



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

**Ecological Services  
4000 Airport Parkway  
Cheyenne, Wyoming 82001**

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June 11, 2004

### Memorandum

To: Robert Bennett, State Director, Bureau of Land Management, State Office,  
Cheyenne, Wyoming

From: Brian T. Kelly, Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field  
Office, Cheyenne, Wyoming /s/ Brian T. Kelly

Subject: Biological Opinion for the Wyoming Bureau of Land Management Resource  
Management Plans and their Effects to the Bald Eagle

This document transmits the U.S. Fish and Wildlife Service (Service) Biological Opinion based on our review of potential activities described under the Resource Management Plans (RMP) of the Bureau of Land Management (BLM) in Wyoming and their potential effects on the federally threatened bald eagle (*Haliaeetus leucocephalus*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (50 CFR §402.14). This document also transmits Service concurrence with the “not likely to adversely affect and “no effect” determinations presented in your August 2003 Bald Eagle Statewide Programmatic Biological Assessment (BA) (BLM 2003b). Your October 3, 2003 request for formal consultation was received that same day.

The Biological Opinion (BO) addresses potential adverse effects to the bald eagle, from the described BLM activities of 28 planned programs according to 11 of the Wyoming BLM Resource Management Plans. These programs (with overlap depending on Resource Area) are Air Quality, Cultural/Paleontological/Historical, Fire Management, Forest Management, Minerals and Geology, Hazardous Materials, Lands and Realty, Livestock Grazing, Off-Road Vehicle/Off-Highway Vehicle Use, Paleontology, Recreation, Soils Management, Threatened & Endangered Species, Vegetation, Visual Resources, Wildlife and Fisheries, Wild and Scenic Rivers, Wild Horses, Geothermal, Special Areas/ACECs, Watershed/Water, Water/Soils, Soil/Water/Air, Wilderness, Riparian, Access, Surface Disturbance Restrictions, and Sensitive Plants. This biological opinion will cover all RMPs in Wyoming except the Snake River RMP as formal Section 7 consultation was recently completed on that RMP (U.S. Fish and Wildlife Service (USFWS) 2003). The RMPs covered in this consultation are the Buffalo, Casper, Cody, Kemmerer, Lander, Newcastle, Pinedale, Rawlins, Rock Springs, Worland-Grass Creek, and Worland-Washakie. The Snake River RMP will not be discussed further in this correspondence.

The Biological Opinion (BO) is based primarily on our review of your BA (BLM 2003b), meetings of December 12, 2002 (BLM 2002) and January 28 and 29, 2003 (BLM 2003a), and other correspondence with BLM personnel and contractors. A complete administrative record of all documents and correspondence concerning this consultation are on file in the Wyoming Ecological Services Field Office.

## Consultation History

The Service and the BLM began statewide programmatic informal consultation on impacts of BLM activities to the bald eagle on October 22, 2001. Greystone Consultants provided hardcopy drafts of the BA in April 2002, October 2002, and April 2003. Numerous versions of electronic drafts of the BA and appendices were provided periodically. Meetings with BLM field office personnel were held to discuss individual field office sections and potential terms and conditions on December 12, 2002 and January 28 and 29, 2003. Other informal meetings and telephone conversations were also a part of this consultation. The Service received the BLM request for formal consultation on this proposed action on October 3, 2003. On November 7, 2003, the Service issued a memo to the BLM notifying them that all materials necessary for the initiation of formal consultation had been received. Drafts of the BO were provided to the BLM on April 1, 2004 and April 27, 2004. Subsequent to these drafts, the BLM changed the effects determination for the Pinedale RMP Forest Management Program from “not likely to adversely affect” to “likely to adversely affect” as described in the BLM correspondence of June 2, 2004.

The BLM RMPs made “not likely to adversely affect (NLAA)” determinations for certain programs in the following resource areas. These are displayed in Table 1.

Table 1. Bald Eagle “Not Likely to Adversely Affect” and “No Effect” Determinations from the Statewide Programmatic Biological Assessment.\*

\*(Note: Casper is not included in Table 1 as all programs were determined to be “Likely to Adversely Affect” the Bald Eagle in that field office (see BLM 2003b).

Resources Management Plan (RMP) / Management Action	Buffalo	Cody	Kemmerer	Lander	Newcastle	Pinedale	Rawlins	Rock Springs	Worland-Grass Creek	Worland-Washakie
Air Quality	NLAA	NLAA	NLAA	-----	NLAA	NLAA	-----	NLAA	NLAA	-----
Forest Management	-----	-----	NLAA	-----	NLAA	-----	-----	NLAA	NLAA	NLAA
Hazardous Material	NLAA	NLAA	-----	-----	NLAA	-----	-----	NLAA	NLAA	NLAA
ORV/OHV use	NLAA	NLAA	-----	NLAA	NLAA	-----	-----	NLAA	NLAA	NLAA
Paleontology	NLAA	-----	-----	-----	-----	-----	-----	-----	-----	-----
T&E Species	NLAA	-----	-----	-----	-----	-----	-----	NLAA	-----	NLAA
Visual	NLAA	NLAA	-----	-----	NLAA	NLAA	NLAA	NLAA	NLAA	NLAA
Wild and Scenic Rivers	NLAA	-----	-----	-----	-----	NLAA	-----	-----	-----	-----
Wild Horses	-----	NLAA	-----	-----	-----	NE	NLAA	NLAA	NLAA	NLAA
Special Areas/ACECs	-----	-----	-----	-----	NLAA	NLAA	-----	NLAA	NLAA	NLAA
Watershed/water	NLAA	-----	NLAA	-----	NLAA	-----	-----	-----	-----	-----
Wilderness	-----	-----	-----	NLAA	-----	NLAA	-----	NLAA	-----	-----
Access	-----	-----	-----	NLAA	-----	NLAA	-----	-----	-----	-----
Surface Disturb. Restr.	-----	-----	-----	-----	-----	NLAA	-----	-----	-----	-----
Sensitive Plants	-----	-----	-----	-----	-----	-----	NE	-----	-----	-----

The Service concurs with your determinations that activities listed in the preceding table will not be likely to adversely affect or have no effect on the bald eagle in the respective field offices. A description of these programs and a summary of the rationale behind these effects determinations follows.

General Description of Activities Identified in Table 1. The BLM activity programs across the state do not have considerable differences between field offices. However, differences (the extent of program activities) do exist across the state (e.g., the extent of or potential for ORV use in bald eagle habitat in the Pinedale BLM area may be greater than that for the Newcastle BLM area). The following discussion is a general overview of the Wyoming BLM Resource Management Plan Activity Programs and potentially-authorized activities of the BLM which are not likely to adversely affect or will not affect the bald eagle, now or in the foreseeable future. The names of the different programs are summarized here as in the BA (see Table F-1, BLM 2003b) to accommodate similar activities under varying program names between the individual RMPs.

Air Quality. The BLM's Air Quality Program consists of monitoring efforts in cooperation with the U.S. Forest Service (USFS), Wyoming Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA) and evaluating and restricting surface development. Monitoring for air quality components, i.e., carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, particulate matter, visibility, and atmospheric deposition, is conducted from various facilities around Wyoming.

Air quality management objectives are to maintain or enhance air quality and minimize emissions that could result in atmospheric deposition (example: acid rain), violations of air quality standards, or reduced visibility. Laws controlling air pollutants in the United States are the Clean Air Act of 1970 and its amendments and the 1999 Regional Haze Regulations. The concentrations of air contaminants in the 11 RMP areas in Wyoming need to be within limits of Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS). Both WAAQS and NAAQS are legally enforceable standards for particulate matter (PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone, sulfur dioxide (SO<sub>2</sub>), and carbon monoxide (CO).

As monitoring stations are not located in close proximity to bald eagle nesting or roosting areas, activities associated with Air Quality Programs are not likely to adversely affect the bald eagle within the Buffalo, Cody, Kemmerer, Newcastle, Pinedale, Rock Springs, and Worland - Grass Creek RMP areas.

Forest Management. The BLM's Forestry Program involve a variety of different activities. Most activities involve timber harvesting. Other activities involve managing the forest for other uses. During forest management activities for timber production in the pre-harvest phase, the BLM allows the cutting and removal of diseased trees, disease treatment by spraying, and the spraying of grasses and shrubs. The BLM allows precommercial thinning, chaining, and shearing. During actual harvesting activities, the BLM allows timber harvesting, permits clearcuts, ensures slash disposal, allows commercial thinning, logging, and skidder-type yarding as well as cable yarding. The BLM permits the construction of roads and landings for use in timber harvesting operations. Slash is to be lopped and scattered, roller chopped, or burned. The BLM also permits helicopter logging. Non-commercial timber harvest involves collection and cutting of firewood, Christmas trees, posts, poles, and saplings. During restoration efforts following timber harvesting, the BLM ensures site regeneration and stand replacement; fences regenerated areas, and conducts rehabilitation surveys. During forest management for other activities, the BLM assesses effects of grazing, manages forests for recreation, livestock grazing, and wildlife habitat and prescribed burning. Forest management activities that the BLM engages in that involve all uses of the forest include acquiring easements, pursuing legal access, allowing road development, and installing drain culverts, and water bars. Forest management actions within the Kemmerer, Newcastle, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas are expected to occur

in upland coniferous forests. Bald eagles within these RMP areas are typically associated with cottonwood forests of riparian habitats for nesting, communal roosting and open upland habitats for foraging. Therefore, Forest Management activities are not likely to adversely affect the bald eagle within these RMP areas.

Hazardous Materials. The BLM's Hazardous Materials Program provides warnings; secures and disposes of hazardous waste discharged on public lands; reports, secures, and cleans up public lands contaminated with hazardous wastes; uses precautionary measures; establishes precautions; responds to emergencies.

Hazardous materials management activities seek to protect public and environmental health and safety on BLM-lands, comply with federal and state laws, prevent waste contamination due to any BLM-authorized actions, minimize federal exposure to the liabilities associated with waste management on public lands, and integrate hazardous materials and waste management policies and controls into all BLM programs. Hazardous waste sources may be from illegal dumping and abandoned waste.

As hazardous materials spills have been highly rare in the past and are expected to be rare in the future within the 11 RMP areas in Wyoming, this program is not likely to adversely affect the bald eagle in any Wyoming BLM RMP planning areas.

Off-Road Vehicle/Off-Highway Vehicle (ORV/OHV) Management. The BLM designates closed, limited, or open areas for ORV/OHV use, posts signs, develops maps, or brochures, permits ORV/OHV rallies, cross-country races, and outings, monitors ORV/OHV use, and performs necessary tasks requiring ORV/OHV use. Most ORV/OHV use (including over-the-snow vehicles) on BLM administered lands is limited to existing roads and trails. Some areas are closed to ORV/OHV use. Seasonal restrictions may be applied in crucial wildlife habitats as needed. In addition ORV/OHVs are prohibited on wet soils.

The BLM recognizes the use of bicycles and other human-powered, mechanized conveyances as appropriate recreational activities. Federal regulations do not specifically address management of non-motorized vehicle use. There are substantial differences in the types of use, associated impacts, and management approaches between non-motorized and motorized vehicle activities. Until a national strategy and rules for non-motorized vehicle use on public lands are established, the BLM will continue to include non-motorized use within the context of ORV/OHV designations.

ORV/OHV use in areas designated as closed or limited to ORV/OHV use are expected to have little or no impact to bald eagles. Much of the Buffalo, Cody, Lander, Newcastle, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas are closed or limited in ORV/OHV use. Therefore, ORV/OHV use within these resource areas is limited in frequency and intensity, activities associated with authorized ORV/OHV use within these resource management areas is not likely to adversely affect the bald eagle.

Paleontology. The BLM manages paleontological resources that are part of the BLM-administered public land surface estate for their informational, educational, scientific, public, and recreational uses. The BLM authorizes permits for using land for scientific purposes such as paleontological exploration and collection of fossil vertebrates, significant fossil invertebrates, and fossil plants. Potential impacts of field efforts may vary depending on time of year, duration of field activities, type of equipment used, and location of field work. As the paleontological resources within the Buffalo RMP area are limited, activities associated with this program are not likely to adversely affect the bald eagle in the Buffalo RMP area.

Threatened & Endangered (T&E) Species Management. During threatened and endangered species management activities, the BLM protects habitat and known populations, enforces timing stipulations, conducts surveys, closes known locations to surface disturbing activities, mineral material sales, off-road vehicle use, and monitors and restricts the use of explosives and blasting.

As management actions associated with T&E species management are only expected to result in beneficial effects, activities associated with this program are not likely to adversely affect the bald eagle with the Buffalo, Rock Springs, and Worland-Washakie RMP areas.

Visual Resource Management. Through the Visual Resource Management (VRM) Program, the BLM maintains or improves scenic values and visual quality, and establishes visual resource management priorities in conjunction with other resource values. Visual resource classification inventories have been developed for some but not for all of the areas in Wyoming. To improve visual resources, the BLM designs facilities to blend in with the surroundings, reclaims watershed projects and water wells, regulates discharge of produced water; and restricts visual resource degrading activities.

A visual resource inventory and classification process is a qualitative analysis performed along all BLM surface acres. A visual resource inventory provides (1) an inventory tool that portrays the relative visual quality of a landscape, and (2) a management tool that delineates visual protection standards by which surface disturbing activities may occur and establishes guidelines for the rehabilitation of existing projects, facilities and disturbances.

As management actions associated with the visual resource management programs are only expected to result in beneficial effects, activities associated with this program are not likely to adversely affect the bald eagle in the Buffalo, Cody, Newcastle, Pinedale, Rawlins, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas.

Wild and Scenic Rivers. The BLM wild and scenic rivers program activities of the BLM include studying segments of the river and managing BLM activities so that the values of the river system are maintained until Congress considers the rivers for possible designation as wild and scenic rivers.

As this program is only expected to have beneficial effects to bald eagles through the maintenance or enhancement of suitable habitats, the wild and scenic river programs are not likely to adversely affect the bald eagle in the Buffalo and Pinedale RMP areas.

Wild Horse Management. Wild horse management programs in the Cody, Rawlins, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas maintain viable herds that will maintain the free-roaming nature of wild horses in a thriving ecological balance and to provide opportunity for the public to view them. Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. The increase in human presence associated with these activities may temporarily alter the behavior of terrestrial foraging bald eagles. These actions are not expected to detrimentally impact the behavior of nesting or communal winter roosting bald eagles or nesting or roosting habitats. In the Pinedale RMP area, no resources or forage will be allocated to the wild horses and all wild horses will be removed from that RMP area and offered for adoption.

As activities associated with wild horse management programs occur primarily in the uplands away from nesting or roosting bald eagles, activities associated with this program are not likely to adversely affect the bald eagle in the Cody, Rawlins, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas. Since there are will be no activities associated with wild horse

management in the Pinedale RMP area, activities there are expected to have no effect on the bald eagles. The other RMP areas have no wild horse management program.

Special Areas/Areas of Critical Environmental Concern (ACEC) Management. The objectives of special management areas are to ensure continued public use and enjoyment of recreation activities, while protecting and enhancing natural and cultural values; improving opportunities for high quality outdoor recreation; and, improving visitor services related to safety, information, interpretation, and facility development and maintenance. Under the special areas management program, the BLM closes areas where accelerated erosion is occurring; implements logging and heavy equipment use restrictions; evaluates noxious weed and grasshopper control measures; applies restrictions on ground-disturbing activities; develops recreational trails; guides supervised tours; protects petroglyphs, artifacts, and cultural deposits from weathering and vandalism; and pursues land exchanges.

As activities associated with Special Areas/ACEC management are only expected to limit or reduce harassment and disturbance to bald eagles, this program is not likely to adversely affect bald eagle in the Newcastle, Pinedale, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas. There is no Special Areas/ACEC management program currently in the Buffalo, Cody, and Kemmerer RMP areas.

Watershed/Water Management. Through watershed and water resource management, the BLM seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, provide for the availability of water to facilitate authorized uses, and to minimize harmful consequences of erosion and surface runoff. BLM also ensures rights to water-related projects are filed, delineates no chemical use buffer zones, designs activities to promote reduction of channel erosion, and restores damaged wetlands or riparian areas.

As management actions associated with watershed/water management are only expected to result in beneficial effects in the Buffalo, Kemmerer, and Newcastle field offices, activities associated with this program are not likely to adversely affect the bald eagle in these RMP areas.

Wilderness Management. The BLM wilderness program retains the wilderness quality and manages the wilderness study areas. Discretionary uses within or adjacent to wilderness study areas are reviewed to ensure that they do not create conflicts with management and preservation of wilderness values. A wilderness is recognized as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” An area of wilderness is further defined as “an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (Wilderness Act, 16 U.S.C. 1131-1136).

As the wilderness management program is expected to have only positive beneficial effects to bald eagles by way of protection or preservation of habitat, this program is not likely to adversely affect the bald eagle in the Lander, Pinedale, and Rock Springs RMP areas. The other RMP areas do not currently have a wilderness management program in their RMPs.

Access Management. The Access Management Program activities are generally in support of other resource management programs. The BLM rehabilitates access roads no longer needed; proposes easement negotiations; pursues access across private lands; acquires rights-of-way or easements, and exchanges lands.

As access management activities are expected to occur primarily in upland habitat away from bald eagle nesting or roosting areas, activities associated with Access Management Programs are not likely adversely affect to bald eagles in the Lander and Pinedale RMP areas.

Surface Disturbance Management. Under this program, the BLM develops and implements surface disturbance restrictions. These restrictions vary depending on the type of resource to be protected. Some examples of restrictions include not authorizing disposal facilities (e.g., drilling fluid pits, solid waste, and sanitary facilities) on floodplains, wetlands and riparian zones to not allowing surface disturbance within one-quarter mile or the visual horizon (whichever is closer) of contributing segments of historic trails.

As this program is intended to limit activities that disturb the land surface, only beneficial effects to bald eagles are expected to occur. Therefore the Surface Disturbance Management Program is not likely to adversely affect the bald eagle.

