Final Statewide Programmatic CANADA LYNX (*Lynx canadensis*) Biological Assessment

United States
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ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
APD	Application for Permit to Drill
AMP	Allotment Management Plan
AUM	Animal Unit Month
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best Management Practice
BOR	Bureau of Reclamation
CBM	Coal Bed Methane
CFR	Code of Federal Regulations
C&MU	Classification and Multiple Use
DEQ	Department of Environmental Quality
DPS	Distinct Population Segment
DPC	Desired Plant Communities
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FO	Field Office
GML	General Mining Law
GTNP	Grand Teton National Park
HA	Homestead Act
HMP	Habitat Management Plan
HMU	Habitat Management Unit
MMBF	Million Board Feet
NEPA	National Environmental Policy Act
NHT	National Historic Trail
NPS	National Park Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
OHV	Off-Highway Vehicle
ORV	Off-Road Vehicle
PLO	Public Land Order
PSD	Prevention of Significant Deterioration
RAMP	Recreation Area Management Plan
RMP	Resource Management Plan
ROW	Right of way
R&PP	Recreation and Public Purpose
RPS	Rangeland Program Summary
SHPO	State Historic Preservation Office
SRHA	Stockraising Homestead Act
SRMA	Special Recreation Management Area
TGA	Taylor Grazing Act
T&E	Threatened and Endangered

TEC	Threatened, Endangered and Candidate
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WHHMA	Wild Horse Herd Management Area
WSA	Wilderness Study Area
WSR	Wild and Scenic Rivers
WY	Wyoming
WYNDD	Wyoming Natural Diversity Database
YNP	Yellowstone National Park

1.0 INTRODUCTION

PURPOSE

The purpose of this programmatic biological assessment (BA) is to assess the potential effects to the Canada lynx (*Lynx canadensis*) from management actions included in 7 Resource Management Plans (RMPs) of the Wyoming Bureau of Land Management (BLM). Specific objectives of this biological assessment include the following:

- Summarize the biology of the lynx, including historic records and recently-mapped Lynx Analysis Units (LAUs) and habitat on BLM land in Wyoming;
- Review pertinent RMPs and identify proposed actions with the potential to affect the lynx;
- Assess the potential effects of management actions proposed in the RMPs on the lynx;
- Prepare effects determinations for the lynx for each management action in each RMP; and
- Develop conservation strategies, including best management practices, designed to protect and conserve the Canada lynx.

The analysis area for each management action is based on the boundaries specified in the individual RMPs for the field office (FO). These boundaries are described in the analysis section for each RMP and shown in **Maps 1 - 8**. The determination for each management action is based on the nature of that action and on the available lynx data for the area affected.

REPORT ORGANIZATION

This report is organized into four sections, including the following:

1.0 Introduction – describes the purpose of the analysis, the scope of the biological assessment, the action area, and the methods.

2.0 Species Information – summarizes the current listing status, ecology, abundance, distribution, and threats to the lynx in Wyoming.

3.0 Analysis of Resource Management Plans – presents a summary of all the management actions at the front of the chapter, thus eliminating the need to repeat this information in the discussion of each FO; a list of impact minimization measures; a review of the Canada Lynx Conservation Assessment Strategy (Ruediger et al. 2000) and Lynx Analysis Units; for each FO, a list of existing conservation measures, an analysis of effects from each of the management prescriptions, and a determination specific to each management program for each RMP.

4.0 Conservation Strategies – provides a list of binding Conservation Measures and non-binding Best Management Practices. These were derived in large part, but not entirely, from the Canada Lynx Conservation Assessment Strategy (Ruediger et al. 2000). These are considered to be the best science available, and are widely accepted as comprehensive and targeted for lynx.

METHODS

Each management action within 7 RMPs (**Table 1)** was reviewed to identify those with the potential to affect the lynx. For the Snake River Resource Area of the Pinedale FO, management actions from the Final Environmental Impact Statement (EIS) were evaluated. Lynx occurrence data were obtained from the Wyoming Game and Fish Department and Wyoming Natural Diversity Database (WYNDD). Lynx information was evaluated and potential effects from the management actions were analyzed. Management actions were evaluated in terms of their potential to directly and indirectly affect the lynx. The binding Conservation Measures listed in Section 4 are considered to be operant in the analysis of effects and determinations. State, private, local, and tribal activities were also evaluated to assess their potential to cumulatively affect the lynx.

TABLE 1 RMPS ANALYZED IN LYNX BIOLOGICAL ASSESSMENT

Field Office	Resource Management Plan (Year Published)
Cody	Cody Resource Area Resource Management Plan (1990a)
Kemmerer	Kemmerer Resource Management Plan (1986)
Lander	Lander Resource Management Plan (1987)
Pinedale	Pinedale Resource Management Plan (1988)
Rawlins	Great Divide Resource Management Plan (1990b)
Rock Springs	Green River Resource Management Plan (1997)
Worland	Grass Creek Resource Management Plan (1998)

After potential effects were identified, the results were used to establish a determination for each management action under each RMP. Determination categories considered as part of this BA include the following:

- **No effect**;
- May affect, but is **not likely to adversely affect** due to:
    - Beneficial effects,
    - Discountable effects, and/or
    - Insignificant effects; or
- May affect, is **likely to adversely affect**.

These determinations are further defined in the U.S. Fish and Wildlife Service (USFWS) Endangered Species Consultation Handbook (USFWS 1998), as summarized in the following text.

"No effect" means there are absolutely no effects to the species and/or its critical habitat, either positive or negative. A "no effect" determination does not include small effects or effects that are unlikely to occur. If effects are insignificant (in size) or discountable (extremely unlikely), a determination of "not likely to adversely affect" is appropriate.

"Not likely to adversely affect" means that all effects to the species and/or its critical habitat are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without adverse effects to the species or its critical habitat. (For example, there cannot be "balancing,"

where the benefits of the action would outweigh the adverse effects.) Insignificant effects relate to the size of the impact and should not reach the scale where take occurs. Discountable effects are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur (USFWS 1998). Determinations of "not likely to adversely affect, due to beneficial, insignificant, or discountable effects" require written concurrence from the USFWS.

"Likely to adversely affect" means that the action would have an adverse effect on the species and/or its critical habitat. Any action that would result in take of an endangered species is considered an adverse effect. A combination of beneficial and adverse effects is still considered "likely to adversely affect," even if the net effect is neutral or positive. Adverse effects are not considered discountable because they are expected to occur. The probability of occurrence must be extremely small to qualify as a discountable effect. Likewise, an effect that can be detected in any way or that can be meaningfully articulated in a discussion of analysis results is not insignificant: it is an adverse affect. This determination requires formal consultation with the USFWS.

Lynx habitat mapping was conducted on two different scales: Lynx Analysis Units (LAUs) were first developed by using 5th and 6th level Hydrologic Unit Codes, as outlined in the Lynx Conservation Assessment Strategy (LCAS) (Ruediger et al. 2000), and extending FS LAUs out onto BLM land where appropriate habitat occurred. This resulted in FS and BLM boundaries being matched up at the borders of the two agencies. In some instances, habitat occurred not adjacent to FS land, and these were mapped as stand-alone units. This effort was conducted by FO staff.

Once the boundaries of the LAUs were established, and the boundaries of those LAUs matched those of the U.S. Forest Service (USFS), the habitat mapping within LAUs on BLM lands was conducted through the use of image processing techniques. Landsat Thematic Mapper (Landsat 7) images were use to identify vegetation types within the LAUs using unsupervised classification. Through this process BLM was able to distinguish between areas of defined habitat (e.g., conifer forests, etc.) and non-habitat or "unsuitable areas" (e.g., lakes, alpine tundra, and other areas not considered to be capable of providing lynx habitat) on all BLM administered lands within LAUs. This process did not account for other criteria or factors, such as big-game winter ranges and slope, in defining habitat. No effort was made using the image processing technique to determine suitability conditions of the areas identified as lynx habitat.

The next step in completing the process of mapping and revision of the LAUs on BLM administered lands is to ground-truth the vegetation/habitat mapping to achieve a refined and more supervised classification of vegetation types, and therefore better habitat maps. This will serve to better represent all lynx habitat within LAUs.

A subsequent step yet to be conducted is the process of identifying and delineating acreages of lynx habitat in suitable condition and in unsuitable condition. The latter include mapped lynx habitat in early successional stages as a result of recent fires, vegetation management, beetle kill, or other disturbance (anthropogenic or natural) where the vegetation is not in a condition to support snowshoe hare populations during all seasons.

2.0 SPECIES INFORMATION

LISTING STATUS

The Canada lynx was proposed for listing as threatened under the Endangered Species Act on 8 July 1998 (Federal Register Volume 63, No. 130). On March 24, 2000, the final rule listing the contiguous United States Distinct Population Segment (DPS) was issued (Federal Register Volume 65, No. 58). The main factor threatening the DPS of lynx in the contiguous U.S. is the inadequacy of existing regulatory mechanisms. To address this inadequacy, the LCAS (Ruediger et al. 2000) was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous U.S. The document was initiated by USFS, BLM, and U.S. Fish and Wildlife Service (USFWS). Because of the guidance set forth in the LCAS, there are now clear objectives, standards, and guidelines to follow in the delineation, mapping, and management of lynx and their habitats. The status of lynx in Wyoming is as a furbearer with no harvest allowed. It is a protected nongame species.

DESCRIPTION

The lynx is a medium-sized, short-bodied cat with long legs and an overall stocky build (Clark and Stromberg 1987). Paws are large and well-furred, ears tufted, tail blunt and short, and the head has a flared facial ruff. Winter coloring is typically grizzled brownish-gray mixed with buff or pale brown on the top and grayish-white or buff-white on the underside (Koehler and Aubry 1994). In summer, the pelage is more reddish to gray-brown. The tail is black-tipped all the way around. Total length is 67-85 cm and weight 8-10.5 kg; males are slightly larger than females (Clark and Stromberg 1987, Koehler and Aubry 1994). The lynx differs from the bobcat in having paws that have twice the surface area (Quinn and Parker 1987), enabling them to forage in deep snow; a black-tipped tail whereas the bobcat's tail is black only on the top surface; a less spotted coat; and a tail shorter than one-half the length of the hind foot (Tumlison 1987).

HABITAT USE

Cool, moist coniferous forests with cold, snowy winters and abundant snowshoe hares define the required habitat of lynx. Primary vegetation in lynx habitat is lodgepole pine, subalpine fir, and Engelmann spruce (Aubry et al. 2000). Secondary habitat includes cool, moist Douglas-fir, grand fir, western larch, and aspen forests. Dry forests such as ponderosa pine and climax lodgepole pine do not provide habitat for lynx (Ruediger et al. 2000). In the western U.S., 70% of lynx occurrences were at elevations of 1,500 – 2,000 m (4,920 – 6,560 ft.), but in Wyoming the elevational range for all lynx occurrences was 1,500 – 3,500 m (4,920 – 11,480 ft.) (McKelvey et al. 2000b).

Snow conditions in northern boreal forests are consistent, cold, and dry; in contrast, southern boreal forests have snow depths that are more variable and may be subjected to more freezing and thawing, causing crusting on the snow which may reduce the competitive advantage that lynx have in soft snow with their long legs and low foot loadings (Buskirk et al., 2000a; 2000b).

Lynx require a complex mosaic within their home range to meet the different habitat needs. They prey on snowshoe hares in areas with high stem density and dense shrubby and coniferous growth with stems and branches that protrude above the snow, and they den in areas with large woody debris in the form of down logs or root wads (Koehler 1990, Ruediger et al. 2000, Squires and Laurion 2000). Older and mixed-age forests with a patchwork of well-developed shrubs and young trees provide the dense understory and

large downed logs required for both foraging and denning habitats. These forest types provide snowshoe hare habitat over a longer period of time and also support red squirrel populations (Buskirk et al. 2000b).

Diet

The primary prey is the snowshoe hare (*Lepus americanus*). In studies from Canada, Alaska, and Washington State, snowshoe hares comprised 35-97% of the diet (Koehler and Aubry 1994). Alternate prey includes red squirrels (*Tamiasciurus hudsonicus*) and other squirrels (*Spermophilus* sp.), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), mice and voles (*Peromyscus* spp. and *Microtus* spp.), shrews (*Sorex* spp.), fish, and deer (*Odocoileus* sp.) and moose (*Alces alces*), mostly as carrion (Ruediger et al. 2000, Tumlison 1987). In Washington, the only state in the contiguous U.S. for which data are available, the annual diet was 79% hares, 24% tree squirrels, 3% ungulates, and 3% grouse (Koehler 1990). In northern populations red squirrels, voles, and other small mammals are a larger component of summer and fall diets compared with the winter diet focus on snowshoe hares (Anderson and Lovallo 2003).

