a great degree, the difficulty lies in the fact that grizzly bears are long-lived opportunistic omnivores whose needs for foods and space vary depending on a multitude of environmental and behavioral factors and on variation in the experience and knowledge of each individual bear. The key to establishing habitat criteria that will maintain a healthy population is to look to the habitat factors in the past that produced a grizzly population in the Yellowstone area that is increasing in numbers and expanding in range. Habitat factors that produced a healthy population in the past were used to establish the habitat criteria for the future that must be maintained if a healthy population continues to be preserved.

The available habitat for bears is largely determined by human 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 issue of how many grizzlies can live in any specific area is a function of overall habitat productivity, annual production, availability of important foods, and the levels and types of human activities. There is no known way to calculate the number of grizzly bears that can live in an area in relation to ongoing changes in habitat values or to fully understand the social system of the grizzly and how it is influenced by changes in bear density and related social interactions at various densities. As food availability fluctuates, there are corresponding changes in bear density in important use areas and changes in social tolerance within the bear population. This in turn will affect age-specific survivorship. Additional numbers of bears in many areas will result in the expansion of bear range, increasing grizzly bear/human conflicts, and erosion of public support for bears. All these factors interact.

A viable and therefore recovered population is one that has high long-term prospects for survival within acceptable levels of risk. Population size is an important factor in understanding population survival (Boyce 1992, Caughley 1994). However, there is no quantitative way to estimate precisely the number of animals required for a viable population of any species (Boyce 1992, 1993). From the mid 1980s, the Yellowstone grizzly population has grown at approximately 3 to 4% or more per year (Eberhardt et al. 1994, Boyce 1995, Boyce et al. 2001). Boyce (1995) has calculated that the Yellowstone population currently has a probability of extinction of 0.0004 (4/10,000)—a very low probability. Nevertheless, as Boyce points out, “population size alone is not a sufficient criterion for evaluating population viability,” and “even though a population may have increased or decreased over the past 10 to 20 years, this offers no indication that the population will continue on the same trajectory in the future.” The best way to ensure a healthy population of grizzly bears is to monitor both population and habitat parameters closely and respond when necessary with adaptive management (Walters and Holling 1990) addressing the problems of the population in a dynamic way. That is what this Conservation Strategy is designed to accomplish.

The PCA has provided the vast majority of habitat for the currently increasing population in the Greater Yellowstone Area. This area will continue to be managed and monitored carefully to maintain habitat effectiveness and habitat security, and to limit access-related disturbances and developed sites on public lands at or below 1998 levels. The Yellowstone area grizzly population was increasing at a rate of 3 to 4% per year as of 1998 (Boyce et al. 2001). Due to this ongoing bear population increase, 1998 was chosen as the baseline year for measurement of levels of human activities. The 1998 habitat baseline in terms of human activities including secure habitat and motorized access route density, developed sites on public lands, livestock grazing, habitat effectiveness, and habitat value of secure habitats is described in detail in Appendix F.

Food

The broad historic distribution of grizzly bears suggests adaptability in food habits of different populations. Although the digestive system of bears is essentially that of a carnivore, bears are successful omnivores, and in some areas may be almost entirely herbivorous. Bears feed on animal matter or vegetable matter that is highly digestible and high in starch, sugars, protein, and stored fat.

Grizzly bears must avail themselves of foods rich in protein or carbohydrates in excess of maintenance requirements in order to survive denning and post-denning periods. Other plant materials are eaten as they emerge, when crude protein levels are highest.

Grizzly bears are opportunistic feeders and will prey or scavenge on almost any available food including ground squirrels, ungulates, carrion, and garbage. In areas where animal matter is less available, roots, bulbs, tubers, fungi, and tree cambium may be important in meeting nutrient requirements. High quality foods such as berries, nuts, and fish are important in some areas.

The search for food has a prime influence on grizzly bear movements. Upon emergence from the den, they seek lower elevations, drainage bottoms, avalanche chutes, and ungulate winter ranges where their food requirements can be met. Throughout late spring and early summer, they follow plant maturity back to higher elevations. In late summer and fall, there is a transition to fruit and nut sources, as well as other plant materials. This is a generalized pattern, however, and it should be kept in mind that bears are individuals trying to survive and will go where they can best meet their food requirements.

Specific to the GYA, four seasonal foods have been identified as being important to the population. These are: ungulates (primarily elk and bison, but also deer and moose), spawning cutthroat trout, seeds of whitebark pine, and army cutworm moths. The Major Foods section in Chapter 4 provides more detail about the components of grizzly bear diet.

Cover

The relative importance of cover to grizzly bears was documented by Blanchard (1978) in a four-year study in the GYA. The importance of an interspersion of open parks as feeding sites associated with cover is also recorded in Blanchard's study.

Changes in the distribution and quantity and quality of cover are not necessarily detrimental to grizzly bears. The Interagency Grizzly Bear Study Team studied the effects of the large 1988 wildfires on grizzly bears. "On the average, grizzly bears used burned habitats in proportion to their availability within individual annual ranges during 1989 to1992. Seasonal indices of movement and annual range sizes of cohorts are not statistically different from the 1975 to 1987 averages" (Blanchard and Knight 1996).

Denning

Grizzly bears excavate dens. Dens are usually dug on steep slopes in forest cover where wind and topography cause an accumulation of deep snow and where the snow is unlikely to melt during warm periods. Elevations of dens vary geographically; generally, they are found at higher elevations well away from development or human activity. Abundant denning habitat is available and is not considered a limiting factor for grizzly bears (Podruzny and Gunther 2002).

Secure Habitat

History has demonstrated that grizzly bear populations survived where frequencies of contact with humans were very low. Populations of grizzly bears persisted in those areas where large expanses of relatively secure habitat were retained and where human-induced mortality was low. In the Yellowstone area, this is primarily associated with national parks, wilderness areas, and large blocks of public lands (IGBC 1998). Habitat security requires minimizing mortality risk and displacement from human activities in a sufficient amount of habitat to allow the population to benefit from this secure habitat and respond with increasing numbers and distribution. Habitat security allows a population to increase in numbers and distribution as lowered mortality results in more reproduction and cub recruitment into the adult population. This results in an increasing population. As the population increases, it begins to expand in range and distribution. Both of these responses to habitat security are currently ongoing in the Yellowstone population as the population is increasing at 3 to 4% per year (Boyce et al. 2001), and increasing in distribution (Schwartz et al. 2002). Maintaining habitat security is a major goal of this conservation strategy. By managing motorized access, the following grizzly bear management objectives can be met (IGBC 1998):

- Minimize human interaction and potential grizzly bear mortality
- Minimize displacement from important habitats
- Minimize habituation to humans
- Provide relatively secure habitat where energetic requirements can be met

Historically, management of motorized use has been primarily accomplished through restriction of certain types of motorized use on established access routes, i.e., management of open motorized route densities. Recent research has shown that secure habitat (areas that are free of motorized traffic, also referred to as core areas) is an important component of grizzly bear habitat (IGBC 1998).

The management of human use levels through 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. It has been documented in several research projects, completed and ongoing, that unregulated human access and development within grizzly bear habitat can contribute to increased bear mortality and affect bear use of existing habitat (IGBC 1998).

Management Improvements and Mortality Reduction Efforts

Since listing of the grizzly bear under the Endangered Species Act (ESA), government agencies (federal, state, county, and city), organizations, and individuals have worked to improve management coordination and habitat conditions, minimize grizzly bear/human conflicts and bear mortality, and increase public awareness and appreciation for the grizzly bear in the GYA.

Summary of Management Improvements Related to Habitat

- The Interagency Grizzly Bear Committee (IGBC) was created to coordinate management efforts across multiple federal lands and different states. The Yellowstone Ecosystem

Subcommittee was also created to coordinate efforts specific to the GYA. These committees cooperated in developing the *Interagency Grizzly Bear Guidelines* (IGBC 1986) and the *Interagency Grizzly Bear Committee Taskforce Report on Grizzly Bear/Motorized Access Management* (IGBC 1998). These guidelines were instrumental in changing land management practices on federal lands to provide security and to maintain or improve habitat conditions for the grizzly bear.

- The Interagency Grizzly Bear Study Team was created to provide scientific information for the management and recovery of the grizzly bear in the GYA. Scientific protocols have been developed to monitor the grizzly bear population and important habitat parameters.
- Federal and state agencies developed nuisance bear guidelines to manage bears that become habituated to human foods and refuse. The overall objective of these guidelines is to provide a quick response to grizzly bear/human confrontations.
- Miles of open motorized access routes have been reduced through restrictions (such as gates and signs on motorized routes) and decommissioning (the route is no longer available for motorized use), thereby reducing open motorized access route densities and increasing secure habitat for the grizzly bear.
- Highway design changes have been implemented, including changed guardrail heights to allow cub crossings; minimized cut-slope barrier walls to facilitate movement; revegetation planting to provide cover, minimize exotic plants, and discourage planting of palatable foods; and narrower rights of way and road widths.
- Federal land management agencies have closed areas to cross-country motorized travel to provide more security for grizzly bears.
- Federal land management agencies have closed some areas to all human entry during certain seasons to increase human safety and provide security for grizzly bears.
- Many areas in the GYA have been closed to oil and gas leasing, or have restrictions (such as no surface occupancy) on oil and gas leasing to protect grizzly bear habitat.

Mortality Reduction Efforts Related to Habitat

Significant reductions in the human-caused bear mortality rate have been the primary reason the bear population is now meeting the demographic sub-goals established in the *Recovery Plan*. In addition to the above management improvements, the following actions have been found to be effective in limiting grizzly bear mortality and grizzly bear/human conflicts. These actions have been ongoing and will continue inside the PCA.

- Federal land management agencies have implemented and monitored compliance with food storage orders that require people using grizzly bear habitat to store food and refuse properly on public lands so bears will not become habituated to unnatural foods. This also reduces grizzly bear/human encounters.
- Bear-resistant garbage containers have been installed in campgrounds, picnic areas, and other public use areas on federal lands. Garbage collection schedules have been improved to collect garbage before it becomes an attractant to grizzly bears.
- Some counties and communities have improved their landfills and garbage collection systems to reduce or prevent conflicts with grizzly bears.
- Numerous education and information materials and programs have been developed by federal and state agencies and various organizations, to teach those living, working, and recreating in grizzly bear country how to be safe, to reduce grizzly bear/human encounters, and minimize grizzly bear mortality. Non-agency participation is encouraged.

- The state wildlife agencies have developed active management/conflict resolution programs to help minimize conflicts between people and bears.
- To provide increased protection for grizzly bears, Montana does not allow baiting or hound hunting for bears. Wyoming prohibits hound hunting within the state, and baiting is not allowed within the PCA. Baiting and use of hounds are not allowed within the PCA in Idaho.
- The number of domestic sheep allotments and the number of domestic sheep grazing within the PCA has been reduced; the remaining domestic sheep allotments are to be phased out as opportunities arise. Sheep grazing permittees and herders must follow strict requirements in their grazing permits to protect grizzly bears and reduce grizzly bear/grazing conflicts.
- Individuals and organizations with special use permits on federal lands must follow strict requirements in their special use permits to protect grizzly bears and reduce grizzly bear/human conflicts.
- Adjustments have been made on cattle grazing allotments within the PCA, and cattle permittees must follow strict requirements in their grazing permits to protect grizzly bears and reduce grizzly bear/grazing conflicts.
- The IGBST coordinates an annual analysis of the causes of conflicts and known and probable mortalities, and proposed management solutions. Reports were reviewed by the Yellowstone Ecosystem Subcommittee and appropriate actions initiated. The Yellowstone Grizzly Coordinating Committee will continue this review process.
- Federal and non-federal landowners have cooperated in limiting grizzly bear mortality and grizzly bear/human conflicts.
- Livestock and road-killed carcasses are managed to minimize grizzly bear/human conflict. Hunters are encouraged to quickly care for and remove hunter-killed carcasses to minimize grizzly bear/human conflicts.
- State and federal law enforcement agents have cooperated to ensure consistent enforcement of laws protecting grizzly bears. A task force of state and federal prosecutors and enforcement personnel from each state and federal jurisdiction will work together to make recommendations to all jurisdictions, counties, and states, on uniform enforcement, prosecution, and sentencing relating to illegal grizzly bear kills.
- When reclaiming or obliterating motorized access routes or restricting motorized or non-motorized access, priority has been and will be given to areas with historical grizzly bear/human conflicts or areas of probable grizzly bear/human conflicts
- Appropriate actions to reduce mortality will be implemented as described in the state plans outside the PCA where grizzly bears occur or can reasonably be expected to occur when and where possible to improve public safety and minimize grizzly bear mortality.

Recovery of the grizzly bear in the GYA is the result of partnerships between federal and state agencies, the governors of three states, county and city governments, educational institutions, numerous organizations, private landowners, and the public who live, work, and recreate in the GYA. Maintenance of a recovered grizzly population depends on these partnerships.

Chapter 2 Population Standards and Monitoring

Introduction

To maintain a healthy (recovered) grizzly bear population in the GYA, it is necessary to have adequate numbers of bears that are widely distributed with a balance between reproduction and mortality. This section details the demographic criteria in the *Recovery Plan* that were necessary to achieve recovery, and the criteria necessary to maintain it. *Recovery Plan* criteria focus on the PCA and a 10-mile perimeter, whereas criteria in the Strategy and the appended state plans encompass the entire GYA. Because grizzly bears are a difficult species to monitor and manage, multiple criteria are identified to provide sufficient information upon which to base management decisions.

The IGBST has generated extensive information useful to determine the status of the GYA grizzly bear population. Few populations have benefited from the amount of effort in data collection, as has the Yellowstone population. These data indicate that the demographic recovery criteria, as outlined in the *Recovery Plan*, have been achieved. Agencies responsible for management will continue their commitment to data collection so population status can be determined and all designated standards maintained.

The standards described here may vary from those in the *Recovery Plan*. For example, the *Recovery Plan* criterion related to the number of unduplicated females refers to the recovery area plus a 10-mile area surrounding it. However, under this Conservation Strategy, all human-caused mortalities and all reports of unduplicated females with cubs will be monitored in all areas where grizzly bears occur in Figure 3. This will result in the management and monitoring of the grizzly bear population in the entire Yellowstone area as a single population, as opposed to the system in the *Recovery Plan*, which managed and monitored only the population inside the recovery zone and 10 miles outside the recovery zone. This is more stringent that the system under the *Recovery Plan* and allows management of the entire population, like management of most other wildlife species. None of the standards in the Strategy are associated with the 10-mile area. Conservation Strategy standards and the standards in the state plans are tied to either the PCA or all areas suitable for occupancy by grizzly bears. The criteria and objectives of the existing *Recovery Plan* have been subsumed into this document and some, such as the mortality standard, have been modified, as the *Recovery Plan* will no longer apply.

Population Monitoring

Primary monitoring protocols for this population will focus on being able to assess whether the demographic standards for the *Recovery Plan* and the Conservation Strategy are being achieved. Additional monitoring or research may be conducted as determined by the IGBST.

Recovery Criteria from the 1993 *Recovery Plan*

The *Recovery Plan* defined a recovered grizzly bear population as one that could sustain a defined level of mortality and is well distributed throughout the recovery zone. The *Recovery Plan* outlined a monitoring scheme that employed three demographic sub-goals to measure and monitor recovery of the Yellowstone grizzly bear population. They include:

- Maintain a minimum of 15 unduplicated females with cubs-of-the-year (COY) over a six-year average both inside the recovery zone and within a 10-mile area immediately surrounding the recovery zone (14,497 square miles).

- Sixteen of 18 Bear Management Units (BMUs) within the recovery zone must be occupied by females with young, including COY, yearlings, or two-year olds, as confirmed by the IGBST from a six-year sum of observations. No two adjacent BMUs may be unoccupied during the same six-year period. This is equivalent to verified evidence of at least one female grizzly bear with young at least once in each BMU over a six-year period.
- The running six-year average for total known, human-caused mortality as confirmed by the IGBST is not to exceed 4% of the minimum population estimate. The running six-year average annual known, human-caused female grizzly bear mortality is not to exceed 30% of the 4% total mortality limit over the most recent three-year period. These mortality limits cannot be exceeded in any two consecutive years. Beginning in 2000, probable mortalities were included in the calculation of mortality thresholds, and COY orphaned as a result of human causes will be designated as probable mortalities. Sex of probable mortalities for young is randomly assigned as described in the Monitoring Protocol for Mortality section of the Strategy.

Conservation Strategy Population Standards

This Conservation Strategy and the state management plans set an objective of maintaining a recovered grizzly population in the Yellowstone area sufficient to meet management objectives inside and outside the PCA in biologically suitable and socially acceptable habitats. The demographic standards in this Conservation Strategy are designed to meet these goals.

The GYA grizzly population exceeds 500 total bears as of 2001 (Appendix C). The intent of the Conservation Strategy is to allow grizzlies to expand their range and numbers and reoccupy all biologically suitable and socially acceptable habitats. It is the goal of the agencies of the YGCC implementing this Conservation Strategy to manage the Yellowstone grizzly population in the entire GYA at or above 500 total grizzly bears.