Sensitive Plants Management. Only in the Rawlins RMP area is sensitive plants management considered its own program. The actions associated with this program deal with the management and enhancement of two populations of plant species and one plant community. These are the Gibben's Beardtongue (*Penstemon gibbensii*), the persistent sepal yellowcress (*Rorippa calycina*), and the Muddy Gap cushion plant community, respectively.

As activities associated with this program are highly localized and not expected to occur in bald eagle habitat, the sensitive plants program is expected to have no effect on the bald eagle in the Rawlins RMP area.

**PROGRAMMATIC BIOLOGICAL OPINION**  
**FOR THE**  
**WYOMING BUREAU OF LAND MANAGEMENT**  
**RESOURCE MANAGEMENT PLANS**  
**AND THEIR EFFECTS**  
**TO THE BALD EAGLE (*Haliaeetus leucocephalus*)**

**U.S. Fish and Wildlife Service  
Wyoming Ecological Services Office  
Cheyenne, Wyoming**

**June 2004**

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## PROGRAMMATIC BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action examined in this consultation is the continuation of management according to the existing BLM Resource Management Plans (RMPs). RMPs are used by the BLM to guide and control future actions and set standards upon which future decisions on site-specific activities will be based. RMPs only establish general management policy on a broad scale. They are not used to make decisions that commit resources on a small scale such as on specific parcels of land. RMPs also identify desired outcomes, also known as “desired future conditions”. These outcomes are expressed in RMPs as goals, standards, objectives, and allowable uses and actions needed to achieve desired outcomes. These are often referred to as RMP decisions or resource allocations. It is upon these RMP decisions or resource allocations that the effects determinations in this Biological Opinion are based.

The 11 Wyoming Resource Management Plans analyzed in this BO are the Buffalo (BLM 2001), Platte River (Casper) (BLM 1985), Cody (BLM 1990), Kemmerer (BLM 1986), Lander (BLM 1987), Newcastle (BLM 2000), Pinedale (BLM 1988), Great Divide (Rawlins) (BLM 1990), Green River (Rock Springs) (BLM 1997), Worland-Grass Creek (BLM 1998), and the Worland-Washakie (BLM 1988) plans, respectively.

The area of the proposed action covers much of Wyoming, is expansive and varied with intermingled land surface ownerships and overlapping mineral ownerships. The area of the proposed action is bounded on the east side by the states of Nebraska and South Dakota, on the west side by the states of Utah and Idaho, on the north side by the state of Montana, and on the south side by the states of Colorado and Utah. Vegetative communities across the area of the proposed action also show tremendous variation and include: forest and woodland, grassland, shrub, wetland, and riparian communities.

A description of activities of the RMPs was contained in the Statewide Programmatic Bald Eagle Biological Assessment (BLM 2003b) and is described below. Every RMP did not contain every program listed below. Programs were only analyzed for effects in any given RMP only if that program was part of that respective RMP. Furthermore, overlap in activities existed between the programs in the RMPs (i.e. timber thinning may have been part of the Vegetation Management Program, the Forest Management Program, or the Fire Management Program or a combination of these in any given RMP). Effects for each program were analyzed based on the activities of each program as they are described below.

### Description of Activities Described under the RMPs

The following discussion describes the Wyoming BLM RMP programs which may have potential adverse effects to the bald eagle. Potential Terms and Conditions (Appendix I) were identified in the Programmatic Bald Eagle BA and may be implemented by the BLM. However for the purposes of this programmatic biological opinion, without firm commitment by the BLM to implement the Potential Terms and Conditions for actions which may affect and are likely to adversely affect bald eagles, the Service assumes that the actions will be implemented *without these protective measures*.

The extent of program activities within the same program and their potential effects to bald eagles may vary considerably between RMP areas across resource areas (e.g., the extent of or potential for ORV/OHV use in bald eagle habitat in the Pinedale BLM area may be greater than that for the Newcastle BLM area). The following table (Table 2) and discussion is a general qualitative summarization of the Wyoming BLM Resource Management Plan activity programs

and potentially-authorized activities of the BLM which may affect and are likely to adversely affect the bald eagle, now or in the foreseeable future. The names of the different programs were summarized here as in the BA (see Table F-1, BLM 2003b) to accommodate similar activities under varying program names within the individual RMPs. Please note, similar activities under different program names may occur.

Table 2. Bald Eagle “Likely to Adversely Affect (LAA)” Determinations from Biological Assessment.

Resources Management Plan (RMP) Management Action	Buffalo	Casper	Cody	Kemmerer	Lander	Newcastle	Pinedale	Rawlins	Rock Springs	Worland-Grass Creek	Worland-Washakie
Cultural/Paleo./Historical	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Fire Management	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Forest Management	LAA	LAA	LAA	-----	LAA	-----	LAA	LAA	-----	-----	-----
Minerals and Geology	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Lands and Realty	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Livestock Grazing	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
ORV/OHV use	-----	-----	-----	-----	-----	-----	LAA	-----	-----	-----	-----
Recreation	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Vegetation Management	LAA	-----	-----	-----	-----	LAA	-----	-----	LAA	LAA	-----
Wildlife and Fish	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Geothermal	-----	-----	LAA	-----	-----	-----	-----	-----	-----	-----	-----
Special Areas/ACECs	-----	LAA	-----	-----	LAA	-----	-----	LAA	-----	-----	-----
Soil/Water/Air	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA	LAA
Riparian	-----	-----	-----	-----	-----	-----	LAA	-----	-----	-----	-----

**Cultural Resources/Paleontological/Natural History Resources.** The BLM performs a variety of activities to preserve, protect, and restore cultural, paleontological and historical resources. During inventory activities, the BLM inventories, categorizes, and preserves cultural resources, conducts field activities, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. Inventory data collection activities are used for documentation and development of mitigation plans prior to other resource program surface disturbing activities. Inventory activities commonly entail the use of hand tools, power tools, or heavy machinery. The BLM’s cultural resource land management activities involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface disturbing activities; preparing interpretive materials; and allowing the collection of certain invertebrate fossils. The BLM also seeks listing of eligible sites on the National Register of Historic Places, installs protective fencing of trail segments, stabilizes deteriorating buildings, acquires access to sites when necessary, performs certain surface disturbing activities, pursues

withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets historic trails.

The BLM does cultural resource inventories normally in response to other surface disturbance activities. Inventories can include transects set a distance apart from each other. There may be eight transects/acre. Intensity varies between inventories. Inventories may involve two to seven individuals and trucks and may last from a day to several weeks long.

Cultural resource management activities within the 11 RMP areas in Wyoming consist of (1) protecting and preserving significant cultural resources and (2) conducting inventories and data collection for documentation and development of mitigation plans prior to other resource program surface disturbing activities. The 11 RMP areas in Wyoming contain both prehistoric and historic cultural resources.

Fire Management. The three major categories of activities involved with the BLM's Fire Management Program are prescribed fire, fire suppression, and fire rehabilitation. During prescribed burning activities, the BLM evaluates areas on a case-by-case basis, writes fire plans, builds fire breaks, coordinates with all necessary parties and conducts prescribed burns. Prescribed fires are those fires intentionally set and controlled by the BLM and their cooperators. Prescribed fires are used to enhance natural resources in the area. Prescribed fire is also used to dispose of slash and residue from timber sales. Thinning activities are sometimes used to reduce the fuel levels before a prescribed fire. Some prescribed fires are conducted to improve wildlife habitat and grazing potential as well.

Because fire suppression activities are done on an emergency basis, only minimal preplanning for fire suppression can take place because of the expediency needed. Similarly, Section 7 consultation according to the Act often occurs "after the fact" due to the expediency necessary for wildfire suppression efforts. Acres of wildfire fluctuate annually. Recent trends throughout the Wyoming BLM are similar to trends throughout the west, with larger, catastrophic fires in recent years due to past fire suppression and the subsequent increase in fuels among other factors. Fire suppression activities can involve the use of off-road vehicles, hand tools and heavy equipment such as bulldozers. At times, fire lines are constructed to contain the wildfire. Dozers create a line down to bare soil approximately 3 feet wide. Chemical fire suppression agents containing chemical dyes may be used if needed. These may affect the aquatic environment if used where the chemicals may enter the streams. Water may be withdrawn from nearby sources to suppress the fire. Nearby sources may include streams, lakes, or public water supplies. Emergency Stabilization and Rehabilitation techniques can begin before the fire is determined controlled and while fire suppression equipment is still in the fire area. Efforts are focused on fire suppression impacts and on fire effects. Emergency Stabilization and Rehabilitation techniques could include, but are not limited to: grading, culvert installation, applying mulch, installing straw wattles, contour felling, seeding, fencing for livestock/wildlife management and monitoring and potentially treating weed invasions.

Forest Management. The BLM's forestry actions involve a variety of different activities. Most activities involve timber harvesting. Other activities involve managing the forest for other uses. During forest management activities for timber production in the pre-harvest phase, the BLM allows the cutting and removal of diseased trees, disease treatment by spraying, and the spraying of grasses and shrubs. The BLM allows precommercial thinning, chaining, and shearing. During actual harvesting activities, the BLM allows timber harvesting, permits clearcuts, ensures slash disposal, allows commercial thinning, logging, and skidder-type yarding as well as cable yarding. The BLM permits the construction of roads and landings for use in timber harvesting operations. Slash is to be lopped and scattered, roller chopped, or burned. The BLM also permits helicopter

logging. Non-commercial timber harvest involves collection and cutting of firewood, Christmas trees, posts, poles, and saplings. During restoration efforts following timber harvesting, the BLM ensures site regeneration and stand replacement, fences regenerated areas, and conducts rehabilitation surveys. Furthermore, other forest management activities include assessing effects of grazing, managing forests for recreation and wildlife habitat, acquiring easements, pursuing legal access, allowing road development, and installing drain culverts and water bars.

Minerals and Geology. The BLM's Minerals and Geology Program is divided into 3 categories. These categories are salable minerals, leasable minerals, and locatable minerals.

*Salable Minerals.* Salable mineral mining is authorized under the Materials Act of 1947, as amended, and as such are discretionary actions. Salable minerals include sand, gravel, sandstone, shale, limestone, dolomite, and granite rock. Historical use of these materials was for building materials, road surfaces, and tools. Today, salable minerals are mainly used for maintaining roads and activities associated with the oil and gas industry. The BLM provides sand, gravel, and stone from federal mineral deposits as necessary to meet the need for federal, state, and local road construction and maintenance projects in the 11 RMP areas in Wyoming.

Before issuing contracts or free use permits for salable minerals, the BLM conducts appropriate environmental assessments. These include special studies or inventories of cultural values, threatened or endangered plant and wildlife species, or other resources. Stipulations or conditions may be included in the terms of the contract to ensure protection of the natural resource found there and reclamation of the land following project completion. Site reclamation is required following any surface disturbing mining activity for salable minerals. Reclamation of disturbed sites is important to be sure that the land can later be used productively for other purposes. Reclamation includes removing all surface debris, recontouring, reducing steep slopes, and planting vegetation. All reclamation proposals must conform to State agency requirements and must be approved by the BLM.

*Leasable Minerals.* Leasable minerals include solid minerals such as coal, uranium and bentonite from acquired lands, and fluid minerals such as oil and gas.

*Leasable Minerals (Solid).* A few parcels underlain by bentonite exist on BLM lands in Wyoming through the Bankhead Jones Act, and under current regulations they are available for bentonite leasing. However, a recent court case on Forest Service lands has caused BLM to re-evaluate its authority to conduct any further leasing of non-energy hard-rock minerals on BLM acquired lands.

*Leasable Minerals (Fluid).* The Mineral Leasing Act of 1920 provides that all public lands are open to oil and gas leasing unless a specific order has been issued to close an area. The Wyoming BLM has some of the most prolific oil-producing areas in the Rocky Mountains. It is estimated that oil and gas development will continue at an elevated rate. Once acreage is nominated by the public to be included in an oil and gas lease sale, the acreage is sent to the appropriate BLM field office via the parcel list to be reviewed and stipulated by the field office for protection of wildlife and other sensitive resources. These stipulations become part of the lease.

Exploration, development, and reclamation are common phases of most leases. Mineral exploration involves opening areas to geophysical (seismic) exploration; permitting the exploration; allowing oil, gas, and mineral development; and leasing and developing oil, gas, and geothermal steam resources. Seismic exploration involves the use of shock waves to describe the mineral structure of the Earth's subsurface. This technology is used to locate reserves of oil and gas resources. Before seismic activity is completed, a Notice of Intent which gives the location

and type of activity, and the results of an on-the-ground cultural inventory must be filed in the appropriate field office. The BLM conducts an in-office study as well as environmental analysis to determine if any threatened or endangered species will be affected. Most recent seismic activity in the area has been 3-D surveys.

Prior to drilling activities, an application for permit to drill (APD) must be approved and a site-specific Environmental Assessment (EA) completed for each APD. APDs are subject to site-specific conditions of approval which may be more restrictive than lease stipulations. The field office manager may add further timing and location restrictions to protect local resources. Drilling operations are inspected regularly as are production facilities.

Ancillary development involves the construction of roads, pads, and other facilities; and the construction of new above ground powerlines. Stipulations involve implementing leases with no surface occupancy restrictions, seasonal restrictions, or with other standard surface protection restrictions; negotiating mitigated impacts between lessees and authorized officer; deciding mitigation measures and limitations, and reclamation. Reclamation involves correcting any disturbance made by the oil and gas operation. Reclamation activities take place following the expiration of the lease. Reseeding, reshaping or road destruction are all activities involved with oil and gas reclamation.

*Locatable Minerals.* Bentonite, uranium, and gypsum are the principle locatable minerals of Wyoming BLM Resource Management Areas. Other locatable metallic minerals include silver, gold, platinum, cobalt, and other precious minerals. Actions associated with commercial locatable minerals include surface disturbance for mining, reclamation, and construction of access roads, buildings, and utility lines. Small scale mining may occur in the 11 RMP areas in Wyoming but individual casual use activities do not require an EA unless activities become significant. All lands must be reclaimed after expiration of the lease.

Lands and Realty. The Lands and Realty Program seeks to support multiple-use management goals of the BLM resource programs; responds to public requests for land use authorizations, sales, and exchanges; and acquires and designates rights-of-way access to serve administrative and public needs.

Many rights-of-way granted by the BLM for access roads, pipelines, communication sites, irrigation ditches, and electrical distribution lines are associated with oil and gas wells and production facilities. These rights-of-way may be temporary or extended for two years or longer. Land sales are disposals of or transfers of public lands through desert land entry, public sale, exchange, state of Wyoming indemnity selection, or recreation and public purposes leases or patents.

In its Lands and Realty Program, the BLM also implements stipulations/protective measures. These activities include processing stock driveway withdrawals and locatable mineral entry withdrawals; establishing protective withdrawals; and developing stipulations. The BLM also pursues cooperative agreements; develops recreation site facilities; considers offsite mitigation; minimizes access in wildlife habitat; fences revegetation sites; blocks linear rights-of-way to vehicle use; considers temporary use permits; considers new withdrawals; and leases acres for landfills. Withdrawals are used to preserve sensitive environmental values, protect major federal investments in facilities, support national security, and provide for public health and safety. They segregate a portion of public lands and suspend certain operations of the public land laws, such as desert land entries or mining claims. Land withdrawals can be used to transfer jurisdiction to other Federal land-managing agencies.

Livestock Grazing. A number of categories of activities make up the BLM's Livestock Grazing Program. These categories are livestock management activities, range management, fencing, predator/pest management, water management, detrimental impacts management, and lease management.

Livestock management includes converting to new types of livestock; authorizing livestock grazing, and adjusting season of use, distribution, kind, class, and number of livestock. One method that livestock producers can use to change the distribution of livestock is to provide salt or mineral supplements in specified areas. Range management activities include using prescribed fire, vegetation manipulation projects, changing composition of existing vegetation, using noxious weed control, using mechanical or biological vegetative treatments to improve forage production, using heavy equipment, and herbicide treatment of sagebrush. Fencing activities include fence construction and repair, design and implementation of grazing systems, and building livestock enclosures for important riparian habitat. Predator/pest management includes controlling predators or pests of livestock operations. Water management activities include the development of reservoirs, springs, pipelines, and wells, and providing access to these developments. Managing detrimental impacts include documenting, treating, and preventing resource damage. Potential detrimental impacts include the degradation of stream banks, the introduction of noxious weeds, increasing soil erosion, and a reduction in cottonwood tree recruitment. Lease management activities include conducting monitoring studies, performing project work to enhance and improve riparian zones, designating stock trails, managing leases, developing management plans and agreements, and canceling, or changing livestock driveways. The BLM has committed to meeting the range management standards in the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands* (Appendix B, BLM 2003b) while managing their lands for livestock grazing. In the Lander resource area, wild horses are managed under the livestock grazing management program. Wild horse management activities in the Lander resource area are similar to those described under wild horse management for the other resource areas elsewhere in this document.

Off-Road Vehicle/Off-Highway Vehicle (ORV/OHV) use. The BLM designates closed, limited, or open areas for ORV/OHV use, posts signs, develops maps, or brochures, permits ORV/OHV rallies, cross-country races, and outings, monitors ORV/OHV use, and performs necessary tasks requiring ORV/OHV use. Most ORV/OHV use (including over-the-snow vehicles) on BLM administered lands is limited to existing roads and trails. Some areas are closed to ORV/OHV use. Seasonal restrictions may be applied in crucial wildlife habitats as needed. In addition ORV/OHV s are prohibited on wet soils.

The BLM recognizes the use of bicycles and other human-powered, mechanized conveyances as recreational activities. Federal regulations do not specifically address management of non-motorized vehicle use. There are substantial differences in the types of use, associated impacts, and management approaches between non-motorized and motorized vehicle activities. Until a national strategy and rules for non-motorized vehicle use on public lands are established, the BLM will continue to include non-motorized use within the context of ORV/OHV designations.