Lynx populations in southern portions of the range must take other prey to a greater degree than in northern populations, due to the lower density of snowshoe hares (Hodges 2000). In southern boreal forests, red squirrels are especially important in the diet, as they are in northern boreal forests during low hare population cycles (Aubry et al. 2000). Lynx also use alternative prey to a greater degree in summer than in winter in both northern and southern boreal forests, although data are scarce (Aubry et al. 2000). In areas with patchy lynx habitat, lynx are more opportunistic and may feed occasionally on white-tailed jackrabbits (*Lepus townsendii*), black-tailed jackrabbits (*Lepus californicus*), sage grouse (*Centrocercus urophasianus*), and Columbian sharp-tailed grouse (*Tympanichus phasianellus*) (Quinn and Parker 1987, Ruediger et al. 2000).

There has been much discussion about the extent to which snowshoe hares cycle in southern boreal forests, as they do in northern forests. Early data suggested that population numbers remained relatively constant in southern portions of the range, similar in numbers to low hare cycles in northern populations. More recent evaluation of the data, however, indicate that hares in southern areas experience fluctuations of two to 25-fold with peaks 8-11 years apart. Peak densities in the south are 1-2 hares/ha whereas they reach 4-6 hares/has in the north (Hodges 2000).

Foraging Areas

Foraging areas for lynx are largely determined by snowshoe hare habitat. Hares are most abundant in early successional stages that include a dense, multi-layered understory with cover and browse that extend from ground level to a height of 4.5 m (15 ft) so that browse and cover are available above snow cover in winter (Ruediger et al. 2000). These optimal early successional stages of understory stem densities and structure are often the result of disturbances such as fire, insect infestations, catastrophic wind events, disease outbreaks, and timber harvest (Agee 2000, Ruediger et al. 2000). Fire is a predominant factor in the west. Areas of high stem density have been defined as >11,250 stems or branches per ha (>4,500/acre) for studies in Washington. This habitat type is dynamic as the young trees will grow, losing fresh growth at the bottom, and their branches will shade out understory saplings and shrubs. Thus lynx foraging habitat is constantly in flux. High snowshoe hare densities can generally be anticipated 30 or so years after a major disturbance such as fire.

Denning Sites

Denning sites require the large downed timber more typically found in mature forests. This coarse woody debris provides protection from predators for vulnerable kittens as well as thermal cover. Multiple natal

dens are typically used. Females require foraging habitat nearby in order to feed their kittens (Ruediger et al. 2000).

Movement Habitat

Lynx in southern boreal forests live in island habitats of mountains surrounded by less suitable lowland habitats. In Wyoming, these lowlands are typically shrub-steppe habitats of sagebrush. Movement between islands of coniferous forest is poorly understood, but occurs on two scales. Large scale movements are probably prompted by low hare abundance and, for subadults, the need to disperse from their natal home range. Lynx in the contiguous United Sates are arranged as metapopulations (McKelvey et al. 2000) [a set of local populations which interact via dispersal of individuals moving among populations and where local extinctions and recolonizations occur (Levins 1970)]. Functioning metapopulations require such occasional movements of individuals between subpopulations for species persistence. Smaller scale movements occur as animals travel between hunting grounds within a home range. Because of the patchiness of lynx habitats in the southern portion of the distributional range, lynx may include areas used primarily for traveling between hunting sites within a home range (Koehler and Brittell 1990).

Lynx have been documented in shrub-steppe habitat, within 40 km (25 miles) of forested habitat, during peaks in jackrabbit populations and it is possible that the occasional availability of such alternate prey may attract lynx to these habitats (Ruediger et al. 2000, Ruggiero et al. 2000b). These shrub-steppe habitats, especially with riparian corridors, facilitate lynx movement from one forested island to another.

DISTRIBUTION

The Canada lynx lives in the boreal forests of North America from Alaska to Newfoundland, descending into the lower 48 states in northern New England (Maine, New Hampshire, New York, Vermont), the Western Great Lakes region (Michigan, Minnesota, Wisconsin), the Pacific Northwest (Oregon, Utah, Washington), and the Rocky Mountains (Colorado, Idaho, Montana, Wyoming) (McCord and Cardoza 1982).

Lynx have been present in Wyoming prehistorically (Kurten and Anderson 1980) as well as in historic times and the present (Reeve et al. 1986). The best contiguous lynx habitat in Wyoming is in the northwestern portion of the state. The remainder is highly fragmented and widely dispersed, and typically separated by shrublands (WYNDD 2002). The distributions of lynx specimens and reports in Wyoming indicate that they occurred in the mountains of western and northern Wyoming, including the Salt River, Wyoming, Teton, northern Wind River, Gros Ventre, and Absaroka ranges (Reeve et al. 1986); and they also occurred in small numbers in the Uintah Range and the Bighorn Range, and sporadically in eastern Wyoming

The Wyoming Natural Diversity Database (WYNDD) lists lynx as present in Fremont, Lincoln, Park, Sublette, Teton, Uinta, and possibly also Big Horn counties. These records are mapped in **Map 1** and the database that accompanies the mapped records is presented in **Appendix A**. The number of records for each FO is presented in **Table 2**. Lynx surveys were conducted from November 1998 through April 1999 by the Wyoming Game and Fish Department (WGF 1999). The effort focused on three areas: Dubois (Horse, Burroughs, Long, and Warm Springs drainages in the Wind River District of the Shoshone National Forest (SNF)), Merna (Pass, Horse, Spring, Lead, Dry Beaver, South Beaver, Chall, and North Fork Middle Beaver drainages in the Big Piney District of the Bridger-Teton National Forest (BTNF)), and Cottonwood (North and South Cottonwood drainages in the Big Piney District of the BTNF). No lynx tracks were found in the Dubois area, one lynx track was found at Merna, and lynx tracks were

Map 1: Historical and Recent Locations of Lynx Records and Specimens in Wyoming

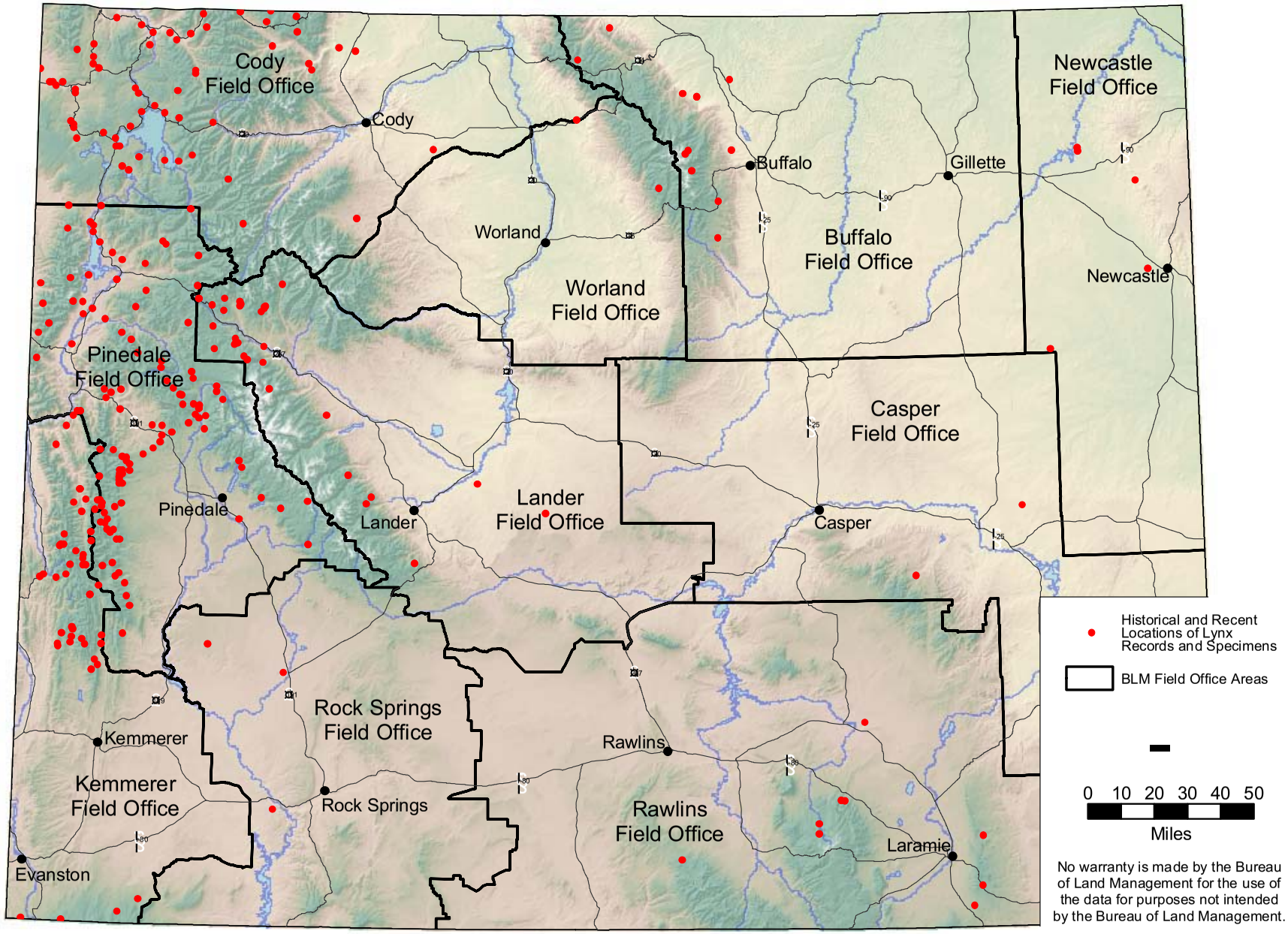


TABLE 2 SUMMARY OF THE NUMBER OF LYNX RECORDS BY FIELD OFFICE FROM THE WYNDD DATABASE (WYNDD 2003).

Surface Ownership	Number of Records by Field Office										
	Buffalo	Casper	Cody	Kemmerer	Pinedale	Rawlins	Rock Springs	Lander	Newcastle	Worland	Total
BLM			3	2	7	1	1				14
Forest Service	5		11	44	88	4		23		1	176
Private	6	1	2	4	10	1	1	5	4		34
BIA								3			3
Bankhead Jones									1		1
BOR							1				1
NPS					12						57
Water					1	1					2
State	1	1									4
Total	12	2	61	50	118	9	3	31	5	1	292

Note: There are actually 309 historical records of lynx, however 17 are of sensitive nature (private landowners who have requested information withheld from public scrutiny) and do not contain x & y coordinates. See **Appendix A**.

found six times in the Cottonwood drainage (WGF 1999). Lynx surveys were conducted by WYNDD during the winters of 1999-2000 and 2000-2001 (WYNDD 2001). Two probable and 3 possible lynx trails were found during this survey (Beauvais et al. 2001). These observations occurred in 3 separate areas: Big Sandy, Pine Creek, and Water Canyon.

The recent reintroduction of lynx in Colorado has resulted in a number of collared animals taking residence in the Medicine Bow NF. One den was located, although the female died before kittens would have become independent. Because lynx can move great distances, it is likely that additional animals from Colorado will appear in Wyoming.

Movement

Two lynx were captured and outfitted with radio-telemetry collars in the Wyoming Range, near Big Piney; a male in December 1996 and a female in March 1997 (Squires and Laurion 2000). These animals were followed for a period of three years.

Home ranges of radio-collared lynx in Wyoming over the two to three years of the study were 116 km^2 and 105 km^2 for the male and female, respectively. Winter home ranges were 63 km^2 and 50 km^2, and in the summers they were 81 km^2 and 57 km^2 for the male and female, respectively (Squires and Laurion 2000).

Daily travel distances were 2.2 km to 4.1 km. Exploratory movements of 30 km were made. Hare densities in the Wyoming Range were 0.8 hares/ha in 1997 and 1.4 hares/ha in 1998.

THREATS

There appear to be some notable differences in lynx ecology between southern and northern boreal forests. Snowshoe hare densities are lower and lynx populations appear less stable and at higher risk in the south. The ecological differences between latitudes are likely due to use of alternative prey species; the effect of habitat patchiness on movements, reproduction, and survival; and the potential effects of different communities of predators and competitors (Aubry 2000 et al.).