This Conservation Strategy requires continued monitoring of the standards originally prescribed by the *Recovery Plan* and some additional standards. Specific population standards, and the area they are applied to, will vary. For example, the standards for human-caused mortality will be applied to all areas occupied by grizzly bears, while the standard for the spatial distribution of females with young will be applied only to the PCA. The population standards to be met in this Conservation Strategy include:

- The total population (Appendix C) throughout the ecosystem must be more than 400 bears to ensure a minimum loss of genetic diversity (Miller and Waits 2003). (Appendix D provides information about genetic management and monitoring.)
- Sixteen of 18 bear management units (BMUs) within the PCA will be occupied by females with young as confirmed by documented reports by the IGBST from a six-year sum of observations; no two adjacent BMUs may be unoccupied during the same six-year period. This is equivalent to verified evidence of at least one female grizzly bear with young at least once in each BMU over a six-year period. While this standard will apply only to the PCA, all three state management plans propose to let bears expand into additional suitable habitats.
- The running six-year average for total known and probable human-caused mortality, as confirmed by the IGBST using documented reports, is not to exceed 4% of the total population estimate. This standard will be applied to all occupied areas, not just the PCA, and will be calculated using methods noted in Appendix C. Additionally, the six-year average of annual known and probable human-caused female grizzly bear mortality is not to exceed 30% of the 4% mortality limit over the most recent six-year period. This mortality limit will be recalculated annually by the IGBST based on the most recent data. Human-caused mortality shall include all known and probable human-caused mortality from illegal kills, management

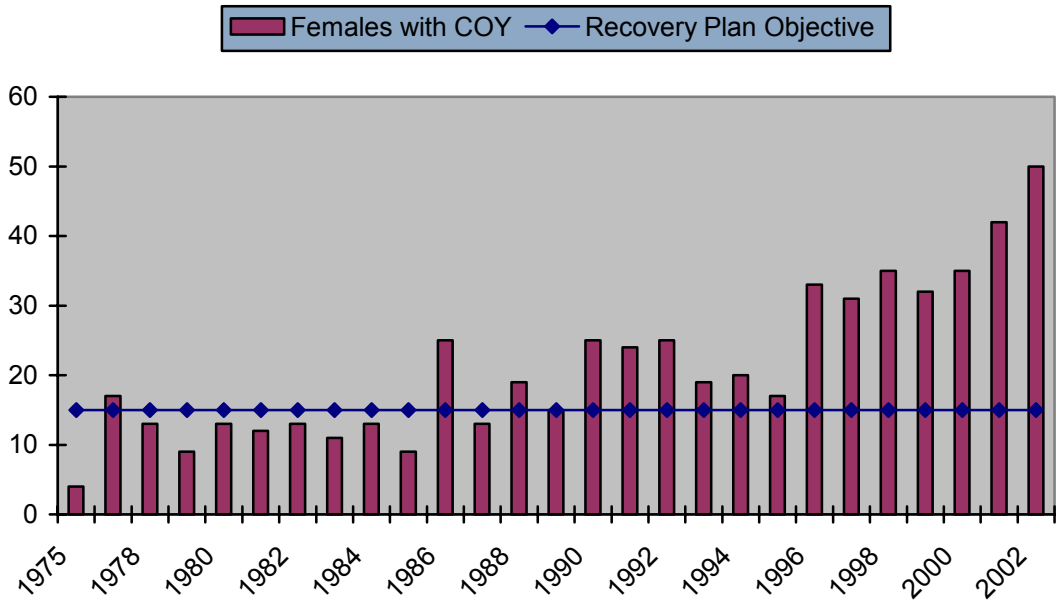
removals, accidental kills, self-defense kills, and possible legal hunting. The states, the national parks, and the IGBST will coordinate mortality monitoring to ensure that the mortality limits will not be inadvertently exceeded. In the event that the mortality limit is approached, the states will adjust their management accordingly to reduce mortality. The mortality threshold will not affect the immediate management of nuisance grizzly bears.

Unduplicated Females with Cubs-of-the-Year

Background

The recovery criterion for the number of unduplicated females with COY (15) has been exceeded since 1988 (Figure 4). In fact, the number of females with COY has exceeded 30 every year since 1996. Fifty females with COY were observed in 2002. Females with COY also occupy all of the existing bear management units within the PCA as well as areas outside the PCA (Figure 5).

Figure 4. The number of unduplicated females with cubs-of-the-year within the Primary Conservation Area and the 10-mile perimeter area, as per the Recovery Plan, 1975-2002.



Monitoring Protocol

Monitoring unduplicated females with COY will provide information to demonstrate adequate reproduction and to estimate *total* population size. *Total* population size will be estimated, as described in Appendix B, using the sightings and resightings of unduplicated females with cubs from all areas where grizzly bears occur in Figure 3. This is a departure from the way the population estimate was done per the *Recovery Plan*. In the *Recovery Plan*, a *minimum* population estimate was made based on the most recent three years of sightings of unduplicated females with cubs, using only unduplicated sights from the recovery zone and 10 miles outside the recovery zone. The revised and improved methodology used in this document allows an estimate of the *total* rather than the *minimum* population size. This allows the calculation of mortality limits based on the total population size within the entire area in Figure 3 occupied by the Yellowstone grizzly bear population. This method allows mortality management and population monitoring on the entire Yellowstone area grizzly bear population, as opposed to

the method used in the *Recovery Plan*, which focused mortality management and population monitoring on only a portion of the Yellowstone grizzly bear population. The number of females with COY can also be used to demonstrate that a sufficient number of adult females are alive within the population to reproduce and offset existing levels of human-caused mortality. These data for the PCA will be evaluated concerning established population management standards. The most recent three years of unduplicated sightings and resightings of females with cubs will be reported by the IGBST. The resulting numbers will be used to estimate the total population size as per Appendix C. This total population estimate will be used to calculate mortality limits for both total human-caused mortality and human-caused female mortality. Unduplicated females with cubs sightings and resightings will be reported as an annual total.

Sightings and resightings of females with COY will be obtained from numerous sources, including radio tracking flights, confirmed sightings, and observation flights. Observation flights are primarily designed to survey all existing BMUs to obtain these data. The number of flights conducted in each BMU is standardized to ensure equal effort in obtaining data. The IGBST will verify the reliability of all sightings. The IGBST will plot all sightings and summarize data for unduplicated females and numbers of cubs seen for the entire population. Methodology developed by Knight et al. (1995) will be used to separate duplicated from unduplicated sightings.

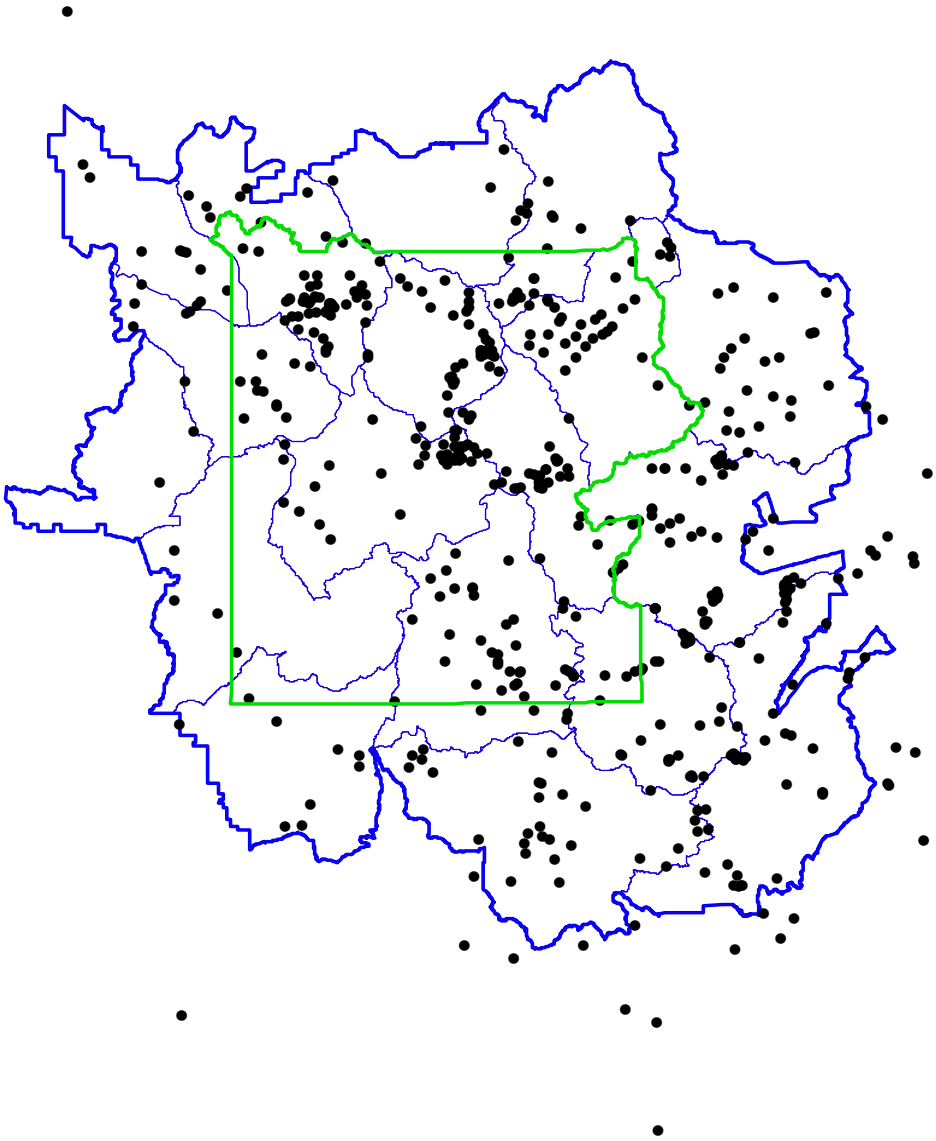


Figure 5. Initial sightings of unduplicated females with cubs-of-the-year in the Greater Yellowstone Area, 1985-2001 (IGBST Data).

Distribution of Females with Young

Background

The distribution of females with young, based on the most recent six years of observations in the ecosystem, is presented in Figure 6. The recovery criterion of having 16 of 18 BMUs occupied with no two adjacent units vacant has been met. This criterion is important as it ensures that females occupy the majority of the PCA and that successful reproductive females are not concentrated in one portion of the ecosystem.

Figure 6. Bear Management Units occupied by females with young based on verified reports, 1996-2001.

Bear Management Unit	1996	1997	1998	1999	2000	2001	Years Occupied
1) Hilgard		X		X	X	X	4
2) Gallatin	X	X	X	X	X	X	6
3) Hellroaring/Bear		X		X	X	X	4
4) Boulder/Slough	X	X		X	X	X	5
5) Lamar	X	X	X	X	X	X	6
6) Crandall/Sunlight		X	X	X	X	X	5
7) Shoshone	X	X	X	X	X	X	6
8) Pelican/Clear	X	X	X	X	X	X	6
9) Washburn	X	X	X	X	X	X	6
10) Firehole/Hayden	X	X	X	X	X	X	6
11) Madison		X	X	X	X	X	5
12) Henrys Lake		X	X		X	X	4
13) Plateau				X	X	X	3
14) Two Ocean/Lake	X	X	X	X	X	X	6
15) Thorofare	X	X	X	X	X	X	6
16) South Absaroka	X	X	X	X	X	X	6
17) Buffalo/Spread Creek	X	X	X	X	X	X	6
18) Bechler/Teton	X	X	X	X	X	X	6
TOTALS	12	17	14	17	18	18	

Monitoring Protocol

This effort will provide information to assess distribution of the reproductive cohort in all occupied habitats, although specific standards will apply only to the PCA. A recovered population should be well distributed throughout grizzly bear range. Successful reproduction is one indicator of habitat sufficiency, thus distribution of family groups is one indicator of suitable habitat in areas where such sightings occur. Since sub-adult females usually establish home ranges adjacent to that of their mothers, the distribution of family groups is also an indication of future occupancy of these areas by grizzly bears.

Radio tracking flights, observation flights, agency personnel sightings, and verified reports from other individuals will be the primary methods employed to collect female distribution data. The IGBST will verify all reports and keep a record of locations. Data will be maintained by the IGBST.

The number of BMUs occupied by females with young will be reported for the last six years. Females with young outside the PCA will also be reported, but only those females with young within the PCA will be used to document achievement of the distribution standard.

Mortality

Background

Agencies have placed significant effort toward limiting human-caused deaths for grizzly bears. To date, these efforts have been very successful at limiting mortality, allowing the population to increase since it was listed in 1975.

Although there was no legal hunter harvest from 1991 to 2001, 110 known and probable human-caused grizzly bear mortalities have been documented in the GYA. Female grizzly bears accounted for 41% of the mortality (Figure 9). Annual total human-caused mortality has never exceeded 22, while human-caused known and probable mortalities of females have never exceeded eight for the same period (Figure 9). Based on population criteria outlined in this Strategy, from 1993 through 2001, the thresholds for total and female known and probable mortalities have not been exceeded. As can be seen in Figure 7, the distribution of known and probable bear mortalities has occurred throughout the grizzly bear's documented range. As the population continues to expand, the percentage of known and probable mortalities occurring outside the PCA is increasing. These mortality thresholds are based on a six-year running average compared to *minimum* population estimates.

Monitoring Protocol

The management of human-caused mortality of grizzly bears is key to successful maintenance of the grizzly bear population in the Greater Yellowstone Area. Mortality limits are a necessary tool for managers in regulating impacts to any wildlife population, including grizzlies. Managing mortality is necessary to avoid the unregulated killing that occurred as the Yellowstone area was settled and to build support for long-term survival of the population. A higher rate of mortality is expected as the grizzly bear population expands, particularly in peripheral areas on the edge of the range when bears move on to private lands or in areas with higher levels of human development. Mortality management will recognize the need for some bears to be removed to meet management needs for nuisance bears, human safety issues, etc. Regulated harvest may be utilized as a management tool when and where appropriate, and all known and probable mortalities due to regulated harvest will be limited by the overall ecosystem mortality limit. Mortality limits will be monitored and evaluated annually and applied to the entire population to ensure mortality is not jeopardizing the survival of the population.

Harris (1986) reported that grizzly bear populations having the characteristics of those in the interior Rocky Mountains could sustain 6.5% human-caused mortality without population decline when no more than 30% of the known and probable mortalities are females. The 6.5% level suggested by Harris (1986) was reduced to a conservative 4% limit of known, human-caused mortality to:

- Facilitate continuing recovery and population expansion into desirable areas
- Use a conservative approach
- Ensure that unknown, unreported human-caused mortality, when added to the known mortality level, is not likely to exceed 6.5% of the population estimate. (The current ratio of known and probable to unknown mortalities is 2:1; therefore, an upper limit of 4% documented mortality allows for an actual mortality limit of 6%.)

Figure 7. Distribution of 307 known and probable human-caused mortalities in the Greater Yellowstone Area, 1975-2001 (IGBST Data).

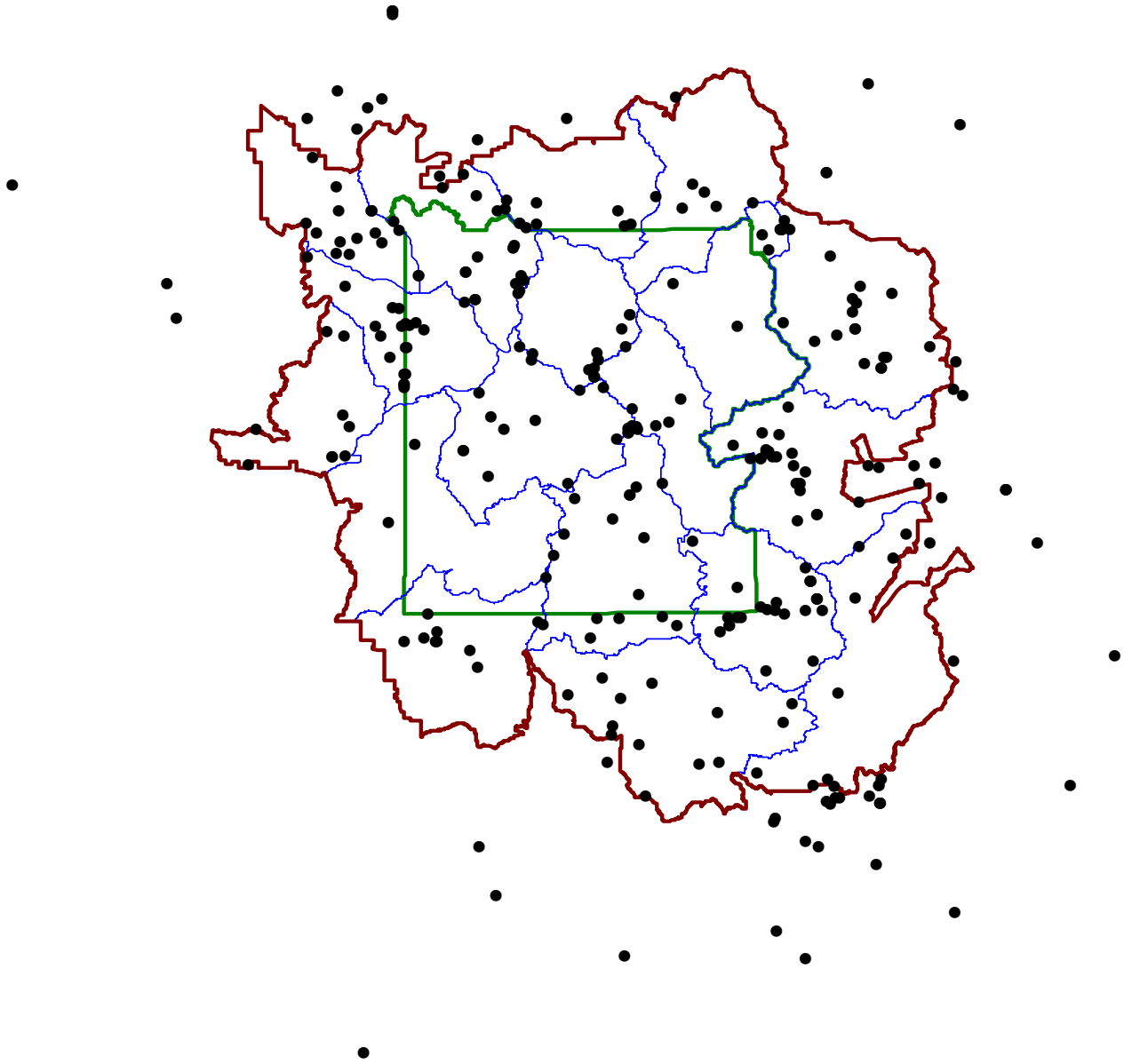


Figure 8. Example of the 2001 minimum and total population estimates within the Greater Yellowstone Area and 4% and 30% female mortality limits.