Recreation. Categories of recreation management activities include allowing recreational access and use by the public, developing recreational areas and campsites, imposing restrictions, acquiring recreational access, and assessing effects of recreational use to the environment. Recreational activities allowed by the BLM include hiking, hunting, mountain biking, dog walking, wildlife viewing, cross-country skiing, boating, and fishing, ORV/OHV use (including snowmobiles), horseback riding, and camping. Large recreational events may include organized group hikes, motocross competitions, or horse endurance rides. Recreational land and access acquisition activities involve maintaining public access, pursuing rights-of-way, providing continued access, and pursuing land acquisition. Recreational site development includes

maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, maintaining developed and undeveloped recreational sites, adding developments as opportunities arise, adding interpretive markers, and constructing roads and interpretive sites.

Development and enforcement of stipulations/protective measures includes designating OHV use, enforcing recreation-oriented regulations, patrolling high-use areas and contacting users in the field. The BLM places boundary signs, identifies hazards on rivers, restricts recreational uses; with some exceptions, limits motorized vehicles to existing trails, designates road use and recreation areas, requires facilities to blend with the natural environment, and conducts field inventories.

While assessing negative effects of recreational activities to the environment the BLM analyzes activities which increase human activity, especially in riparian areas. The BLM monitors recreational use, develops management plans, and evaluates and updates recreational potential. Development of recreational and camping sites may be pursued on select BLM parcels. There is the potential for recreational activities to occur year-round in most of the 11 RMP areas in Wyoming.

Vegetation Management. In the Vegetation Management Program, the BLM maintains or improves the diversity of plant communities. In addition, activities of this program support livestock grazing, wildlife habitat management, sensitive species management, prescribed fire, timber production, watershed protection, visual resources, and the reduction in the spread of noxious weeds. As part of the Vegetation Management Program, the BLM designs vegetation treatments; conducts prescribed burns; implements weed control programs; plants trees; allows precommercial tree thinning; provides buffer zones; allows the use of machinery or fire; improves riparian habitat; pursues the acquisition of additional riparian areas; allows spraying, burning, and mechanical disturbances; uses species-specific insects, livestock grazing, mechanical methods, or chemical methods to modify composition and diversity of vegetation; and conducts plant species surveys.

The three types of noxious or invasive weed control used by the BLM on public lands are chemical, biological, and mechanical. Chemical control is used most often in cooperation with County Weed and Pest Districts. Only federally approved herbicides and biological controls are utilized. Local restrictions within each county are also adhered to. If herbicides are proposed for use, minimum toxicity herbicides are used with appropriate buffer zones along streams, rivers, lakes, and riparian areas, including those along ephemeral and intermittent streams. Projects that may affect listed species will be postponed or modified to protect the presence of these species and consultation with the Service will be initiated. The term noxious weed and invasive weed may be interchangeable, however noxious weeds are listed by the state, whereas invasive weed species are listed by the BLM. Some common invasive weeds include: spotted knapweed (*Centaurea maculosa*), Dalmatian toadflax (*Linaria dalmatica*), houndstongue (*Cynoglossum officinale*), Canada thistle (*Cirsium arvense*), cheatgrass (*Bromus tectorum*), and musk thistle (*Carduus nutans*).

Wildlife and Fisheries Management. Through wildlife habitat management, the BLM in Wyoming seeks to maintain biological diversity of plant and animal species and supports the Wyoming Game and Fish Department (WGFD) strategic plan population objective levels. In order to do this, the BLM maintains and improves forage productions and quality of rangelands, fisheries, and wildlife habitat; and provides habitat for threatened, endangered, and special status animal and plant species on BLM-administered public land surface in compliance with approved recovery plans.

Approximately 90 percent of wildlife program activities are in support of other resource programs such as fuels reductions, density of timber stands in deer and elk winter habitats, oil and gas exploration, timber harvest, or prescribed fires. Wildlife and Fisheries Program activities may include: surveying, monitoring, habitat improvement activities, developing habitat management plans (HMPs), creating cooperative management areas (CMAs), developing stipulations and protective measures, acquiring land and easements, conducting inventories, and performing livestock or forestry related activities. The BLM develops stipulations and protective measures including the authorization of withdrawals from some areas from mineral entry, limiting access of 4-wheel drive vehicles, snowmobiles, horseback riders, and pedestrians, prohibiting surface development, and imposing road closures. Livestock-related wildlife management activities include the development of water sources; construction and maintenance of fences; the management of other resource activities to conserve forage and protect habitat; the improvement of forage production and quality of rangelands; and the improvement of range with mechanical treatment. Forestry-related wildlife management activities include the management of timber and the promotion of cutting, thinning, planting, and seeding. Other wildlife management activities include introducing species, monitoring habitat, using prescribed burning; developing islands; managing accesses; authorizing agricultural entry and disposal; using surface protection mitigation; constructing artificial structures; using heavy equipment and hand tools; documenting resource damage; improving aquatic and riparian habitat; developing cooperative agreements to facilitate species transplants; chemically controlling pests, and exotic fish removal.

BLM wildlife management educational programs include the distribution of information to landowners, the public, and lessees; and development of public education programs. Within the scope of the RMPs, the BLM seeks to provide multiple resources uses while protecting the varied wildlife and fragile habitats. Human-wildlife conflicts sometimes occur. In cases where these interactions pose a threat to human health and safety, it may be necessary to involve the WGFD or the USDA-Animal and Plant Health Inspection Service-Wildlife Services (WS) office to rectify the situation. The BLM and WS have a Memorandum of Understanding (MOU), dated April 3, 1995, to address potential conflicts. The MOU is updated through an annual work plan. WS also has agreements with the WGFD and the Service to take actions necessary when human health and safety are a concern in dealing with predators or threatened and endangered species. Whenever possible, a non-lethal resolution to the conflict is the preferred outcome.

Geothermal Energy Management. Activities involved with the BLM's Geothermal Energy Management Program are similar to the BLM's Minerals and Geology Programs and include allowing road construction, pad & facility construction, powerline construction, and an increase in vehicle traffic.

Special Areas/ACEC Management. Activities associated with special management areas ensure continued public use and enjoyment of recreation activities, while protecting and enhancing natural and cultural values; improving opportunities for high quality outdoor recreation; and, improving visitor services related to safety, information, interpretation, and facility development and maintenance.

Under the Special Areas/ACEC Management Program, the BLM closes areas where accelerated erosion is occurring; implements logging and heavy equipment use restrictions; evaluates noxious weed and pest control measures; applies restrictions on ground-disturbing activities; develops recreational trails; guides supervised tours; protects petroglyphs, artifacts, and cultural deposits from weathering and vandalism; and pursues land exchanges.

Soil/Water/Air Management (also known as Soils Management, Watershed/Water, Water/Soils, or Soil/Watershed/Water). The BLM performs a variety of activities designed to preserve and protect soil, water, and watershed quality. These activities include: implementation of

watershed plans, identification of heavy sediment loads, monitoring and treating soil erosion, evaluating and restricting surface development activities, and monitoring water quality. These activities can involve the use of heavy equipment and hand tools.

Through the BLM Soil/Water/Air Management program, BLM evaluates proposed projects, applies soil management practices, applies seasonal closures, and completes ground water studies. Some of these field activities involve the use of heavy machinery and hand tools. Field activities can involve developing riparian exclosures or constructing stream crossings. Other activities can involve imposing restrictions on activities such as mineral exploration and development, pipelines, powerlines, roads, recreation sites, fences, and wells.

Activities associated with soil resources may also include reclamation of abandoned mines and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. Soil sampling and surface soil erosion studies may also be conducted. Soil resource related activities in the 11 RMP areas in Wyoming are mainly in support of other programs.

Through water resource management the BLM seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, provide for the availability of water to facilitate authorized uses, and to minimize harmful consequences of erosion and surface runoff. Water resources are also to be protected or enhanced through site-specific mitigation guidelines.

During watershed management activities, the BLM develops pollution prevention plans, ensures rights to water-related projects are filed, delineates no chemical use buffer zones, designs activities to promote reduction of channel erosion, and restores damaged wetlands or riparian areas. The BLM also provides technical expertise on other activities such as livestock ponds, waterfowl monitoring activities, reestablishes floodplains, and provides impact analyses of oil and gas development or any surface disturbance projects.

Levee construction and maintenance also falls under the watershed management program. As required, BLM will maintain existing levees, construct new levees, including extensions, or remove river flow impediments. The majority of levee construction occurs during periods of low water flow. However, emergency levee maintenance is possible during the high flows of mid to late spring. As is the situation with “emergency” actions, formal consultation occurs after the condition has been corrected and the effects of the action on any species can be analyzed. Direct effects to listed species can occur where levees are constructed through habitats.

Riparian Area Management. Only the Pinedale RMP includes riparian area management as its own separate program. Under this program, the BLM promotes the needs of the Colorado River cutthroat and its habitat. This is accomplished by implementing reduction of livestock numbers in riparian areas; promoting the adjustment of grazing patterns; and promoting fencing, herding, and livestock conversions. Unallotted BLM lands containing riparian areas are also managed according to the needs of the Colorado River cutthroat and its habitat with emphasis on wildlife and watershed values but not necessarily to the exclusion of livestock uses. The riparian management program is an integral part of all resources and management programs including: wildlife and fisheries habitat, forest resources, livestock grazing, ORV/OHV use, visual resources, cultural and historical resources, minerals exploration and development activities, lands and realty activities, watershed and soils resources, recreation uses, fire management, and access.

## STATUS OF THE SPECIES

### Species Description

The bald eagle (*Haliaeetus leucocephalus*) is a large diurnal raptor. Adult bald eagles have a white head and tail plumage and very dark brown to black wing and body plumage. The bill and cere are bright yellow as are the lower legs and talons. Juveniles are often misidentified as golden eagles, as they have primarily brown plumage (including head and tail), bill, and eyes. Bald eagles attain adult plumage at about 5 years of age. The bald eagle has a wing span up to 7 and a half feet wide and weighs between 8 and 14 pounds. Females are larger than males.

### Life History

Present-day breeding occurs primarily in northern California, Alaska, Oregon, Washington, Minnesota, Wisconsin, Michigan, Maine, the Chesapeake Bay area, Florida, the tri-state corner of Idaho, Montana, and Wyoming, and in parts of Canada. The Service estimated the breeding population exceeded 5,748 occupied breeding areas in 1998 (United States Fish and Wildlife Service (USFWS) 1999).

Bald eagles are migratory and may live more than 30 years in the wild. They are monogamous and build nests that may be reused and built upon year after year, sometimes producing nests 10 feet in diameter. Bald eagles have no more than one brood per year, laying 1 to 3 eggs. Their incubation period lasts about 35 days. The eggs are incubated by both male and female birds (Stalmaster 1987). Nestlings may out compete siblings for food and push them out of the nest. Usually 1 or 2 eaglets are produced per pair annually. Fledglings leave the nest approximately 75 days after hatching. After the breeding season, bald eagles congregate where food is plentiful, and they may continue to roost near the nest tree.

Bald eagles inhabit primarily riparian habitats in cottonwood groves along streams and rivers, and in coniferous forests. Bald eagles primarily feed on fish, but also on small mammals and carrion. In Wyoming, where water is scarce, bald eagles are found nesting away from water sources and will often feed on carrion: road kill, hunting gut piles, and winter kill. They are also known to be kleptoparasitic, stealing prey from other raptors.

Nesting Habitat. Bald eagles typically nest in forested areas adjacent to large bodies of water. Nests are most often constructed in the tops of large trees (Howell 1937, Murphy 1965) but can occur on cliffs or on the ground in treeless areas (Troyer and Hensel 1965). Besides the distance to nearest water, other features that influence nest location can include: diversity, abundance, and vulnerability of prey base; and absence of human development and disturbance (Buehler 2000). In Wyoming, mature cottonwood groves found along streams and rivers are typically used as bald eagle nesting habitat. Nest locations usually provide proximity to a food source, good visibility from the nest, and a clear flight path to the nest (Herrick 1924).

Bald eagles in the Greater Yellowstone Ecosystem were flexible in their selection of nest sites, as long as a dependable food source was available in early spring (Swenson et al. 1986). Once this criterion was met, they tended to select the most desirable trees available (Swenson et al. 1986). One of the most important characteristics of bald eagle nesting habitat is an open forest structure (Anthony et al. 1982). The use of dominant nest trees in forest stands with openings and edges is widespread. One breeding territory in Ohio was occupied for nearly a century (Herrick 1924). Often several alternate nests are built by one pair in a breeding territory, and in any given year, a new nest may be built or an old nest may be reoccupied (Greater Yellowstone Bald Eagle Working Group (GYBEWG) 1996).

Human Disturbance. Freedom from human disturbance is a highly important criteria for successful nesting. Breeding eagles are more sensitive to disturbance than non-breeding or wintering birds, and the early stages of the breeding cycle (nest repair, egg laying, and incubation) are the most sensitive times (Mathisen 1968, Weekes 1974, GYBEWG 1996, Montana Bald Eagle Working Group (MBEWG 1994). Eagles are more likely to abandon a nest early in the season before a bond is established or young hatch. The vulnerability of eggs or young to adverse weather if adults are flushed from a nest is also most critical in the early stages of nesting. Human disturbances, however, may still be problematic later in the season and result in premature fledging (Grier 1969).

Apparent changes in the numbers of eagles using traditional wintering areas may also be related to increased human disturbance (Fitzner and Hanson 1979). Eagles along the North Platte River in Wyoming were never observed by Reclamation biologists within the city limits of Casper, Glenrock, Douglas, or Torrington despite the presence of adequate perches along the river in these areas and the relatively dense populations of eagles four miles on either side of these towns (USBR 1981). The stretches of river passing through these towns corresponds to the "high human activity" category of Stalmaster and Newman (1978) and low eagle activity in such areas is in accordance with their observations. Eagles were also found to be less likely to be observed in areas where fishermen congregated (USBR 1981). This was particularly evident along the Miracle Mile section of the North Platte River between Kortez and Pathfinder Reservoirs where eagles often perched along the river when roads were snow covered and fishermen were absent, but rarely perched in the area when fishermen could get to the river. On Pathfinder Reservoir, eagles congregated on the western shore or on the Sweetwater Arm when fishermen were present along the more accessible eastern shore. Bald eagles have been found to habituate to human disturbance with highway traffic being the least disturbing (GYBEWG 1996).

Winter Habitat. On their winter range, bald eagles may roost singly or in small groups but larger communal roosts are important and may predominate in many areas (Platt 1976). Communal roosting may have developed as information centers in response to the distribution of foods (Ward and Zehavi 1973). By congregating with other birds, an individual eagle may enhance its chances of finding unevenly distributed food supplies. Communal roosts usually are located in stands of mature old growth conifers or cottonwoods, and roosts may be several miles from feeding areas. Wintering bald eagles occur throughout the United States but are most abundant in the West and Midwest (USFWS 1983) along major river systems and large bodies of water in the mid-western states, Chesapeake Bay region, Pacific Northwestern states, and states of the intermountain west, including Wyoming, Utah, Colorado, New Mexico, and Arizona.

An abundant, readily available food supply in conjunction with one or more suitable night roost sites is the primary characteristic of occupied bald eagle winter habitat. The majority of wintering bald eagles are found near open water where they feed on fish and waterfowl, often taking those that are dead or vulnerable. When suitable habitat conditions exist, particularly lack of human disturbance, wintering bald eagles will also forage in terrestrial habitats capturing small and medium sized mammals (e.g., prairie dogs and rabbits) or scavenging carrion or roadkill, and winter mortalities of big game or livestock (USFWS 1983).

Inclement weather is also a major impetus for communal roosting. Roosts are usually located on the leeward sides of mountains, woodlots, or in protected canyons. Communal night roosts are used more often during days of winds greater than 17 km/hr (Steenhof et al. 1980) or during periods of inclement weather (Anderson and Patterson 1988). Platt (1976) observed that the most protected stand on the wintering site was consistently used as a roost during severe weather. Large, live trees in sheltered areas provide a more favorable thermal environment and help minimize the energy stress encountered by wintering eagles. Communal roosting also may facilitate pair bonding. Freedom from human disturbance also is important in communal roost

site selection (Steenhof et al. 1980, USBR 1981, USFWS 1986, Buehler et al. 1991). Continued human disturbance of a night roost may cause eagles to abandon an area (USFWS 1983).

Anderson and Patterson (1988) characterized bald eagle winter roosts in Wyoming. Twenty-three roosts were located, which contained from one to 24 eagles. Roosts were located on slopes with northeasterly aspects and typically in forest stands with high densities of conifers and snags. These forest stands had larger and more open trees than the surrounding forest.

The number of eagles using a roost and times of arrival to and departure from the roost are influenced by temperature, precipitation, and wind conditions. During moderate weather, eagles usually leave the roost at dawn, and may ride thermal currents in the vicinity of the roost for up to a half hour before departing for feeding areas (USBR 1981). Eagles have been observed to fly over 15 miles from their feeding areas to roosting sites (Swisher 1964).

Hunting Behavior. The bald eagle typically hunts from perches or while soaring over suitable prey habitat. Prey is often taken off the wing including snatching fish from surface waters, snaring waterfowl in the air, or pouncing on small mammals. When it is available, carrion is also eaten. General foraging habitats include nearly all upland and aquatic habitats that support sufficient prey species. In Wyoming, suitable general foraging habitats can include grasslands, shrublands, streams, rivers, lakes, and reservoirs. Concentrated foraging habitats are typically habitats that support high densities of prey species and can often be a reliable source of prey for wintering bald eagles. In Wyoming, concentrated foraging habitats can include big game crucial winter ranges, ice-free water bodies that support fish and waterfowl during the winter, cattle and sheep stockyard operations, and big game roadkill.