There is a lot of uncertainty about the complex system that ties lynx, prey, and vegetation together ecologically. This is further affected, in the southern portion of the range, by the complexity of metapopulation dynamics, which are assumed to function in lynx populations (McKelvey et al. 2000a). Southern populations in general are not large, and certain ones likely function as sources and others as sinks, with the necessity of dispersal potential between them. If a source population is put at risk, extinction in both the source and adjacent sink populations can occur. Thus the patchiness and distribution of lynx habitat in the southern part of the range is a major factor in the vulnerability of the species. Maintaining both the habitat within “good” patches and the travel corridors between patches is essential.

Persistence of lynx in the contiguous United States appears to rely upon dispersal from larger populations and maintenance of connectivity between northern and southern populations (Schwartz et al. 2002). For lynx in Wyoming and Colorado, this translates into maintaining connectivity between populations in those two states, and between lynx populations in Canada and Montana, and Montana and Wyoming. Although not documented, the abundance of white-tailed jackrabbits as a significant alternate prey in sagebrush habitats may be a critical factor. Unfortunately, white-tailed jackrabbits appear to be on the decline, as attested by their disappearance from Jackson Hole since 1979 (Berger 2004) and their extirpation from Kansas and southern Nebraska (Chapman and Flux 1990). Other alternate prey in shrub-

steppe habitats may also be used, and may also be experiencing declines (e.g., sage grouse, ground squirrels).

Forest management activities that reduce habitat for snowshoe hares and/or red squirrels will negatively affect lynx. Retention of live and dead trees and coarse woody debris are important factors for maintenance of lynx. In the creation of early successional habitat for snowshoe hares, considerations to include are harvest unit design, selection of sites that can regenerate quickly, choice of fuels practices, retention of coarse woody debris, and maintenance of high stem densities (Koehler and Brittell 1990). Clearcuts, shelterwood cuts, seed tree cuts, and diameter-limit prescriptions that result in distance to cover greater than 100 m (325 ft) may restrict lynx movement and use patterns until forest regeneration occurs (Koehler 1990). In the west, it takes approximately 15 to 30 years for conifers and/or brush species to regenerate to the point where vegetation is available above average winter snow depths and thus provide forage for snowshoe hares, after forest management practices or fire (Ruediger et al. 2000). As the forest canopy develops and shades out the understory, hare populations again decrease. Certain timber harvest practices increase edges and openings within forest stands, which may improve foraging conditions for generalist predators such as mountain lions, coyotes, bobcats, and great-horned owls. Both exploitation and interference competition with lynx may result (Ruediger et al. 2000).

Wildfire management in the west has resulted in forests that are more homogeneous and composed of shade-tolerant species with more canopy layers. These forests are then more susceptible to severe fires, insects, and disease. Salvage logging after a fire may have a negative effect if many or most large-diameter trees are removed (Ruediger et al. 2000).

Recreational trails created by snowmobiles and even cross-country skiers create packed snow conditions which allow other predators and competitors into what would otherwise be exclusive lynx habitat. Coyotes, in particular, tend to gain access into higher-elevation forests by this means. They compete with lynx for prey and sometimes prey on lynx as well. There has been some discussion, however, about the importance of this factor (Root 2003).

It appears that lynx have some degree of tolerance to human activities (Aubry et al. 2000). However, during denning in the spring, lynx are more vulnerable and require more secure habitat and less disturbance than might be tolerated at other times of year. This type of vulnerability to human disturbance may also be exacerbated during periods when food is scarce. Starvation is not uncommon (Aubrey et al. 2000). Developed recreation such as a ski area concentrates the human activity in specific areas and is deserted at night, when lynx would be active (Ruediger et al. 2000).

Roads into areas occupied by lynx may pose a threat to lynx from incidental harvest or poaching, increased access during winter for competing carnivores, especially coyotes, disturbance or mortality from vehicles, and loss of habitat (Aubry et al. 2000, Buskirk 2000, Koehler and Brittell 1990). However, lynx are also known to follow road edges for considerable distances, and also have home ranges that encompass roads or sometimes use them to define the boundary. They seem to not avoid roads (Ruggiero et al. 2000a), although high traffic volume deters them (Apps 2000). The size, type, and amount of use of the road are all likely factors affecting the degree and types of impacts on lynx, as well as the increased vulnerability during denning.

In aspen stands and high-elevation riparian willow communities, extensive grazing by domestic livestock or wild ungulates may reduce forage and cover availability for snowshoe hares, in some cases dramatically. This may also be true for high elevation shrub steppe habitat (high elevation sagebrush communities) that lynx may need and use in highly-fragmented forest stands.

Development of oil wells can be harmful to lynx, mostly as a consequence of new roads created to access areas for exploration and development. The result is increased human use and competing predator use. Mining may directly impact habitat and also promote recreational activities as a consequence of new roads (Ruediger et al. 2000).

3.0 ANALYSIS OF RESOURCE MANAGEMENT PLANS

INTRODUCTION

In the introduction, under "Programs and Actions" we describe all the management actions combined over all the FOs. This will prevent and reduce their repetition under each FO. The next section, "Existing Impact Minimization Measures", addresses actions that reduce impacts and that are prescribed and followed as part of ongoing activities in the RMP. The last section, "Lynx Conservation Assessment Strategy and Lynx Analysis Units", describes the Lynx Conservation Assessment Strategy (LCAS) (Ruediger et al. 2000) and Lynx Analysis Units (LAUs).

In subsequent sections each FO is listed separately and any management actions in the RMP specific to each FO with known lynx habitat, and not encompassed by the general management actions, are reviewed.

The effects analysis involves evaluation of management actions for their potential to affect lynx and their known habitats, including management actions or impact minimization measures that are unique to the particular RMP. The effects analysis also incorporates the Conservation Strategies.

A determination of potential effects is made and is shown in a separate table of all the individual management actions and determinations for each FO. In addition, there is a section on cumulative effects. *Three RMPs, the Great Divide RMP, the Snake River RMP, and the Washakie RMP are addressed but analyses were not conducted because there are no LAUs in the FOs.*

Programs and Actions

Access Management Actions

The objective for access management is to provide suitable public access to BLM-administered public lands. This may include acquiring new access where needed, maintaining existing access and expanding existing access facilities, or abandoning and closing access where it is not compatible with resource values and objectives.

Access across private lands will be pursued as needed through a variety of methods including, but not limited to, purchase of rights-of-way or easements, land exchange, reciprocal rights-of-way, and other statutory authorities. Specific routes and acquisition procedures for securing access are determined through route analyses and environmental analyses as part of specific project and activity planning. Access acquisition needs (typically for roads) are most commonly identified for public access for recreational use. This may be for hunting, sightseeing, rockhounding or general exploring. Acquisition of access to public lands has been identified in locations that would provide the public with an opportunity to utilize resources that have previously been unavailable because the public lands had no public access. An increase in access could result in an increase in human activity in an area that previously had little activity, development of roads, trails, parking areas and other facilities to enhance the public's use of the area. The construction of access roads, trails, parking areas, and other associated facilities would require the use of heavy equipment and machinery, as well as surface disturbance at the site.

Where appropriate, land exchanges or cooperative agreements are considered to provide access needs.

A detailed evaluation of areas with a high density of roads may be completed to determine needs for specific road closures or rehabilitation. Specific impact minimization measures and design requirements for roads are developed through environmental analyses as part of specific project or activity planning. Access closure, abandonment, and acquisition are considered and established through activity planning and environmental analysis processes. Road or trail closure and abandonment is based on desired road or trail densities, demands for new roads, closure methods (e.g., abandonment and rehabilitation, closures by signing, temporary or seasonal closures), type of access needed, resource development or protection needs, and existing uses.

Air Quality Management Actions

The objective of air quality management is to maintain or enhance air quality, protect sensitive natural resources and public health and safety, and minimize emissions that cause acid rain or degraded visibility. Typical air quality management program activities include dust control, weather monitoring, and air quality data monitoring. The air quality management program may evaluate or restrict surface development activities. The BLM ensures that operators cover conveyors at mine sites, restrict flaring of natural gas, limit emissions, and restrict spacing on projects.

BLM-initiated actions or authorizations are planned in accordance with Wyoming and national air quality standards. This is accomplished through the coordination of activities with the Wyoming Department of Environmental Quality (WDEQ) and the U.S. Environmental Protection Agency. 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 planning area 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_{10}), nitrogen dioxide (NO_2), ozone, sulfur dioxide (SO_2), and carbon monoxide (CO). Air quality stations used to monitor particulates, if located in an LAU, could cause disturbances to lynx through the building/construction of the station and associated access roads, maintenance and upkeep, and equipment reading and repair. No monitoring stations are currently in any lynx LAUs on BLM lands in Wyoming, although additional Federal and state funded stations are being placed in western Wyoming annually.

In addition to NAAQS and WAAQS, major new sources of pollutants or modifications to sources must comply with the New Source Performance Standards and Prevention of Significant Deterioration (PSD). The PSD increments measure PM_{10}, SO_2, and NO_2. The PSD program is used to measure air quality to ensure that areas with clean air do not significantly deteriorate while maintaining a margin for industrial growth.

Areas of Critical Environmental Concern Management Actions

The objectives of special management areas, such as Areas of Critical Environmental Concern (ACECs) 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.

Special Management Areas are those areas where a decision to focus a special emphasis management of some kind was made in the RMPs. Not all of the RMPs specified in detail the kinds of management needed in the ACECs. For some ACECs a plan was to be developed at a later date that would outline and specify management actions. The designation of ACECs in an RMP is simply a designation, and does not automatically convey specific management or protections, although with designation, some resource management protections are spelled out and implemented. If access roads or other types of facilities are specifically required, then these will be described within the appropriate activity section in this document.

Generally, ACEC status is a beneficial impact on wildlife and plant species.

Cultural Resources Management Actions

The objective of cultural resource management is to protect, preserve, interpret, and manage significant cultural resources for their informational, educational, recreational, and scientific values. Site-specific inventories for cultural resources would be required before the start of surface-disturbing activities, or if BLM-administered lands are proposed to be transferred out of federal ownership.

The BLM performs inventory activities as well as land management activities. 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 impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity varies between inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

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 cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Adverse effects on significant cultural resources are mitigated. Surface-disturbing activities are avoided near significant cultural and paleontological resource sites and within ¼ mile or the visual horizon of significant segments of historic trails and canals. Sites listed on, or eligible for, the National Register for Historic Places (NRHP) are protected and would be managed for their local and national significance and in compliance with the National Historic Preservation Act, the Archaeological Resources Protection Act, the American Indians Religious Freedom Act, and the Native American Graves Protection and Repatriation Act, as appropriate.

Fire Management Actions

The objectives of fire management are to restore the natural role of fire in the ecosystem, and to protect life, property, and resource values from wildfire. The two major activities involved with the BLM's fire management activities are prescribed burning and wildfire suppression.

Prescribed fire objectives are to restore natural fire regimes and enhance rangeland habitats for livestock and wildlife. The prescribe fire program writes fire plans for prescribed burns and vegetative treatments and coordinates with interested publics. Some prescribed fires are conducted to dispose of slash and residue from timber sales, improve wildlife habitat and grazing potential, or to reduce hazardous fuel loads.

Wildfires threatening higher resource values, including commercial timber areas, developed recreation sites, and areas of wildland/urban interface, or fires with potential to spread to private, state, or other federal lands are suppressed. Fire suppression activities vary with the intensity of the wildfire and are conducted on an emergency basis. However, wildfire planning is done in advance to determine what kinds of suppression activities will be allowed in a planning unit, where they will be allowed, and what kinds of equipment will be used. In the event of a wildfire and immediate suppression is required, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if T&E species or their critical habitats are affected/impacted. Fire plans also identify any special concerns or values that need to be protected. Fire lines are constructed to contain the wildfire. Water is withdrawn from nearby sources to suppress fires. Chemical fire suppression agents containing chemical dyes may be used, if needed. The use of aerial fire retardant is restricted near water resources. After a fire is extinguished, the BLM may use rehabilitation techniques to restore a burned or suppression area to its previous vegetative cover. The BLM uses a technique called Analysis of Burned Area Emergency Rehabilitation (BAER) on all areas damaged by fire. This technique is used to evaluate the impact of restoration efforts on the ecosystems involved.

Activities authorized by this program include tree thinning, construction of roads and fire lines using hand tools to heavy equipment, application of fire-suppressing chemicals by hand and aerial application, and revegetation and mulching stream banks for rehabilitation. Activities often employ the use of off-road vehicles, hand tools, and heavy equipment such as bulldozers.