	Minimum Population Estimate	Total Estimate
	365	531
4%	14.6	21.2
30% females	4.4	6.4

The mortality thresholds established in the *Recovery Plan* of 4% or less of the minimum population provided population growth and expansion. The mortality limit established in the Strategy of no more than 4% of the total population is also conservative and should allow these trends to continue.

A mortality threshold for the GYA, rather than just the recovery zone and 10 miles beyond the recovery zone, will be managed so that known and probable human-caused mortality will not exceed 4% of the total population estimate. No more than 30% of the 4% total allowable mortality should be females. This equates to human-caused female known and probable mortalities being no more than 1.2% of the total population estimate. Protecting females, especially adult female bears, is an important part of mortality management.

Mortality limits of 4% of the total population in the GYA will be calculated on a six-year running average. The total population estimate will be based on the sum of the most recent three years of females with COY sightings and resightings using the approach in Appendix B. Calculating mortality limits on a six-year running average covers two breeding cycles and provides a conservative estimate of allowable mortality. The annual allowable take of bears may be updated as new information becomes available through additional analysis.

Known and probable human-caused mortalities are defined as follows:

Known. Carcass recovered or evidence to indicate known status due to radio telemetry. Known deaths require a carcass, management removal, or a cut radio collar. Found collars having the appearance of being cut should receive additional forensic review for definitive proof.

Probable. Strong evidence to indicate mortality, reported by highly reliable sources, no carcass recovered. Probable deaths include those cases where there is supportive evidence that a bear was wounded. Circumstances of each reported instance should be considered. Probable includes those cases where evidence of blood, hair, or other tissues clearly indicates wounding serious enough to result in death. The literature is unclear on the probability of survival for orphaned cubs. Any cub orphaned during its first year of life because of a known adult female mortality is considered a probable mortality.

Because probable mortalities will be counted against the mortality quota, and because there is a female quota, each probable mortality must be assigned a sex. Sex will be assigned in the following manner:

- Probable deaths of adult bears where cubs-of-the-year are reported present will be classified as sex = female.
- Lone bears classified as probable deaths will be assigned sex based upon statistics available from known deaths in the ecosystem. The percentage of known male and female deaths in the GYA between 1975 and 1998 is 59% and 41% respectively. These estimates exclude natural mortalities, management removals, and females with young. Therefore, sex will be assigned to probable adult mortalities in the GYA at a ratio of 59:41, male:female.

- Cubs-of-the-year that are orphaned and counted as mortalities will be assigned sex based a 50:50 sex ratio at birth (Eberhardt et al. 1994). For each cub, a random number will be drawn between 1 and 100. If the number is 1 through 50, the sex will be assigned as male; if the number is 51 to 100, the sex will be assigned as female.

It is recognized that established mortality limits might be exceeded in any given year. Any mortality threshold will not affect the immediate management of nuisance grizzly bears. This document describes agency responsibilities and actions to reduce mortality should this occur. State plans provide for the take of nuisance bears regardless of the current mortality quota upon consultation among all involved agencies. A running six-year average for mortality gives agencies flexibility to deal with years of high bear conflicts due to environmental factors, while ensuring the long-term viability of the population. In short, it is acceptable to exceed the allowable mortality in one year because mortality limits will be calculated on a running six-year average.

The 4% total allowable mortality limit and 30% allowable take of female bears will be applied to the entire GYA. Mortality will be monitored by reports from all sources. Each state wildlife agency and national park will provide mortality information to the IGBST, who will annually summarize all mortality information as to location, type, date, sex, and age for the Greater Yellowstone Area.

The established outer boundary for grizzly bear occupancy in Wyoming encompasses most of the area within the Wyoming portion of the Greater Yellowstone Area, shown in Figure 3 as the gray area in Wyoming, and in Figure 12 in the Wyoming State Management Plan (Appendix L). Grizzly bears that occur outside this boundary will be dealt with on an individual basis, utilizing the Wyoming Game and Fish Department's full array of management practices. If necessary, bears outside this area will be removed from the population, and those removals will not count against the mortality threshold.

Once population and distribution goals have been met, the mortality standards will be reviewed and revised as necessary using the best available information and science to meet these population goals. All management of and information on mortality management will be open to full public review.

Population Trend

Background

The most current information indicates that this population of grizzly bears is growing at approximately 3 to 4% or more annually (Eberhardt et al. 1994, Boyce 1995, and Boyce et al. (2001). While there is some debate related to the actual level of increase since the bear was listed in 1975, all of the current information, number of unduplicated females (Figure 9), distribution of reproducing females, distribution of bears, informal sightings by agency personnel, and areas where nuisance bears are being managed indicate this population has increased in both numbers of bears (Figure 9) and the geographic area they occupy (Schwartz et al. 2002).

Monitoring Protocol

This Strategy recognizes that any one factor cannot provide the needed information to assess population size and trend. Ultimately, assessments will require multiple sources of information. One technique that provides insight into trend is the application of the Lotka equation.

Population trend, using the Lotka equation as calculated from survivorship and reproductive rate data for the appropriate period (Eberhardt et al. 1994, Eberhardt and Knight 1996), will be used

as supportive information to evaluate population trend. This method will be applied to the entire population.

Estimates of population trend using critical population parameters can yield the rate of change in a population and proximate causes for the change. Using the statistical method called bootstrapping and the Lotka equation as described in Eberhardt et al. (1994) and Eberhardt (1995), it is now possible (given sufficient data) to estimate the population trajectory of a grizzly bear population with confidence limits. To use this method, female survivorship and reproductive rate must be monitored.

The agencies will strive to maintain a minimum of 25 adult female grizzly bears fitted with mortality-sensing radio collars and monitored at all times. To adequately sample survival, these 25 females will be spatially distributed throughout the ecosystem. The target distribution of these 25 radio-collared adult females will be determined by the IGBST; the expected distribution of collared females by agency will be assigned. Each female will be monitored using aerial telemetry flights during the non-denning period. These data will be collected in conjunction with other regularly scheduled relocation flights. When a radio collar indicates that a bear may have died, a field crew will evaluate the actual status of the female and determine cause of death. The IGBST will coordinate field crew collection of mortality data on each bear.

Data to calculate reproduction and survival are collected annually in all areas occupied by grizzly bears throughout the Greater Yellowstone Area. These data sets will be maintained by the IGBST and used periodically to evaluate population trend.

Figure 9. Annual count of unduplicated females with cubs-of-the-year (COY), and known and probable[a] human-caused grizzly bear mortalities within the Greater Yellowstone Area, 1991-2001.

	Unduplicated females with COY			Human-caused mortality					Conservation Strategy Mortality Thresholds			
									Total human-caused mortality		Total female mortality	
				Annual		6-year Average						
Years	Annual minimum count	Annual total count[c]	6-year Average[b]	Total	Female	Total	Female	Total population estimate	4% of total population	Year Result	30% of total mortality	Year Result
1991	24	35	20	0	0	4.7	2.5	287	11.5		3.4	
1992	25	48	20	4	1	3.8	1.8	377	15.1		4.5	
1993	20	24	22	3	2	3.8	1.8	374	15.0	Under	4.5	Under
1994	20	26	22	11	4	4.8	2.2	341	13.6	Under	4.1	Under
1995	17	55	22	17	7	7.3	3.3	364	14.6	Under	4.4	Under
1996	33	41	23	10	4	7.5	3.0	425	17.0	Under	5.1	Under
1997	31	41	24	10	4	9.2	3.7	480	19.2	Under	5.8	Under
1998	35	41	26	3	1	9.0	3.7	427	17.1	Under	5.1	Under
1999	33	37	28	10	3	10.2	3.8	407	16.3	Under	4.9	Under
2000	37	63	31	22	7	12.0	4.3	484	19.3	Under	5.8	Under
2001	42	55	35	20	8	12.5	4.5	531	21.2	Under	6.4	Under

[a] Beginning in 2000, probable human-caused mortalities are used in calculation of annual mortality thresholds.
[b] Recovery Plan target is 15 females in the recovery zone and 10-mile perimeter area.
[c] Total numbers calculated using methods of Keating et al. 2002 (Appendix B).

Genetic Management

Background

Genetic issues are of concern for the Yellowstone grizzly bear population because it is the only isolated population other than the North Cascades (where no data are currently available), and in any isolated population, genetic declines over time are to be expected due to inbreeding effects.

Two migrants per generation will maintain the current level of divergence between the Yellowstone and Northern Continental Divide Ecosystem (NCDE) grizzly populations. Miller and Waits (2003) suggest that one to two effective migrants per generation from NCDE into the GYA are an appropriate level of gene flow to maintain or increase the level of genetic diversity in the Yellowstone population. An effective migrant is one that survives and breeds in the Yellowstone area.

Movement of grizzly bears into the Greater Yellowstone Area could take the form of either artificial transplantation or natural movements. Bears could be captured in areas and moved into the GYA at any time. Natural gene flow involving bears moving across the landscape and entering the GYA may be several years away. Natural connectivity will require a concerted and cooperative effort on the part of federal and state agencies, private landowners, industry, political leaders, and the public. The obstacles to achieving natural connectivity are substantial. Miller and Waits state that the need for gene flow into the Yellowstone area is not urgent, and that current efforts should be concentrated on establishing intermediate populations and protecting and maintaining the opportunities for bears to move between the large blocks of land in the United States by establishing linkage zones (Servheen et al. 2001) in intervening habitat. They further conclude that if gene flow does not occur naturally within two to three decades, artificial translocation should be conducted.

The most important finding of Miller and Waits is that the Yellowstone area grizzly bear population is not in the troubling genetic condition that it was previously thought to be. The more immediate threat to the Yellowstone grizzly (and nearly all other *Ursus arctos* populations) is habitat loss and human-caused mortality. A sound policy to ensure the survival of the Yellowstone grizzly bears is to focus on maintaining the Yellowstone area and NCDE grizzly populations at or above their current sizes and to encourage range expansion through natural dispersal and/or reintroduction in suitable areas such as the Bitterroot Ecosystem. This approach will improve the demographic security of grizzly bears south of the Canadian border as well as address long-term genetic concerns.

Monitoring Protocol

Monitoring for genetic purposes will seek to understand if grizzly bears are moving into the GYA. This monitoring will be accomplished by radio tracking the movements and ranges of bears in areas on the northern periphery of the GYA and the southern periphery of the NCDE. Genetic samples will be collected from all captured and dead bears in these areas, and maintained for analysis by a cooperative effort of the IGBST and recognized genetic experts. These genetic analyses will seek to determine if NCDE-origin genetic material is found in the GYA. If no genetic material is found and no movements are detected by 2020, then plans will be prepared to translocate two or more grizzly bears from other populations into the GYA beginning by 2022 to ensure that genetic diversity in the Yellowstone area bears does not decline below existing levels.

Chapter 3 Habitat Standards and Monitoring

Introduction

Since 1986, habitats for grizzly bears in the Greater Yellowstone Area have been managed under standards and guidelines specified in national forest and national park management plans, which included the *Interagency Grizzly Bear Guidelines* (IGBC 1986). These standards and guidelines have been instrumental in recovery of the grizzly bear in the GYA.

The 1993 *Recovery Plan* required the documentation of the habitat necessary to support a recovered population. This task led to the development of the habitat criteria for the GYA that were first released for public comment in 1999. These same habitat criteria were included in the draft Conservation Strategy that was released for public comment in 2000. Content analysis of the public comments for both documents, as well as new information, were used to develop the habitat standards in this Conservation Strategy.

Bear management units (BMUs) and subunits were identified to provide a basis for ensuring that habitats for bears were well distributed across the recovery area. The recovery area was divided into18 BMUs and 40 BMU subunits. Due to their smaller size, subunits rather than BMUs proved to be better suited as a base for ensuring good distribution of bear habitat.

The habitat standards identified in this document are factors that will be maintained at identified levels. In addition to the habitat standards, several other habitat factors will be monitored and evaluated to determine the overall condition of habitat for bears in the PCA. The habitat standards in this document are subject to revision based on the best available science and will be reviewed and updated as necessary.

The agencies responsible for habitat management in the GYA agree to continue to collect the necessary information to evaluate maintenance of these standards and monitor other habitat parameters within the PCA. The overall goal for habitat management in the PCA is to maintain or improve habitat conditions as of 1998, as measured within each subunit within the PCA, while maintaining options for resource management activities at approximately the same level as existed in 1998. The habitat standards and monitoring requirements in this Conservation Strategy will be incorporated into national forest, national park, and BLM plans.

The three state grizzly bear management plans recommend and encourage land management agencies to maintain or improve habitats that are important to grizzly bears and to monitor habitat conditions outside the PCA. Each state recognizes the importance of motorized access management and road density issues related to grizzly bears and other wildlife. This access management issue has also been recognized in each state's elk management efforts. Land management agencies will work cooperatively with state wildlife agencies to meet identified population and habitat goals for grizzly bears in the GYA and the process of implementing these goals will be coordinated by the Yellowstone Grizzly Coordinating Committee (YGCC) representing all the agencies in the Yellowstone area (*see* Chapter 6 Implementation and Evaluation).

Forest and park plan standards and guidelines for other wildlife species will provide some habitat management direction for bears outside the PCA. By approval of this Conservation Strategy, Forest Service regional foresters in regions 1, 2, and 4 agree to add the grizzly bear to their sensitive species lists immediately upon ESA delisting of the species. Forest Service sensitive species direction requires that any project "must not result in loss of species viability or create significant trends toward federal listing" (Forest Service Manual (FSM) 2600). Sensitive species direction also requires the Forest Service to "assist states in achieving their goals for

conservation of endemic species" (FSM 2600). A biological evaluation will be completed for all Forest Service projects potentially affecting the grizzly bear. These evaluations will be completed and will be used to determine if projects will or will not meet the habitat standards in this Conservation Strategy. If the biological evaluation shows that the project will not meet the habitat standards in this Conservation Strategy, the project will be modified as necessary to ensure that it will meet these standards.

Conservation Strategy Habitat Standards Inside the PCA

The most important issues to control on the landscape are the levels of human activities. Human activities resulting in mortality and displacement were the main reasons the grizzly bear was listed as threatened. Changes in human activities may have allowed bears to achieve recovered status. The key issues related to human activity are food storage, livestock allotments, motorized access, and site developments, as these were activities that either resulted in mortality or habitat displacement.

It is the goal of the habitat management agencies to maintain or improve habitat conditions as of 1998, as measured within each subunit within the PCA, while maintaining options for resource management activities at approximately the same level as existed in 1998 (Appendix F). The grizzly population achieved all demographic recovery goals by 1998 with this management regime in place. The habitat standards identified here are similar to those identified in the draft Strategy, with some modifications in response to public comments and to increase the effectiveness of application. These standards apply only inside the PCA. Changes to these standards can be made by the YGCC, following appropriate public processes of the affected land management agencies, if monitoring indicates a need or better scientific information becomes available.

Existing forest and park plan standards and guidelines will provide grizzly bear habitat management direction outside the PCA. Land management agencies will cooperate with the appropriate state wildlife agency in development of additional future, area-specific grizzly bear management goals. All projects on federal public lands outside the PCA will be evaluated through the NEPA (National Environmental Policy Act) process. Potential impacts to grizzly bears and their habitat will be evaluated and mitigated using the criteria and standards in this Conservation Strategy in coordination with the state wildlife agencies. Appendix G presents an analysis of the potential for motorized access management changes both inside and outside the PCA.

Application rules under each standard are the specific ways that each habitat standard will be applied to implement this Conservation Strategy. The following specific habitat standards apply on federal lands, and will be monitored and maintained on subunits in the PCA.

Secure Habitat Standard

The percent of secure habitat within each bear management subunit must be maintained at or above levels that existed in 1998 (Appendix F). Temporary and permanent changes are allowed under specific conditions identified below. Appendix G provides additional information on definitions and rules for implementation of this standard. Figure 10 provides a summary of the secure area management rules. The rule set in Figure 10 will be used in management and evaluation of projects and habitat management actions as appropriate under this Conservation Strategy.

Application Rules for Changes in Secure Habitat

Permanent changes to secure habitat. A project may permanently change secure habitat provided that replacement secure habitat of equivalent habitat quality (as measured by the Cumulative Effects Model or equivalent technology) is provided 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.

Temporary changes to secure habitat. Temporary reductions in secure habitat can occur to allow projects, if all of the following conditions are met:

- Only one project is active per grizzly subunit at any one time.
- Total acreage of active projects within a given BMU will not exceed 1% of the acreage in the largest subunit within that BMU (*see* Appendix G). The acreage of a project that counts against the 1% limit is the acreage associated with the 500-meter buffer around any motorized access route that extends into secure habitat.
- Secure habitat is restored within one year after completion of the project.

Figure 10. The rule set for secure habitat management in the Yellowstone Primary Conservation Area.