Diurnal Perches. Diurnal perch sites are important components of bald eagle habitat. Perch sites serve a number of functions such as vantage points for hunting, observation posts to increase vigilance against predators, locations for loafing and sunning, and in some cases diurnal perches double as night roosts. Selection of a day perch by bald eagles is determined primarily by the location of the food resource and secondarily by the visibility provided by the perch site. When available in appropriate locations and of sufficient size, trees are preferred perches (Stalmaster and Newman 1979, Steenhof et al. 1980). Trees must be strong enough to support an eagle's weight, offer unobstructed views of potential food sources and the surrounding area, and provide for easy landing and takeoff. Preferred species possess the physical characteristics (size and growth form) and location (near open areas, proximity to a food source) required by eagles. Cottonwoods (*Populus* spp.) for example, are preferred along the Platte River in Nebraska (Vian and Bleise 1974) because of their large size and proximity to water. Approximately 90 to 95 percent of the eagles along the Nooksack River in Washington were perched within close proximity of the river (Stalmaster et al. 1979). Bald eagles tend to select trees which are bordered by an open area (Steenhof et al. 1980). Riverbanks, rangeland, cropland, creeks, and roads are all important edge components.

The single most important feature of potential perch sites is that they be located close to and in view of a potential food source (Vian and Bleise 1974, Stalmaster and Newman 1979, Steenhof et al. 1980). Perching comprises much of the eagles' day. In one study, perched eagles accounted for nearly 75 percent of all observations and over 80 percent of sightings recorded along the Platte River between 1977 and 1981 (USBR 1981). Perch site preferences were related to the availability of trees, proximity to foods, water conditions of rivers and lakes, and overall visibility. The importance of perch sites close to water was apparent as nearly 98 percent of the eagles perched near reservoirs and 89 percent of those near rivers were within 60 meters of the shoreline. Deciduous trees, the most frequently observed perch sites, were typically cottonwoods located adjacent to water.

Freedom from human disturbance is important in diurnal perch site selection and may influence the distribution of perched eagles in an area. Stalmaster and Newman (1978) found that eagles usually avoided areas of "high human activity." Once disturbed on the feeding grounds eagles may not readily return to that area to feed. During particularly severe weather, continued disturbances may sufficiently stress eagles to cause them to leave the area.

Diurnal perches located close to the nest are important for hunting, loafing, and monitoring the nest. Favored perches are used consistently year-after-year, are generally 100 to 200 meters from the nest tree, and provide an unobstructed view of the nest (Herrick 1924).

Foods. The availability of food is probably the single most important factor affecting bald eagle distribution and local population sizes. Bald eagles congregate at locally abundant easily exploitable food sources, and population densities fluctuate with food availability. Fish are an important food of the bald eagle throughout much of its winter range. Fish are the primary staple of the winter diet along watercourses and on lakes, although other food sources are exploited elsewhere (Wright 1953, Southern 1964, Ingram 1965, Fitzner and Hanson 1979). Vian and Bleise (1974) concluded that fish made up the bulk of the diet of eagles along the Platte and North Platte Rivers in Nebraska although waterfowl were abundant. United States Bureau of Reclamation (USBR) biologists documented that fish was an important winter staple of eagles along the Platte River (USBR 1981).

Waterfowl are also important in the diet of bald eagles. Waterfowl can comprise most of the diet of eagles in areas where fish are not plentiful or readily caught because of ice conditions (USBR 1981). Wintering eagles in Missouri fed primarily on dead and crippled geese (*Branta canadensis*). In Nebraska, pellet analyses and observations indicated that waterfowl were a major food source, particularly on reservoirs.

Bureau of Reclamation's bald eagle studies conducted between 1978 and 1981 (USBR 1981) found that most wintering eagles using North Platte and Platte Rivers aquatic areas were associated with open water and waterfowl concentrations. Over 50 percent of the feeding observations reported during three winters of observations involved waterfowl. Eagles observed on the ice were within 100 ft of waterfowl in 55 percent of 1109 observations. Bald eagles were observed flying over, chasing, and eating ducks, geese, and coots (*Fulica americana*). Most of the feeding observations were of ducks, and all of the roosts contained some pellets composed of waterfowl remains. In many instances where suitable perch trees were present nearby, eagles rested on the ice in close proximity to waterfowl. Ducks and geese maintained ice-free areas in reservoirs and eagles sometimes perched on uplifting and irregularities on the ice near waterfowl.

Fish and waterfowl carrion are another important component of the eagles' diet (USBR 1981). Immature eagles relied heavily on these food items at several reservoirs during the survey period. Nearly all eagles associated with carrion and 75 percent of those associated with waterfowl were immature. On some Bureau of Reclamation reservoirs, immatures outnumbered adults, particularly during the early winter when waterfowl numbers were highest. As less adept hunters, subadults are more dependent on concentrated food resources and carrion throughout their wintering range and often congregate around abundant food sources (Sherrod et al. 1976, Schwillig 1980).

The extent of the southern migration in winter probably depends on the severity of the weather. As water sources freeze, and fish, waterfowl and carrion are no longer available to eagles, they tend to move further south in order to find more easily exploitable food sources.

In Nevada, Utah, Wyoming, and portions of western Colorado, however, some bald eagle winter concentrations were not related to the existence of water but were associated with carrion

provided by big game and domestic sheep (*Ovis* spp.) (Swisher 1964, Platt 1976, Anderson and Patterson 1988). Carrion provides an important dietary supplement in some areas and is the primary food source in others. Deer (*Odocoileus* spp.) carcasses are commonly eaten (Ingram 1965, Stalmaster et al. 1979) as are those of cattle (*Bos taurus*) and sheep (Hancock 1964, Anderson and Patterson 1988). Food habits of wintering eagles within the Greater Yellowstone Ecosystem (GYE) reflect the seasonal availability and abundance of food on ungulate winter ranges throughout the GYE due to winter mortality, predation and hunting.

Studies conducted at Jackson Canyon, Wyoming between 1975 and 1977 included an analysis of prey remains and cast pellets (Lund 1978). Antelope, coyote, and waterfowl, in that order, were the most common components of pellets with some sheep, beaver (*Castor canadensis*), and raccoon (*Procyon lotor*) also identified. Although antelope and waterfowl were frequently identified from Wyoming roost castings collected in 1979 and 1980 (USBR 1981), over 50 percent of most pellet remains were comprised of rabbit hair and sheep wool. It should be noted, however, that studies of raptor diets based on pellet contents are highly biased and these biases are exaggerated in raptors which digest most bone material small enough to swallow. Cast pellet analysis under-estimate the importance of fish in the eagle diet as the bones and scales may be completely digested and pellets may not be formed (Brown 1974). For a fish-eating species such as the bald eagle, this causes serious errors in determining its true food habits in any quantitative way (Jenkins 1980).

Wintering bald eagles in Wyoming generally occur in areas associated with large, ice-free water bodies and near winter concentrations of ungulates, livestock, waterfowl, and/or fish. The distribution of bald eagle nesting and winter roosting areas is associated with habitat availability and amount of human disturbance. Most open habitats with sufficient prey base in Wyoming can be utilized for foraging by bald eagles. Foraging bald eagles are less sensitive to human disturbance and will tolerate more human activities in foraging habitats than they will near nesting and winter roosting areas. As a result, human activities are less restrictive to the distribution of foraging bald eagles than to nesting or roosting eagles.

Nesting eagles are also similarly dependent on reliable sources of food, especially fish and waterfowl. Primary feeding areas are large bodies of open water, and rarely smaller streams or ponds (Leighton et al. 1979). In the Greater Yellowstone Ecosystem, a stable food source, which was available from early spring, appeared to be the most important factor in breeding area selection by eagles (Swenson et al. 1986). Swenson et al. (1986) found that the differences in movements, breeding success, nest site selection, and nesting chronology among bald eagles in the Greater Yellowstone Ecosystem were primarily due to differences in the amount and timing of food availability. During the breeding season mammalian food becomes less important as fish and aquatic birds become available.

Elsewhere, nesting eagles appear to rely on a greater variety of foods. Bald eagles in Maine preyed upon or took as carrion at least 34 species of invertebrates (Todd et al. 1982). Use of rabbits, songbirds, invertebrates, small animals and carrion has also been reported for nesting eagles by Smith (1963), Retfalvi (1970), Sherrod et al. (1976), and Jenkins (1981).

Although a variety of food can be taken, fish composed 77 percent of the food item remains collected at bald eagle nests in interior Maine (Todd et al. 1982). Bald eagles nesting on offshore coastal islands fed primarily on seabirds and waterfowl. In north-central Minnesota, the diet of breeding eagles was 90 percent fish (Dunstan and Harper 1975). Studies in Ohio showed that nesting bald eagles fed primarily on fish (Herrick 1924). At San Juan Island, Washington, fish composed 51 percent of the breeding season diet (Retfalvi 1970).

Bald eagle prey selection is determined largely by availability. In Maine, eagles focused on the chain pickerel (*Esox niger*) spawning run in April, then on the sucker (*Catostomus* spp.) spawning run in May (Todd et al. 1982). Birds accounted for 68 and 47 percent of the diet of bald eagles in some areas of the Greater Yellowstone Ecosystem (GYE) while fish made up 67 percent of the diet in other areas of the GYE in response to habitat differences and prey availability (Swenson et al. 1986). In one area of the GYE, aquatic birds comprised the majority of food taken by bald eagles later in the breeding season. However, early in the breeding season these same eagles heavily utilize cutthroat trout (*Salmo clarki*), corresponding with peak spawning activity in shallow streams. When waterfowl became more available during the postnuptial molt period, they were readily taken by eagles at that time.

Jenkins (1980) studied the home range movements and feeding activities of a pair of nesting eagles near Basin, Wyoming. Data regarding food habits were gathered through direct observation at the nest, periodic collection of pellets and food remains from and under the nest and favorite perch sites. Food items noted included carp and other fish, sheep, pheasant, and three species of waterfowl. During the early nesting season, the adult male was sometimes absent for hours before returning with food. With the increase in flows in the Big Horn River in June, the male was observed to be absent for a few minutes before returning to the nest with food, usually a fish of unknown species. High water coincided with or was related to the apparent increase in fish availability.

## **Population Dynamics**

It is estimated that the bald eagle population numbered 250,000 to 500,000 bald eagles living on the North American continent before the first Europeans arrived. Loss of prey species, hunting, pesticide use, and loss of habitat are the major causes of population declines.

A bald eagle recovery plan was established in the mid-1970's, resulting in the Service dividing the lower 48 states into 5 recovery regions. Recovery plans for each region were developed with goals and tasks for recovery. Since 1974, the number of occupied breeding areas in the lower 48 states has increased by 462 percent, and since 1990, there has been an additional 47 percent increase in bald eagle numbers (USFWS 1995). In 1995, the bald eagle was reclassified as threatened, and recently the bald eagle has been proposed for delisting (USFWS 1999).

In Wyoming, the bald eagle falls within the Pacific Bald Eagle Recovery Plan (USFWS 1986). The primary objective for this area is to provide secure habitat for bald eagles within the 7-state Pacific recovery area and to increase population levels in specific geographic areas to the extent that the species can be delisted. Management goals are to have: (1) a minimum of 800 nesting pairs in the Pacific Recovery Area, (2) an average reproductive rate of 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65 percent, (3) the attainment of breeding population goals in at least 80 percent of the management zones with nesting potential, and (4) stable or increasing wintering populations. Jenkins (1980) summarized sightings of bald eagles in Wyoming obtained from annual Audubon Christmas Bird counts from 1963-1979. Observers recorded between five and 176 eagles, on surveys totaling 195 to 2,805 miles in length. Bald eagles are routinely counted during mid-winter waterfowl/eagle surveys conducted by the Wyoming Game and Fish Department. Between 1974 and 1979, biologists recorded an average of 55 bald eagles (range of 22 to 132) in the Central Flyway (that portion of Wyoming east of the Continental Divide) (Jenkins 1980). Low-level fixed-wing aircraft censuses of wintering golden eagles in east-central Wyoming (between Casper, Lusk, Mule Creek Junction and Midwest) conducted annually from 1965 until 1979 by the Service revealed between 13 and 49 bald eagles annually (average of 24) (Jenkins 1980).

Currently, the largest nesting concentration of bald eagles in Wyoming is in the northwest corner of the state, in the Greater Yellowstone area. Bald eagle nesting has also been documented along several major drainages throughout the state. Results of annual surveys indicate bald eagle populations within the state are increasing and have exceeded management goals since 1987. In 1999, 97 bald eagle pairs produced 85 young in Wyoming (WGFD 2000).

### **Status and Distribution**

Laws protecting the bald eagle were implemented as early as 1918 with the Migratory Bird Treaty Act, the domestic law that affirms the United States' commitment to four international conventions with Canada, Japan, Mexico and Russia for the protection of shared migratory bird resources. In 1940, the Bald Eagle and Golden Eagle Protection Act was passed, prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald eagle, alive or dead, including any part, nest, or egg, unless allowed by permit. Take includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The Endangered Species Act of 1973, as amended (Act), 16 U.S.C. 1531 *et seq.* is the most recent federal law which offers protection to the bald eagle. On February 14, 1978, the bald eagle was listed under the Act as an endangered species throughout the lower 48 States except in Michigan, Minnesota, Wisconsin, Washington, and Oregon, where it was designated as threatened. On July 12, 1995, the Service reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states (USFWS 1995). Most recently (July 6, 1999), the bald eagle was proposed for delisting (USFWS 1999). The proposal has not been finalized or withdrawn to date.

The bald eagle historically ranged throughout North America except for extreme northern Alaska and Canada and central and southern Mexico. They nest from Florida to Baja California, and Labrador to the western Aleutian Islands of Alaska.

In Wyoming, bald eagles are often not dependant on habitat attributes provided by public lands, but rather are opportunistic inhabitants that will move from area to area where conditions and food sources are most favorable. Bald eagles can be found throughout the winter in both prairie and forested areas. Typically winter migrant bald eagles in Wyoming arrive in late winter, depending on the severity of weather conditions in their northern range.

### **ENVIRONMENTAL BASELINE**

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

The action area is defined at 50 CFR 402 to mean “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action”. For the purposes of this consultation, the Service defines the action area to include (1) approximately 17.8 million acres of BLM administered public land surface in Wyoming, and additionally (2) approximately 11 million acres of split-estate land (federal subsurface/non-federal surface). This action area includes all lands within the 11 RMP areas in Wyoming that could potentially be impacted by decisions made in the RMPs (BLM 2003b).

Historic activities within or adjacent to the action area include residential, urban, commercial, industrial, and agricultural development; road construction; development for recreational use;

mining; airport construction; ski area development; levee construction and maintenance; and dam construction.

### **Status of the Bald Eagle Within the Action Area**

Over 135 bald eagle nest sites (includes alternate nests) are known to occur within the 11 BLM resource areas analyzed in this Biological Opinion (BLM 2003b). The majority of these nest sites are located on privately owned land surface. Thirty-one bald eagle nests were identified to be active in the 11 BLM resource management areas in 2003. Only one of these active nests in 2003 was located on BLM managed surface land in the action area. There are over 65 known bald eagle communal roosting areas within the 11 BLM resource management areas of Wyoming (BLM 2003b). The majority of these are located along rivers and are on privately owned surface. Several bald eagle feeding concentration areas are also known within the BLM resource areas in Wyoming.

Consistent with the nationwide trend, the bald eagle population numbers across the 11 RMP areas in Wyoming are increasing.

#### Buffalo RMP area

*Nesting.* In the Buffalo RMP area, thirty-three bald eagle nest sites (active/inactive), representing approximately eighteen breeding areas are known to occur. This tally includes five active nests that were observed during surveys conducted in May 2002 and April 2003 (BLM 2003b). None of the 33 nest locations occur on surface lands administered by BLM. Twenty-seven nests are located on private lands and six are on State lands. Many of these nests are located in riparian habitats associated with major creeks and rivers, including Powder River, Clear Creek, Lone Tree Creek, Tongue River, Youngs Creek, and Wild Horse Creek.

*Communal Winter Roosting.* Over 40 communal winter roosting (historic and current) areas are known to occur in the Buffalo RMP area, primarily along major rivers, including Old Woman Creek, South Fork Powder River, Middle Fork Powder River, North Fork Powder River, Powder River, and the Belle Fourche River (BLM 2003b). Winter roosts are also associated with domestic sheep concentrations and pronghorn winter range (Anderson and Patterson 1988). However, many of the domestic sheep operations active in the mid-1980s are no longer active. The associated winter population of bald eagles has decreased and many of the roosts are likely no longer in use (BLM 2003b). Land ownership along these rivers is predominantly private, with some areas under BLM administration. Based on the relative proportion of lands administered by BLM versus privately owned lands along these rivers, the majority of communal winter roosting areas in this RMP area are expected to be on privately owned lands. The Buffalo Field Office aerially surveyed potential eagle roosting habitat during the winter of 2003-2004. Only seven communal roosts were located during that survey. Six were observed along Clear Creek and one along the Powder River. No communal roosts were observed in upland conifer.

*Concentrated Foraging.* No known concentrated foraging areas, such as ice-free water bodies that support fish and waterfowl, cattle or sheep stockyards, or concentrated big game mortality areas, occur in the Buffalo RMP area (BLM 2003b). The rivers, streams, lakes, and upland habitats that occur throughout the Buffalo RMP area provide foraging opportunities for bald eagles.

#### Casper RMP area

*Nesting.* Eleven bald eagle nest sites (active/inactive) are known to occur within the Casper RMP area (BLM 2003b). Observations of brooding adults, nestlings, and fledglings are

indicators of nest activity. None of these nests occur on surface lands administered by BLM. These nests occur in riparian habitats that are associated with the North Platte River. Livestock grazing and irrigated and dryland pasture are the primary land uses near these nests. However, none of the land within a 2-mile radius of these nests is part of a BLM grazing allotment.

*Communal Winter Roosting.* As reported in the Platte River Resource Area and Jackson Canyon ACEC Habitat Management Plan (BLM 1992) and confirmed by the Casper field office biologist (BLM 2003b), 11 communal winter roosting areas are known to occur within the RMP area. These communal winter roosting areas are described in the following text.

The Big Sulfur Springs Roost occupies approximately 5 square miles in the southernmost foothills of the South Bighorn Mountains of the South Bighorns Resource Management Unit (RMU). The federal lands within the roost area occur as a large single block of approximately 3 square miles; the remainder of the roost occurs on state and privately owned lands. Access to the roost is available via public routes that terminate less than 1 mile from the boundary of the roost (BLM 1992).