Geology and Minerals Resource Management Actions

The lands administered by the Wyoming BLM contain some of the most prolific oil, gas, coal and trona producing areas in the Rocky Mountain region. Mineral development is subject to leasing, location, or sale based on the Federal mineral law (such as the Mineral Leasing Acts and amendments) covering a particular commodity. Conditions under which the development of these minerals can occur are determined through land use planning. The planning area will be open to consideration for exploration, leasing, and development of leasable minerals including oil, gas, coal, oil shale, and geothermal.

The objective of minerals management actions is to make public lands and federal mineral estate available for orderly and efficient development of mineral resources. BLM's minerals program is divided into salable minerals, leasable minerals and locatable minerals.

Salable Minerals

Deposits of salable minerals are scattered throughout Wyoming. Salable minerals include common varieties of sand, gravel, sandstone, shale, limestone, dolomite, and granite rock. Historical use of these materials includes building materials, road surfaces, and tools. Today salable minerals are mainly used for maintaining roads on public lands and also for activities associated with the oil and gas industry.

BLM provides sand, gravel, and stone from federal mineral deposits as necessary to meet the needs of federal, state, and local road construction and maintenance projects in the planning areas. Before issuing contracts or free use permits for salable minerals, the BLM conducts the appropriate environmental analyses including special studies or inventories of cultural values, threatened or endangered plant and wildlife species, and other resources. Stipulations or conditions may be included in the terms of the contract or permit to ensure protection of the natural resources present and reclamation of the land following project completion. Sand and gravel, scoria, flagstone, moss rock, and other minerals are available for free use or sale but are subject to conditions and stipulations developed on a case by case basis. Generally salable minerals are extracted using heavy equipment and moved using large haul

trucks.

Site reclamation is required following any surface disturbing activity by mining for salable minerals. Reclamation includes removing all surface debris, recontouring, reducing steep slopes, and planting vegetation, all requiring the use of heavy equipment. All reclamation proposals must conform to State agency requirements and must be approved by BLM.

Salable minerals are disposed of (sold) under the Materials Act of 1947, as amended, and are discretionary actions.

Leasable Minerals

Leasable minerals include fluid (oil, gas, geothermal) and solid minerals such as coal, trona, and phosphate. Bentonite and Uranium are leasable on acquired lands.

Current use of coal is primarily for electric generation. Coal in Wyoming is most generally extracted using surface mining methods although in the past some coal was mined underground. Underground mining method is proposed for some future operations. Surface mining requires a federal coal lease from the BLM, mining permits from the State, mine plans approved by OSM. Surface mining involves the use of large equipment such as draglines, shovels, haul trucks, etc. Small drill rigs are used for exploration to determine the location, thickness, and obtain cores (for determining quality). Extracting coal using surface mining methods often results in large areas of surface disturbance from road construction, removal of topsoil and overburden, and stockpiling of these materials. Once an area is mined out, reclamation begins and includes recontouring as closely to the original landscape as possible the reconstruction of drainages, reseeding and monitoring to assure the habitat is returned to pre-mining vegetative composition and condition. Coal is leased under the Mineral Leasing Act of 1920 and the Federal Coal Leasing Amendments Act of 1976.

Current uses of trona include baking soda, in paints, glass, toothpaste, soaps, ceramic tiles, porcelain fixtures, paper, water softeners and pharmaceuticals. Wyoming is the largest producer of trona in this country and has the largest known reserve of trona in the world. Trona is generally mined underground by the long-wall mining method. Surface facilities are generally processing plants, offices, and maintenance buildings along with associated roads.

Current uses of uranium are as a nuclear fuel for generation of electricity; nuclear explosives; in medicine, agriculture and industry as radiation for diagnostic tools, to detect welding problems, in the manufacture of steel products, or used to reduce the spoilage of certain foods. Uranium is generally categorized as a locatable, but becomes leasable on acquired lands. Uranium is generally mined underground. Surface facilities include processing plants, equipment maintenance buildings, parking areas and offices.

Leasable bentonite also occurs on acquired lands. Bentonite is surface-mined with heavy equipment including: shovels, haul trucks, etc. Drilling is used to locate the bentonite. Large areas of surface disturbance occur through removal of the overburden, overburden stockpiles, surface facilities and roads. Surface facilities include processing plants, equipment maintenance buildings, parking areas and offices.

Fluid leasable minerals include oil, gas, and geothermal steam. Leasing of oil and gas resources is under the authority of the Mineral Leasing Act of 1920 as amended. Leasing is administered by the BLM through a competitive and non-competitive system. BLM receives nominations of lands to be put up for sale at the bimonthly competitive oil and gas sales. These nominations are gathered together into a parcel list and are sent to the respective field offices for the attachment of stipulations. These stipulations are

derived from the Land Use Plan. The parcel list is returned to the BLM state office and once verified, is put together into the Notice of competitive oil and gas sale booklet. This Notice must be posted for the public 45 days before the lease sale is held. Once the parcel is sold, it is then issued as a lease.

Initial exploration for oil and gas resources is often conducted using geophysical methods. Geophysical exploration involves the use of ATVs and vehicles to lay geophones and drill holes for shot charges, or the use of vibroseis trucks (weighing 50-64,000 lbs.) to create sound waves instead of using charges, and then the removal of the geophones and reclamation of shot holes if used. Exploration for oil and gas (including coal bed natural gas) may also include the drilling of one or more wells to test for a reservoir and its productive viability. During the exploration phase of drilling, surface disturbing activities include the construction of roads, well pads, well drilling, reserve pits, and other facilities.

Prior to conducting site-specific drilling activities, a site specific EA is completed for each APD, or group of APDs. APDs are subject to site-specific conditions of approval which may be more restrictive than lease stipulations. Based on the environmental review, further timing and location restrictions may be added to protect local resources. Once an APD is approved, ground operations may begin. In traditional oil and gas operations, a minimum road capable of handling a well drill rig is constructed to the site. Roads may be two track unimproved roads to crown and ditched roads designed by an engineer. A level 'pad' ranging in size from 1-5 acres is constructed for drill rig and ancillary facility (e.g., pipe racks, production pits, parking areas, etc.) setup. Generally, there is an average of 3 acres of disturbance for each drill pad and 1 mile of road and 1 mile of pipeline for each drill site. This can vary widely with each project. Directional drilling requires a larger pad than required for conventional vertical wells. Size is dependent on the number of wells drilled from each pad.

A drillhole is started (i.e., spudded) and drilling continues until the targeted geologic formation is reached. One day to over a month may be required to drill the well depending on the type of well (vertical or directional), depth and type of rock strata encountered. If a well is not capable of producing economic quantities of oil or gas, it is shut in and plugged and marked and the surface is reclaimed to its previous condition. If a well is a producing well, production facilities (e.g., pipelines and/or storage tanks, water treaters, pipeline compressor stations, powerlines, pumpjacks, fencing, etc.) will be constructed, and road upgrades may occur to accommodate tank trucks used to haul the oil to a terminal or local refinery. Discovery of a producing area may result in additional wells being drilled and a pipeline system established to transport the oil or gas to a storage facility or terminal. Other localized surface uses associated with oil and gas development include construction of storage tank batteries and facilities to separate oil, gas and water. Compressor engines (can be gas/diesel powered or electric) may be required to move gas to a pipeline, and diesel, gas, or electric pumps and other related equipment may be needed to lift the oil, gas, or water from the well to the surface. If extensive reserves of oil are located field development may occur which would result in additional wells and transport systems with well spacing determined by the Wyoming Oil and Gas Conservation Commission. Development of oil and gas fields includes construction of the same types of facilities used during exploration, but in addition it may be necessary to obtain federal rights of ways for product pipelines and power lines. Drilling and production operations and facilities are inspected and maintained regularly, and varying amounts of human and vehicle activity is present with all the above actions.

Water is often produced concurrently with oil and gas production and disposal methods can range from subsurface re-injection to direct surface discharge to discharge into a containment pond or pit. Some fields may have large volumes of water or very little water. Water that cannot be discharged to the surface because of its chemical makeup may be treated before surface discharge or may be reinjected.

When oil and gas wells are no longer capable of producing economic quantities of product, the field is closed out and abandoned. At each well location, all the "down-hole" and surface facilities are removed

and the drillhole is plugged. The pad and production pits are reclaimed to existing standards, and a hole marker is placed at the well site. Reclamation involves revegetation by reseeding or planting and the recontouring of unneeded roads and unneeded portions of the well pads. Various types of heavy equipment and vehicles are used for these activities. Finally, the site is inspected, bonds are released as appropriate, and the site is declared closed.

Geothermal resources are available for exploration, development, and production and are subject to the same surface disturbing and other restrictions applied to oil and gas exploration, development and production. Similar to oil and gas leasing, the BLM administers geothermal leases through a competitive and non-competitive system. The Geothermal Steam Act of 1970 authorizes leasing. There are currently no geothermal steam leases in Wyoming at this time.

Locatable Minerals

Locatable minerals include gypsum, silver, gold, platinum, cobalt and other precious and base minerals. Bentonite and uranium are also locatable except on acquired lands.

Minerals are locatable under the 1872 Mining Law. Most public lands are open to location with the exception of lands withdrawn for other special management uses. The Mining Law of 1872 sets the requirements for lode claims, placer claims, and mill sites as well as discovery, location, annual filings, assessment work, and mineral examinations to establish validity.

BLM has no jurisdiction (non-discretion) over split estate lands for locatable minerals (private surface, federal subsurface) in the event the mining claimant receives *written* permission to proceed with operations from the surface owner, or the mining claimant owns the surface lands and wishes to mine their lands. This exception applies to Stockraising Homestead Act (SRHA) lands. These lands are those patented under the former provisions of the Taylor Grazing Act (TGA), U.S.C. 315 (p) and Homestead Act (HA) lands that were patented under the provisions of the SRHA, as amended.

Forest Resources Management Actions

The objective of forest management is to maintain and enhance the health, productivity, and biological diversity of forest and woodland ecosystems and to provide a balance of natural resource benefits and uses, including opportunities for commercial forest production. BLM multiple use management prescriptions shall provide for forest products, recreation, livestock grazing, wildlife habitat, as well as the protection and enhancement of other resources.

The forestry program allows the commercial cutting and removal of diseased trees, disease treatment by spraying, herbicidal spraying of grasses and shrubs, and pre-commercial thinning, chaining, and shearing, as well as clearcuts, slash disposal, logging, helicopter logging, and skidder-type and cable yarding may be allowed during timber harvest. Other commercial uses may include post and pole harvest and the removal of wildlings for transplanting purposes. Non-commercial timber harvest under individual permits involves collection and cutting of firewood, Christmas trees, posts, poles, and wildling removal in stands or areas with good public access. The BLM ensures that site regeneration and stand replacement follow timber harvesting. Forest management activities may include conducting surveys; acquiring easements on private, state and other federal agency lands; designing and developing roads; and installing erosion control, such as drain culverts and water bars.

Timber harvesting occurs on commercial forestlands with slopes less than 45%. Commercial operations are authorized under sale contracts or permits. Individual authorized clearcuts may not exceed 20 acres. Areas within 200 feet of surface water are prohibited from harvest. Slash is to be lopped and scattered,

roller chopped, or burned. Regeneration areas are often enclosed by fence to prevent wildlife and livestock from damaging seedlings.

Forest stand inventories are conducted prior to any management activities, and regeneration surveys are performed following stand management activities. During forest management activities for timber harvest, the BLM allows forest stand improvement activities (initial thinning) of young trees (i.e., regeneration growth usually less than 15 feet in height) in forest stands. This activity may or may not require minimal road construction, and the trees are simply laid down with a chainsaw at a set spacing distance and left where they drop to decay. Pre-commercial harvest and removal of diseased trees and pre-commercial thinning of young trees is conducted to reduce the density of smaller trees, and thereby allowing the remaining trees to have better access to available nutrients, water, and light. These activities generally require creation of minimum to light road or two-track trail construction for access, and use of chainsaws and possibly some light yarding equipment for lay down and retrieval of trees. During commercial harvest activities, the BLM allows removal of commercial size trees (i.e., saw logs), ensures slash piling or lop-and-scatter disposal of debris, allows commercial thinning of saw logs under some types of silvicultural treatment, and allows use of both skidder and cable yarding of harvested trees. Generally, light to medium roads are constructed to the harvest stand and yarding areas and load out landings are built in the sale area to facilitate the removal of logs, utilizing heavy equipment. Trees are laid down with chain saws or harvester machines. During restoration efforts following timber harvest activities, the BLM ensures site re-contouring of landings and most roads, and revegetation of the sale area, as needed. All the above activities require the use of vehicles and human presence.

Currently, cottonwood and willow trees are not harvested by the BLM in Wyoming. Non-commercial woodlands (e.g., riparian areas) are managed to optimize cover and enhance habitat for wildlife and to protect the soil and watershed values.