Criteria	Definition
Software, Database, and Calculation Parameters	ARC INFO using the moving window GIS technique (Mace et al. 1996), 30-meter pixel size, square mile window size and density measured as miles/square mile. Motorized access features from the CEM GIS database
Motorized Access Routes in Database	All routes having motorized use or the potential for motorized use (restricted roads) including motorized trails, highways, and forest roads. Private roads and state and county highways counted.
Season Definitions	Season 1 – 1 March to 15 July. Season 2 – 16 July to 30 November. There are no access standards in the winter season (1 December to 28 February).
Habitat Considerations	Habitat quality not part of the standards but 1) Replacement secure habitat requires equal or greater habitat value 2) Road closures should consider seasonal habitat needs.
Project	An activity requiring construction of new roads, reconstructing or opening a restricted road or recurring helicopter flights at low elevations.
Secure Habitat	More than 500 meters from an open or gated motorized access route or reoccurring helicopter flight line. Must be greater than or equal to 10 acres in size. Replacement secure habitat created to mitigate for loss of existing secure habitat must be of equal or greater habitat value and remain in place for a minimum of 10 years. Large lakes not included in calculations.
Activities Allowed in Secure Habitat	Activities that do not require road construction, reconstruction, opening a restricted road, or reoccurring helicopter flights. Over the snow use allowed until further research identifies a concern.
Inclusions in Secure Habitat	Roads restricted with permanent barriers (not gates), decommissioned or obliterated roads, and/or non-motorized trails.
Temporary Reduction in Secure Habitat	One project per subunit is permitted that may temporarily reduce secure habitat. Total acreage of active projects in the BMU will not exceed 1% of the acreage in the largest subunit within the BMU. The acreage that counts against the 1% is the 500-meter buffer around open motorized access routes extending into secure habitat. Secure habitat is restored within one year after completion of the project.
Permanent Changes to Secure Habitat	A project may permanently change secure habitat provided that replacement secure habitat of equivalent habitat quality (as measured by CEM or equivalent technology) is provided in the same grizzly subunit. The replacement habitat either must be in place before project initiation or be provided as an integral part of the project plan.
Subunits with Planned Temporary Secure Habitat Reduction	Secure habitat for subunits Gallatin #3 and Hilgard #1 will temporarily decline below 1998 values due to the Gallatin Range Consolidation Act. Upon completion of the land exchange and associated timber sales, secure habitat in these subunits will be improved from the 1998 baseline.
Subunits with Potential for Improvement	Access values for Henrys Lake #2, Gallatin #3, and Madison # 2 have the potential for improvement. The quantity and timing of the improvement will be determined by the Gallatin National Forest Travel Management Plan.
Proactive Improvement in Secure Habitat	A proactive increase in secure habitat may be used at a future date to mitigate for impacts of proposed projects of that administrative unit within that subunit.
Exceptions for Caribou-Targhee NF	When fully adopted and implemented the Standards and Guidelines in the 1997 revised Targhee Forest Plan met the intent of maintaining secure habitat levels.

Developed Site Standard

The number and capacity of developed sites within the PCA will be maintained at or below the 1998 level with the following exceptions: any proposed increase, expansion, or change of use of developed sites from the 1998 baseline in the PCA (Appendix F) will be analyzed, and potential detrimental and positive impacts documented through biological evaluation or assessment by the action agency.

A **developed site** includes but is not limited to sites on public land developed or improved for human use or resource development such as campgrounds, trailheads, lodges, administrative sites, service stations, summer homes, restaurants, visitor centers, and permitted resource development sites such as oil and gas exploratory wells, production wells, plans of operation for mining activities, work camps, etc.

Application Rules

Mitigation of detrimental impacts will occur within the affected subunit and will be equivalent to the type and extent of impact. Mitigation measures will be in place before the initiation of the project or included as an integral part of the completion of the project.

- Consolidation and/or elimination of dispersed camping will be considered adequate mitigation for increases in human capacity at developed campgrounds if the new site capacity is equivalent to the dispersed camping eliminated.
- New sites will require mitigation within that subunit to offset any increases in human capacity, habitat loss, and increased access to surrounding habitats.
- Administrative site expansions are exempt from human capacity mitigation expansion if such developments are necessary for enhancement of management of public lands and other viable alternatives are not available. Temporary construction work camps for highway construction or other major maintenance projects are exempt from human capacity mitigation if other viable alternatives are not available. Food storage facilities and management must be in place to ensure food storage compliance, i.e., regulations established and enforced, camp monitors, etc. All other factors resulting in potential detrimental impacts to grizzly bears will be mitigated as identified for other developed sites.
- Land managers may improve the condition of developed sites for bears or reduce the number of sites. The improvements may then be used at a future date to mitigate equivalent impacts of proposed site development increase, expansion, or change of use for that administrative unit within that subunit.
- To the fullest extent of its regulatory authority, the Forest Service will minimize effects on grizzly habitat from activities based in statutory rights, such as the 1872 General Mining Law. In those expected few cases where the mitigated effects will result in an exceedance of the 1998 baseline that cannot be compensated for within that subunit, compensation, in the PCA, to levels at or below the 1998 baseline will be accomplished in adjacent subunits when possible, or the closest subunit if this is not possible, or in areas outside the PCA adjacent to the subunit impacted. Mitigation for Mining Law site impacts will follow standard developed site mitigation to offset any increases in human capacity, habitat loss, and increased access to surrounding habitats. Access impacts relating to Mining Law activities will be mitigated per the applications rules for changes in secure habitat.
- Developments on private land are not counted against this standard.

Livestock Allotment Standard

Inside the PCA, no new active commercial livestock grazing allotments will be created and there will be no increases in permitted sheep Animal Months (AMs) from the identified 1998 baseline (Appendix F). Existing sheep allotments will be monitored, evaluated, and phased out as the opportunity arises with willing permittees.

Application Rules

Allotments include both vacant and active commercial grazing allotments. Vacant allotments are those without an active permit, but may be used periodically by other permittees at the discretion of the land management agency to resolve resource issues or other concerns. Reissuance of permits for vacant cattle allotments may result in an increase in the number of permitted cattle, but the number of allotments would remain the same as the 1998 baseline. Combining or dividing existing allotments would be allowed as long as acreage in allotments does not increase. Any such 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, one alternative for resolving the conflict may be to phase out cattle grazing or to move the cattle to a currently vacant allotment where there is less likelihood of conflict.

Habitat Monitoring

Habitat monitoring will focus on evaluation of adherence to the habitat standards identified in this Strategy. Monitoring of other important habitat parameters will provide additional information to evaluate fully the status of the habitat for supporting a recovered grizzly bear population and the effectiveness of habitat standards. Habitat standards and other habitat parameters will be monitored as follows.

Secure Habitat and Motorized Access Route Density

Background

Motorized access is one of the most influential factors affecting grizzly bear use of habitats. Open road density has been utilized historically as a measure of human impacts to grizzly bear habitat. Restricted roads and motorized trails are important factors in evaluating habitat potential for and mortality risk to grizzly bears (Mace et al. 1996). Grizzly bear researchers and managers generally agree that secure habitat, defined as those areas more than 500 meters (550 yards) from a motorized access route during the non-denning period, are especially important to the survival and reproductive success of grizzly bears, especially adult female grizzly bears.

Motorized access parameters were measured and calculated using procedures identified in the 1998 IGBC *Taskforce Report on Grizzly Bear/Motorized Access Management*. For the Yellowstone PCA, the percent of secure habitat, open motorized access route density (OMARD) greater than one mile/square mile, and total motorized access route density (TMARD) greater than two miles/square mile per subunit in 1998 is presented in Appendix F. No change in these parameters has occurred since 1998, as managers agreed to maintain these values pending the finalization of the Strategy.

Subunits with potential for improvement. Several subunits, Henrys Lake #2, Gallatin #3, and Madison #2 have been identified as needing improvement in access parameters. The area with potential for improvement in these subunits is within the boundaries of the Gallatin National Forest. However, a large percentage of the OMARD and TMARD values and secure habitat loss

in these subunits is due to motorized access features on private land (Appendix G). The Forest is working on several land exchange efforts with private parties in these subunits. These land exchanges would allow management of the roads on these private parcels and increase the secure habitat in these subunits.

The Gallatin Range Consolidation Act will result in trading timber for land in the Gallatin #3 and Hilgard #1 subunits. The private land involved will become public land under the jurisdiction of the Gallatin National Forest. In order to complete the exchange, access values in these two subunits will temporarily decline below 1998 values. However, upon completion of this sale and land exchange, secure habitat and motorized access route density in these subunits will be improved from the 1998 baseline (Appendix F).

All the above-mentioned subunits on the Gallatin National Forest have the potential for improvement in the long term. The timing and amount of improvement will be determined through the Gallatin National Forest travel management planning process. This is a new effort since the release of the 2000 draft Conservation Strategy and may take several years to complete. The Travel Plan will amend the Forest Plan and set a new baseline for access values in these subunits. This travel plan revision will reduce the motorized access route density in these subunits and increase secure habitat.

Several other subunits were listed as needing improvement in the 2000 draft Conservation Strategy (Plateau #1, Plateau #2, and Henrys Lake #1). The draft stated that upon full implementation of the access management changes in the revised Targhee Forest Plan, those subunits will be acceptable for OMARD, TMARD, and secure habitat. Those access management changes have been fully implemented and those subunits are no longer identified as having potential for improvement. This is due to road decommissioning that was completed following the signing of the 1997 revised Targhee Forest Plan and the 1999 FEIS for the Targhee Travel Plan (Open Road and Open Motorized Train Analysis (motorized road and trail travel plan)). The 1998 baseline (Appendix F) for these subunits was modified to reflect the full implementation of the 1997 Targhee Forest Plan. Henrys Lake subunit #1 still has high levels of motorized access density and a low secure habitat level. However, much of the effect is due to motorized access routes on private lands (Appendix F). Little opportunity remains for improvement on public lands due to the legal requirements to provide access to Sawtell Peak, state lands, mining claims, county, state, and federal rights-of-way, private lands, and summer homes.

Monitoring Protocol

Secure habitat, open motorized access route density (OMARD) greater than one mile/square mile, and total motorized access route density (TMARD) greater than two miles/square mile will be monitored utilizing Yellowstone Grizzly Bear Cumulative Effects Model (CEM) Geographic Information System (GIS) databases, and reported annually within each subunit in the IGBST Annual Report. Protocols are established for an annual update of motorized access routes and other CEM GIS databases for the PCA. To provide evaluation of motorized access proposals relative to the 1998 baseline, automated GIS programs are available on each administrative unit (Appendix G).

Developed Sites

Background

Developed sites are known to displace grizzly bears and this has some direct effect on habitat effectiveness. The primary concern related to developed sites is mortality connected to food conditioning and bear habituation. Past attempts at modeling grizzly bear mortality in the GYA

have focused on numbers of people spending the night as a primary factor related to mortality. Increased numbers of people using an area and potentially interacting with grizzly bears is the important issue in evaluating the impacts from developed sites. Impacts to bears as a result of new or expanding developed sites could result from increases in human capacity at the site, temporary or permanent loss of habitat, increased length of time of use, increased access to surrounding areas or backcountry trails, and unsecured bear attractants.

The effects of the current number of developed sites are considered the level that can be accommodated on public lands because the 1998 level of site development is allowing a stable to increasing grizzly population (Appendix F). All changes in developed sites since 1998 have been evaluated against the baseline and have been determined acceptable under the standard for developed sites identified in this Strategy.

Monitoring Protocol

Monitoring numbers of developed sites can indirectly assess displacement from habitat, habituation to human activities, and increased grizzly mortality risk. Changes in the number and capacity of developed sites on public lands will be compiled annually and compared to the 1998 baseline. Developed sites are currently inventoried in existing GIS databases and are an input item to the CEM. Appendix F displays the number of developed sites in the PCA within seven categories and will serve as the 1998 baseline.

Livestock Grazing

Background

Interaction between livestock and grizzly bears has historically led to relocation or removal of grizzly bears. This is particularly true on domestic sheep allotments. While there have been recent increases in bear depredations on cattle in the Greater Yellowstone Area, the number of allotments and distribution of cattle inside the PCA in 1998 did not preclude achieving the demographic recovery criteria. In the case of sheep allotments, conflicts are much more prevalent and more difficult to resolve without eventually phasing out sheep grazing in the PCA.

There were 73 cattle and 15 sheep allotments inside the PCA as of 1998. A total of 17,279 sheep AMs were permitted inside the PCA in 1998 (Appendix F).

Two sheep allotments on the Caribou-Targhee National Forest within the PCA have been phased out since the establishment of the 1998 baseline, resulting in a decrease of 7,889 sheep AMs in the PCA.

Monitoring Protocol

To ensure no increase from the 1998 baseline, numbers of commercial livestock grazing allotments and numbers of sheep AMs within the PCA will be monitored and reported to the IGBST annually by the permitting agencies.

Major Foods

Background

Four food items have been identified as major components of the GYA grizzly bear diet (Mattson et al. 1991). These are seeds of the whitebark pine, army cutworm moths, ungulates, and spawning cutthroat trout. These food sources may exert a positive influence on grizzly bear fecundity and survival and are some of the highest sources of digestible energy available to grizzly bears in the Yellowstone area (Mealey 1975, Servheen et al. 1986, Pritchard and Robbins 1990, Craighead et al. 1995). Each of these food sources is limited in distribution and

subject to wide annual fluctuations in availability. During years when these food sources are abundant, there are very few grizzly bear/human conflicts in the GYA (Gunther et al. 1997). In contrast, during years when there are shortages of one or more of these foods, grizzly bear/human conflicts are more frequent and there are generally higher numbers of human-caused grizzly bear known and probable mortalities (Mattson et al. 1992*a*, Mattson et al. 1992*b*, Gunther et al. 1997).

These foods are very important to grizzly bears in the GYA. Introduced organisms, habitat loss, and other human activities have the potential to impact negatively the abundance and distribution of these foods. Because of natural annual changes in abundance and distribution of these four major foods, threshold values of abundance for each food have not been established. Whitebark pine, ungulates, cutthroat trout, and army cutworm moths are currently monitored either directly or indirectly on an annual basis.

By expanding the distribution and range of bears in the GYA, additional food resources will become available.

Monitoring Protocol

To monitor these major foods and their importance to grizzly bears, the IGBST will survey and report on each food annually, as per the detailed food monitoring protocols in Appendix E. Food abundance data will be compared with information on numbers of grizzly bear/human conflicts, grizzly bear management actions, human-caused known and probable grizzly bear mortalities, and changes in the distribution of bears. This analysis will be completed by the IGBST, including interpretations of influences of food availability on population standards and grizzly bear/human conflict rates. Results will be presented in the annual reports prepared by the IGBST. If declines in certain foods occur and, using the best available scientific data and techniques, the IGBST concludes these are related to significant increases in bear known and probable mortalities and that such increases could threaten the grizzly population, the IGBST shall recommend a petition for relisting (*see* Chapter 6, Implementation and Evaluation, for details on this process). Significant declines in important foods could also result in reductions in cub production. Since both human-caused mortality and numbers of females with cubs are measurable criteria monitored annually for the population, any significant decline in important foods would also be reflected in changes in these measurable population standards.

Monitoring these important foods also provides managers with some ability to predict annual seasonal bear habitat use, and estimate, prepare for, and avoid grizzly bear/human conflicts due to a shortage of one or more foods.

Existing monitoring programs will be continued under this Conservation Strategy; however, monitoring programs may be changed to incorporate new technological advances in monitoring techniques or new knowledge of bear habitat use in the Greater Yellowstone Area. Existing monitoring programs may be expanded beyond the PCA to areas currently being used by bears or areas predicted for future use by bears.

Winter-killed Ungulates

Background

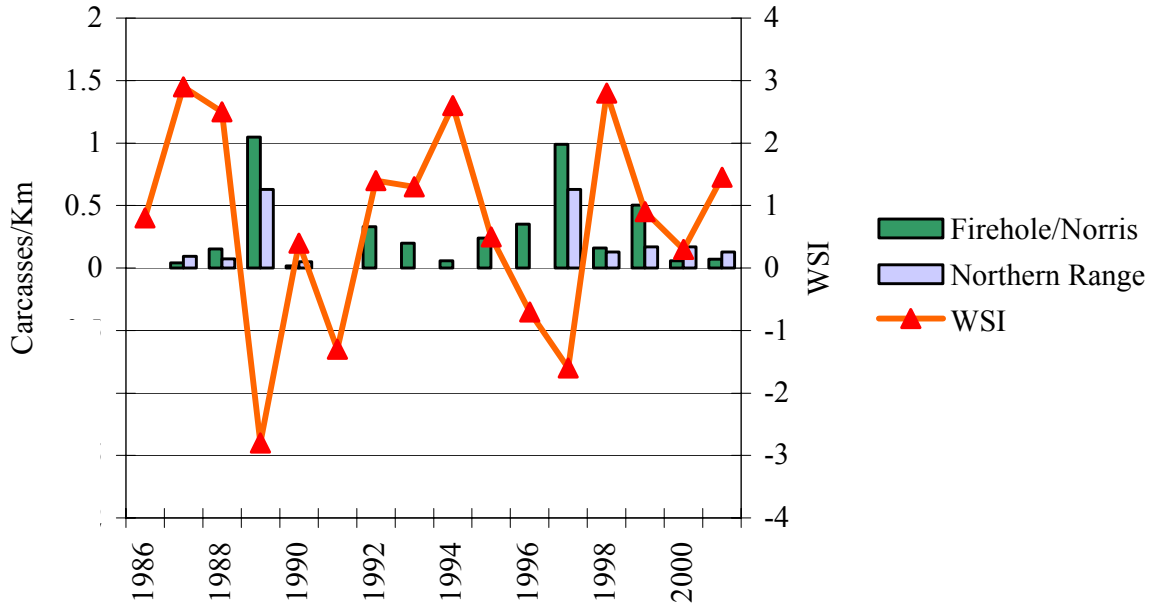
The GYA is unique among areas in North America inhabited by grizzly bears in that ungulates are a major food source, as indicated by bear scats (Mattson 1997), feed site analysis (Mattson 1997), and bear hair isotope analysis (Hildebrand et al. 1999). On average, approximately 79% of the diet of adult male and 45% of the diet of adult female grizzly bears in the GYA is meat (Hildebrand et al. 1999). In contrast, in Glacier National Park, over 95% of the diets of both adult male and female grizzly bears is vegetation (Hildebrand et al. 1999). Ungulates rank as the

second highest source of net digestible energy available to grizzly bears in the GYA (Mealey 1975, Pritchard and Robbins 1990, Craighead et al. 1995). Ungulates are also important to bears because they provide a high quality food source during early spring before most plant foods become available. Grizzly bears with home ranges in areas with few plant foods depend extensively on ungulate meat (Harting 1985). Grizzly bears feed on ungulates primarily as winter-killed carrion from March through May (Mattson and Knight 1992, Green et al. 1997). Carcass availability fluctuates with winter severity (Figure 11).