The Pine Mountain West and East wintering roost sites lie within the Pine Mountain-Goldeneye RMU. The west roost occupies nearly 7 square miles, and the east roost occupies 6 square miles of coniferous forest (ponderosa pine, limber pine, and juniper). Drainages in the immediate vicinity are typically dry except after rainfall or during snowmelt. Most of the land within these roosts is administered by the BLM, with the remainder owned by the State and private entities. Access to these roosts is generally via several established roadways and two-track trails that cross federal, state, and private lands. Public access is not available to the Pine Mountain East roost. However, because of a recent land exchange, public access is available to the Pine Mountain West roost. Local topographical relief is varied, which further limits public access to many areas of these roosts (BLM 1992).

A single roost, the Coal Creek Roost, is known to occur within the North Platte River RMU. The Coal Creek Roost occupies nearly 2 square miles along the North Platte River, 15 miles east of Casper, Wyoming. Much of the surface lands within the roost are administered by the state or private entities, with only two small federal parcels (BLM 1992). U.S. Highway 20-26 and an active Burlington Northern rail line pass through the roost.

A single roost, Stinking Creek Roost, is known to occur within the Bates Hole RMU. This communal winter roost is located in a riparian area bordered by rolling hills and incised ephemeral streams and drainages. Stinking Creek is an ephemeral stream in this locale that drains into Bates Creek, which is a tributary of the North Platte River. This designated roost occupies approximately 3 square miles of lands administered by the BLM, State, and private landowners. State Highway 487 is near this roost and provides legal access to the area of the roost. Despite the proximity of this major highway to the roost, legal access is limited by the lack of secondary roads from Highway 487 and the intervening private lands. Access to the roost via off-trail routes is unlikely because of the steep and severely eroded banks in this vicinity (BLM 1992).

The Jackson Canyon Roost and Little Red Creek Roost are known to occur within the Casper Mountain, Muddy Mountain, and Jackson Canyon RMUs. The *Natrona Management Framework Plan* established the Jackson Canyon Area of Critical Environmental Concern (ACEC) with the intent of protecting these known roosting sites (BLM 2003b).

The North Fork Cheyenne River Roost occurs within the Ross RMU. This roost is located on a ridge that separates the Missouri and Yellowstone River drainages. The area is characterized by

deeply incised, branch-like drainages associated with steep hills and ridges. The roost is drained by the North Fork of the Cheyenne River that flows eastward to the Cheyenne River. Federal and private lands are included in the approximately 4-square-mile roost area. The federal lands occur as a single block and account for about half of the roost. All of the mineral estate within the roost, except for 40 acres, is federally owned. Several roads and trails pass near the roost; however, legal access to the roost is not available.

Four communal winter roosts, Little Deer Creek, Box Elder, Miller Hills, and Pine Ridge, are known to occur within the remaining Platte River Resource RMU. The Little Deer Creek Roost is located in Little Deer Creek Canyon in southwestern Converse County, approximately 8 miles southwest of Glenrock, Wyoming. The canyon is in mountainous terrain with near-vertical canyon walls, steep hillsides, and deeply incised drainages. The vertical relief in the canyon is 400 to 500 feet from the canyon floor to the top of the escarpment. Little Deer Creek is a perennial stream that flows into Deer Creek, which eventually flows to the Platte River. The roost occupies approximately 4 square miles of BLM-administered, state, and private lands. Federal lands within the roost area occur as two separate parcels but are connected by a large block of state lands. Approximately half of the roost is on privately owned lands.

Box Elder Creek Roost is located in Box Elder Canyon in southwestern Converse County, approximately 11 miles south of Glenrock, Wyoming. This canyon is located on the northern extreme of the Laramie Mountain Range. The canyon is narrow and steeply incised, rising 500 to 700 feet from the floor of the canyon to the top of the escarpment. Box Elder Creek, a perennial stream, is the primary drainage for the roost area, flowing into the North Platte River. The roost occupies approximately 6 square miles of land that lies mostly within Converse County, designated as Box Elder Park. Less than half a square mile of federal land is present in the roost area. Legal and physical access is available to the roost, but the rugged terrain associated with the canyon restricts use of vehicles. Box Elder Park occupies most of the roost. Only a few facilities are associated with this park; most of the area remains in its natural condition.

Miller Hills Roost is located in northeastern Converse County, approximately 5 miles south of the town Dull Center. Miller Hills is a northwest-trending ridgeline. The ridgeline is deeply incised by highly branched drainages and steep slopes. This roost occupies approximately 13 square miles. All of the federal land surface, about 5 square miles within this area, is in the Thunder Basin National Grasslands and is managed by the USFS. BLM administers the federal mineral rights in the roost area in cooperation with the USFS. Several existing roads transverse the area of the roost; however, legal access is not available to the roost.

The Pine Ridge Roost is located in the northeastern Natrona County and northwestern Converse County. This roost occupies approximately 6 square miles of land, with about 5 square miles on private property and the remainder on BLM-administered lands.

*Concentrated Foraging.* Several bald eagle feeding concentration areas have been identified along the North Platte River (BLM 2003b) within the North Platte River RMU. No concentrated foraging habitats, including lakes or rivers that remain ice-free winter-long or reliable sources of carrion (i.e., roadkill, winter mortality, or livestock feed lots and stockyards) are known to occur within the following RMUs: South Bighorns, Pine Mountain Goldeneye, Fremont Canyon, Salt Creek, Casper Sand Dunes, Casper Mountain, Muddy Mountain, and Jackson Canyon, Bates Hole, Laramie Range Foothills, Ross, Muleshoe Flats and Richeau Hills, Rawhide, Table Mountain, Spring/Bump, Sullivan, and the Remaining Platte River Resource Area RMU.

Within the Oregon-Mormon Trail RMU, bald eagles that roost at the Coal Creek Roost rely on two major feeding areas: the North Platte River for fish and waterfowl, and the nearby rangelands

for carrion from big game and livestock. Most land along the North Platte River is privately owned with several exceptions, BLM access points, WGFD access points for fishing, and some state school sections.

General foraging areas for wintering bald eagles include ice-free bodies of water that support sufficient populations of fish or waterfowl. These areas also include most open, upland habitats that support prey populations, adequate big game winter ranges, and cattle and sheep grazing allotments. General foraging habitats occur throughout the Casper RMP area and Wyoming.

#### Cody RMP area

*Nesting.* Eleven bald eagle nest sites (active/inactive) are known to occur within the Cody RMP area (BLM 2003b). Seven nests are located on privately owned lands, one is on lands administered by BLM, and the remaining three are on state lands. These nests are associated with riparian habitats that occur along the South Fork of the Shoshone River and the Bighorn River.

*Communal Winter Roosting.* Mid-winter surveys conducted from 1986 to 2002 have identified communal winter roosting habitats along several water bodies in the RMP area including the North and South Forks of the Shoshone River, Shoshone River, Skull Creek, Greybull River, Wood River, Bighorn Lake, Bighorn River, Dry Creek, and Nowood River (BLM 2003b). The areas identified as communal winter roosts occur on BLM-managed surface land, other federally-managed surface land, privately-owned lands, or a combination of these.

*Concentrated Foraging.* Many of the water bodies identified as communal winter roosting areas are also considered concentrated foraging opportunities for wintering bald eagles (BLM 2003b). General foraging habitats are expected to occur throughout the RMP area in most open, upland habitats where medium-size mammals are hunted and carrion is scavenged.

#### Kemmerer RMP area

*Nesting.* Seven bald eagle nest sites (active/inactive) are currently known within the Kemmerer RMP area (BLM 2003b). Four nests are located on privately owned land surface, with one located along the Smiths Fork River. Three nests are located on lands administered by federal agencies (for example, BOR, USFWS, or USFS). None of the known nests within the Kemmerer RMP area are on lands administered by BLM. These nests occur in riparian habitats associated with the Green River, Bear River, Smiths Fork, and Salt River.

*Communal Winter Roosting.* Three communal winter roost sites are known to exist within the Kemmerer RMP area: the Woodruff Narrows, Morgan Canyon, and Rock Creek Roost Sites (BLM 2003b). The Woodruff Narrows Roost site is located north of Woodruff Narrows Reservoir along Bear River and is dominated by mature cottonwood trees. The Morgan Canyon Roost is located along Rock Creek near Fossil Butte National Monument. This roost site is dominated by several groups of coniferous trees. The Rock Creek Roost (Nugget Canyon) is located along Twin Creek in six mature coniferous trees. This roost is within approximately 100 yards of U.S. Highway 30 and an active railroad.

Each of the roost sites in the Kemmerer RMP area is located in crucial winter range for elk, mule deer, and moose. Big game deaths attributable to winter mortality and vehicle collisions provide carrion for communal winter roosting bald eagles in the Kemmerer RMP area, and is the primary food source for communal winter roosting eagles in this RMP area (BLM 2003b). Big game deaths caused by collisions with vehicles are particularly common near the Morgan Canyon and Rock Creek roost sites because of the steady traffic flow along U.S. Highway 30 and an active

railroad line. Many of the rivers and bodies of water near these roosts remain ice-free or are partially ice-free during the winter and can provide fish and waterfowl foraging opportunities.

*Concentrated Foraging.* Foraging habitats are particularly important during the winter when alternative prey may not be available. In the Kemmerer RMP area, concentrated foraging habitats that are used by communal winter roosting bald eagles may include ice-free streams and reservoirs such as Bear River, Woodruff Narrows Reservoir, Rock Creek, and Twin Creek, and big game and livestock carcasses found on crucial winter ranges and near highways and railroads.

#### Lander RMP area

*Nesting.* One bald eagle nest is currently known to occur in the Lander RMP area (BLM 2003b). This nest is located in riparian habitat associated with the Wind River. The nest occurs on lands administered by the U.S. Forest Service. No nests are known to occur on lands administered by BLM (BLM 2003b).

*Communal Winter Roosting.* Although specific roost locations have not been identified or labeled, bald eagles are expected to roost in suitable habitats along the Sweetwater, Wind River, Little Popo Agie, and North Fork Popo Agie rivers in the Lander RMP area. Bald eagle use generally occurs on private lands but eagles are occasionally observed roosting on public lands along these rivers (BLM 2003b).

*Concentrated Foraging.* No concentrated foraging habitats are known to exist within this RMP area (BLM 2003b). Bald eagle use has been observed on winter ranges of pronghorn antelope, mule deer, and elk where they feed on winter killed big game.

#### Newcastle RMP area

*Nesting.* Two bald eagle nests are currently known to exist within the Newcastle RMP area (BLM 2003b). One nest is located on privately owned land and the other is on land administered by the state. These nests occur in riparian habitats associated with Lightening Creek. No nests are known to occur on lands administered by BLM.

*Communal Winter Roosting.* No communal winter roosting areas are known to exist within this RMP area (BLM 2003b). Although no communal winter roosting areas are known to exist within this RMP area, bald eagles forage in the RMP area during winter months.

*Concentrated Foraging.* No concentrated foraging habitats are known to exist within this RMP area. Much of the open terrestrial habitats are utilized as general foraging habitat by migrating and wintering eagles (BLM 2003b).

#### Pinedale RMP area

*Nesting.* Ten nests (active/inactive) are known to occur within the Pinedale RMP area (BLM 2003b). Six nests are on privately owned surface lands, three are on lands administered by BLM, and one is on state lands. The nests within this RMP area occur in riparian habitats associated with several creeks and rivers, including the Green River and New Fork River.

*Communal Winter Roosting.* Wintering eagles occur along the New Fork River and Green River. Most winter roosting is observed between the confluence of New Fork and Green River northward to Pinedale (BLM 2003b). Much of the land immediately adjacent to these rivers is privately owned.

*Concentrated Foraging.* Most concentrated foraging habitats in the Pinedale RMP area occur along the Green and New Fork Rivers.

#### Great Divide (Rawlins) RMP area

*Nesting.* Forty bald eagle nest sites (active/inactive) are currently known to occur within the Rawlins RMP area (BLM 2003b). The status/current use of several of these nests is not known. Twenty-nine nests are located on privately owned lands, six are on lands administered by BLM, and five nests are located on lands administered by other federal agencies. The majority of these known nests are located in riparian habitats associated with the North Platte, Encampment, and Snake Rivers.

*Communal Winter Roosting.* Two communal winter roosts are known within the Rawlins RMP area (BLM 2003b). One roost occurs in riparian habitat associated with the Little Snake River and one roost occurs in the Pedro Mountains in the northern portion of the resource management area.

*Concentrated Foraging.* No concentrated foraging habitats, such as ice-free water bodies, crucial big game ranges with high winter mortality (e.g., starvation or vehicle collisions) or cattle or sheep stockyards are known to exist in the RMP area (BLM 2003b). General foraging habitats associated with rivers, streams, lakes, reservoirs, and open, upland habitats occur in the RMP area and are suitable foraging areas for bald eagles.

#### Green River (Rock Springs) RMP area

*Nesting.* Ten bald eagle nest sites (active/inactive) are currently known to occur in the Rock Springs RMP area. These nests occur in riparian habitats associated with the Green and Big Sandy Rivers. Two nests are on lands administered by BLM, two are on the Seedskaadee National Wildlife Refuge, two are located on other federal surface lands, and four nests are located on privately owned lands (BLM 2003b).

*Communal Winter Roosting.* Six bald eagle communal winter roosting areas are known to occur in the Rock Springs RMP area. Five of these roosts are located on lands administered by BLM and one is on land administered by the state of Wyoming. These roosts occur in riparian habitats associated with the Big Sandy River and the Henry's Fork.

*Concentrated Foraging.* No concentrated foraging habitats, such as ice-free water bodies, crucial big game ranges with high winter mortality (e.g., starvation, vehicle collisions) or cattle or sheep stockyards are known to occur in the Rock Springs RMP area (BLM 2003b). However, general habitats associated with rivers, streams, lakes, reservoirs, and open, upland habitats are likely foraging areas for bald eagles when they support adequate prey populations.

#### Worland-Grass Creek RMP area

*Nesting.* Two bald eagle nests are known to occur within the Grass Creek RMP area (BLM 2003b). These nests are located on privately owned lands in riparian habitats associated with the Bighorn River. No nests are known to occur on lands administered by BLM.

*Communal Winter Roosting.* Two communal winter roosting areas are known to occur in the Grass Creek RMP area (BLM 2003b). Both occur on privately owned lands. These roosts occur in riparian habitats associated with the Bighorn River.

*Concentrated Foraging.* Several habitats are described as concentrated feeding areas, including a sheep stockyard near Worland, areas of the Bighorn River that are ice-free during winter, and big game road kill found near roadways. Open upland habitats where prey species are abundant are also expected to offer suitable general foraging habitats.

#### Worland-Washakie RMP area

*Nesting.* Eight nest sites (active/inactive) are known to occur within the Washakie RMP area (BLM 2003b). Two nests are on surface lands administered by BLM, five are on privately owned lands, and one is on lands administered by the state. These nests occur in riparian habitats that are associated with the Bighorn River and Nowood River.

*Communal Winter Roosting.* One communal winter roosting area is known to occur in the Washakie RMP area (BLM 2003b). This roost is located on privately owned lands. This roost occurs in riparian habitat associated within the Nowood River drainage.

*Concentrated Foraging.* Several habitats are described as concentrated feeding areas, including a sheep stockyard near Worland, areas of the Bighorn River that are ice-free during the winter, and big game road kill found near roadways. Open upland habitats where prey species are abundant are also expected to offer suitable general foraging habitats.

#### **Factors Affecting the Bald Eagle Environment Within the Action Area**

The decline of nesting bald eagle populations in the lower 48 states during the last century has been attributed to several factors including habitat loss or alteration, environmental contamination, poisoning, shooting, collisions, and electrocutions. However, with the banning of DDT and the signing and enforcing of numerous protection laws, the bald eagle population is currently recovering.

*Habitat loss.* Habitat loss includes the physical disturbance of habitats associated with development and with human activities that can deter eagles from otherwise suitable habitats. Bald eagles are particularly sensitive to human activities near active nests and winter roosting areas. Unfamiliar or new activities near active nests can be detrimental during egg incubation and brooding periods. Disturbance can flush adults from nests and expose eggs or young to adverse weather conditions or deprivation of food, and thus decrease hatch rates and young survivability (USFWS 1995). Human activities near active winter roosting areas may cause eagles to abandon these habitats and expend energy finding other suitable roost areas (BLM 2003b). Additional energy use and added stresses can lead to general deterioration in health condition and possibly affect survivability and reproductive success. Human activities near active nests may disrupt nesting activities or may cause nest abandonment which can comprise the reproductive potential for that breeding season (Grubb et al. 1992).

Habitat loss due to development of riparian areas for agricultural, urban, and recreational uses is another major concern for the bald eagle. Human disturbances in and around eagle habitat can also result in nest failure or abandonment of nesting, foraging, or roosting areas. Loss of habitat also occurs due to a lack of regeneration of the cottonwood trees – a preferred roost and nest tree species. Lack of cottonwood regeneration results from livestock grazing and to a lesser extent the altering of streams and rivers for the construction of reservoirs and dams due to the lack of overbank flooding necessary for growth of new cottonwood stands.

*Disturbance.* As previously stated, bald eagles prefer areas with little human disturbance for nesting and other activities (Greater Yellowstone Bald Eagle Working Group 1996), Montana Bald Eagle Working Group 1994, Anthony et al. 1982, Stalmaster and Newman 1978).

Responses of bald eagles to human disturbance vary depending on the eagle individual/pair, and the type, intensity, duration, time of year, predictability, and the location of human activity (GYBEWG 1996). In one study, the distance of eagles from a water body increased as the recreational use of the water body increased (Swenson et al. 1986). All the bald eagle nests on Yellowstone Lake, Wyoming, were on the roadless south shore (Murphy 1965). The north shore is paralleled by a heavily traveled highway that permits access for a wide range of human recreational activities.

Documented causes of nest failure or abandonment include climbing to an active nest, or nearby snowmobiling, aircraft activity, logging, deer poaching, land clearing, or construction (Cunningham 1960, Weekes 1974, Dunstan and Harper 1975). Bald eagle nesting patterns also changed in response to increased human developments on the San Juan Islands in Washington (Newman et al. 1977). As shoreline development or human activity increase, nests are distributed further inland (Whitfield et al. 1974).