Hazardous Materials Management Actions

The primary objective of hazardous materials management is to protect public and environmental health and safety on public lands administered by BLM. Hazardous materials management also seeks to comply with federal and state laws, prevent waste contamination due to any BLM-authorized actions, and to minimize federal exposure to the liabilities associated with waste management on public lands.

Hazardous materials and waste management policies are integrated into all BLM programs. Public lands contaminated with hazardous wastes are reported, secured, and cleaned according to federal and state laws, regulations, and contingency plans. The clean-up of hazardous sites generally requires the use of heavy equipment, transport trucks, other vehicles and human presence. Warnings are issued to potentially affected communities and individuals if hazardous material is released on public land. If a spill of hazardous materials occurs, the site will be reported, secured, and cleaned and an emergency consultation conducted with the USFWS.

Lands and Realty Management Actions

The objective of the lands and realty management program is to support multiple-use management goals of the BLM resource programs; respond to public requests for land use authorizations, sales, and exchanges; and acquire and designate access to serve administrative and public needs.

Public land tracts not critical to current management objectives will be disposed of through the realty management program. Non-federal lands may be acquired through exchange in areas with potential for recreation development or in areas containing important wildlife, cultural, scenic, natural, open space, or

other resource values. Generally lands with special status species (SSS), which includes threatened and endangered species, are not eligible for disposal and are retained in Federal ownership for management of those species. Protective withdrawals from mineral entry may be established to protect and preserve important resource values, but require extensive mineral investigations.

Realty management authorizes occupancy of public lands for roads, power lines, pipelines, communication sites, and irrigation ditches authorized by granting a right-of-way. Rights-of-way management actions respond to public requests for access, land authorizations, sales, and exchanges. These rights-of-way may be temporary or may extend for years. If restricted types of rights of way are required in avoidance areas or when such areas cannot reasonably be avoided, the adverse effects of construction will be intensively mitigated in these areas. Most rights-of-way require the use of medium to heavy equipment, vehicles and human presence during their construction.

The program pursues cooperative agreements and considers and processes proposed withdrawals and temporary use permits. Unauthorized uses are investigated, documented, and steps are taken to resolve the trespass.

Public lands can be considered for sale or disposal on a case-by-case basis when a definite need for the land is identified and the proposal meets the requirements of the Recreation and Public Purpose (R&PP) Act and local land use plans. Leasing public lands for landfills, public recreation facilities, and other uses is allowed under the R&PP Act.

Livestock Grazing Management Actions

The management objective of livestock grazing management is to maintain or improve forage production and range condition as a sustainable resource base for livestock grazing on the public lands while improving wildlife habitat and watershed condition. Management actions on grazing allotments are prioritized by, and classified into, one of three management categories: maintain (M), improve (I), and custodial (C). Certain areas may be closed to livestock grazing because of conflicts with other resource uses including, but not limited to, timber sale areas being re-harvested, crucial wildlife or endangered species habitat, areas managed for prescribed fire, developed recreation sites, or education areas. Vegetation manipulation to change composition or productivity (including noxious weed control) may be accomplished by the range program by using prescribed fire, mechanical, chemical or biological treatments. Cattle are the predominant class of livestock grazed on Public lands in Wyoming, however, sheep, horses and bison are also authorized. Livestock grazing on Public lands can cause trampling of plants and removal of vegetation to various stubble heights dependent on the number of livestock and the length of time livestock are allowed to graze an allotment.

Fencing activities authorized by the livestock grazing management program may include fence construction and repair, designing and implementing grazing systems, and building livestock exclosures for important riparian habitat. Water management activities associated with range management may include the development of reservoirs, springs, pipelines, and wells, and access authorization. Permit and lease management activities include conducting monitoring studies, performing project work to enhance and improve riparian zones and uplands, managing stock driveways, and developing management plans and agreements.

In some cases cross fencing (subdividing an allotment, pasture or ranch by fencing) is used to accomplish management needs or when a parcel is leased by more than one lessee. Temporary fencing, including electric fencing may be authorized to accomplish management goals. Fencing might be used to reduce grazing intensity, distribute grazing away from important resources (streams, springs, riparian areas, wetlands, cottonwood galleries, etc.). When fencing is proposed, either permanent or temporary, fences

are built to standards developed in the Fencing BLM Manual Handbook (H-1741-1, Fencing, Rel. 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), stringing wire, digging postholes, building fence braces, building rock jacks, cutting or removing on or off site building materials (fence posts, rails, gathering rocks, etc.), weed management (spraying, cutting, pulling, etc.), or if the project is large enough, the possibility of camps for workers. The use of corrals for confinement of livestock for various purposes (sheep shearing, overnight holding of livestock, etc.) would require construction and maintenance activities including, hauling building materials, heavy equipment use, access to the corral site, etc.

The livestock grazing program may also include rangeland improvements such as stock water ponds, pits, or reservoirs; pipeline and trough systems; spring developments; storage tanks and troughs; wells; or temporary tanks and water hauling. These off-stream water improvements better distribute the use and intensity of use by livestock away from streams, rivers or wetlands and help protect important riparian areas, but could require the use of hand tools, mechanical or heavy equipment, hauling/transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. Placement of salt and mineral blocks or riding horseback and physically moving livestock are other forms of livestock distribution.

Rangeland restoration to improve range health is also a part of livestock management. These activities might include aerial seeding and possibly herbicide application, seeding by disking or drilling (using a tractor or other heavy equipment), fertilizing, plowing, chaining, or rangeland pitting.

Most livestock operators use off-highway vehicles (OHVs), i.e.: pick-up trucks; off road vehicles (ORVs), i.e.: motorcycles or "4-wheelers," or ride horseback or walk to access their allotments. "Herding " (moving) livestock through walking, horseback riding, and the use of dogs to distribute livestock on allotments or trailing (move them from one location to another - on or off of allotments), and the use of domestic sheep bed grounds (a temporary site to bed down flock(s) of sheep) and associated sheep herder camps are commonly employed methods of livestock operations. Road construction and maintenance, for access to various livestock operations would again require heavy equipment use, possible mechanical vegetation removal or spraying with herbicides, and material hauling.

Forage needs for wildlife and adequate vegetation cover for watershed protection are considered before additional livestock use is authorized. Livestock management includes, authorizing livestock grazing, and adjusting season of use, distribution, kind, and number of livestock. Salt or mineral supplements may be provided, which causes livestock concentrations, but can also move or distribute livestock away from water sources.

Off-Highway Vehicle (OHV) Management Actions

The objective of OHV management is to offer outdoor recreational opportunities on BLM-administered public land while providing for resource protection, visitor services, and the health and safety of public land visitors. BLM-administered public land is enrolled in the Wyoming State Program Off-Road Vehicle Registration Program. This program requires the purchase of a Wyoming State registration sticker to be displayed on motorized vehicles (four-wheelers, motorcycle, etc.) that are not currently licensed for highway use. The State manages the registration program in cooperation with its partner agencies (BLM, USFS, WGFD, Wyoming State Parks and Cultural Resources). However, the use of OHVs on the BLM administered lands is restricted, depending on the designation contained in the resource management plans for the various field offices (e.g., closed, limited, or open).

Off-Highway Vehicle use on BLM-administered lands is designated by area as either limited to designated roads and travel routes, limited to existing roads and travel routes, or in a few areas, designated as open which allows cross-country travel. Additional restrictions with seasonal closures or restrictions to type of vehicle can also be imposed. Some areas and roads are closed to all OHV use. Over snow vehicles can also be limited to their use by being designated to roads or travel routes or they may be allowed for cross country travel. Off-Highway Vehicle management designates closed, limited, or open areas for OHV use; posts signs, maps, or brochures; permits OHV rallies, cross-country races, and outings; monitors OHV use; and performs necessary tasks requiring OHV use. OHVs can be used off road to conduct necessary tasks (i.e.; set up a camp, collect firewood or retrieve a big game animal) or in the performance of authorized activities (i.e.; firefighting, etc.).

Until signing has occurred, OHV use in "limited" areas will only be permitted on existing roads and vehicle routes. Off-Highway Vehicle travel may be prohibited on wet soils and on slopes greater than 25% if damage to vegetation, soils, or water quality would result. Seasonal restrictions may be applied in crucial wildlife habitats as needed.

Paleontological Resources Management Actions

The objective of paleontological resources management is to manage paleontological resources that are part of the BLM-administered public land surface estate for their informational, educational, scientific, public, and recreational uses.

Using the land for scientific purposes such as paleontological exploration is authorized through a permit system. Since 1985, 53 permits have been issued, and it was estimated that about 12 more could be issued between 1991 and 2005. Fossils fall under paleontological resources and are part of the surface estate, such that whoever owns the surface consequently owns the fossils. A paleontological collecting permit is required before collecting any fossil vertebrates, significant fossil invertebrates, and plants on BLM-administered public lands.

Potential effects on paleontological resources on BLM-administered public lands will be considered in site-specific environmental analyses before authorizing surface-disturbing activities. Site-specific inventories will be required where significant fossil resources are known or are anticipated to occur. Hobby collection of invertebrate fossils and petrified wood are allowed except in specified areas. Excavation or "digs", typically involving less than an acre, may be performed with hand tools, power tools, or heavy equipment that could involve intensive human activity at the site by field crews; placement of crew and evaluation facilities; intense, though usually localized, ground disturbance at the immediate site; and periodic use of primitive access roads and trails. Rarely, a site will have *in situ* interpretive value, and when this takes place, intensive development could occur which might include the construction of permanent access and service roads, power sources, facilities (including protective fencing), and relatively heavy, though usually localized, human use. The closing of BLM-administered public lands or restricting uses to protect paleontological resources are evaluated case-by-case.

Paleontological resource values are managed in much the same manner as cultural resources, and the management activities are also similar, however, the statutory authorities are different.

Recreation Resources Management Actions

The objective of recreation resources management is to offer outdoor recreational opportunities on lands administered by BLM while providing for resource protection, visitor services, and the health and safety of public land visitors.

Categories of activities of the BLM for recreation management include allowing recreational access and use by the public, developing recreational areas, imposing restrictions, acquiring recreational access, and assessing effects of recreational use to the environment. The BLM monitors recreational use, develops management plans, and evaluates and updates recreational potential.

Recreational activities allowed by the BLM include hiking, hunting, mountain biking, boating, and fishing, OHV use (including snowmobiles), horseback riding, and camping. Casual use of BLM-administered public land for hiking, bicycling, hunting, fishing, and similar uses are allowed without charge. Large recreational events may include organized group hikes, motocross competitions, or horse endurance rides. The BLM develops recreational and camping sites, and where these take place, intensive development could occur which might include the construction of permanent access and service roads, power sources, facilities (including protective fencing), and relatively heavy, though usually localized, human use. Recreational site development also includes maintaining or developing recreational sites and facilities, developing campgrounds, providing fishing and floating opportunities, maintaining developed and undeveloped recreation sites, adding developments as opportunities arise, adding interpretive markers, and constructing roads and interpretive sites. Most recreation use on Public lands is dispersed human use by low numbers of individuals (i.e; hiking, hunting, bicycling, horseback riding, etc.), although individuals often concentration during activities such as forming hunting camps in the fall.

The Recreation program may place boundary signs, identify hazards on rivers, restrict recreational uses, limit motorized vehicles to existing trails, designate road use and recreation areas, require facilities to blend with the natural environment, and conduct field inventories. Most Public land recreation use occurs on or near existing trails or roads.

Recreation areas may have specific restrictions to protect other important resources. Development and enforcement of stipulations and protective measures includes designating OHV use, enforcing recreation-oriented regulations, patrolling high-use areas, and contacting users in the field.

Riparian Areas Management Actions

The objectives for riparian areas management will be to maintain, improve, or restore riparian value to enhance forage, habitat, and stream quality. Priority for riparian areas management will be given to those areas identified as Wyoming BLM sensitive fish species habitat, including habitat for native cutthroat trout.

Riparian areas management is an integral part of all resources and related management programs. Management actions may include reductions in livestock numbers, adjustments in grazing distribution patterns, fencing, herding, and livestock conversions. Riparian area management may require short-term disturbances from construction activities such as fencing or livestock herding. Those activities that affect or are affected by riparian values, will take into account the riparian areas management objectives and direction. Resource values and uses that affect or are affected by riparian values include wildlife and fisheries habitat, forest resources, livestock grazing, 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.

Laws and guidelines abided by during riparian management include Executive Orders 11990 (wetland) and 11988 (floodplain), and section 404 of the Clean Water Act. In addition, there are species-specific management plans for some riparian areas (i.e., Bonneville and Colorado River Cutthroat Trout Strategy and Management Plans).