Monitoring Protocol

There are currently 30 spring ungulate carcass survey routes in Yellowstone National Park (YNP) and 11 on the Gallatin National Forest (Haroldson et al. 1998). Under this Conservation Strategy, monitoring of winter-killed ungulate carcass availability will continue and the results summarized and reported annually. Data from these survey efforts will also be used to update productivity values in the CEM. Current survey methods may be redesigned or modified when appropriate.

Figure 11. Winter Severity Index (WSI) derived for elk on the Northern Range and ungulate carcasses/km along transects in two survey areas, Yellowstone National Park, 1986-2001 (Podruzny and Gunther 2002).



Cutthroat Trout

Background

Due to their high digestibility and protein and lipid content, spawning cutthroat trout are one of the highest sources of digestible energy available to bears in Yellowstone National Park (Mealey 1975, Pritchard and Robbins 1990). Grizzly bears are known to prey on cutthroat trout in at least 36 different streams tributary to Yellowstone Lake (Hoskins 1975, Reinhart and Mattson 1990). In 2002, Haroldson et al. (in review *a*) estimated that approximately 69 to 85 grizzly bears per year frequented and likely fished spawning streams tributary to Yellowstone

Lake. In 1994, non-native lake trout were discovered in Yellowstone Lake. Lake trout could depress the native cutthroat trout populations and associated bear fishing activity (National Park Service 1994).

Monitoring Protocol

The Yellowstone Lake cutthroat trout population is currently monitored using gillnets, fish weirs, spawning stream surveys, and hydroacoustic techniques (Appendix E). YNP will provide an annual summary to the IGBST. Current survey methods may be modified or redesigned as appropriate.

Moth Aggregation Sites

Background

Alpine moth aggregations are an important food source for a significant portion of the Yellowstone grizzly bear population (Mattson et al. 1991). As many as 55 different grizzly bears have been observed feeding at moth sites on a single morning (Annual Report 2002 in prep). Some bears may feed almost exclusively on moths for a period of over one month (French et al. 1994). Moths have the highest caloric content per gram of any other bear food (French et al. 1994) and are available during the late summer/early fall periods when bears are consuming large quantities of foods in order to acquire sufficient fat levels for winter (Mattson et al. 1991). A grizzly bear feeding extensively on moths over a 30-day period can consume 47%, close to half, of its annual energy budget of 960,000 calories (White 1996). Moths are also valuable to bears because they are located in relatively remote areas, thereby reducing the potential for grizzly bear/human conflicts during the late-summer tourist months. During years when moths are abundant on high elevation moth sites, there are few grizzly bear/human conflicts at nearby low elevation human developments (Gunther et al. 1997). During years when moths are absent from the high elevation talus slopes, there are more grizzly bear/human conflicts at nearby low elevation human developments (Gunther et al. 1997).

Figure 12. The annual number of confirmed moth sites in the Greater Yellowstone Area, the number used by bears, and the total number of telemetry relocations or aerial observations of bears recorded at each site, 1986-2001 (Bjornlie and Haroldson 2002).

Year	Number of confirmed moth sites[a]	Number of moth sites used[b]	Number of locations or observations[c]
1986	5	2	8
1987	6	4	15
1988	7	4	43
1989	11	9	47
1990	13	10	69
1991	16	14	144
1992	19	15	88
1993	19	2	4
1994	20	7	14
1995	23	13	28
1996	24	14	69
1997	24	14	67
1998	26	17	124
1999	27	17	144
2000	27	14	78
2001	27	16	98
Total			1,040

[a] The year of discovery was considered the first year a telemetry location or aerial observation was documented at a site. Sites were considered confirmed every year thereafter regardless of whether additional locations were documented.
[b] A site was considered used if ≥1 location or observation was documented within the site that year.
[c] May include replicate sightings or telemetry relocations.

Monitoring Protocol

Bear use of moth aggregation sites has been noted during radio tracking and observation flights. Bear use of these sites will be used as an indirect measure of moth abundance. Aerial surveys for moth use will be conducted annually on representative moth feeding sites (Figure 12). Results will be summarized and reported in the IGBST Annual Report.

Whitebark Pine Cone Production

Background

Due to their high fat content and potential abundance as a pre-hibernation food, whitebark pine seeds are an important fall food for bears in the GYA (Mattson and Jonkel 1990). Yellowstone grizzly bears consume whitebark pine seeds extensively when whitebark cones are available. Bears may feed almost predominantly on whitebark pine seeds when production exceeds 22 cones per tree (Mattson et al. 1992). During years of low whitebark pine seed availability, grizzly bears often seek alternate foods at lower elevations in association with human activities, leading to increased nuisance bear management actions and human-caused grizzly bear known and probable mortalities during the fall (Mattson et al. 1992, Knight and Blanchard 1994, Gunther et al. 1997). During years when whitebark pine nuts are abundant, there are generally very few grizzly bear/human conflicts during the fall season (Mattson et al. 1992, Gunther et al. 1997).

Monitoring Protocol

Currently there are 19 whitebark pine cone production transects (Figure 13) within the GYA, nine of which have been monitored on an annual basis since 1980 (Knight et al. 1997). Monitoring of whitebark pine cone production using current or modified methods will continue under this Conservation Strategy. New transects may be added or methods changed as knowledge of bear use of this resource evolves. Results will be summarized and reported in the IGBST Annual Report.

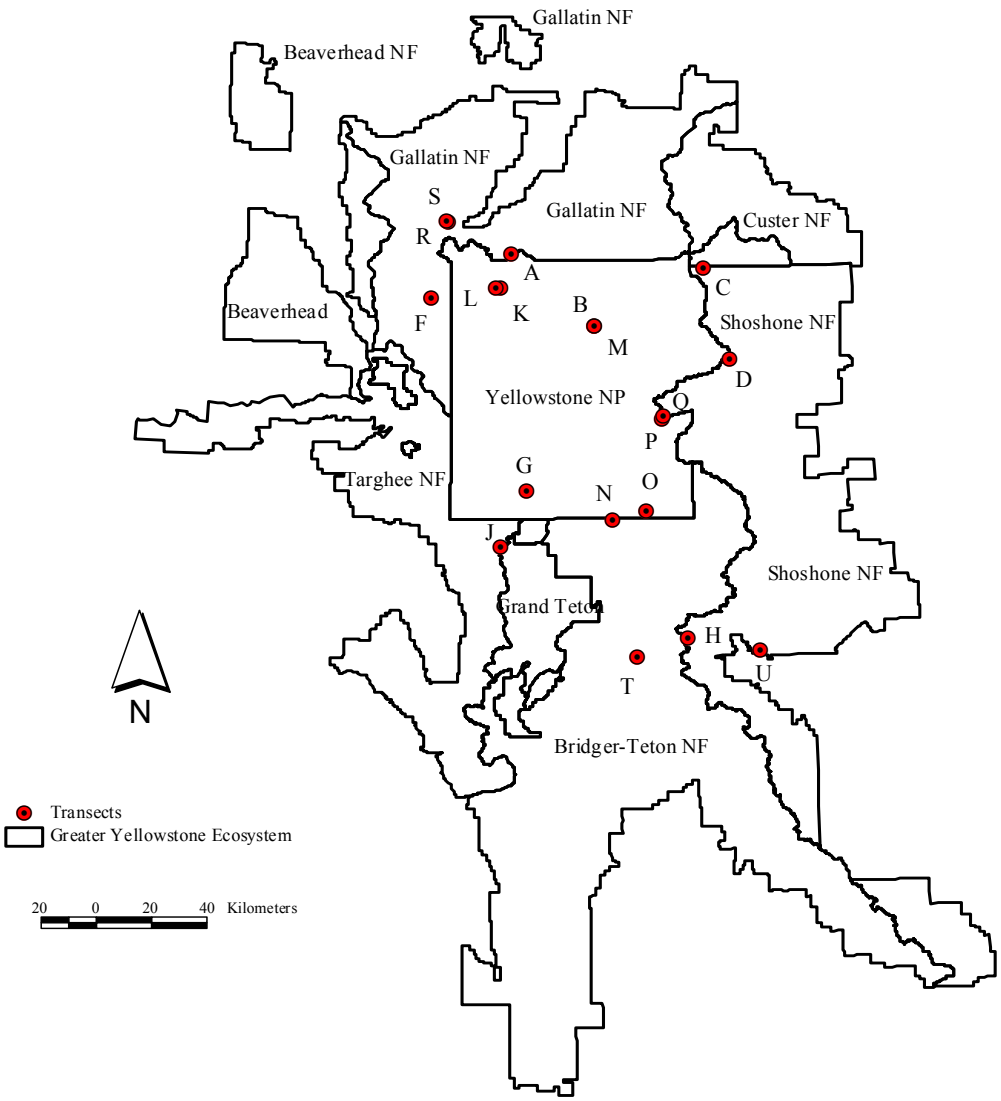


Figure 13. Location of whitebark pine cone transects.

White Pine Blister Rust Infection

Background

Whitebark pine mortality due to white pine blister rust exceeds 90% throughout the northwest U.S. (Kendall and Arno 1990). Although tree mortality has been low to date in the GYA, some whitebark pine stands are infected with blister rust. The extent of the blister rust infection and the future effects it will have on whitebark pine in the GYA are unknown.

Monitoring Protocol

Along each whitebark pine cone transect, each tree will be examined for presence of blister rust, and the data recorded. Results will be recorded and reported annually by the IGBST.

Habitat Effectiveness and Habitat Value

Background

The Yellowstone Grizzly Bear CEM was designed to assess the inherent productivity of grizzly bear habitat and to assess the effects of human activities on bear use of that habitat (Dixon 1997, Weaver et al. 1986, Mattson et al. in press). The model uses GIS databases and relative value coefficients of human activities, vegetation, and key grizzly bear foods to calculate Habitat Value (HV) and Habitat Effectiveness (HE) (Weaver et al. 1986, Bevins 1997, Mattson et al. in press). The CEM is the result of more than a decade of interagency effort. Interagency mapping protocols and procedures (Mattson and Despain 1985) have been developed and approved for the PCA. Research is limited as to what level of human activity on backcountry trails actually displaces bears from these habitats. Additional information on human use in the backcountry may help determine the relationship between human activities and bear use.

Habitat Value in the CEM is a relative measure of the average net digested energy potentially available to bears in a subunit for each of four seasons. Habitat Effectiveness is that part of the energy potentially derived from the area that is available to bears given their response to humans (Mattson et al. in press). It is recognized that motorized access and site developments are the primary human activities influencing grizzly bear use of habitats. However, there are other activities that collectivity may have significant impact on the effectiveness of the habitat for bears. The CEM can be used to estimate the cumulative effects of all human activities on the availability of habitats and associated foods to bears. The 1998 baseline seasonal HE values for each subunit from CEM are displayed in Appendix F.

The current level of HE for some subunits likely differs from the 1998 baseline. This is not due to changes in the level of human activity, as human activity has not significantly changed since 1998. Rather, several wildfires and prescribed fires have occurred which changed HV. Since HE is calculated as a percentage of the HV, this has resulted in a corresponding change in HE. The change is likely not detrimental to bears and in some instances has improved the seasonal HV.

Monitoring Protocol

The agencies will measure changes in seasonal Habitat Effectiveness in each BMU and subunit by regular application of the CEM or the best available system, and compare outputs to the 1998 baseline (Appendix F). CEM databases will be reviewed annually and updated as needed. These databases include location, duration, and intensity of use for motorized access routes, non-motorized access routes, developed sites, and front country and backcountry dispersed uses. Emphasis and funding will continue to refine and verify CEM assumptions and to update databases.

Representative trails or access points, where risk of grizzly bear mortality is highest, will be monitored when funding is available. CEM databases will be updated to reflect any noted changes in intensity or duration of human use.

Hunter Numbers

Background

The number of elk hunters in Wyoming, Idaho, and Montana who recreate in the PCA (Figure 14) were estimated and compared to grizzly bear known and probable mortalities, both verified and probable, from 1987 to 1997 to determine if bear mortality is correlated to hunter numbers. The data show there is little relationship between hunter numbers and human-caused grizzly mortality.

The highest source of grizzly bear mortality in the GYA has been due to interactions with hunters. While the number of hunters using the PCA has not increased significantly, the number of grizzly bear known and probable mortalities due to interactions with hunters increased in the last decade. Possibilities for why this occurred include bears learning to seek hunter-killed game, and bear distribution shifting to elk hunting units that open early (Haroldson et al. in review *b*). Nearly all known and probable bear mortalities occur as surprise encounters, at big game carcasses, or at hunter camps.

Figure 14. Estimated numbers of elk hunters within the grizzly bear recovery zone plus a 10-mile perimeter in Idaho, Montana, and Wyoming for the years 1991-2001.

	Year										
State	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Idaho[a]	2,292	2,573	2,962	2,682	2,366	3,102	2,869	2,785	2,883	NA[b]	2,914
Montana[c]	18,264	16,062	16,092	16,477	15,288	16,108	NA	NA	14,298	14,872	12,504
Wyoming[d]	16,233	17,154	17,105	17,053	17,464	16,283	17,458	15,439	15,727	12,812	13,591
Total	36,789	35,789	36,159	36,212	35,118	35,493			32,908		29,009

[a] Idaho and Wyoming numbers include archery and gun hunters.

[b] NA = hunter number estimates not currently available.

[c] Gun only season.

[d] A percentage of total hunter numbers was used in hunt areas 61 to 63, 67, 68, 73, and 83 because a portion of the hunt area falls outside the designated area.

State and federal wildlife agencies have attempted to reduce the loss of bears to hunters by expanding information and education programs. “Living in Bear Country” workshops are conducted regularly in many GYA communities, and licensed outfitters and guides have increased training for their members and clients.

Monitoring Protocol

Data from state wildlife agencies on big game herd units or hunting districts will be used as an index to backcountry use during the hunting season. Hunter use levels combined with numbers of grizzly bear/human conflicts will be used to identify when and where to increase public

education efforts and develop appropriate management actions to minimize grizzly bear/human conflicts that result in bear mortality.

Private Land Development

Background

While the existing cumulative effects database accounts for private land development effects within the PCA, influences outside this area are not included. Outside the PCA, several factors influence state and federal grizzly bear management programs. Among the most important is the rapidly accelerating growth of human populations in some areas in grizzly bear habitat in western Montana, southeast Idaho, and northwest Wyoming. This growth results not only in increased visitor use, but also increased residential development on important wildlife habitat adjacent to public lands. This increased human use, primarily residential development, results in the loss of wildlife habitat and permanent increases in grizzly bear/human conflicts, resulting in higher bear mortality rates.

Activities associated with permanent human presence often result in continual 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 (Figures 15 and 16).

Management agencies devote significant efforts toward private landowner outreach programs to minimize grizzly bear/human conflicts and to manage bears and potential conflict situations on such sites. Both the Montana Fish, Wildlife & Parks Department and the Wyoming Game and Fish Department employ bear management specialists devoted specifically to managing grizzly bear/human conflicts on private lands and to working with private landowners to minimize such conflicts.

It is recognized that federal land management and state wildlife agencies do not have direct management authority over private lands and that these agencies do not have the ability to respond to all private land development by management actions on public lands. As private lands are developed and as secure habitat on private lands declines, state and federal agencies will work together to explore options that address impacts from private land development.

Monitoring Protocol

Human-caused mortality related to private land conflicts will be monitored and must be controlled to meet the standards in this Conservation Strategy. This requires ongoing efforts to limit grizzly bear/human conflicts on private lands inside and outside the PCA.

To assist in minimizing grizzly bear/human conflicts on private lands, a need exists to develop a protocol to categorize private lands and report changes. The objective is to provide a system for monitoring the status of grizzly bear habitat on private lands within the PCA, and to direct management efforts, conservation actions by private organizations, and outreach efforts to the public in areas where private lands are being developed. The protocol should provide a qualitative and quantitative system for classifying the potential of private land parcels as productive and secure grizzly bear habitat.

While the sole responsibility for monitoring the status and condition of private lands does not lie with the states, the states will assist private non-profits and other entities to categorize and prioritize potential lands suitable for permanent conservation. The quality and availability of land parcel data varies greatly within and among states and is generally available through the various county governments. Therefore, the methodology to monitor private land status and condition will be specific to data availability by county/state.

Figure 15. Land ownership where known and probable human-caused grizzly bear mortalities occurred in the Greater Yellowstone Area during 1987-2001.