*Contaminants.* Before the use of organochlorine-based pesticides including dichloro-diphenyl-trichloroethane (DDT) was banned in the U.S. in 1972, bald eagle populations declined significantly. The use of dichloro-diphenyl-trichloroethane (DDT) and other organochlorine compounds became widespread after World War II. DDT was used as an insecticide to control mosquitoes in riparian and coastal areas. It was determined that dichlorophenyl-dichloroethylene (DDE), a breakdown product of DDT, accumulated in the fatty tissues of adult females birds, including bald eagles, impairing the release of calcium in formation of egg shells. In 1972, DDT use was banned from use in the United States after bald eagle populations plummeted due to reproductive failure caused by thin egg shells. Today, contaminants may still affect the survival and reproductive success of the bald eagle as the use of regulated pesticides and poisons still accounts for bald eagle deaths in many of the western states, where these chemicals are used to control rodent pests and coyotes (USFWS 1995). Intentional poisoning of coyotes with carcasses baited with poison may also attract bald eagles. Residues from DDT and other compounds from both historical and present uses can still contaminate prey species and be accumulated in bald eagle tissues. In addition, lead and mercury contribute to bald eagle poisoning and mortality as well.

Long-term exposure to environmental contaminants is also a concern in the recovery of this species. Lead can poison bald eagles when they ingest prey that contains lead shot or fragments, or where the prey has assimilated lead into its own tissues. Mercury exposure is also a concern in some parts of the country. Exposure to high levels of mercury can result in neurological problems that affect flight and other motor skills and can alter and reduce hatching success in bald eagle eggs (USFWS 1995).

*Electrocutions and collisions.* Electrocutions and collisions due to power lines are another cause of eagle mortality. Collisions with vehicles pose a threat to eagles foraging on roadkills. Current research is helping to establish guidelines to create safer utility lines utilizing anti-perch devices. Approximately ten years ago, the Wyoming Department of Transportation initiated a program to remove big game carcasses from the highway in an effort to reduce the number of vehicle collisions with bald eagles that feed on carrion.

As early as 1922, researchers noted the electrocution of raptors. However, not until the 1970's did researchers become aware of the magnitude of the problem. Franson et al. (as cited in Avian Power Line Interaction Committee (APLIC) 1996) summarized that 12 percent of the known bald eagle mortalities were the result of electrocution. Electrocution deaths of bald eagles have been documented across the country including in Wyoming (APLIC 1996). Between 1986 and 1996, electric utility company records from across the western United States and Canada showed that 118 bald eagles and an additional 358 unidentified eagles were electrocuted (Harness 2002). In

predominantly treeless areas, which characterizes much of Wyoming, power poles may be the only perches available to bald eagles.

Although not within the action area, bald eagle mortality from electrocution by small distribution power poles and collision with small distribution power lines common to all oil and gas development and to a lesser extent to residential and commercial development was documented in 2000 and 2001 in Montana's Powder River and Billings Resource Management Plan project area (Schomburg 2001, USFWS 2002). Data were collected from 303 carcasses from 1996-2001, and from 273 carcasses in 2000 and 2001, respectively. Causes of death of 23 raptor carcasses were attributed to mid-span collisions, with 21 identified golden eagles (*Aquila chrysaetos*) and 1 bald eagle (Schomburg 2001). Causes of death of 280 raptors were attributed to electrocution, with 219 identified as golden eagles, as 4 bald eagles, and 11 as either golden or bald eagles (Schomburg 2002).

*Shooting.* Illegal shooting still poses threats to individual bald eagles. Increased law enforcement and public awareness have reduced shooting deaths to a small fraction of the number of shooting mortalities that once occurred in the early 1900s (USFWS 1995).

## **EFFECTS OF THE ACTION**

The Wyoming RMPs describe activities in a number of programs including Cultural/Paleontological/Historical, Fire Management, Forest Management, Minerals and Geology, Lands and Realty, Livestock Grazing, ORV/OHV use, Paleontology, Recreation, Soils Management, Vegetation, Wildlife and Fisheries, Geothermal, Special Areas/ACECs, Watershed/Water, Water/Soils, Soil/Water/Air, Riparian. The potential effects of these activities on bald eagles are described here.

### **Direct and Indirect Effects**

Direct effects are effects that result directly or immediately from the project on the species. For example, actions that would immediately remove or destroy habitat or displace the species from its habitat or an area would be considered direct effects. Indirect effects are effects that are caused by, or result from, the proposed action and occur later in time after the proposed action is completed. Potential effects could result from (1) the displacement of bald eagles from the area by human activity (e.g., nest or roost site disturbance), (2) loss or alteration of habitat associated with the proposed action, or (3) death of bald eagles as a result of electrocution by or collision with power distribution lines or other structures necessary for mineral development. The Proposed Action is the management of all RMP areas in Wyoming except the Snake River RMP area for up to 15 years. Since (1) there is such a lengthy time period for the life of the proposed action, (2) direct effects could occur under the proposed action for up to 15 years, and (3) the indirect effects resulting from the proposed action may be combined with direct effects or be sufficiently difficult to distinguish from direct effects, the two types of effects are not differentiated here but instead are discussed jointly in the following discussion.

### **Analysis for Effects of the Action**

Cultural/Paleontological/Historical Resources. Cultural, paleontological and historical resources activities may occur in all 11 RMP areas. This program has the potential to entail spending considerable amounts of time within bald eagle habitats. Surveys for cultural, natural history or paleontological resources may last several weeks and the human activity and disturbance caused by heavy equipment involved with extensive field surveys and field work could significantly affect bald eagle reproductive or wintering success if the surveys are conducted in areas or during

periods that are crucial to bald eagle nesting or winter roosting. Actions associated with cultural resources include: class I (literature search), class II (statistical sample ground survey), and class III (extensive ground surveys) inventories, and increased vehicle traffic and human activities associated with these inventories.

Bald eagles could be disturbed by human presence during a cultural, paleontological, and historical resources inventories leading to an adverse effect. Reproductive success may be compromised if inventories are conducted during the mating, nesting and brood-rearing seasons within a distance that causes eagles to alter their behavior in a way that affects their ability to feed, find shelter, or reproduce. Likewise, during mating/nesting season inventories along rivers where foraging occurs could alter foraging success, and have potential adverse impacts on reproductive success. While it has been identified that cultural properties typically do not occur in the river channel, winter time when the water level is lowest would be the most appropriate season to conduct such inventories. Human presence in river areas during this season could adversely affect foraging in areas already reduced by the low water. Human presence also could impact winter roosts resulting in disturbance to bald eagles.

Fire Management. Fire Management Program activities may occur in bald eagle habitat on all 11 RMP areas. This program entails activities such as wildfire suppression, prescribed fire, and rehabilitation activities which could potentially harass or displace bald eagles and disturb or destroy suitable nesting, communal winter roosting, and foraging habitat where it exists. This program has the potential to entail spending considerable amounts of time within bald eagle protection areas. Fire suppression efforts may last several days to weeks. The human activity and disturbance caused by heavy equipment involved with fire fighting and Emergency Stabilization and Rehabilitation activities could significantly affect bald eagle reproductive or wintering success if these activities are conducted in areas or during periods that are crucial to bald eagle nesting or winter roosting. Emergency consultation with the Service will be conducted following BLM wildfire suppression activities where effects to bald eagles may occur. Prescribed burning in areas surrounding bald eagle nests or roosts could also similarly affect the bald eagle through disturbance. Prescribed burning if done improperly could also result in adverse impacts to bald eagles by burning up their roost or nest trees or the smoke from a prescribe fire could potentially cause bald eagles to abandon their nests or roosts.

Forest Management. Forest management activities may occur in bald eagle habitat within the Buffalo, Casper, Cody, Lander, Pinedale, and Rawlins RMP areas. Under these RMPs, timber harvest could result in adverse impacts to bald eagles by depriving these birds of suitable nesting and roosting locations. Other effects from timber harvest on bald eagles include the increased human presence involved with timber harvest, the increased vehicle traffic associated with timber harvest and the habitat loss and disturbance due to increased road construction necessary for timber harvest activities. Forest management activities are not expected to take place in bald eagle habitat in the Kemmerer, Newcastle, Rock Springs, Worland-Grass Creek, and Worland-Washakie RMP areas. Forest Management Programs could have adverse impacts to the bald eagle in the Buffalo, Casper, Cody, Lander, Pinedale, and Rawlins RMP areas as the Forestry Management Programs in these RMP areas do entail timber management activities in bald eagle habitat.

Minerals and Geology. Minerals and geology management activities may occur in bald eagle habitat in all 11 RMP areas. Minerals and geology management activities may alter bald eagle behavior. Minerals and geology management operations are most likely to influence foraging eagles and may deter them from otherwise suitable foraging habitats. Minerals and geology management for which BLM has a specific interest or issues a right-of-way would not result in a direct loss of nesting habitat. Loss of potential habitat on private lands due to mining activities is

possible but any future operations are unknown at this time. Minerals and geology management within unoccupied suitable habitats may deter eagles from establishing new nest and winter roost sites. Because minerals and geology management activities have the potential to disturb or alter bald eagle foraging, nesting or winter roosting behaviors, this program could result in adverse impacts to the bald eagle in all Wyoming BLM RMP areas.

Lands and Realty. Lands and realty activities may occur in bald eagle habitat in all 11 RMP areas. Under the Lands and Realty Program, the BLM authorizes sales and exchanges, and acquires and designates rights-of-way access to serve administrative and public needs. Transferring land containing bald eagle habitat out of BLM ownership could result in negative consequences to bald eagles as the new land manager could change the habitat making it unsuitable for bald eagles (i.e., urban development, etc). Conversely, if the BLM obtains bald eagle habitat under the Lands and Realty Program, beneficial effects to bald eagles may be realized in the form of beneficial federal management for bald eagles and their habitats.

Rights-of-way for access roads, pipelines, communication sites, wind energy generation facilities, irrigation ditches, and electrical distribution lines associated with oil and gas wells and production facilities are also granted under the auspices of the BLM's Lands and Realty Programs. These rights-of-way may be temporary or extended for two years or longer. Rights-of-way could result in adverse impacts to bald eagles from (1) increased vehicle traffic in bald eagle habitat, (2) bald eagle collisions with vehicles, towers, associated guy wires, or wind energy generating facilities, or (3) electrocutions from power distribution lines. These impacts may be realized in the form of harm or harassment to bald eagles. Nesting or roosting bald eagles could also be affected by a change in land ownership which could occur due to transfer, exchange, or sale of property. New land ownership would bring new land management and new activities could conceivably occur at that time which may negatively impact bald eagles due to development of industry, residential areas, or destruction of bald eagle habitat. Because lands and realty management activities have the potential to disturb or alter bald eagle foraging, nesting or winter roosting behaviors, this program could result in adverse impacts to the bald eagle in all Wyoming BLM RMP areas.

Livestock Grazing Management. Activities associated with livestock grazing, (e.g., herding, monitoring), could increase human presence in sensitive bald eagle habitats in all 11 RMP areas. If deterioration of riparian habitats due to overgrazing or trampling of stream banks leads to erosion, this could adversely impact prey species, reduce prey availability, or affect soil stability and ultimately the ability of cottonwood trees to grow or regenerate. Over the long term, a reduction in livestock grazing could be associated with a change in land management and this likely would allow the vegetative understory to improve. Actions under the Livestock Grazing Program have the potential (1) for grazing to degrade bald eagle habitat and (2) for a human presence to occur in bald eagle habitats. Range improvement activities could harass or displace bald eagles. The potential also exists for livestock grazing to result in negative impacts to riparian areas resulting in an impairment of the ability of the bald eagle to breed, forage, or find shelter.

Off-Highway Vehicle Use. ORV/OHV Use Programs vary between BLM RMP areas. Some RMPs have a likely potential of having ORV/OHV use which could result in negative impacts to bald eagles. The extent of ORV/OHV use on BLM lands in the Pinedale RMP areas is likely to disturb bald eagles. Within this RMP area, new public accesses may be developed which will increase the potential that ORV/OHV users may operate in areas of nesting and/or roosting eagles. As more areas are opened, the potential exists for human use of OHVs into areas of bald eagle nesting or winter roosting. While new accesses may not permit human entry into existing bald eagle nesting or roosting habitats, the potential nevertheless exists for human incursion into areas of bald eagle nesting or winter roosting habitats.

As activities associated with this program have the potential for harassment, displacement, and to disturb or destroy suitable nesting and communal winter roosting areas, the ORV/OHV Use Program could result in adverse effects to the bald eagle in the Pinedale RMP area.

Recreation Management. Recreation management activities may affect bald eagles in all 11 RMP areas. Actions associated with recreation management and use may detrimentally influence bald eagle behavior. An increase in human activity associated with management actions or use may cause eagles to avoid or abandon otherwise suitable habitats. Recreational use is often concentrated in riparian areas. Impacts to these habitats may be detrimental to nesting and communal winter roosting bald eagles.

As activities associated with this program could potentially harass, displace, disturb bald eagles or destroy their suitable nesting habitat or communal roosts, the Recreation Management Programs could result in adverse effects to bald eagles in all Wyoming BLM RMP areas.

Soils Management. See Soils/Water/Air Management below.

Vegetation Management. Activities of the various RMP Vegetation Programs may affect bald eagles and their habitats in the Buffalo, Newcastle, Rock Springs, and Worland-Grass Creek RMP areas. These activities may increase human presence and use of machinery, chemicals, biological controls, or fire in bald eagle habitats impairing the ability of bald eagles to feed, breed, and find shelter.

Weed control activities normally do occur during the nesting and brood-rearing period. The proper use of control measures would ensure proper chemical application but human presence in habitats being used by bald eagles could alter eagle behavior, including a prolonged absence from an incubating nest or even nest abandonment.

Control of invasive weeds may benefit the eagle by reducing the changes in vegetation that may negatively impact prey species leading to loss of habitat. However, there is potential for necessary human activities associated with vegetation management to occur during the bald eagle nesting or brood-rearing period. As activities associated with this program could harass or displace bald eagles, the Vegetation Management Program could result in negative impacts to the bald eagle in the Buffalo, Newcastle, Rock Springs, and Worland-Grass Creek RMP areas.

Wildlife and Fisheries Management. Wildlife and fisheries management activities may affect bald eagles and their habitats in all 11 RMP areas. Annual surveys, inventories, and habitat enhancement projects are conducted by BLM for wildlife and fisheries. These activities may be also be conducted by entities other than the BLM. These efforts enhance the protection and management of wildlife and fisheries populations (e.g. prescribed burning, pond construction). Surveys and monitoring are generally conducted in a manner to minimize, and avoid if possible, disturbance to bald eagle activities. However, it is possible that adverse impacts could occur from human intrusion into sensitive zones or from aerial surveys. Wildlife improvement projects could conceivably be conducted at times that would be detrimental to bald eagles. Human-related activities associated with wildlife and fisheries surveys and management could potentially disturb bald eagles.

As activities under this program could harass or displace bald eagles or negatively affect habitat (e.g., prescribed burns), the Wildlife and Fisheries Management Programs could result in adverse effects to the bald eagle in all Wyoming BLM RMP areas.

Geothermal Energy Management. Human activity associated with geothermal development will negatively impact bald eagle behavior by causing eagles to avoid or abandon areas with human

activity in the Cody RMP area. Construction of roads, pads and other facilities associated with development of geothermal resources could alter or destroy existing terrestrial habitats that may be suitable bald eagle foraging habitats. Construction of above ground power lines is often associated with energy and mineral resources development. An increase in the number of above ground powerlines may result in an increase in bald eagle collisions and electrocutions. As activities associated with the Geothermal Energy Management Program in the Cody RMP area have the potential to result in harassment, displacement, injury, and mortality to bald eagles, this program could result in negative impacts to the bald eagle in that RMP area.

Special Areas/ACEC Management. For the Casper, Lander, and Rawlins RMP areas, activities within special management areas may potentially harass or displace bald eagles. In the Casper RMP area, casual recreation and potential forestry work may affect bald eagles. Future work that involves pine beetle infestations may also affect bald eagles. In the Lander RMP area, approximately 117,000 acres have been designated as ACECs many of which are historic trails along riparian corridors. Activities to preserve these trails may entail human presence within bald eagle nest or roost buffer zones. For the Rawlins RMP area, four ACECs are managed for specific valued resources. Within these ACECs however, activities may be allowed that will be detrimental to bald eagles such as oil and gas exploration or cultural resources activities.

As potential exists for activities associated with this program, in particular casual recreation and potential forestry work involving pine beetle infestations, to harass, displace, or negatively impact habitat of bald eagles, the Special Areas/ACEC Management Programs could result in potential adverse effects to the bald eagle in the Casper, Lander, and Rawlins RMP areas.

Water/Soils. See Soils/Water/Air Management below.

Watershed/Soils. see Soils/Water/Air Management below.

Soils/Water/Air Management. Bald eagles may be affected by activities associated with soils/water/air management in all 11 RMP areas. Adverse impacts could occur where new levees are constructed that cause a direct loss of habitat where the long-term effects of river diversion causes a reduction in cottonwood regeneration. Heavy equipment and increased human presence associated with soils and watershed management in bald eagle nesting or roosting habitat could result in negative impacts to bald eagles in all BLM RMP areas.

Roosting bald eagles may temporarily leave the area and foraging bald eagle may be unable to use an area while construction and associated activities take place. Nesting bald eagles may abandon their nests during levee or soil erosion work activities. Activities on private lands, where most bald eagle nesting occurs, could disturb or modify their behavior and alter the habitat over time.

As activities, particularly the soils and watershed management activities, associated with these programs could harass or displace bald eagles, these programs could result in adverse effects to the bald eagle in the Buffalo, Cody, Kemmerer, Newcastle, Pinedale, Rock Springs, Worland-Grass Creek, and Worland-Washakie, Casper, Lander, and Rawlins RMP areas.