Sensitive Plants Management Decisions

The objective for sensitive plants (those plant species designated as such by each respective BLM State Director – see BLM Manual 6840 – Special Status Species Management) management is to maintain and enhance known populations of sensitive plant species within BLM-administered public lands.

Known populations of sensitive plant species will be protected from disturbance by maintaining or establishing fencing around the populations and/or by intensively managing surface-disturbing activities within sensitive plant habitat and in adjacent areas that could affect the populations. Sensitive plant species management may require short-term disturbances from construction activities such as fencing, inventory or monitoring of sensitive plants and their habitats. Case-by-case examination of any proposed surface-disturbing activity will be made to determine potential adverse effects and appropriate impact minimization measures to minimize those effects. Developments, uses, and facilities will be managed temporally and spatially to avoid damage to the sensitive plant species. Sensitive species is beneficial to plant species and usually wildlife.

While Federally listed plant species do not fall under the sensitive designation, protective measures will be developed for their habitats or sites within a FO in consultation with the USFWS.

Soil Management Actions

The objective for soil resources management is to maintain soil cover and productivity and provide for improvement in areas where soil productivity may be below potential on surface lands administered by BLM.

Activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Formal soil surveys are conducted under a contract with the Natural Resource Conservation Service (NRCS).

Other activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

To keep soil from eroding and to protect the water quality, timber harvest activities will be limited to slopes of 45% or less . OHV travel will be prohibited on wet soils and on slopes greater than 25% if unnecessary damage to vegetation, soils, or water quality would result. Roads and trails will be closed and reclaimed if they are heavily eroded, washed out, or if access roads in better condition are available. No surface disturbance or occupancy will be allowed in areas susceptible to severe erosion between March 1 and June 15.

Surface Disturbance Restriction Decisions

Surface disturbance restrictions are necessary to protect certain sensitive resources and areas from adverse affects of surface-disturbing activities and human presence, and are inclusive of the various management actions developed in and analyzed for the approved RMP. These restrictions apply to all types of activities involving surface disturbance or human presence impacts and are applied in accordance with the guidelines described in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. These guidelines include, where applicable, proposals for waiver, exception, or modification, based on analysis for individual actions. This would allow for situations where a surface-disturbing activity may actually benefit sensitive resources, and allow for those occasions when analysis determines that an activity will not affect those resources.

The Surface Disturbing Guidelines will be used, as appropriate, to condition development activities in all programs where surface-disturbing activities occur and where the objectives of the RMP include the protection of important resource values. On a case-by-case basis, activities will be conditioned by any one or more of the mitigations in the Guidelines to avoid or minimize impacts to other important resource values and sensitive areas. Use restrictions (e.g., dates and distances) may be made more or less stringent, depending on the needs of specific situations. The restrictions identified under the various resource programs are complementary to the standards in the Guidelines and are not all-inclusive. They represent both actual requirements applicable to specific circumstances, and examples of requirements that will be considered and that may be applied, if necessary. Additional restrictions may be placed on surface-disturbing activities as necessary.

The impact minimization measures identified in a particular RMP serve to provide a degree of protection to affected resources, not to unnecessarily restrict activities. The RMP provides the flexibility for modifications or exceptions to restrictions in specific circumstances where a restriction is determined not to apply or is not needed to achieve a desired objective.

Surface disturbance is characterized by the removal of vegetative cover and soil materials. Where actual excavation does not occur, activities may be allowed to occur with less stringent limitations provided that the objectives and purpose for the surface disturbance restrictions are met. Examples where less stringent application of the Guidelines would apply are timber harvesting within 500 feet of streams or riparian areas and on slopes greater than 25%. This would be applicable to those timber harvest activities, such as tree cutting, skidding, and slash disposal that do not fully remove vegetative cover and soil materials. In the past, allowing these activities with a 100-foot streamside buffer distance and on slopes greater than 25% did not produce detrimental effects. However, road construction or staging/loading areas for logging equipment would not meet the less stringent definition and would be subject to the standard requirements of 500 feet and 25% slope.

The impact minimization measures prescribed for Federal mineral development on split estate lands (Federal minerals beneath a non-Federal surface) apply only to the development of the Federal minerals. These impact minimization measures do not dictate the surface owner's management of their lands. The impact minimization measures present restrictions on only those surface activities conducted for purposes of developing the Federal minerals and that are permitted, licensed, or otherwise approved by the BLM.

When the BLM is considering issuing a mineral lease, the agency has a statutory responsibility under the National Environmental Policy Act to assess the potential environmental impacts of the Federal undertaking. It also has the statutory authority under the Mineral Leasing Act (MLA) of 1920, the Mineral Leasing Act for Acquired Lands (MLAAL), and the Federal Land Policy and Management Act (FLPMA) of 1976 to take reasonable measures to avoid or minimize adverse environmental impacts that may result from Federally authorized mineral lease activities. This authority exists regardless of whether

or not the surface is Federally owned.

The MLA, the MLAAL, and the FLPMA are not the only statutes that establish such authority. Other statutes that may be applicable include the Clean Water Act, the Clean Air Act, the National Historic Preservation Act, the Endangered Species Act of 1973, the Federal Coal Leasing Amendments Act of 1976, and the Surface Mining Control and Reclamation Act of 1977. Moreover, the recently enacted Federal Onshore Oil and Gas Leasing Reform Act of 1987 specifically requires the BLM to regulate surface disturbance and reclamation on all leases.

Threatened, Endangered, and Candidate Species Protection Actions

The management objectives of threatened, endangered and candidate (TEC) species protection are to maintain biological diversity of plant and animal species; to support WGFD strategic plan population objective levels to the extent practical and to the extent consistent with BLM multiple use management requirements; to maintain and improve forage production and quality of rangelands, fisheries, and wildlife habitat; and to provide habitat for threatened and endangered and special status plant and animal species on all public lands in compliance with the Endangered Species Act (ESA) and approved recovery plans.

Known populations of threatened and endangered species will be protected, as mandated by law. BLM will not authorize activities or commit resources that may jeopardize the continue existence of a species or population (BLM Manual 6840).

The BLM's threatened and endangered species management activities include protecting habitat and known populations, enforcing timing stipulations, conducting surveys, and closing known locations of sensitive populations or habitat to surface-disturbing activities.

Most TEC management activities temper other impacting activities. However, if methods required to protect TEC species include fencing, or other construction, then some short-term, low intensity disturbance may occur. TEC management is beneficial to wildlife and plant species.

Vegetation Resource Management Actions

The objectives of vegetation resource management are to maintain or improve the diversity of plant communities to support timber production, livestock needs, wildlife habitat, watershed protection, and acceptable visual resources; to enhance essential and important habitats for special status plants species on BLM-administered public land surface and prevent the need for any special status plant species being listed as threatened and endangered; and to reduce the spread of noxious weeds.

Vegetation treatments, including timber harvesting, sagebrush spraying or burning, will be designed to meet overall resource management objectives. Cooperative integrated weed control programs implement weed control work on adjoining deeded and state lands in cooperation with county weed and pest districts. The three types of control used by the BLM on public lands are chemical, biological, and mechanical. Biological control can involve the use of insects such as weevils or beetles, and herbivores like controlled, high intensity goat grazing. This method may be used in cooperation with mechanical control (e.g., dozing, cutting, chaining, or chopping). Mechanical methods employ the use of a tractor or caterpillar to pull mowers or brush hogs, or to use two caterpillars to pull large chains in a "U" shape to knock down vegetation. Sagebrush control measures are also implemented by the BLM with control methods using primarily chemical, mechanical, or prescribed fire. Prescribed fire is used as a management tool to improve range forage production, wildlife habitat, timber stand improvement, sale

debris disposal, and to reduce hazardous fuel buildup. Noxious weed control is typically implemented along rights-of-way.

Trees will be planted on timber harvest areas that fail to regenerate naturally in order to achieve minimum stocking levels within five years after completing harvest and rehabilitation activities. Pre-commercial tree thinning will be initiated on overstocked seedling- and sapling-size stands. Temporary use of heavy equipment may be associated with these authorized activities.

If herbicides are proposed for use, minimum-toxicity herbicides will be used with appropriate buffer zones along streams, rivers, lakes, and riparian areas, including those along ephemeral and intermittent streams. Only Federally approved pesticides and biological controls are used. Local restrictions within each county are also followed. Projects that may affect threatened or endangered plants or animals will be modified to protect these species. Pesticide Use Proposals (PUPs) and Biological Use Proposals (BUPs) are developed conjunctively with the County Weed and Pest Districts and the BLM. All PUPs and BUPs are reviewed by the state Noxious Weed Coordinator and approved by the BLM Assistant State Director.

Visual Resources Management Actions

The objective of visual resources management is to maintain or improve scenic values and visual quality, and establish visual resources management priorities in conjunction with other resource values. Visual resources are managed in accordance with objectives for visual resources management (VRM) classes that have been assigned to each FO. Visual resource classification inventories have been developed for some, but not all, of the areas in Wyoming. The designation of VRM classes in an RMP is simply a designation, and tempers or stipulates from a visual resource viewpoint, specific protections or management of other BLM authorized actions. VRM classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Examples of the types of actions or projects required to meet VRM criteria are in the following paragraph.

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 activities that might degrade visual resources. No activity or occupancy is allowed within 200 feet of the edge of state and Federal highways. Facilities or structures such as power lines, oil wells, and storage tanks are required to be screened, painted, and designed to blend with the surrounding landscape, except where safety indicates otherwise and dependent upon the VRM classification. Any facilities or structures proposed in or near wilderness study areas will be designed so as not to impair wilderness suitability. Generally, VRM classification benefits wildlife and plant species.

Watershed and Water Resources Management Actions

The objective of watershed and water resources management is to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, to provide for availability of water to facilitate authorized uses, and to minimize harmful consequences of erosion and surface runoff from BLM-administered public land.

Passing of the Water Resources Research Act, Water Resources Planning Act, and the Water Quality Act of 1965 allowed the BLM to expand its water resources program and increased cooperation with soil conservation districts.

Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

Water is produced as a bi-product of the extraction process of developing Coal Bed Natural Gas (CBNG), natural gas, and oil. The area has been drilled to try and produce some of these shallow coal seams for CBNG with little success. Most produced water in western Wyoming is cycled back into the ground via re-injection wells. Some produced water could possibly flow down perennial, ephemeral, or dry drainages, increasing flows and changing the dynamics of the drainage systems. Some of this produced water can be high in trace metals and sodium, which may be detrimental to plants. Much of the produced water is more “pure” and can also be beneficial to wildlife and plant species. This produced water may also be stored in ponds or reservoirs, requiring construction (see below) and changes in landscape to the area.

Larger scale activities associated with water resource management would include the construction, maintenance (of existing), and rehabilitation (of failed) of impoundments/reservoirs for salt and sediment control. These impoundments would be constructed using heavy equipment (graders, bulldozers, loaders, backhoes, dump trucks, etc. and the trucks and trailers to haul them). They usually require: the removal of soil and materials for the catchment basin; building of earthen dams and protecting the dam face with vegetation, mesh material, or rock; and hauling, placement and contouring of fill material and possible building of access roads. Maintenance would consist of using loaders, backhoes, bulldozers, etc. to clean out and haul or contour nearby the sediment removed from the catchment basin to increase water holding capacity. Water diversions may be allowed in some situations (livestock or wildlife watering projects, the use of existing water rights by farmers/ranchers, etc.) and while construction of diversion structures may be of small scale, dewatering of streams/rivers may have a long-term affect on aquatic systems. Few of the water resource management projects listed above would be accomplished on public lands in the Wyoming due to limited water courses, the need for improvement, scattered land ownership tracts, and

limited budgets to accomplish the work. This trend is expected to continue over the life of the nine RMPs listed in this BA.

No surface disturbance will be allowed within 500 feet of any spring, reservoir, water well, or perennial stream unless waived by the authorized officer. Pollution prevention plans are developed for actions that qualify under the Wyoming Storm Water Discharge Program to reduce the amount of non-point pollution entering waterways. The rights to water-related projects on public lands will be filed with the Wyoming state engineer's office in order to obtain valid water rights.

Wild and Scenic Rivers Management Actions

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation. Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system.

Five river segments that were eligible and determined to be suitable for WSR classification fall with in LAUs and are listed in the respective RMP section of this document. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species.

Wilderness Resources Management Actions

Wilderness Study Areas (WSAs) on public lands are single-use resources managed in accordance with decisions issued by the U.S. Congress. The BLM managers ensure that proposed actions are consistent with the land use plan in effect for the area. Absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values.

Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values.

All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines. There are three categories of public lands to which the IMP applies: (1) WSAs identified by the wilderness review required by Section 603 of the Federal Land Policy Management Act (FLPMA), (2) legislative WSAs (i.e., WSAs established by Congress, of which there are none administered by the BLM in Wyoming), and (3) WSAs identified through the land-use planning process in Section 202 of the FLPMA.

A Plan of Operation is prepared by operators before any mining exploration begins. The plan identifies the mining strategy and attempts to minimize environmental impacts. Discovery work for WSAs under Section 603 must be done to non-impairment standards. Only “unnecessary and undue degradation” requirements apply to Section 202 WSAs.

A mining claim may be staked at any time in an existing WSA. National Environmental Policy Act (NEPA) analysis is required, however, before any activity is authorized in a WSA. Environmental Assessments (EAs) or Environmental Impact Statements (EISs) are prepared to determine if a proposal meets non-impairment criteria. The use of categorical exclusion to eliminate this analytical process for uses and facilities on lands under wilderness review is not allowed.

The designation of WSA status is simply a designation, and tempers or stipulates from a WSA viewpoint, specific protections or management of other BLM authorized actions. WSA classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSA status is a beneficial impact on wildlife and plant species.

Wild Horse Management Actions

The management objective of wild horse management is to maintain a viable herd that will preserve the free-roaming nature of wild horses in a thriving ecological balance and to provide opportunity for the public to view them. The FLPMA amended the Wild and Free Roaming Horse and Burro Act to authorize the use of helicopters in horse and burro roundups. Wild horse and burro numbers on BLM lands in Wyoming were estimated at 37,000 in 2004 (Breckenridge 2004); this compares with 17,000 in the entire West in the late 1960s.

The Wild Horse Program herds, corrals, transports, monitors, and rounds up horses for wild horse management. Herds are monitored by airplane census and counted each year. Helicopters may also be used to round up wild horses. The construction of corrals and capture facilities could cause impacts through ground disturbance and concentrated human presence. Horse round-up generally causes concentrated compaction by horse hooves in corral and load-out areas. Placement of capture corrals and capture facilities outside of special status species habitat is important as the concentrated disturbance could potentially be an adverse affect to these species and/or their habitats.

Land Use Plans are used to plan wild horse management. The BLM decides how many horses to allow on a certain area. This is termed the Approximate Management Level and the BLM can adjust horse numbers as needed. Issues taken into consideration include carrying capacity, trends in utilization, and public input. The BLM's wild horse management specialists coordinate with wildlife biologists and archaeologists to ensure that wild horse management will not cause adverse impacts to biological or cultural resources. No LAUs are located within any wild horse herd management areas in Wyoming. No wild horse herd management areas occur in the Kemmerer or Pinedale FOs, although both FOs have wild horse herd areas that are not currently being managed for wild horses.

Wildlife Habitat Management Actions

The objectives of wildlife habitat management are to maintain the biological diversity of plant and animal species; support the strategic plan population objective levels of the Wyoming Game & Fish Department (WGFD) to the extent practical and to the extent consistent with BLM multiple-use management requirements; maintain and, where possible, improve forage production and quality of rangelands, fisheries, and wildlife habitat; and, to the extent possible, provide habitat for threatened and endangered and special status plant and animal species on all public lands in compliance with the Endangered Species Act (ESA) and approved recovery plans. Habitat management plans are developed with goals and objectives specifically aimed at the conservation of special status species and/or their habitats.

Approximately 90% 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. Specific management goals and actions are for several wildlife groups and

habitats including big game ranges, wetland and riparian areas, elk habitat, raptor and grouse breeding areas, and animal and insect damage control. Wildlife management maintains and, where possible, 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 the ESA and approved recovery plans.

Big game and fisheries management levels identified in the WGFD 1990-1995 strategic plan are supported by the BLM. The BLM cooperates with the WGFD in introducing or reintroducing native and acceptable non-native wildlife and fish where potential habitat exists. Wildlife habitat is monitored and population adjustments and habitat improvements are recommended to the WGFD, as appropriate. The BLM works with the U.S. Fish and Wildlife Service and the WGFD in evaluating and designating critical habitat for threatened and endangered species on BLM-administered public lands.

Wildlife program projects may include surveying, monitoring, habitat improvement activities such as developing habitat management plans, and creating cooperative management areas. The categories of wildlife management activity for the BLM include developing stipulations and protective measures, acquiring land, conducting inventories, performing livestock or forestry-related activities, and wildlife and fisheries habitat improvement projects.

Plant and animal resource inventories often include sampling and documenting plant and animal population and habitat occurrence and conditions. Techniques can include anything from satellite imagery mapping and interpretation; to the actual measurement of resource transect parameters on the ground, or the collection of information for laboratory analysis. These activities often include off-road field travel, but generally no significant surface disturbance requiring large reclamation efforts. Many of the same techniques are often used for monitoring management implementation effectiveness following implementation of a set of management projects or actions.

Habitat development and improvement projects may include, but are not limited to; the development of water sources or water regulating structures including spring developments, guzzlers, dikes or water spreading devices, development of islands in ponds and reservoirs, modification of existing projects, construction of artificial waterfowl or raptor nesting structures, construction of small game cover brush piles, and construction and maintenance of fences. Fencing projects in the wildlife program are typically small in area, to create an exclosure or to protect a guzzler or spring development and would usually not exceed 100 to 200 feet on a side. These actions could require the use of hand tools, mechanical or heavy equipment, hauling or transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. When fencing is proposed, whether permanent, temporary, or electric, they are built to fencing standards developed in the BLM Fencing Manual Handbook (H-1741-1, Fencing, Rel 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), digging postholes, stringing wire, building fence braces, building fence jacks, cutting or removing building materials on or off site, (fence posts, rails, rocks, etc.) weed management (spraying, cutting, pulling, etc.). Construction of waterfowl ponds and islands typically requires major surface disturbance and earth work with heavy dirt moving equipment like bulldozers and scrapers. Generally, permanent roads are not constructed for access to wildlife program project sites.

The BLM develops stipulations and protective measures to enhance wildlife and fisheries habitat. These include authorizing withdrawals of some areas from mineral entry; limiting access of four-wheel drives, snowmobiles, horseback, and pedestrians; prohibiting surface development; and imposing road closures. The BLM may acquire riverfront land or easements, and conducts inventories of potential habitat and occurrences of threatened, endangered, and sensitive species.

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, seeding, and pitting.

Other wildlife management activities for terrestrial species include introducing species, monitoring habitat, fencing modifications for antelope passage, implementing public use closures for wintering elk, development of water areas for waterfowl and shorebirds, development of springs or seeps, rock or manmade catchments for collecting water for wildlife watering, recommending habitat improvement projects, treatment to control exotic plants, prescribed burns, meadow restoration, cabling of junipers, changing types of grazing and season of grazing, prescribed burning, developing islands, allowing farming, managing accesses, authorizing agricultural entry and disposal, and using surface protection impact minimization measures.

Other wildlife management activities for aquatic species include establishing a baseline fisheries inventory, fish habitat improvement, bank stabilization, development of watering sources, modification of barrier fences, exotic fish removal, construction of instream barriers to protect species from non-native invaders, installation of revetments and fish passage structures, installation of log overpours, macroinvertebrate sampling and analysis, installing gabion baskets, and placement of large boulders for instream fish habitat.

Existing Impact Minimization Measures

Certain existing guidance serves to mitigate potential actions on lynx, and they are reviewed below.

The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities are intended to attain statewide consistency in establishing requirements for avoiding and mitigating environmental impacts and resource and land use conflicts. They include several guidelines that are applicable to a variety of resources, including the lynx. These guidelines apply to all surface-disturbing activities on lands administered by BLM and are considered in the assessment of potential affects. Under the wildlife impact minimization measure guideline, the following guidance applies to the lynx:

- To protect important nesting habitat for raptors, sage grouse, and sharp-tailed grouse, activities or surface use will not be allowed from February 1 to July 31 in certain areas encompassed by the authorization. The same criteria apply to defined raptor and game bird winter concentration areas from November 15 to April 30. These guidelines will be considered for all surface-disturbing activities. Sage grouse may occasionally be used as alternate prey by lynx, and the February 1-July 31 closure, within an LAU, may protect lynx during the vulnerable denning period (subpart 2b of Wildlife Mitigation Guideline).

- No activities or surface use will be allowed on the portion of the authorization area for the purpose of protecting habitats (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) (subpart 2c of Wildlife Mitigation Guideline).

- Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name – i.e.; Canada lynx) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name – i.e.;

> Canada lynx) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, and facility design modifications) (subpart 2d of Wildlife Mitigation Guideline).

The BLM Guidelines for Livestock Grazing Management also applies to surface disturbing activities. The guidelines apply to all actions that may disturb or disrupt the surface in all of the FOs. Although all the protective standards listed in the guidelines are valuable to habitat protection, Standard #2 and Standard #4 relate directly to lynx. Standard #2 addresses protection of riparian vegetation, which is an important habitat type for snowshoe hares because of the forage it supplies. Standard #4 related to endangered species.

In addition, there are other laws and regulations that BLM must follow that apply to the section on minerals. The mining laws, particularly the General Mining Law of 1872 (as amended), allow for citizens of the United States to enter open public lands for the purpose of prospecting for locatable mineral resources, locating and exploring on mining claims, mining of the mineral commodities within the boundaries of those claims, and for patenting of the claims when a discovery of a valuable mineral resource has been made. The Federal Land Policy and Management Act of 1976 is the basis for the BLM to prohibit activities on the public lands which could cause unnecessary and undue degradation, including mining operations. On January 1, 1981, the BLM began enforcing the first regulations for mining activities on public lands known as the Surface Management Regulations, 43 CFR Subpart 3809. On November 21, 2000, new and more comprehensive surface management regulations were published in the Federal Register and were placed into effect by the BLM. These regulations were again amended October 30, 2001. These regulations state that there are 3 classes of mining operations: a) casual use, b) notice-level operations, and 3) plan-level operations (USDI-BLM 2001).

Casual use means activities ordinarily resulting in no or negligible disturbance of the public lands or resources. Casual use includes such things as the collection of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, use of metal detectors and other battery-operated devices for sensing the presence of minerals. Operator may use motorized vehicles for casual use activities provided the use is consistent with the regulations governing such use, off-road vehicle use designations contained in BLM land-use plans, and the terms of temporary closures ordered by BLM. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, motorized vehicles in areas when designated as closed to “off-road vehicles”, chemicals or explosives.

Notice-level operations are those disturbing 5 acres or less, and extracting less than 1000 tons of ore per year. However, if the operations cause surface disturbance greater than casual use in the following special status areas, a plan of operations must be filed: a) lands in the California Desert Conservation Area (CDCA) designated in the CDCA plan as “controlled” or “limited” use areas; b) areas in the National Wild and Scenic Rivers System, and areas designated for potential addition to the system; c) designated Areas of Critical Environmental Concern; d) areas designated as part of the National Wilderness Preservation System and administered by BLM; e) areas designated as “closed” to off-road vehicle use; f) any lands or waters known to contain Federally proposed or listed threatened or endangered species or their proposed or designated critical habitat, unless BLM allows for other action under a formal land-use plan or threatened or endangered species recovery plan; and g) National Monuments and National Conservation Areas administered by BLM.

In addition, all operations authorized by the mining laws must prevent unnecessary or undue degradation of public lands. An operator must comply with the terms and conditions of the notice or approved plan of operation, and other Federal and State laws related to environmental protection. Reclamation must include rehabilitation of fisheries and wildlife habitat. Specifically, the operator shall take such action as

may be needed to prevent adverse impacts to threatened or endangered species and habitat that may be affected by operations.

Lynx Conservation Assessment Strategy and Lynx Analysis Units

The Canada Lynx Conservation Assessment Strategy (LCAS) "was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States" (Ruediger et al. 2000). The document was initiated by U.S. Forest Service, BLM, and U.S. Fish and Wildlife Service as a consequence of the inadequacy of existing regulatory mechanisms of Land Use Plans. Because of the guidance set forth in the LCAS, there are now clear objectives, standards, and guidelines to follow (See Section 4.0).

There are three documents and/or regulations that commit the Wyoming BLM to the LCAS guidance:

- BLM and USFWS entered a Canada Lynx Conservation Agreement, signed in August 2000. This agreement serves to coordinate assessment and planning efforts between the two agencies and other agencies (such as the USFS) to assure a comprehensive approach to conserving lynx. BLM committed to mapping LAUs, lynx habitat, and key linkage areas, and to coordinate with USFWS on approaches to the programmatic planning process for the lynx.