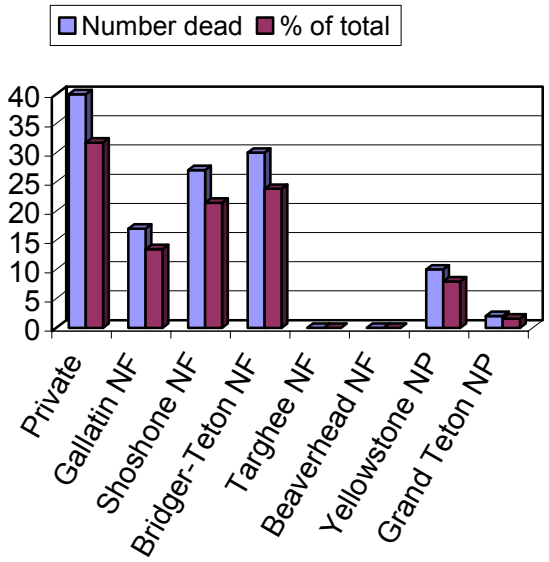
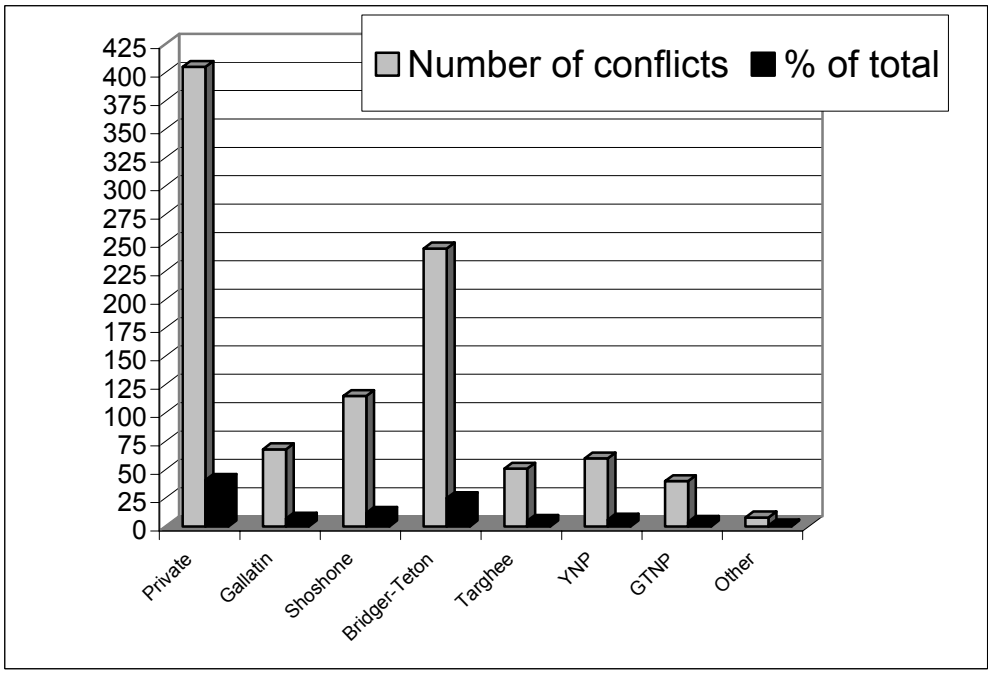


Figure 16. Land ownership where known grizzly bear/human conflicts occurred in the Greater Yellowstone Area 1992-2000.



Habitat Connectivity

Background

Excessive clearing widths, increased speeds, increased traffic volume, and widened roads, e.g., four lanes, passing lanes, and wide shoulders, are known to cause increased road mortality and/or reduce habitat connectivity (Proctor 2003, Clevenger et al. 2002).

Vehicle size and numbers continue to increase on the roads in the GYA. As existing roads age and deteriorate, plans are developed to reconstruct these roads to support increases in the size and numbers of vehicles. Federal and state highway departments prefer to design roads that allow increased speed, have wider road surfaces, including wider shoulders, and wide vegetation clearing widths for visibility. A combination of any or all of these design standards results in increased driver comfort and higher speeds. This increase in speed results in increased wildlife mortality (Gunther et al. 1998).

Certain road improvement designs can cause reduction of bear crossings. This results in elimination of traditional dispersal routes and fragmentation of home ranges in the GYA.

Monitoring Protocol

Monitoring and surveys will be conducted before designs are initiated. These surveys or analyses will include known bear crossing areas, bear sighting information, ungulate road mortality data, bear home range analysis, and game trail information. This information will be used to complete a connectivity analysis to identify important crossing areas.

To ensure that habitat connectivity is addressed for new road construction or reconstruction in the GYA, federal land management agencies will evaluate habitat connectivity during the NEPA analysis process.

Chapter 4 Management and Monitoring of Grizzly Bear/Human Conflicts

Introduction

Humans and grizzly bears occasionally come into conflict in areas were they encounter one another. From 1992 to 2001, as few as 24 and as many as 165 grizzly bear/human conflicts were reported annually in the GYA (Gunther et al. in press).

The objective of nuisance management is to minimize grizzly bear/human conflicts. In the Greater Yellowstone Area, nuisance bear management is essential to successful grizzly conservation and is often necessary to prevent property damage, livestock losses, and human injury or death. Grizzly bears cannot be totally protected. Like other species, grizzly bears develop individual traits, and some of those traits are not compatible with coexistence with humans. Management emphasis will shift from protecting every individual grizzly bear in the population to assessing an individual's importance to the entire population before instituting management actions. Females will continue to receive a higher level of protection than males. Management of nuisance bears requires rapid responses by state and federal agencies to address conflict situations. This agency response will address the sources of the conflict through public education, removal of attractants, or preventive sanitation of human use areas. Agencies will also capture, relocate, or destroy repeat offender grizzly bears when necessary and when other options have been exhausted.

Analysis of grizzly bear/human incidents indicates that most property damage incidents are the result of bears attempting to gain access to garbage, human foods, livestock or pet foods, or other human-related foods in areas of human presence. Occasionally bears will prey on domestic swine, fowl, or goats, or will damage apiaries. They have rarely injured horses.

Although aggression toward people and human injury or death are rare, bears will occasionally harm people. Incidents of injury are usually the result of a surprise encounter, protection of cubs, defense of a food cache, harassment, or when bears have become accustomed to obtaining food from humans.

The management of grizzly bear/human conflicts is based upon the existing laws and authorities of the state and federal land management agencies as detailed in Chapter 7. Management of nuisance bears usually falls into one or more of the following categories:

- Removing or securing the attractant
- Deterring the bear from the site through the use of aversive conditioning techniques
- Capturing and relocating the nuisance bear
- Removing the bear from the wild, including lethal control

Definitions

Unnatural aggression by a grizzly bear is defined as behavior that includes active predation on humans, approaching humans or human use areas, such as camps, in an aggressive way, or aggressive behavior when the bear is unprovoked by self-defense, defense of cubs, defense of foods, or in a surprise encounter.

Grizzly bear/human conflicts are incidents in which bears injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods, or damage or obtain garden and orchard fruits and vegetables.

Natural aggression by a grizzly bear is defined as defense of young, food, during a surprise encounter, or self-defense.

A bear is classified as **food conditioned** when it has received a significant food reward of human foods such as garbage, camp food, pet food, or processed livestock food, and persistently seeks these foods.

A bear is classified as **habituated** when it does not display avoidance behavior around humans or in human use areas such as camps or town sites or within 100 meters of open roads.

Relocation is 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.

Repeat offense is the involvement of a bear that has been previously relocated in a nuisance situation or, if not relocated, continues to repeat a behavior that constitutes a grizzly bear/human conflict.

Removal is the capture and placement of a bear in an authorized public zoological or research facility or destruction of that bear. Removal can also involve killing the bear through active measures in the wild when it is not otherwise possible to capture the bear.

Management authorities are the designated representatives of the agencies in the GYA including Yellowstone National Park; Grand Teton National Park (GTNP); Wyoming Game and Fish Department; Montana Fish, Wildlife & Parks; Idaho Department of Fish and Game; Interagency Grizzly Bear Study Team; each of the GYA national forests—Gallatin, Custer, Shoshone, Bridger-Teton, Caribou-Targhee, and Beaverhead-Deerlodge; the BLM; and USDA Wildlife Services. These authorities will make the decision to classify a bear as nuisance inside the GYA in compliance with the nuisance bear criteria (discussed below). Outside Yellowstone and Grand Teton National Parks within the PCA, subsequent management actions will be coordinated and completed by state wildlife agencies, after coordination with other appropriate agencies. Nuisance grizzly bear conflict management is under the authority of the states, who will have primary responsibility for the management action. When nuisance bears are in YNP or GTNP, decisions will be made by park representatives, and coordinated with state and Forest Service representatives when necessary, e.g., for bear relocations. Management of nuisance bears outside the PCA will be conducted as described in the state grizzly bear management plans or appropriate park management plans.

Management of nuisance grizzly bears in the Greater Yellowstone Area will vary depending on whether they are inside or outside the PCA. This system will provide increased security for grizzly bears inside the PCA, as bears will be given greater consideration in most conflicts inside the PCA. Minimization of grizzly bear/human conflicts and management of individual nuisance bears is the primary direction for management within the PCA.

In circumstances that result in a nuisance bear situation outside the PCA, more consideration will be given to existing human uses. Site-specific conflict areas within and outside the PCA will be documented and prioritized to focus proactive management actions to minimize grizzly bear/human conflicts and address existing and potential human activities that may cause future conflicts. Past conflict management has demonstrated that grizzly bears can coexist with most human activities.

Outside the PCA, state management plans will govern how nuisance grizzly bears are handled. Site-specific conflict areas within and outside the PCA will be documented routinely and prioritized to focus proactive management actions to minimize grizzly bear/human conflicts and address existing and potential human activities that may cause future conflicts. The following nuisance grizzly bear standards apply only to the PCA. All nuisance grizzly bear conflicts that occur outside the PCA will be managed according to guidelines in each of the state management plans (Appendices K, L, and M).

Conservation Strategy Nuisance Bear Standards

The focus and intent of nuisance grizzly bear management inside and outside the PCA are predicated on strategies and actions to prevent grizzly bear/human conflicts. It is recognized that active management aimed at individual nuisance bears will be required in both areas. Management actions outside the PCA will be implemented according to state management plans in coordination with landowners and land management agencies. These actions will be compatible with grizzly bear population management objectives for each state for the areas outside the PCA.

General Criteria

Location, cause of incident, severity of incident, history of bear, health/age/sex of bear, and demographic characteristics of animals involved will all be considered in any relocation or removal. Removal of nuisance bears will be carefully considered and consistent with mortality limits for the GYA as described in the Conservation Strategy. Recognizing that conservation of female bears is essential to maintenance of a grizzly population, removal of nuisance females will be minimized.

Within the Primary Conservation Area

Within the PCA, management of nuisance bears will be addressed according to the following standards:

- Bears displaying food conditioning and/or habituation may be either relocated or removed based on specific details of the incident. State wildlife agencies, following consultation with other appropriate management authorities, and national parks will make this judgment after considering the cause, location, and severity of the incident or incidents.
- Bears may be relocated as many times as judged prudent by management authorities. No bear may be removed for any offense, other than unnatural aggression, without at least one relocation unless representatives of affected agencies document the reason in writing. All relocations outside the PCA will be governed by state management plans.
- Bears may be preemptively moved when they are in areas where they are likely to come into conflicts with site-specific human activities, but only as a last resort. Such preemptive moves will not count against the bear as nuisance moves.
- Bears preying on lawfully present livestock (cows, domestic sheep, horses, goats, llamas, etc.) on public lands will be managed according to the following criteria:
    - No grizzly bear involved in livestock depredations inside the PCA shall be removed unless it has been relocated at least one time and continues to cause livestock depredations. This does not apply to depredations occurring in sheep allotments inside the PCA in areas that were designated Management Situation 1[4] under the *Interagency Grizzly Bear Guidelines* (IGBC 1986).
    - Grizzly bears will not be removed or relocated from sheep allotments on federal land inside the PCA in areas that were designated Management Situation 1 under the *Interagency Grizzly Bear Guidelines* (IGBC 1986).
- Before any removal, except in cases of human safety, management authorities will consult by telephone or in person to judge the adequacy of the reason for removal.

[4] Management Situation 1 areas are described in existing forest plans.

- Bears displaying natural aggression are not to be removed, even if the aggression results in human injury or death, unless it is the judgment of management authorities that the particular circumstances warrant removal.
- Bears displaying unnatural aggression will be removed from the population.
- Decisions will be based on criteria for relocation and removal inside the PCA for management of nuisance bears in the Conservation Strategy and best biological judgment of authorities.
    - Authorized National Park Service authorities will implement removals and relocations within YNP and GTNP.
    - Authorized state authorities outside YNP and GTNP will implement other removals and relocations.
    - State 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. In order to deal with problem bears more efficiently, managers should have full access to relocation sites without having to conduct individual consultation for each relocation.
    - Livestock damage prevention and compensation are addressed in individual state management plans.
- Management of all nuisance bear situations will emphasize removal of the human cause of the conflict, when possible, or management and education actions to limit such conflicts. Relocation and removal of grizzly bears may occur if the above actions are not successful.

Specific Criteria for Removals

Captured grizzly bears identified for removal may be given to public research institutions or public zoological parks for appropriate non-release educational or scientific purposes as per regulations of states and national parks. Grizzly bears not suitable for release, research, or educational purposes will be removed as described in appropriate state management plans or in compliance with national park rules and regulations.

Outside of national parks, individual nuisance bears deemed appropriate for removal may be taken by a legal hunter in compliance with rules and regulations promulgated by the appropriate state wildlife agency commission, as long as such taking is in compliance with existing state and federal laws, and as long as mortality limits specified for the GYA as described in this Conservation Strategy are not exceeded. This could include licensed hunters or property owners or their agents who have obtained appropriate permits from the state. Licensed hunters will be allowed to possess bear parts for bears that are legally harvested under a state permit.

Monitoring Protocol

All nuisance bear control actions, and grizzly bear/human and grizzly bear/livestock conflicts will be summarized annually in the Annual Report of the IGBST. Most conflicts are due to availability of human foods, human developments, or livestock depredations in occupied grizzly bear habitat. This report will detail the cause and location of each conflict and management action and display an annual spatial distribution of conflicts that can be used by managers to identify where problems occur and to compare trends in locations, sources, land ownership, and types of conflicts.

Chapter 5 Information and Education

The future of the Yellowstone grizzly bear lies in our ability to learn to coexist with the grizzly and to accept this animal as a cohabitant of the land. Historically, excessive human-caused mortality and loss of habitat are the major factors in grizzly bear population decline. Addressing the source of grizzly bear/human conflicts is critical to an effective public outreach plan. Public attitudes in large part determine the success of efforts to manage a recovered grizzly bear population in the Greater Yellowstone Area. For the good of the bear and to develop positive public attitudes, a coordinated information and education campaign is essential.

The purposes of the information and education aspects of this cooperative effort are to support the development, implementation, and dissemination of a coordinated information and education program. This program should be understandable and useful for the people who visit, live, work, and recreate in bear habitat to minimize grizzly bear/human conflicts and to provide for the safety of people while building support for viable bear populations.

Other management strategies outlined in this plan are unlikely to succeed without useful, state-of-the-art public information and education programs. A partnership information and education approach involving state and federal agencies, tribes, local communities, and private interests can result in minimizing grizzly bear/human conflicts while building support for bears and bear management.

Successful long-term community involvement in future grizzly bear management efforts requires continued use of current effective methods and tools that have contributed to the success story of the recovered population we have today. In addition, to meet the needs of an ever-growing human population and expanding bear population, it will be necessary to develop new processes and outreach tools to further enhance public involvement and appreciation of the grizzly bear and monitor social behavior and attitudes. Through close monitoring, we will be able to gauge our success in reaching our diverse public and in minimizing grizzly bear/human conflicts, adjusting programs as needed.

Successful public education and involvement should result in the understanding that it is acceptable and expected human behavior to practice good stewardship, and this will in turn allow us to live with the grizzly bear as part of our valued wildlife resources.

The Information and Education Team

The information and education effort will continue to be coordinated between all agencies and private interests to ensure timely, accurate, and consistent messages to the public. The current information and education (I & E) working group within the Greater Yellowstone Area will continue. Members of this I & E Team include public affairs personnel from Forest Service Regions 1, 2, and 4; Grand Teton and Yellowstone National Parks; the BLM; representatives from each state wildlife agency; and the information and education specialist from the IGBC. This team will continue to work with all affected interests to ensure consistency of information, efficient funding strategies, identifying and targeting audiences, developing partnerships, and identifying new tools for implementation.

A coordinated information and education campaign will be most effective if it facilitates changing inappropriate human behaviors and helps people learn to coexist with bears. The benefits of grizzly bear management for a multitude of resources and species, including elk habitat management, black bear management, and water quality, recreation, and aesthetic values of access management, will be included in the information and education efforts. Long-term community engagement in grizzly bear issues is necessary to increase the awareness of bear

behavior and biology and how these can be compatible with human needs and activities. Identification of sources of grizzly bear/human conflicts and the use of public education as a tool are essential. The responsibilities of the I & E Team include the following:

- Develop a coordinated information and education campaign to cultivate an appreciation of the value of the grizzly bear resource in this area. The grizzly bear will be presented as a valuable wildlife resource, while still acknowledging the risks associated with them in publications and educational outreach.
- Continue and expand living-with-bears workshops or outreach with a similar message for citizens and teachers within the Greater Yellowstone Area. Similar seminars for other specific target groups such as hunters and other backcountry recreationists will be used as appropriate.
- Local citizens involvement groups and processes will be used to facilitate information exchange and identify other community interests regarding the grizzly bear.
- Updates and information will be provided to all affected interests through various media including news releases and mailings, television, etc.
- State and federal volunteer programs will be encouraged to identify and provide an opportunity for public participation in grizzly bear information outreach and management. This could include trailhead demonstrations on bear resistant containers, distribution of brochures, school education programs, etc.
- Proactive and preventative safety messages will be expanded.
- Citizens will be encouraged to participate in land management decisions at the project level on state and federal lands affecting grizzly bear habitat and management.
- Citizens will also be encouraged to be involved in private land issues associated with grizzly bear management. This may include sanitation ordinances, conservation easements, developing private land management plans, and supporting informational outreach campaigns to private landowners.
- Knowledge about bears and acceptance of grizzly bears by people and groups that live, work, and recreate in grizzly bear country are key to the long-term conservation of a healthy grizzly bear population. Continuing specific outreach messages and techniques tailored to the needs of these groups is essential. Some of these groups include landowners, mining industry, timber industry, firewood gatherers, ranchers, outfitters, anglers, hunters, front country visitors, backcountry visitors, summer home owners, local business owners, developers, county planners, and school children.