Riparian Area Management. Riparian management activities may affect bald eagles in the Pinedale RMP area. Since riparian management may involve increased human activity and potentially the use of heavy equipment, it was determined that this program may detrimentally impact bald eagle nesting or communal roosting habitats. As activities associated with this program could harass or displace bald eagles, the Riparian Area Management Program could result in adverse effects to the bald eagle in the Pinedale RMP area.

## Summary

It is anticipated that many actions potentially-authorized under these RMPs if they were undertaken could result in negative impacts to the bald eagle due to (1) human disturbance of nesting, roosting, or foraging eagles either on BLM-owned lands or to bald eagles on private parcels which have bald eagle territories overlapping BLM-owned lands, (2) collision with vehicles, towers, or other facilities, (3) electrocution from contact with energy distribution lines, or (4) modification of bald eagles habitats. Thus, potentially-authorized actions of the BLM could lead to (1) nest or roost abandonment, (2) a decrease in the ability of habitat to provide suitable breeding, shelter, or foraging areas, or (3) physical harm or death to bald eagles.

## CUMULATIVE EFFECTS

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

The exact cumulative effects on bald eagles are not known due to the lack of specific information on future state, local, or private actions in the 11 RMP areas in Wyoming. Since most impacts to the bald eagle and its habitat are human-related (e.g., recreational use), or the result of human activities (e.g., livestock grazing, mineral development, housing development), and the human pressures in the 11 RMP areas in Wyoming are likely to increase over the foreseeable future, the scope and scale of the impacts are likely to increase. Specifically, industrial development on state, local, or private property is likely to increase (e.g., Powder river basin) followed by an increase in associated impacts to bald eagles and their habitats.

In any case, any future federal actions that occur within the Wyoming BLM RMP areas will be evaluated at a site-specific level.

## CONCLUSION

After reviewing the current status of the bald eagle; the environmental baseline for the action area; the effects of the Wyoming Resource Management Plans; and the cumulative effects, it is the Service biological opinion that the direct and indirect effects of the implementation of the Wyoming Resource Management Plans, as proposed, are not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected.

The Service has reached this conclusion by considering the following.

1. Bald eagles are widely distributed throughout their breeding range, with the bald eagle population in the lower 48 states estimated at 5,748 breeding pairs in 1999 (USFWS 1999). Estimates in 2003 indicate that 31 breeding pairs were documented to be currently active within the 11 RMP areas of this consultation (Susan Patla, Laurie Van Fleet, WGFD and Dennis Saville, BLM, Personal Communication) or approximately 0.54 percent of the breeding bald eagle population of the contiguous United States. Furthermore, only one of these documented active nests were located on BLM-owned surface land. Were BLM activities to result in the loss of a nest or individuals, this loss of relatively few

individuals or nests would be a relatively minor impact on the population in the contiguous United States as a whole.

2. The Service believes that the take, resulting from this plan, is tied to disturbance of individual eagles or habitat modification that will result in harm or harassment of bald eagles. Any actions implemented under the RMP that may adversely affect the bald eagle would require separate formal Section 7 consultation at the project level.
3. The Service does not expect that bald eagle habitat connectivity or population genetics would be substantially altered by the result of BLM activities in the 11 RMP areas analyzed in this consultation.

### **INCIDENTAL TAKE STATEMENT**

Section 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the BLM so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the BLM (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of the incidental take, the BLM must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement. [50 CFR 402.14(i)(3)].

### **AMOUNT OR EXTENT OF TAKE**

The Service anticipates that bald eagles could be taken as a result of the continuation of management according to the existing BLM Resource Management Plans. The incidental take is expected to be in the form of harm or harassment. Incidental take has been determined based on the BA and an analysis of the environmental baseline, effects of the action, and the cumulative effects. At the broad scale of this consultation, the Service is unable to anticipate all possible circumstances that may involve the take of bald eagles due to the actions implemented under the proposed plan. Therefore, the Service conservatively anticipates that some level of incidental take may occur due to specific actions implemented under the RMP. However, the amount or extent of take is unquantifiable at this time. The Service believes that the take, resulting from this plan, is tied to habitat modification or disturbance of individual eagles that will result in harm or harassment of bald eagles. Any actions implemented under the RMP that may adversely affect the

bald eagle would require separate formal Section 7 consultation at the project level. Therefore, incidental take will appropriately be assessed, and coverage under the terms of Section 7(b)(4) and Section 7(o)(2) of the Act will be granted as appropriate, at the project level during formal consultation.

### **EFFECT OF THE TAKE**

In this Biological Opinion, the Service has determined that this level of anticipated take is not likely to result in jeopardy to the bald eagle. No critical habitat for the bald eagle has been designated; therefore none will be destroyed or adversely modified.

### **REASONABLE AND PRUDENT MEASURES**

The Service believes that the following reasonable and prudent measures (RPM) are necessary and appropriate to minimize impacts of incidental take:

- RPM1. The BLM shall implement measures at the individual project level to minimize adverse effects to bald eagles and their habitat.
- RPM2. The BLM shall implement measures across the Wyoming BLM managed lands to improve habitat conditions for bald eagles.

## TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Act, the BLM must comply with the following terms and conditions (T&C), which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary. Many of these terms and conditions are reiterated here or modified from the BLM Statewide Programmatic Bald Eagle Biological Assessment (BLM 2003b).

T&C1. Activities and habitat alterations that may disturb bald eagles will be restricted within suitable habitats that occur within bald eagle buffer zones<sup>1</sup> (see Appendix II for further descriptions of buffer zones and see Appendix Table F-2 of BA (BLM 2003b) for estimation of activity levels as they correspond to buffer guidelines). Deviations may be made after consultation with the Service.

Zone 1 (within 0.5 mile, year round) is intended to protect active and alternative nests. For active nests, minimal human activity levels are allowed during the period of first occupancy to two weeks after fledging.

Zone 2 (from 0.5 mile to 1 mile from the nest, February 1 to August 15) is intended to protect bald eagle primary use areas and permits light human activity levels.

Zone 3 is designated to protect foraging/concentration areas year-round 2.5 miles from the nest.

T&C2. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 to April 1, annually. No ground disturbing activities will be permitted within 0.5 mile of active roost sites year round<sup>1</sup>. Deviations may be made after consultation with the Service.

T&C3. Appropriately timed surveys in bald eagle habitats shall be conducted prior to any activities and subsequent authorization of activities that may disturb bald eagles or their habitats. A qualified biologist would be approved by the BLM to

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<sup>1</sup>Buffer zone distances were modified for this process from the Greater Yellowstone Bald Eagle Management Plan during pre-consultation discussions with the BLM (BLM 2002, 2003a). The Greater Yellowstone Bald Eagle Management plan contains the most thorough investigation of the impacts of disturbance to nesting and roosting bald eagles in Wyoming to date (see GYBEWG 1996). However, because the Greater Yellowstone bald eagle investigations were conducted in forested mountainous habitat inside the Greater Yellowstone Ecosystem, the Wyoming BLM will extend nest buffer zones 1 and 2 and roost buffer zones in lands which they administer in Wyoming. These extensions of buffer zones are based on the following three principles: (A) the majority of BLM-managed lands in Wyoming are not mountainous and forested. On the contrary, bald eagle habitat on BLM-managed lands consists mainly of riparian habitat composed principally of open cottonwood stands with wide expanses of grasslands surrounding them. These expanses of open grasslands allow visual disturbances (i.e. line of site is greater in the grasslands) to nesting or roosting eagles to take place beyond the buffer zones which were developed for the Greater Yellowstone ecotype, (B) there is a lack of research of the needs of nesting bald eagles in the grassland areas of the state so the zones were also increased to “err on the side of the species”, and (C) the bald eagles in Wyoming outside of Yellowstone Park may be less habituated to humans than those inside Yellowstone Park since the park annually receives multitudes of human recreational visitors (BLM 2002, 2003a).

conduct such bald eagle surveys. All nest surveys should be conducted using standard procedures (see BLM 2003b, Appendix C) that minimize the potential for adverse effects to nesting raptors.

In the event species occurrence is verified, the proponent may be required to modify operational plans, at the discretion of the authorized officer, to include the appropriate measures for minimization of effects to the bald eagle and its habitats.

- T&C4. As per Section 7 of the Act, the BLM will conduct site-specific consultation with the Service prior to authorization of any actions authorized under the Wyoming RMPs which “may affect” bald eagles. These future consultations will provide a means for site-specific analysis and documentation of levels of any potential incidental take of bald eagles.
- T&C5. Power lines must be built to standards identified by the Avian Power Line Interaction Committee (see APLIC 1996 or most recent version).
- T&C6. In the event a dead or injured bald eagle is observed, the Service Wyoming Field Office (307) 772-2374 and the Service Law Enforcement Office (307) 261-6365 will be notified within 24 hours of the discovery.
- T&C7. BLM will monitor and restrict, when and where necessary, authorized or casual use activities that may adversely impact bald eagles or their habitats, including, but not limited to, recreational mining and oil and gas activities. Monitoring results should be considered in the design and implementation of future projects.
- T&C8. Each year the BLM shall verify the status (active vs. inactive) of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by the BLM within the RMP area. As a matter of maintaining inventory information, the BLM shall coordinate annually with the Service, WGFD, and other appropriate entities to determine the status of known and new bald eagle nests, communal winter roosts, and other concentration areas.

Known bald eagle nests, communal winter roosts, and concentration areas will be assumed active if status has not been verified.

To monitor the impacts of site-specific projects authorized under the Wyoming Statewide RMPs, that are likely to adversely affect bald eagles, the BLM shall prepare a report describing the progress of each such site-specific project, including implementation of the associated reasonable and prudent measures, and impacts to the bald eagle (50 C.F.R. § 402.14[i][3]). The report, which shall be submitted annually to the Service’s Wyoming Field Office by January 1 beginning after first full year of implementation of the Proposed Action, shall list and describe:

1. adverse effects resulting from activities of each site-specific project;
2. when and if any level of anticipated incidental take is approached (as allowed by separate Incidental Take Statements from site-specific formal consultations);
3. when and if the level of anticipated take (as allowed by separate Incidental Take Statements from site-specific formal consultations) is exceeded; and

4. results of annual, periodic monitoring which evaluates the effectiveness of the reasonable and prudent measures. Include items such as:
  - a. assessment of whether implementation of each site-specific project is consistent with that described in the BA;
  - b. compliance with terms and conditions; and
  - c. documentation of sightings of bald eagles during activities of each site-specific project.

The reasonable and prudent measures, with their implementing terms and conditions and the reporting criteria, are designed to minimize the impact of incidental take that might otherwise result from the authorized activities under the RMP. If, during the course of the authorized activities, any level of incidental take has exceeded that as permitted by site-specific formal consultations for bald eagles, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The BLM must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

#### **COORDINATION OF INCIDENTAL TAKE STATEMENTS WITH OTHER LAWS, REGULATIONS, AND POLICIES**

The Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

#### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species.

- CR1. The Service recommends that when project proposals are received, BLM initiate coordination with the Service at the earliest possible date so that the Service can provide information on natural resource issues. This should minimize the need to redesign projects at a later date to include conservation measures, that may be determined as appropriate by the Service.
- CR2. The Service recommends that the BLM administered lands within 1 mile of an integral part of bald eagle habitats including nests, communal winter roosts, and foraging/concentration areas not be exchanged or sold. If it is imperative that these lands are transferred out of BLM ownership then every effort should be made to include conservation easements or voluntary conservation restrictions around the

important bald eagle habitat to restrict activities of the property and protect the bald eagles from disturbance and their habitat from destruction.

- CR3. The Service recommends that proponents of BLM authorized actions be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.
- CR4. The Service recommends that BLM coordinate with APHIS - Wildlife Services Division to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. The Service should also be included in this coordination.
- CR5. The Service recommends that proposed and future water projects not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to (1) minimize vehicle collisions with wildlife using the water source, and (2) minimize the occurrence of eagle-vehicle collisions resulting from eagles feeding on road-killed wildlife.
- CR6. The Service recommends that BLM provide educational information to project proponents and the general public pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over water bodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.
- CR7. The Service recommends that BLM coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.
- CR8. Since bald eagles are often dependent on aquatic species as prey items, the Service recommends that BLM periodically review existing water quality records (e.g., Wyoming Department of Environmental Quality (WDEQ), WGFD, U.S. Geological Survey (USGS), etc.) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roosts, concentration areas) on public land for any conditions that could adversely affect bald eagles or their prey. If water quality problems are identified, the BLM should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.
- CR9. The Service recommends that BLM projects with the potential to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

## RE-INITIATION NOTICE

This concludes formal consultation of the actions outlined in the request. As provided in 50 Section 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing take must cease pending re-initiation.

Thank you for your assistance in the conservation of this endangered species. In future communications regarding this Biological Opinion, please refer to consultation number ES-6-WY-04-F002. If we may be of further assistance, please contact Alex Schubert of my staff at (307) 772-2374 ext. 38.

cc: BLM, Endangered Species Coordinator, State Office, Cheyenne, WY (J. Carroll)  
DOI Solicitor, Lakewood, CO (M. Zallen)  
FWS, Endangered Species, Lakewood, CO (B. Fehey)  
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (V. Stelter)  
WGFD, Non-Game Coordinator, Lander, WY (B. Oakleaf)

## REFERENCES

- Anderson, S. H. and C. Patterson. 1988. Characteristics of bald eagle roost in Wyoming. *Prairie Nat.* 20(3): 147-152.
- Anthony, R. G., R. L. Knight, G. T. Allen, B. R. McClelland, and J. I. Hodges. 1982. Habitat use by nesting and roosting bald eagles in the Pacific Northwest. *Trans. N. Am. Wildl. Nat. Res. Conf.* 47.
- Avian Power Line Interaction Committee. 1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute/Raptor Research Foundation, Washington D.C.
- Brown, L. 1974. Data required for effective study of raptor populations. *Raptor Research.* 2:9-20.
- Buehler, D. A. 2000. Bald Eagle (*Haliaeetus leucocephalus*). *In: The Birds of North America*, No. 506 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Drive, Danvers, MA 01923.
- Buehler, D. A., T. J. Mersmann, J. D. Fraser, and J. K. D. Seegar. 1991. Effects of human activity on bald eagle distribution on northern Chesapeake Bay. *Journal of Wildlife Management.* 55(2):282-290.
- Cunningham, J. R. 1960. The status of the bald eagle in Florida. *Audubon Mag.* 62(1):24-26+.
- Dunstan, T. C. and J. F. Harper. 1975. Food habits of bald eagles in north-central Minnesota. *J. Wildlife Manage.* 39(1):5-10.
- Fitzner, R. E. and W. C. Hanson. 1979. A congregation of wintering bald eagles. *Condor.* 81:311-313.
- Greater Yellowstone Bald Eagle Working Group. 1996. Greater Yellowstone bald eagle management plan: 1995 update. Greater Yellowstone Bald Eagle Working Group, Wyoming Game and Fish Department, Lander, WY. 47pp.
- Grier, J. W. 1969. Bald eagle behavior and productivity responses to climbing to nests. *J. Wildl. Manage.* 33(4):961-966.
- Grubb, T. G., and W. W. Bowerman, J. P. Giesy, and G. A. Dawson. 1992. Responses of breeding Bald Eagles, *Haliaeetus leucocephalus*, to human activities in northcentral Michigan. *Canadian Field-Naturalist* 106(4):443-453.
- Hancock, D. 1964. Bald eagles wintering in Southern Gulf Islands, British Columbia. *Wilson Bull.* 76(2):111-120.
- Harness, R. 2002. Environmental Specialist, EDM, Fort Collins, Colorado, Personal Communication with Bradley Rogers, U. S. Fish and Wildlife Service, Wyoming Ecological Services Field Office, Cheyenne, Wyoming.
- Herrick, F. H. 1924. Nests and nesting habits of the American eagle. *The Auk.* 41(2):213-231.
- Howell, J. C. 1937. The nesting bald eagles of southeastern Florida. *The Auk.* 54(3):296-299.

- Ingram, N. 1965. Wintering bald eagles at Guttenberg, Iowa–Cassville, Wisconsin, 1964, 1965. *Iowa Bird Life*. 35(3):66-78.
- Jenkins, M. A. 1980. Bald eagle (*Haliaeetus leucocephalus*) essential habitat on and near Bureau of Land Management lands in Wyoming. USDI, Fish and Wildlife Service, Denver, CO. Annual Report (FY 1980). 92pp.
- Jenkins, M. A. 1981. The morphoedaphic index and reservoir fish production. *Trans. Am. Fish. Soc.* 11:133-140.
- Leighton, F. A., J. M. Gerrard, P. Gerrard, D. W. A. Whitfield and W. J. Maher. 1979. An aerial census of bald eagles in Saskatchewan. *J. Wildl. Manage.* 43(1):61-69.
- Lund, S. 1978. Eagles of Jackson Canyon. *Wyoming Wildlife*. 42(4):29-32.
- Mathisen, J. E. 1968. Effects of human disturbance on nesting of bald eagles. *J. Wildl. Manage.* 32(1):1-6
- Montana Bald Eagle Working Group. 1994. Montana Bald Eagle Management Plan. Bureau of Reclamation, Montana Projects Office. Billings, Montana. 104pp.
- Murphy, J. R. 1965. Nest site selection by the bald eagle in Yellowstone National Park. *Proc. Utah Acad. Sci.* 42(2):261-264.
- Newman, J. R., W. H. Brennan and L. M. Smith. 1977. Twelve-year changes in nesting patterns of bald eagles on San Juan Island, Washington. *The Murrelet*. 58(2):37-39.
- Platt, J. B. 1976. Bald eagles wintering in Utah desert. *American Birds*. 30(4):783-788.
- Retfalvi, L. 1970. Food of nesting bald eagles on San Juan Island, Washington. *Condor* 72(3):358-361.
- Schomburg, J. 2001. Progress Report: Modeling Golden Eagle Power Pole Electrocutions. 10pp.
- Schomburg, J. 2002. Progress Report: Modeling Golden Eagle Power Pole Electrocutions. 10pp.
- Schwilling, M. 1980. Eagles on ice. *Kansas Fish and Game*. Jan/Feb: 4-11.
- Sherrod, S. K., C. M. White, and F. S. L. Williamson. 1976. Biology of the bald eagle on Amchitka Island, Alaska. *The Living Bird*. 15:143-182.
- Smith, F. R. 1963. The food and nesting habits of the bald eagle. *The Auk*. 53(3):301-305.
- Southern, W. E. 1964. Additional observations on winter bald eagle populations: including remarks on biotelemetry techniques and immature plumages. *Wilson Bull.* 76(2):121-137.
- Stalmaster, M. V. and J. R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. *J. Wildl. Manage.* 42(3):506-513.
- Stalmaster, M. V. and J. R. Newman. 1979. Perch site preference of wintering bald eagles in northwest Washington. *J. Wildl. Manage.* 73(1):221-224.