Finally, information made available to the public will be open and responsive to public concerns. Open discussions with the public will increase credibility of the grizzly bear management program.

These efforts will be reviewed periodically and program adjustments will be made as necessary. In addition, efforts will be expanded as the bear population expands and additional efforts will be needed in areas that could become occupied in the near future.

Many brochures, videos, signs, articles, etc. are currently available and in use. Examples of these specific information and education tools are discussed in the state management plans.

Implementation

A new committee will replace the Yellowstone Ecosystem Subcommittee. The new committee, the Yellowstone Grizzly Coordinating Committee (YGCC), is the body that will coordinate management and promote the exchange of information about the Yellowstone grizzly bear population. The YGCC will inform the IGBC about the Yellowstone grizzly bear population for the benefit of grizzly bear conservation and management.

The Yellowstone Grizzly Coordinating Committee

Within 30 days of a final rule delisting the Greater Yellowstone Area grizzly bear population, the signatories of this Conservation Strategy will name their agency representatives to the YGCC. The person who was chairperson of the Yellowstone Ecosystem Subcommittee when the final rule changing status is published will call the first meeting of the GYCC. At this first meeting, the YGCC will elect a chairperson. Chairpersons will be elected at intervals determined by the members of the YGCC. The YGCC will meet at least two times each year; public notification of these meetings will be made by the chairperson or her/his representatives. The YGCC will strive for consensus, but when consensus cannot be achieved, decisions of the YGCC will be determined by majority vote. The details on locations and times of meetings and other business issues associated with the functioning of the YGCC will be determined at the first meeting.

YGCC members' expenses will be paid by their respective agencies.

YGCC authorities include:

- Revise or amend the Conservation Strategy based on the best biological data and the best available science. Any such amendments will be subject to public review and comment. Amendments will be made by the YGCC with a majority vote.
- Establish meeting rules and procedures, and chairperson election rules for the committee.
- Seek funding to further the conservation of the Yellowstone grizzly bear by implementing this Conservation Strategy. Each agency is responsible for seeking the necessary funding to carry out the tasks assigned in this Conservation Strategy.

Some primary activities of the YGCC are:

- Coordinate implementation of this Conservation Strategy
- Ensure that population and habitat data are collected annually by the IGBST, as specified in this Conservation Strategy, and evaluated to assess current status of the grizzly bear population
- Share information and implement management actions in a coordinated fashion
- Identify management, research, and financial needs to successfully implement the coordinated Conservation Strategy
- Implement a Biology and Monitoring Review as necessary and submit a petition for relisting as appropriate to ensure agency responsiveness to changing circumstances of the grizzly or its habitat in the Greater Yellowstone Area
- Appoint a chairperson and members of the Information and Education Team, and coordinate information and education efforts

This committee does not supersede the authority of the management agencies beyond the specific actions agreed to as signatories of this Conservation Strategy.

YGCC membership will consist of representatives of the following, each having one vote:

Federal	National parks: Yellowstone and Grand Teton
	National forests: Beaverhead-Deerlodge, Bridger-Teton, Caribou-Targhee, Custer, Gallatin, and Shoshone
	One Bureau of Land Management representative
	The Biological Resources Division of the U.S. Geological Survey
State wildlife agencies	Idaho, Montana, and Wyoming
Local government	One representative
Tribal	One representative from each Native American tribe with sovereign powers over reservation lands within the ecosystem

Three teams, the Interagency Grizzly Bear Study Team (IGBST), the Habitat Modeling Team (CEM), and the Information and Education Team (I & E) will perform necessary tasks and report to the YGCC.

The Interagency Grizzly Bear Study Team

In order to understand the dynamics of grizzly bears throughout the GYA, a need for centralized responsibility to collect, manage, analyze, and distribute science-based information was identified. To meet this need, in 1973 agencies formed the Interagency Grizzly Bear Study Team, a cooperative effort between the U.S. Geological Survey, National Park Service, U.S. Forest Service, U.S. Fish and Wildlife Service, and the state wildlife agencies of Idaho, Montana, and Wyoming.

Since 1974, the IGBST has published 164 scientific papers on the grizzly bear. A complete list of these papers can be found at: http://www.nrmsc.usgs.gov/research/igbstpub.pdf.

Quantitative data on grizzly bear abundance, distribution, survival, mortality, nuisance activity, and bear foods are critical to formulating management strategies and decisions. The IGBST coordinates data collection and analysis on an ecosystem scale, prevents overlap of efforts, and pools limited economic and human resources.

The IGBST will continue to function under this Conservation Strategy after delisting.

The responsibilities of the IGBST are to:

- Conduct both short- and long-term research projects addressing information needs for bear management
- Monitor the bear population, including status and trend, numbers, reproduction, and mortality
- Monitor grizzly bear habitats, foods, and the impacts of humans
- Provide technical support to agencies and other groups responsible for the immediate and long-term management of grizzly bears in the GYA
- Take the lead in preparing a Biology and Monitoring Review with staff support from the YGCC in response to deviations from required population or habitat standards

The USGS employee who is the lead biologist for USGS on the Yellowstone ecosystem grizzly bear population chairs the IGBST and will call meetings at least twice each year. The majority of funding for the IGBST comes from USGS but additional funding and in-kind efforts are made by all agencies (*see* Appendix H). The IGBST will report its findings to the YGCC.

The Habitat Modeling Team

The habitat standards and many of the habitat monitoring items identified in the Strategy require the use of cartographic modeling and the intensive maintenance of geographic information system databases. Computer technology is constantly changing and assessment protocols must be updated as software and hardware are replaced. Models used to evaluate these parameters require continual reevaluation and testing. A coordinated approach to database maintenance and monitoring is necessary for success.

The primary responsibilities of the Habitat Modeling Team are:

- Coordinate annual updates of the motorized access database
- Coordinate annual evaluation of motorized access route density and secure habitat
- Coordinate updates of the CEM (Cumulative Effects Model) vegetation layer for changes due to timber harvest, fire, and insects and disease
- Coordinate periodic update of the CEM human activities database
- Coordinate periodic evaluation of habitat effectiveness
- Document annually any changes in developed sites, livestock allotments, or permitted sheep numbers and maintain associated databases
- Ensure all units have the tools and the training to evaluate motorized access route density and secure habitat for projects
- Evaluate the need for changes in ways to evaluate motorized access route density, secure habitat, and habitat effectiveness, and make recommendations to the YGCC on such changes, as necessary
- Set and maintain standards, definitions, values, formats and processes for collecting and updating data and assessment models, and maintaining data consistency between units.
- Coordinate with the IGBST for reporting annual monitoring items

Members of the Habitat Modeling Team will include biologists and GIS specialists from each of the six national forests and two national parks in the GYA, and a database coordinator. The Habitat Modeling Team will report to the YGCC.

The Information and Education Team

Successful maintenance of a recovered grizzly population in the Yellowstone area 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 groups and organizations, and the public. The goals of the Information and Education (I & E) Team are:

- Increase public support for and compliance with agency management actions to maintain a secure Yellowstone area grizzly bear population
- Utilize all possible modern technology and media resources to help decrease grizzly bear/human conflicts while still maintaining maximum access to natural resources for both humans and grizzly bears
- Increase an understanding of grizzly bears and their habitat
- 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 use of open houses, direct mailings, and media campaigns 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, tribes, and users

Members of the Information and Education Team will include I & E specialists from the National Park Service, U.S. Forest Service, and the state wildlife agencies of Idaho, Montana, and Wyoming. The I & E Team will report to the YGCC.

Evaluation

The evaluation of the effectiveness of grizzly bear conservation measures detailed in this Conservation Strategy will be an ongoing process shared by all the members of the Yellowstone Grizzly Coordinating Committee.

As detailed in the monitoring portion of this strategy, the IGBST will take the lead in preparing an annual monitoring report with staff support from the YGCC. Agencies responsible for monitoring major population and habitat parameters are listed in Appendix I. Monitoring results and analyses will be presented to the YGCC by the IGBST. If there are deviations from any of the population and/or habitat standards stipulated in this Conservation Strategy, a Biological and Monitoring Review would be initiated. The IGBST is given this task as they are the preparers of the annual monitoring reports and are therefore most able to assess deviations from the population or habitat standards and the efforts of each agency to complete their monitoring tasks necessary to produce the monitoring data for the annual report.

Biology and Monitoring Review

Under this Conservation Strategy, a Biology and Monitoring Review is a process carried out by the IGBST. A Biology and Monitoring Review examines management of habitat, populations, or efforts of participating agencies to complete their required monitoring. Biology and Monitoring Reviews will be undertaken after the annual summary of monitoring information presented to the YGCC and in response to deviations from required population or habitat standards. Any YGCC member agency also can request that a Biology and Monitoring Review be considered. Such consideration would be a topic for discussion by the YGCC and the review would be initiated based on the decision of the YGCC. The Biology and Monitoring Review process will be completed within six months and the resulting written report presented to the YGCC and made available to the public. The IGBST 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 purposes of a Biology and Monitoring Review are:

- To identify the reasons why particular demographic or habitat objectives have not been achieved and to recommend modifications to the YGCC for changes as necessary
- To consider potential impacts of a proposed action of concern to one or more members of the YGCC, or
- To consider departures by one or more agencies from the monitoring effort required under this Conservation Strategy and to recommend plans to the YGCC to ensure that monitoring efforts be maintained as per the standards in this document, or
- To consider and establish a scientific basis for possible changes in management due to changed conditions in the ecosystem and make those recommendations to the YGCC
- Make recommendations as to whether a petition for relisting should be submitted

Biology and Monitoring Reviews will be based on the best available science. Biology and Monitoring Reviews will be submitted as written reports by the IGBST to the YGCC and made available to the public. The YGCC will respond to the Biology and Monitoring Review in a written

form either through the minutes of the YGCC meeting or in specific Biology and Monitoring Review response documents, as necessary. The purpose of the YGCC response is to address the issues(s) raised in the Biology and Monitoring Review with an explanation or management changes as necessary. In the case of a deviation from monitoring efforts required under this Conservation Strategy, the response will identify the means to be implemented by the YGCC to ensure continued population and/or habitat monitoring efforts as required in this document.

A Biology and Monitoring Review is generally triggered by negative deviations from the desired conditions established in this Conservation Strategy for population, mortality reduction, and habitat parameters; however, the IGBST can recommend a Biology and Monitoring Review to the YGCC if they deem it necessary.

A Biology and Monitoring Review will make recommendations as to whether a petition for relisting should be made. This recommendation shall be based upon the magnitude of the threat that the deviation from the desired condition poses to the maintenance of a recovered population. The YGCC has to formally agree with a recommendation from the IGBST to petition for relisting.

If the situation, after completion of the Biology and Monitoring Review, is such that some or all of the desired population and habitat conditions specified in this Conservation Strategy are not being met, and cannot be met in the opinion of the YGCC, then the YGCC will submit to the Fish and Wildlife Service a petition for relisting. In the case of a vote on this issue, a simple majority is necessary.

Petition for Relisting

There are two processes by which relisting the Yellowstone grizzly population can be initiated:

1. Receipt of a petition from any entity such as the YGCC, an organization, or a citizen
2. A status review initiated by the Fish and Wildlife Service to determine if a species should be a candidate species listed by the normal process, or should be emergency-listed by the Fish and Wildlife Service.

Under Section 4 of the Endangered Species Act, a petition from an individual or organization to relist this population will initiate a status review, if the Fish and Wildlife Service determines that the petition is warranted. To be warranted, such a petition must present credible scientific information to support the petition. The YGCC can petition the Fish and Wildlife Service to relist the Yellowstone grizzly bears. The Fish and Wildlife Service is to perform a status review upon receipt of such a petition that contains sufficient information to demonstrate that the request to relist is warranted. A relisting petition from the YGCC should be accompanied by the available specific biological data on the population and its habitat sufficient to judge its status as a recovered population as per the requirements of this Conservation Strategy. A status review will evaluate the factors affecting the population and result in a finding that summarizes the status of the population and recommends listing or not. For purposes of a status review, the status of the entire Greater Yellowstone Area grizzly bear population would be considered.

The U.S. Fish and Wildlife Service can unilaterally initiate a status review to determine if the Yellowstone grizzly bears should be a candidate species and be added to the species to be listed. This could be accomplished independently of the YGCC based on Fish and Wildlife Service concerns about the population and/or its habitat. Based on a review of a petition or a status review initiated by the Fish and Wildlife Service, if the Fish and Wildlife Service finds serious and imminent threats to the population as per the criteria of the Endangered Species Act in Section 4(a)(1), the species could be immediately considered for relisting or could be relisted under emergency regulations, per Section 4(b)(7).

Chapter 7 Existing Authorities

Introduction

The existence of adequate regulatory mechanisms that serve to maintain the Yellowstone grizzly bear population as recovered is one of the five factors required to change the status of the population to delisted and to ensure a healthy grizzly bear population.

The management of populations of grizzly bears and the habitats these bears require for survival is dependent upon the laws and regulations of the federal and state agencies in the Greater Yellowstone Area. These laws and regulations provide the legal basis for controlling mortality, providing secure habitats, managing grizzly bear/human conflicts, controlling hunters, limiting access where necessary, controlling livestock grazing, maintaining education and outreach programs to control conflicts, monitoring populations and habitats, and requesting management and petitions for relisting when necessary. Many of these laws provide authorities for a number of these actions and controls.

The following laws and regulations, or portions thereof, exist and are relevant to agency programs regarding management of the grizzly bear and its habitat in the Greater Yellowstone Area. These provisions, whether national or state, have application in terms of agency compliance, agency authority, or discretion to act.

The relationship between the existing authorities and the five factors in Section 4)(a)(1) used to consider listing and delisting of a species is presented in Appendix J. These five actors are all relevant to maintain a recovered population.

Federal Lands

Acts of Congress[5]

The Act of Congress March 1, 1872. Set Yellowstone apart as a public park for the benefit and enjoyment of the people" and "for the preservation, from injury or spoliation, of all timber, mineral deposits, natural curiosities or wonders...and their retention in their natural condition". 16 U.S.C. §§21-22.

National Park Service Organic Act, 1916. The National Park Service...shall promote and regulate the use...by such means... 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. §31 repealed June 25, 1948.

Lacey Act, Criminal Code Provisions, 18 U.S.C. 42-44. 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; 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.

Fish and Wildlife Coordination Act, 16 U.S.C. §§661-666c. This Act relates to wildlife as 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.

[5] Federal legislation can be viewed at the Library of Congress web site: http://thomas.loc.gov

The Act of Congress September 14, 1950. (Expansion of Grand Teton National Park to include Jackson Hole National Monument) "The national park so established shall, so far as consistent with the provisions of this Act, be administered in accordance with the general statutes governing national parks..." 16 U.S.C. § 406d-1

Sikes Act, 16 U.S.C. §670g. The Secretaries of Agriculture and Interior and the State agencies will cooperate 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.

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; making 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; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

National Environmental Policy Act, 42 U.S.C. §§ 4321-4331. The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment: to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall--

(A) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision making which may have an impact on man's environment; (B) Identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations; (C) Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on-

(i) The environmental impact of the proposed action

(ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented

(iii) Alternatives to the proposed action.

(iv) The relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity, and

(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency that has jurisdiction by law or special expertise with respect to any environmental impact involved.

The Act of Congress August 25, 1972, PL. 94-404 86 §620. Authorization to establish John D. Rockefeller, Jr. Memorial Parkway "... to provide both a symbolic and desirable physical connection between... Yellowstone, and the Grand Teton National Park..." "The Secretary shall administer the parkway as a unit of the national park system in accordance with the authority contained in the Act of August 25, 1916..." Established by the Secretary of the Interior, September 30, 1977.

Endangered Species Act, 16 U.S.C. § 1533. ESA - Section 4 of the Act gives the criteria for determining a species' status as threatened or endangered. In order to delist a species, it must be shown that the opposite is true. It must be shown 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 Secretary of Interior and States shall effectively monitor recovered species for not less than five years after the species is delisted and no longer protected under the ESA.

Forest and Rangeland Renewable Resources Planning Act, 1974. In recognition of the vital importance of America's renewable resources of the forest, range, and other associated lands to the Nation's social and economic well being, and of the necessity for a long term perspective in planning and undertaking related national renewable resource programs administered by the Forest Service, the Secretary of Agriculture shall prepare a Renewable Resources Assessment. A strategic plan for all Forest Service activities shall be prepared every five years based on the assessment of renewable natural resources and on all land ownerships every 10 years. It provides direction that land management plans specify guidelines for land management plans, which provide for diversity of plant and animal communities. 16 U.S.C. §1600.

National Forest Management Act (NFMA) of 1976. NFMA provides the legal basis and direction for development of national forest plans. 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 1979 augmented the diversity policy by requiring management of habitats to maintain viable populations of vertebrates. 15 U.S.C. §1600.

Federal Land Policy and Management Act. Public lands 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. 43 U.S.C. §§ 1701-1777.

Fish and Wildlife Improvement Act, 16 U.S.C. § 742(a).

Fish and Wildlife Conservation Act, 16 U.S.C. §§ 2901-2911. Each State should be encouraged to develop, revise and implement, in consultation with appropriate other agencies, a plan for the conservation of fish and wildlife, particularly those species, which are indigenous to the State. The purpose of this act is to provide financial and technical assistance to the States for the development, revision and implementation of conservation plans and programs for nongame

fish and wildlife and to conserve and promote conservation of nongame fish and wildlife and their habitats.

The National Parks Omnibus Management Act of 1998 (PL 105-391,112 Stat. 3497). Title I, Section 101 recognizes the ever increasing societal pressures being placed upon America's unique natural and cultural resources contained in the National Park System, the Secretary shall continually improve the ability of the National Park Service to provide state-of-the-art management, protection, and interpretation of and research on the resources of the National Park System. Title II, Section 201, National Park System Resource Inventory and Management 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. 16 U.S.C. §5901.

Federal Regulations

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.

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.

36 CFR 1.7(B) 1.2 (d). Gives National Park Superintendents the ability to regulate activities conducted by National Parks, or their agents, relative to the management and handling of grizzly bears (*Ursus arctos horribilis*). Specifics are described in Park Annual Bear Management Plans.

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.

36 CFR 219. 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 and requiring management of habitats to maintain viable populations of vertebrates.

36 CFR 219.19. Requires that Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. A viable population shall be regarded as one, which has the estimated numbers, and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area.

36 CFR 219.26. Specifies that Forest planning shall provide for diversity of plant and animal communities to meet multiple use objectives.

36 CFR 219.27 (a) (6). States that (a) All management prescriptions shall – (6) Provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species.

36 CFR 261.50 (a) and (b). 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. This authority is used to close areas to minimize human/bear 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.

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.

States

Wyoming State Statutes[6]

23-1-101(a)(xii). "Trophy game animal" means black bear, grizzly bear, or mountain lion.

23-1-103. Ownership of wildlife. For the purpose of this act, all wildlife in Wyoming is property of the State. There shall be no private ownership of live animals classified as big or trophy game animals.

23-1-302(a)(ii). Powers and duties of the commission. To establish zones and areas in which trophy game animals may be taken as game animals with a license or in the same manner as predatory animals without a license, giving proper regard to livestock and game industries in those particular areas.

23-1-901. Owner of damaged property to report damage; claims for damages; time for filing; determination; appeal; arbitration. This is a lengthy statute that addresses procedures for filing damage claims.

23-2-101(e). Fees. This statute requires the commission to maintain a $500,000 balance to be used to compensate landowners for damage done by game animals.

23-3-102(b). License requirements. Requires a license to take a grizzly bear, except as otherwise provided.

23-3-102(d). Provides for a minimum of $5,000 and a maximum of $10,000 fine for killing a grizzly bear.

23-3-103(b). Taking predatory animals and trophy animals. Allows trophy game animals to be taken in areas designated by the Commission by the same means as a predatory animal.

23-3-106. Interstate game tag required. Regulates the transportation of bears within and across Wyoming State lines.

23-3-107. Wanton destruction. Prohibits a person from wantonly destroying any grizzly bear.

23-3-109. Use of dogs. Prohibits the use of dogs to hunt, run, or harass big or trophy game animals except as especially permitted by statute.

23-3-112. Firearms. Prohibits the use of certain types of firearms to take game animals.

23-3-115. Taking black bears doing damage. Allows landowner to kill black bears doing damage and requires them to notify the department. Grizzly bears may not be taken.

23-3-301. Importation and sale prohibited. Prohibits the importation and sale of bears.

[6] Wyoming statues are available from the Wyoming State Law Library at http://courts.state.wy.us/state_law_library.htm.

Wyoming Game and Fish Commission Regulations

Chapter XLIII. Prohibits the taking of any wildlife unless the season is specifically opened by the commission.

Chapter II. Requires the taking of any grizzly to be reported to the department and the U.S. Fish Wildlife Service immediately. Section 7.

Chapter III. Prohibits the placement of baits in the current grizzly bear recovery zone. Section 6(a)(v).

Idaho State Statutes[7]

36-103 (a). Wildlife property of State - Preservation - Wildlife Policy. All wildlife, including all wild animals, wild birds, and fish, within the State of Idaho, is hereby declared the property of the State of Idaho. It shall be preserved, protected, perpetuated, and managed. It shall only be captured or taken at such times or places, under such conditions, or by such means, or in such manner, as will preserve, protect, and perpetuate such wildlife, and provide for the citizens of this State and, as by law permitted to others, continuous supplies of such wildlife for hunting, fishing and trapping.

36-103 (b). Commission to Administer Policy. Authority, power and duty of the Fish and Game Commission to administer and carry out the provisions of the Idaho Fish and Game Code. The Commission is not authorized to change the states' wildlife policy but only to administer it.

36-201. Fish and Game Commission authorized to classify wildlife. With the exception of predatory animals, the Idaho fish and game commission is hereby authorized to define by classification or reclassification all wildlife in the State of Idaho.

Idaho Fish and Game Commission Regulations

IDAPA 13 G 1.9. Species of Special Concern, Threatened or Endangered Species. Lists the grizzly bear as a Threatened Species. By definition a species likely to be classified as Endangered within the foreseeable future throughout all or a significant portion of its Idaho range.

IDAPA 13 G 2.2. No person shall take or possess those species of wildlife classified as Protected non game, Species of Special Concern, or Threatened or Endangered at any time or in any manner, except as provided in Sections 36-106 (e) 5 and 36-1107, Idaho code or by commission regulation.

Montana State Statutes[8]

Section 87-1-301. MCA, Powers of the Commission. Statutes, State of Montana, Department of Fish, Wildlife and Parks.

Requires the Fish, Wildlife and Parks Commission to set policies for the protection, preservation, 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 as provided by law.

Section 87-5-301. MCA Policy toward grizzly bear. Statutes, State of Montana, Department of Fish, Wildlife and Parks.

It is hereby declared the policy of the State of Montana to protect, conserve, and manage grizzly bears as a rare species of Montana wildlife.

[7] Idaho statutes are available from http://www3.state.id.us/idstat/TOC/idstTOC.html.
[8] Montana statues are available from http://www.lawlibrary.state.mt.us, the State Law Library of Montana.

Section 87-5-302. MCA Commission regulation on grizzly bear. Statutes, State of Montana, Department of Fish, Wildlife and Parks.

The commission shall have authority to provide open and closed seasons; means of taking; shooting hours; tagging requirements for carcasses, skulls, and hides; possession limits; and requirements for transportation, exportation, and importation of grizzly bears.

Section 87-2-101. MCA Definitions. Statutes, State of Montana, Department of Fish, Wildlife and Parks.

By definition under this section bears are classified a game animal in Montana.

Administrative Rules of Montana

MCA 12.9.103. Grizzly Bear Policy (1) 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 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.

(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.)

Montana Department of Natural Resources and Conservation

Title 75, Chapter 1, MCA - 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.

Title 76, Chapter 14, MCA - Montana Rangeland Resource Act. Establishes a program of rangeland management whereby the importance of Montana's rangeland with respect to wildlife habitat and the natural beauty of the State is recognized.

Title 77, Chapter 1, MCA - 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 insure: 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.

Title 87, Chapter 5, MCA - Nongame and Endangered Species Conservation Act. Establishes Montana policy to manage certain nongame wildlife for human enjoyment and to insure their perpetuation as members of ecosystems. It further declares the policy of the State of Montana to protect, conserve, and manage the grizzly bear as a rare species of Montana wildlife.

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.

Federal Plans and Guidelines

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

National Park Service

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, Yellowstone 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 YNP 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.

Yellowstone National Park Annual Bear Management Plan: Outlines grizzly bear ecology and management information distributed to park employees and the general public by the Bear Management Office.

Grand Teton National Park Human/bear Management Plan, 1989:

- 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, and careful and frequent garbage pickup to prevent overflow and overnight accumulations. Containers not of bear-resistant design must be located inside the building served. Large animal carcasses that are near trails, facilities, or roads will be managed in a way to reduce human/bear encounters.
- Grizzly bear management follows the *Interagency Grizzly Bear Guidelines* (IGBC 1986*)*. Management of Situation 1 areas includes area closures and/or activity curtailments to protect the bears.
- Follows the procedures outlined in the *Interagency Grizzly Bear Guidelines* (IGBC 1986). Actions subsequent to capture are coordinated with the U.S. Fish and Wildlife Service Grizzly Bear Recovery Coordinator.
- All incidents involving human/bear interactions are documented on Bear Sighting/Identification reports. All Park employees and visitors are encouraged to complete these forms for all bear sightings.
- Outlines Park bear research goals and objectives.
- Outlines a program for the dissemination of information of human/bear relationships, the causes of human/bear conflicts, and how visitors, inholders, Park, and concession employees can help alleviate problems through their personal actions and compliance with Park regulations.

U.S. Forest Service

If a change of status for the Yellowstone grizzly bear population under the ESA takes place, Forest Service Regions 1, 2, and 4 will classify the grizzly bear as a sensitive species[9] in the Yellowstone 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

[9] 2672.1 - Sensitive Species Management. Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing.
There must be no impacts to sensitive species without an analysis of the significance of adverse effects on the populations, its habitat, and on the viability of the species as a whole. It is essential to establish population viability objectives when making decisions that would significantly reduce sensitive species numbers.
2672.11 - Identification of Sensitive Species. Regional Foresters shall identify sensitive species occurring within the Region. They shall examine the following sources as possible candidates for listing as sensitive species:
1. Fish and Wildlife Service or National Marine Fisheries Service candidates for Federal listing (categories 1 and 2) under Federal Register Notice of Review.
2. State lists of endangered, threatened, rare, endemic, unique, or vanishing species, especially those listed as threatened under State law.
3. Other sources as appropriate in order to focus conservation management strategies and to avert the need for Federal or State listing as a result of National Forest management activities.

direction established in existing land management plans until amended or revised. Beaverhead National Forest Plan (1986)

Bridger-Teton National Forest Land and Resource Management Plan (1989)

Custer National Forest and Grasslands Land and Resource Management Plan (1987)

Deerlodge National Forest Plan (1987)

Gallatin National Forest Plan (1987)

1997 Revised Forest Plan - Targhee National Forest

Shoshone National Forest Land and Resource Management Plan (1986)

State Plans and Guidelines

Montana Department of Natural Resources and Conservation

It is the policy of MDNRC to conduct programs and activities in a manner that limits the potential for conflicts between grizzly bears and people and that provides habitat to help achieve and sustain recovery within the Yellowstone Area. Land uses which can adversely affect grizzlies or their habitat will be designed and coordinated in a manner that is compatible with grizzly bear behavior and habitat needs, but not to the extent of excluding other uses.

The Forestry Division of the MDNRC has additional policy guidance for management of grizzly bear habitat within the Yellowstone. In 1988, grizzly bear management standards and guidelines were implemented to integrate management of grizzly bear habitat with timber management on State lands within the Yellowstone Area. Performance standards and guidelines cover long range planning, project planning and design, management of bear/human conflicts, and special management areas. These will be implemented until the Forestry Division develops and adopts other guidance through a programmatic planning effort that will incorporate grizzly bear management objectives.

Additional policy guidance will be developed in the near future. The USFWS and MDNRC have mutually agreed to develop and implement guidelines for integrating grizzly bear habitat protection and MDNRC land management activities. MDNRC will continue to consult with MFWP on specific projects that may adversely affect any species of wildlife in Montana, in an attempt to minimize or avoid adverse impacts to populations or their habitats.

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Terms Used in this Document

Guidelines are management actions that are highly recommended in this Conservation Strategy. A deviation from a guideline would not require a revision or amendment to the Conservation Strategy. A deviation from a guideline requires written rationale as to why the guideline is not being followed.

Inclusions (in secure habitat) means roads restricted with permanent barriers (not gates), decommissioned or obliterated roads, and/or non-motorized trails in secure habitat.

Known (mortality) Carcass recovered or evidence to indicate known status due to radio telemetry. Known deaths require a carcass, management removal, or a cut radio collar. Found collars having the appearance of being cut should receive additional forensic review for definitive proof.

Probable (mortality) Strong evidence to indicate mortality, reported by highly reliable sources, no carcass recovered. Probable deaths include those cases where there is supportive evidence that a bear was wounded. Circumstances of each reported instance should be considered. Probable includes those cases where evidence of blood, hair, or other tissues clearly indicates wounding serious enough to result in death. The literature is unclear on the probability of survival for orphaned cubs. Any cub orphaned during its first year of life because of a known adult female mortality is considered a probable mortality.

Restricted is used to describe management of motorized access on roads. A restricted road is one on which motorized vehicle use is restricted seasonally or yearlong. The road requires effective physical obstruction (generally gated). Motorized administrative use by personnel of resource management agencies is acceptable at low intensity levels as defined in existing cumulative effects analysis models. This includes contractors and permittees in addition to agency employees.

Standards are management actions that are required in this Conservation Strategy. A deviation from a standard would occur only with a revision or amendment to the Conservation Strategy.

Species

Army cutworm moth (*Euxoa auxiliaris*)

Bison (*Bison bison*)

Cutthroat trout (*Oncorhynchus clarki*)

Elk (*Cervus elaphus*)

Grizzly bear (*Ursus arctos*)

Moose (*Alces alces*)

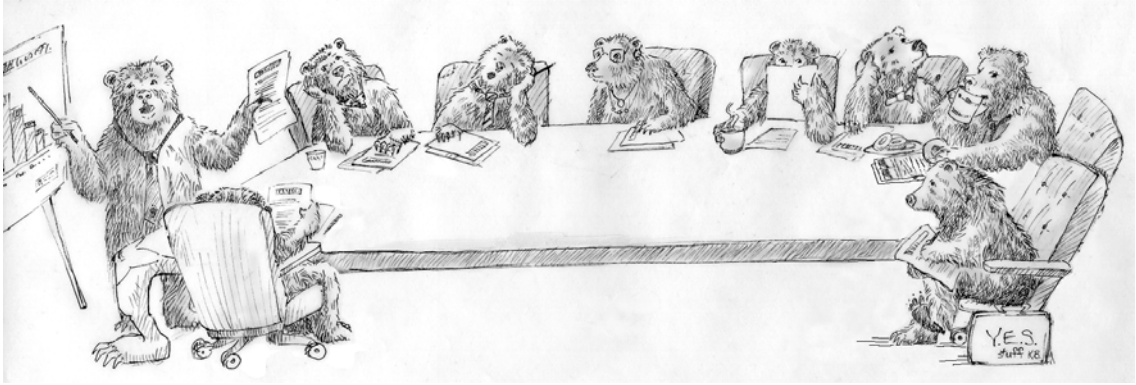
Mule Deer (*Odocoileus hemionus*)

Whitebark pine (*Pinus albicaulis*)

White pine blister rust (*Cronartium ribicola*)

The Interagency Conservation Strategy Team

Name	Agency Affiliation	Position
Chris Servheen	U.S. Fish and Wildlife Service	Grizzly Bear Recovery Coordinator
Kim Barber	Rocky Mountain Region – U.S. Forest Service	Regional Grizzly Bear Coordinator
Dave Moody	Wyoming Game and Fish Department	Trophy Game Coordinator
Kerry Gunther	Yellowstone National Park	Bear Management Biologist
Rich Inman	Gallatin National Forest	Deputy Forest Supervisor
Mark Orme	Caribou-Targhee National Forest	Wildlife Biologist
Chuck Schwartz	USGS – BRD Interagency Grizzly Bear Study Team	Leader
Jerry Reese	Caribou-Targhee National Forest	Forest Supervisor
Bob Summerfield	U.S. Forest Service	National Grizzly Bear Habitat Coordinator
Pat Flowers	Montana Fish, Wildlife & Parks	Regional Supervisor
Reg Rothwell	Wyoming Game and Fish Department	Supervisor of Biological Services
Arnie Dood	Montana Fish, Wildlife & Parks	Wildlife Biologist
Lauri Hanauska-Brown	Idaho Department of Fish and Game	Wildlife Biologist
Dennis Saville	Bureau of Land Management	Wildlife Biologist
Terry Root	U.S. Fish and Wildlife Service	Wildlife Biologist



Prior Members of the Interagency Conservation Strategy Team

Name	Agency Affiliation	Position
Dick Knight	USGS – BRD Interagency Grizzly Bear Study Team	Leader
Bonnie Blanchard	USGS – BRD Interagency Grizzly Bear Study Team	Wildlife Biologist
Tom Puchlerz	U. S. Forest Service	National Grizzly Bear Habitat Coordinator
Kurt Alt	Montana Fish, Wildlife & Parks	Wildlife Biologist
Ted Chu	Idaho Department of Fish and Game	Wildlife Biologist
Wayne Brewster	Yellowstone National Park	Deputy Director, Yellowstone Center for Resources

Bill Noblitt	Bridger-Teton National Forest	Wildlife Biologist
Jay Gore	U.S. Forest Service	National Grizzly Bear Habitat Coordinator
Sue Consolo-Murphy	Yellowstone National Park	Management Biologist
Doug Ouren	USGS –Northern Rocky Mountain Science Center	Physical Scientist
Steve Cain	Grand Teton National Park	Senior Wildlife Biologist
Mark Haroldson	USGS – BRD Interagency Grizzly Bear Study Team	Wildlife Biologist
Jeff Copeland	Idaho Department of Fish and Game	Wildlife Biologist
Dale Harms	U.S. Fish and Wildlife Service	Assistant State Supervisor
Ann Vandehay	U.S. Fish and Wildlife Service	Wildlife Biologist
Steve Lewis	Montana Fish, Wildlife & Parks	Regional Supervisor
Mike Donahue	U.S. Fish and Wildlife Service	Wildlife Biologist
Timm Kaminski	Targhee and Bridger-Teton National Forests	Wildlife Biologist
Marion Cherry	Gallatin National Forest	Wildlife Biologist
Tim Their	U.S. Fish and Wildlife Service	Wildlife Biologist