- Stalmaster, M. V., J. R. Newman, and A. J. Hansen. 1979. Population dynamics of wintering bald eagles on the Nooksack River, Washington. *NW Sci.* 53(2):126-131.
- Stalmaster, M. V. 1987. *The bald eagle*. Universe Books, New York. 227pp.
- Steenhof, K., S. S. Berlinger, and L. H. Fredrickson. 1980. Habitat use by wintering bald eagles in South Dakota. *J. Wildl. Manage.* 44(4):798-805.
- Swenson, J. E., K. L. Alt, and R. L. Eng. 1986. Ecology of bald eagles in the Greater Yellowstone Ecosystem. *Wildl. Monogr.* 95:1-46.
- Swisher, J. F. 1964. A roosting area of the bald eagle in northern Utah. *Wilson Bull.* 76(2):186-187.
- Todd, C. S., L. S. Young, R. B. Owen, Jr., and F. D. Gramlich. 1982. Food habits of bald eagles in Maine. *J. Wildl. Manage.*
- Troyer, W. A. and R. J. Hensel. 1965. Nesting and productivity of bald eagles on the Kodiak National Wildlife Refuge, Alaska. *The Auk.* 82(4):636-638.
- United States Bureau of Land Management. 1985. Record of Decision for the Resource Management Plan / Final Environmental Impact Statement. Platte River Resource Area, Casper District. Casper, Wyoming. July 1985. Located at <http://web.ead.anl.gov/rmpweb/application/index.cfm?rmpid=86>. Accessed: February 15, 2003.
- United States Bureau of Land Management. 1986. Record of Decision for the Kemmerer Resource Management Plan and Rangeland Program Summary Document. Kemmerer Resource Area. Rock Springs, Wyoming. June 1986.
- United States Bureau of Land Management. 1987. Record of Decision for the Lander Resource Management Plan. Lander Resource Area. Lander District, Lander, Wyoming. June 1987.
- United States Bureau of Land Management. 1988. Record of Decision and Resource Management Plan for the Pinedale Resource Area. Pinedale Resource Area. Pinedale Resource District. Pinedale, Wyoming. December 1988.
- United States Bureau of Land Management. 1990. Record of Decision and Approved Resource Management Plan for the Cody Resource Area. Cody Resource Area. Worland District. Worland, Wyoming. November
- United States Bureau of Land Management. 1990. Record of Decision and Approved Resource Management Plan for Great Divide Resource Area. Great Divide Resource Area. Rawlins District. Rawlins, Wyoming. November 1990.
- United States Bureau of Land Management. 1992. Final Bald Eagle Habitat Management Plan for the Platte River Resource Area and Jackson Canyon ACEC. Casper District Office.
- United States Bureau of Land Management. 1997. Record of Decision and Green River Resource Management Plan. Green River Resource Area. Rock Springs District. Rock Springs, Wyoming. October 1997.

- United States Bureau of Land Management. 1998. Record of Decision and Approved Resource Management Plan for the Grass Creek Planning Area. Grass Creek Planning Area. Worland District. Worland, Wyoming. September 1988.
- United States Bureau of Land Management. 1998. Record of Decision and Approved Resource Management Plan for the Washakie Resource Area. Washakie Resource Area. Worland District. Worland, Wyoming. September 1988.
- United States Bureau of Land Management. 2000. Record of Decision and Approved Resource Management Plan for Public Lands Administered by the Newcastle Field Office. Newcastle Resource Area. Newcastle, Wyoming. September 2000.
- United States Bureau of Land Management. 2001. Approved Resource Management Plan for Public Lands Administered by Bureau of Land Management Buffalo Field Office, Buffalo, Wyoming. April 2001.
- United States Bureau of Land Management. 2002. Meeting to discuss Programmatic Bald Eagle Biological Assessment. Met December 12, 2002. Casper, Wyoming
- United States Bureau of Land Management. 2003a. Meeting to discuss Programmatic Bald Eagle Biological Assessment. Met January 28, 2003. Casper, Wyoming.
- United States Bureau of Land Management. 2003b. Final Statewide Programmatic Bald Eagle Biological Assessment. Prepared for the Wyoming Bureau of Land Management by Greystone Consultants. August 2003.
- United States Bureau of Reclamation. 1981. A survey of wintering bald eagles and their habitat in the Lower Missouri Region. United States Department of Interior Bureau of Reclamation, Lower Missouri Region 97 pp. (+App.).
- United States Fish and Wildlife Service. 1983. Northern States bald eagle recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 76 pp. plus appendices.
- United States Fish and Wildlife Service. 1986. Recovery plan for the Pacific bald eagle. U.S. Fish and Wildlife Service, Portland, Oregon. 160pp.
- United States Fish and Wildlife Service. 1995. Final rule to reclassify the bald eagle from endangered to threatened in all of the lower 48 states. Federal Register 60(130): 35999-36010.
- United States Fish and Wildlife Service. 1999. Proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. Federal Register 64(128): 36453-36464.
- United States Fish and Wildlife Service. 2002. Final Biological and Conference Opinion for the Powder River Basin Oil and Gas Project, Campbell, Converse, Johnson, and Sheridan Counties, Wyoming (Formal Consultation No. ES-6-WY-02-F006). U.S. Fish and Wildlife Service Correspondence dated December 17, 2002.
- United States Fish and Wildlife Service. 2003. Programmatic Biological Opinion for the Wyoming Bureau of Land Management Snake River Resource Area.(Formal Consultation No. ES-6-WY-03-F0017. U.S. Fish and Wildlife Service Correspondence dated December 19, 2003.

- Vian, W. E., and J. C. W. Bleise. 1974. Observations on population changes and on behavior of the bald eagle in south-central Nebraska. *Nebraska Bird Review*. 42(3):46-55.
- Ward, P. and A. Zehavi. 1973. The importance of certain assemblages of birds as "information centers" for food-finding. *Ibis*. Pp. 517-534.
- Weekes, F. M. 1974. A survey of bald eagle nesting attempts in southern Ontario, 1969-1973. *Can. Field-Nat.* 88(4):415-419.
- Whitfield, D. W. A., J. M. Gerrard, W. J. Maher, and D. W. Davis. 1974. Bald eagle nesting habitat, density and reproduction in central Saskatchewan and Manitoba. *Canada Field-Nat.* 88(4):415-419.
- Wright, B. S. 1953. The relation of bald eagles to breeding ducks in New Brunswick. *J. Wildl. Manage.* 17(1):55-62.
- Wyoming Game and Fish Department. 2000. Threatened, Endangered, and Nongame Bird and Mammal Investigations. Annual Completion Report. A. Cerovski, ed.

## APPENDIX I - POTENTIAL TERMS AND CONDITIONS FROM BIOLOGICAL ASSESSMENT

The current BLM bald eagle potential terms and conditions (PTC) from the Statewide Programmatic Bald Eagle Biological Assessment (termed “conservation measures” in that document and taken verbatim) are as follows:

PTC1. When project proposals are received, BLM should initiate coordination with the USFWS at the earliest possible date so that USFWS can advise on project design. This should minimize the need to redesign projects at a later date to include bald eagle conservation measures, determined as appropriate by the USFWS.

PTC2. Appropriately timed surveys in bald eagle habitats should be conducted prior to any activities and subsequent authorization that may disturb bald eagles or their habitats. A qualified biologist (not limited by job title) would be approved by the BLM to conduct such bald eagle surveys. All nest surveys should be conducted using procedures that minimize the potential for adverse effects to nesting raptors.

In the event species occurrence is verified, the proponent may be required to modify operational plans, at the discretion of the authorized officer, to include the appropriate measures for minimization of effects to the bald eagle and its habitats.

PTC3. Each year BLM should verify the status of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by BLM. As a matter of maintaining inventory information, BLM should coordinate annually with USFWS, WGFD, and other appropriate entities to determine the status of known and new bald eagle nests, communal winter roosts, and other concentration areas. Known bald eagle nests, communal winter roosts, and concentration areas will be assumed active if status has not been verified.

PTC4. Activities and habitat alterations that may disturb bald eagles will be restricted within suitable habitats that occur within bald eagle buffer zones.

Zone 1 (½ mile, approximately 1 February to 15 August) is intended to protect active and alternative nests. For active nests, minimal human activity levels are allowed during the period of first occupancy to two weeks after fledging.

Zone 2 (½ mile - 1 mile from the nest) is intended to protect bald eagle primary use areas and permits light human activity levels.

Zone 3 is designated to protect foraging/concentration areas year-round. Zone 3 would include one of two larger areas, depending on habitat types: a) 2.5 miles extending in all directions from the nest or b) ½ mile from the streambank of all streams within 2.5 miles of the nest. Site-specific habitat types and foraging areas will be evaluated to determine which Zone 3 buffer applies. Zone delineation depends on habitat types. Exceptions may be made after consultation with USFWS.

PTC5. Activities that may disturb bald eagles will be restricted within 1 mile of known communal winter roosts during the period of November 1 – April 1. No ground disturbing activities will be permitted within 0.5 mile of active roost sites year round.

- PTC6. BLM-administered lands that are within 1 mile of an integral part of bald eagle habitats including nests, communal winter roosts, and foraging/concentration areas should not be exchanged or sold.
- PTC7. Power lines should be built to standards identified by the Avian Power Line Interaction Committee (APLIC 1996).
- PTC8. Proponents of BLM authorized actions should be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.
- PTC9. BLM should coordinate with APHIS - Wildlife Services Division to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. USFWS should also be included in this coordination.
- PTC10. Proposed and future water projects should not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to minimize vehicle collisions with wildlife, using the water source and subsequent eagle-vehicle collisions.
- PTC11. BLM should provide educational information to project proponents and the general public pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over water bodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.
- PTC12. In the event a dead or injured bald eagle is observed, the USFWS Wyoming Field Office (307-772-2374) and the USFWS Law Enforcement Office (307-261-6365) should be notified within 24 hours of the discovery.
- PTC13. BLM should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.
- PTC14. BLM should monitor and restrict, when and where necessary, authorized or casual use activities that may impact bald eagles or their habitats, including, but not limited to, recreational mining and oil and gas activities.
- PTC15. BLM should periodically review existing water quality records (e.g., WDEQ, WGFD, USGS, etc.) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roosts, concentration areas) on public land for any conditions that could potentially adversely affect the species. If water quality problems are identified, the BLM should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.
- PTC16. Projects with the potential to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle.
- PTC17. Projects with the potential to disturb bald eagles or their habitats should be monitored, and the monitoring results should be considered in the design and implementation of future projects.

## **APPENDIX II - BALD EAGLE HABITAT MANAGEMENT ZONES<sup>1</sup> FROM BIOLOGICAL ASSESSMENT (BLM 2003b)**

Nest site management zones include areas that are progressively farther from a nest constructed by bald eagles (i.e., 0.5 mile, 0.5 - 1.0 mile, and 0.25 - 2.5 mile). Correspondingly, recommended restrictions decrease as distance from the nest site increases. Zone boundaries may be altered after intensive study of eagle activity and development of site specific management plans.

Definitions of terms used in the zone recommendations:

1. Habitat alterations -- Any removal of trees, snags, or understory (includes such activities as timber harvest, firewood cutting of standing snags, or clearing and treatment of vegetation). Habitat alterations also includes projects dealing with wetland and aquatic habitats such as levee building, channeling, dredging, gravel removal, or wetland draining. Livestock use that significantly impacts the habitat or occurs at a level that would prevent habitat or prey base objectives being obtained are included in habitat alterations.
2. Minimal human activity levels -- Essentially no human activity with the following exceptions:
  - a. Existing patterns of ranching and agricultural activities.
  - b. Nesting surveys and banding by biologists experienced with eagles.
  - c. River traffic by boats that continue travel at the rate of the main current and at a frequency which results in no boat traffic for at least 30% of the daylight hours (fishing from boats with such movement rates and frequency is acceptable).
3. Light human activity levels -- This level allows for day use and low impact activities such as boating, fishing and hiking but at low densities and frequencies. Activities which are excluded include extended use and activities such as heavy construction, timber harvest, seismic exploration, blasting, concentrated use associated with recreation centers (i.e., picnic areas, boat landings), permanent housing and helicopters or jets within ½ mile of the ground.

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<sup>1</sup>Buffer zone distances were modified for this process from the Greater Yellowstone Bald Eagle Management Plan during pre-consultation discussions with the BLM (BLM 2002, 2003a). The Greater Yellowstone Bald Eagle Management plan contains the most thorough investigation of the impacts of disturbance to nesting and roosting bald eagles in Wyoming to date (see GYBEWG 1996). However, because the Greater Yellowstone bald eagle investigations were conducted in forested mountainous habitat inside the Greater Yellowstone Ecosystem, the Wyoming BLM will extend nest buffer zones 1 and 2 and roost buffer zones in lands which they administer in Wyoming. These extensions of buffer zones are based on the following three principles: (A) the majority of BLM-managed lands in Wyoming are not mountainous and forested. On the contrary, bald eagle habitat on BLM-managed lands consists mainly of riparian habitat composed principally of open cottonwood stands with wide expanses of grasslands surrounding them. These expanses of open grasslands allow visual disturbances (i.e. line of site is greater in the grasslands) to nesting or roosting eagles to take place beyond the buffer zones which were developed for the Greater Yellowstone ecotype, (B) there is a lack of research of the needs of nesting bald eagles in the grassland areas of the state so the zones were also increased to “err on the side of the species”, and (C) the bald eagles in Wyoming outside of Yellowstone Park may be less habituated to humans than those inside Yellowstone Park since the park annually receives multitudes of human recreational visitors (BLM 2002, 2003a).

4. Moderate human activity levels -- Low impact (light) activity levels are included, but intensity of such activities are not limited. A limited number of recreation centers designed to avoid eagle conflicts may be considered. Other activities such as construction, seismic exploration, blasting, and timber harvest, also should be designed to specifically avoid disturbance. Designing projects or land uses to avoid eagle conflicts requires sufficient data to formulate a site-specific management plan.

#### Zone I: Occupied Nesting Zone

Zone I is the area within a 0.5 mile radius of an occupied nest. Ideally, this zone should be biologically relevant to the tolerance of eagles to human disturbances (i.e., the distance at which the presence of humans first causes significant stress or behavior that results in inattentiveness to young or eggs). Since human activity patterns are easier to control if restrictions do not fluctuate from year to year, Zone I guidelines for habitat alterations should be applied to all alternate nests.

#### Recommendations

1. Human activity should not exceed minimal levels during the period from first occupancy of the nest site until two weeks following fledging (approximately 1 February to 15 August). Light human activity levels should not be exceeded during the rest of the year.
2. Habitat alterations should be restricted to projects specifically designed for maintaining or enhancing bald eagle habitat and conducted only during September through January.
3. Human activity restrictions for Zone I may be relaxed during years when a nest is not occupied. However, light human activity levels should not be exceeded and land use patterns should not preclude a return to minimal activity levels.

#### Zone II: Primary Use Area

Zone II includes the area within a 0.5 to 1 mile radius of the active nest and of all known alternate nests. Intensive study of a nesting pair for several years should allow for the boundaries of this zone to be altered to include the area where over 75 percent of the adults foraging and loafing activity occurs during the nesting season (excluding Zone I). The area could be discontinuous if movement data indicate the need.

#### Recommendations

1. Light human activity levels should not be exceeded during the nesting season. Moderate levels should not be exceeded during other times in the year.
2. Habitat alterations should be carefully designed and regulated to insure preferred nesting and foraging habitat are not degraded.
3. Developments that may increase human activity levels and use patterns should not be allowed.
4. Structures that have the potential for increasing mortality due to collision should not be constructed (i.e., power and telephone lines). Existing lines posing a potential problem should be modified to minimize collision or electrocution.

### Zone III: Home Range

Ideally, the home range should be delineated by monitoring eagle movements during nesting and brood rearing for several years. Lacking such data, the zone should include all potential foraging habitat within a 2 ½ mile radius of the nest. Areas within the 2 mile radius of the nest that do not include potential foraging habitat may be excluded. However, the zone will include a 1/4 mile buffer along foraging habitat where the zone has been reduced. The primary purposes of this zone are to maintain adequate foraging conditions and aid in maintaining the integrity of Zones I and II.

#### Recommendations

1. Human activity levels should not exceed moderate.
2. Projects that could potentially alter the habitat of forage species should be carefully designed to insure availability of prey is not degraded. Adequate design of such projects will require data from site-specific management plans.
3. Terrestrial habitat alterations should insure important components are maintained (i.e., perch trees and snags, visual screening from existing or anticipated areas of human activity, and potential nesting habitat). Major habitat alterations should be considered only if site-specific management plans are developed and only if alterations are compatible with management plans.
4. Permanent developments that are suitable for human occupancy should be avoided.
5. Other developments that may increase human activity levels should be carefully designed to insure objectives will not be exceeded for all 3 management zones.
6. Utility lines should be limited and restricted to locations where the potential for eagle collisions and electrocutions is minimal.
7. Avoid pesticide use within the home range.

### Zone IV: Communal Winter Roost Protection Zone

The area within one mile of a communal winter roost. Zone IV would only be applicable from November 1 to April 1. No ground-disturbing activities will be permitted within ½ mile of active communal winter roost sites year-round.