- A Biological Assessment (Hickenbottom et al. 1999) of the effects of BLM Land Use Plans on lynx which made a determination of may affect and likely to adversely affect the lynx, and a Biological Opinion issued by the USFWS (dated 25 October 2000) on that BA. The BO states that the LCAS will be used as the basis for streamlining section 7 consultations (p. 2), and commits BLM to map lynx habitat, LAUs, and key linkage areas on all administrative units, using direction in the LCAS (p. 2).

- Wyoming BLM is also committed to the LCAS as a consequence of the Endangered Species Act (ESA): the LCAS is the best known and available science.

The approach of the present document is the result of these three documents and/or regulations. LAUs have been mapped by the field offices and coordinated with adjacent USFS LAUs (**Map 2**). Lynx habitat within LAUs has been mapped. Coordination with USFWS has been part of this document from the very beginning and throughout.

The guidance presented in the LCAS for lynx conservation measures indicates the amount of allowable disturbance in lynx habitat, and is contained in Section 4 of the present document; it is being implemented and followed in the field offices. The present document serves to further formalize the commitment to the Conservation Measures as binding measures. We then evaluated the management actions with these measures in place, and applied to lynx habitat within LAUs. However, BLM also has some lynx habitat not inside LAUs, and the Conservation Measures may be applied there as well.

Lynx Analysis Units (LAUs) have been selected as the unit to use for evaluation of the effects of management actions on the lynx. The approach here follows the recommendations of the LCAS to incorporate LAUs as the analysis unit for lynx habitat:

"LAUs are not intended to depict actual lynx home ranges, but are intended to provide analysis units of the appropriate scale with which to begin the analysis of potential direct and indirect effects of projects or activities on individual lynx, and to monitor habitat changes. LAUs should approximate the size of a female's annual home range and encompass all seasonal habitats. LAUs will also likely contain areas of non-lynx habitat, such as lower elevation drier sites, especially in mountainous regions. Generally, lynx

conservation measures apply only to lynx habitat within LAUs, although considerations related to connectivity may be appropriate for other areas" (Ruediger et al. 2000, p. 73).

The guidance provided by the LCAS (Ruediger et al. 2000) defines the extent and limit of potential impacts on LAUs. Broad-scale assessments comparing historical and current ecological processes and vegetation patterns (e.g., age-class distributions and patch size characteristics) are encouraged. In the absence of such guiding assessments, disturbance is limited to 30% of the specified lynx habitat within LAUs. If 30% of the lynx habitat within a LAU is presently in non-suitable condition, then no further disturbance is allowed. This can happen as a consequence of clear-cuts or burns and must be factored in to the percent disturbance within lynx habitat within a LAU (Root 2003). The 30% limitation on disturbance also requires coordination with the agency or landowner of whatever portion of the LAU is not on BLM land; typically this will be the USFS.

The LAU may be too small a unit to address direct, indirect, and cumulative effects of particular actions. In this case, LAUs can be lumped together. Within each LAU, optimal habitat mapping should show potential denning, foraging, and movement habitats. Non-forest vegetation adjacent to and intermixed with forested lynx habitat should also be mapped as it may provide habitat for alternate lynx prey. Denning habitat should be in patches larger than 5 acres and comprise at least 10% of lynx habitat. Where denning habitat is less than 10%, management actions that would delay development of denning habitat structure should be deferred (Ruediger et al. 2000). The size of LAUs and the amount of lynx habitat within LAUs in each FO is shown in **Table 3**.

The vast majority of the acreage of LAUs in Wyoming is on USFS land: 3,104,692 acres, compared with 477,187 acres (14%, **Table 3**) on BLM land. In fact, most of the LAUs on BLM land were mapped by extending the FS LAUs out onto BLM land where there was potential habitat. The Forest Service LAUs occur on the Bighorn, Bridger-Teton, Shoshone, Medicine Bow, and Wasatch National Forests in Wyoming (Loose 2004, USFS and BLM 2004, Williams 2004).

Lynx habitat on BLM land within LAUs is mapped and acreages have been calculated (**Table 3**). In addition to the mapped habitat within LAUs, some FOs have habitat on BLM land that is not in an LAU. This occurs typically when the USFS has determined that their portion of a given area does not qualify as an LAU, and the BLM portion is not of sufficient size to justify delineating an LAU. Two field offices, Cody and Kemmerer, have delineated this type of lynx habitat independent of LAUs. For all FOs combined, habitat within LAUs comprises 27% of BLM LAU acres. All other FOs have non-delineated areas of potential habitat not in LAUs. These are areas such as potential travel corridors and linkages that do not meet the criteria of lynx habitat, but serve to address potential connectivity issues (USFWS 2000).

Pinedale has the largest area in LAUs (227,769 acres) and the largest area of habitat (47,098 acres, 21%). Lander and Kemmerer also have large acreages in LAUs (115,611 and 60,153 acres, respectively). Of this, 9% (10,893 acres) and 45% (27,163 acres) are potential habitat in Lander and Kemmerer, respectively.

Map 2: Lynx Analysis Units (LAUs) in Wyoming

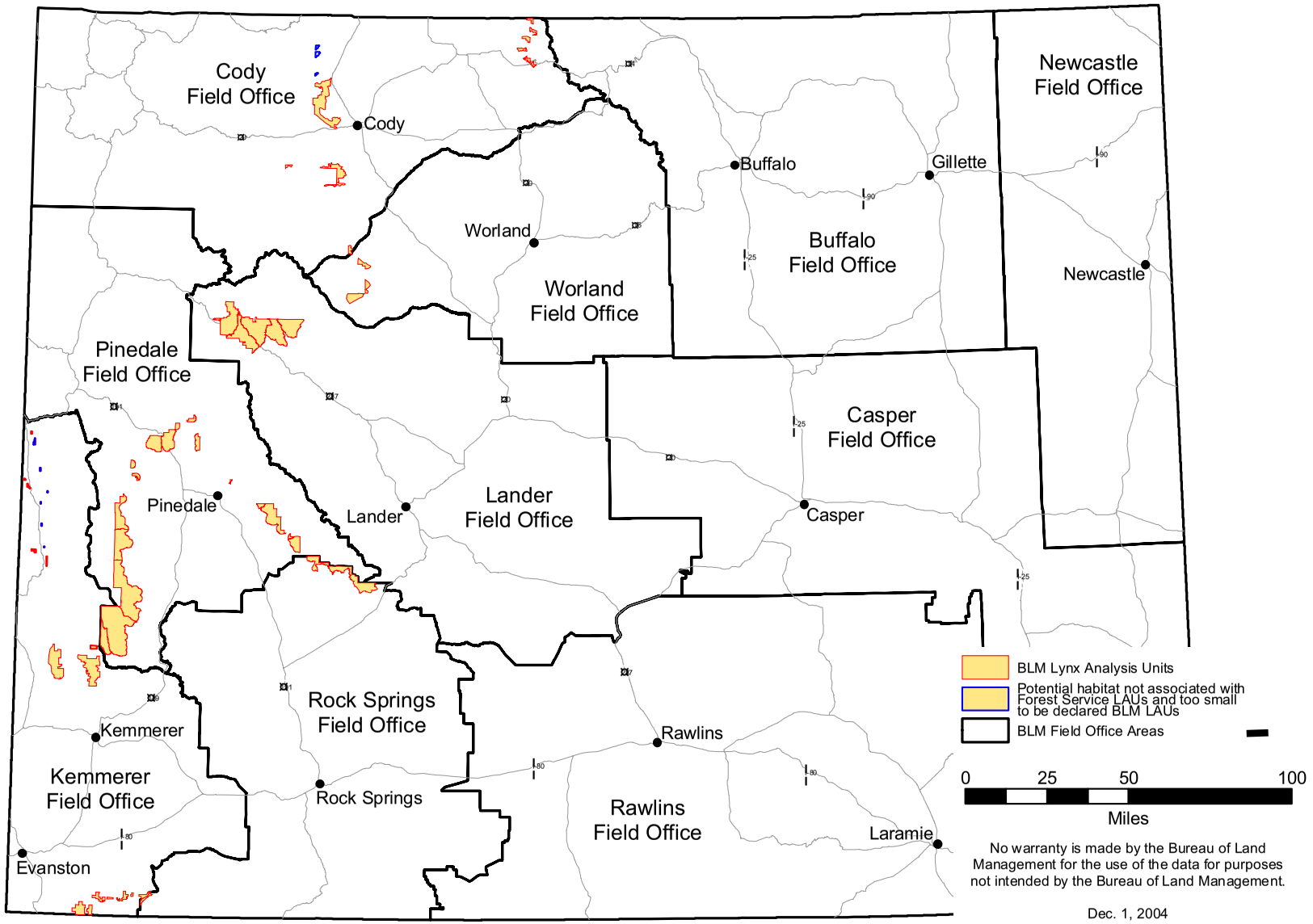


TABLE 3 LYNX ANALYSIS UNITS AND HABITAT ACREAGES IN EACH FIELD OFFICE.

Cody Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
Dead Indian	65,112	BLM - Dead Indian	13,700	78,811	17	12,834	94
Lower South Fork	199,719	BLM - Lower South Fork	10,008	210,388	5	7,958	80
		BLM - Lower South Fork 2	661		0	251	38
Porcupine/Mann Creek	83,800	BLM - Porcupine/Mann Creek 1	1,100	84,900	1	653	59
		BLM - Porcupine/Mann Creek 2	1,148		1	807	70
		BLM - Porcupine/Mann Creek 3	1,682		2	1,207	72
		BLM - Porcupine/Mann Creek 4	1,375		2	998	73
		BLM - Porcupine/Mann Creek 5	1,189		1	775	65
		BLM - Porcupine/Mann Creek 6	777		1	380	49
Wood River	168,451	BLM Wood River	1,485	181,505	1	936	63
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 289 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 513 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 954 acres					
Total	**517,081**		**33,125**	**555,604**	**6%**	**26,798**	**81%**

Kemmerer Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
31	55,422	BLM - 31-1	223	55,645	0	61	27
		BLM - 31-2	1,894		3	186	10
		BLM - 31-3	408		1	112	27
		BLM - 31-4	1,738		3	348	20
32	50,012	BLM - 32	79	50,091	0	18	23
33	36,063	BLM - 33-1	3,259	39,322	8	602	18
		BLM - 33-2	643		2	287	45
34	46,991	BLM - 34	2,259	49,250	5	1,298	57
35	53,785	BLM - 35	6,720	60,505	11	2,779	41
Fontenelle Creek	40,326	BLM - Fontenelle Creek	1,241	53,155	2	705	57
Greys River Northwest	60,373	BLM - Greys River Northwest	233	60,606	0	233	100
LInkage	555,277	BLM - Linkage 1	129	555,406	0	129	100
		BLM - Linkage 2	314		0	314	100
		BLM - Linkage 3	39		0	39	100
Thomas Fork/ Upper Salt	77,284	BLM - Thomas Fork/Upper Salt 1	633	77,917	1	633	100
		BLM - Thomas Fork/Upper Salt 2	534		1	534	100
		Commissary Ridge	21,031		100	10,205	49
		Dempsey Ridge	18,776		100	8,680	46
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 40 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 81 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 81 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 123 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 139 acres					
		Potential habitat not associated with a Forest Service LAU and too small to be declared a BLM LAU - 436 acres					
Total	**975,531**		**60,153**	**1,001,897**	**6%**	**27,163**	**45%**

Lander Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
East Fork	113,601	BLM - East Fork	18,163	113,601	16	995	5
Fontier	77,503	BLM - Frontier	29,127	77,503	38	1,080	4
Warm Springs	89,554	BLM - Warm Springs	23,197	89,554	26	2,326	10
Wiggins	135,187	BLM - Wiggins	19,992	135,187	15	1,317	7
Wind River/Dunoir	140,359	BLM - Wind River / Dunoir	25,134	140,359	18	5,175	21
Total	**556,203**		**115,611**	**556,203**	**21%**	**10,893**	**9%**

Pinedale Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
Big Twin/Middle Beaver	35,185	BLM - Big Twin/Middle Beaver	16,889	52,074	32	902	5
Birch/South Beaver	49,627	BLM - Birch/South Beaver	52,248	101,875	51	13,375	26
Boulder Creek	76,403	BLM - Boulder Creek	1,535	77,938	2	130	9
Cottonwood Creek	48,372	BLM - Cottonwood Creek	14,836	63,208	23	3,259	22
Fontenelle Creek	40,326	BLM - Fontenelle Creek	11,588	53,155	22	268	2
LaBarge Creek	52,406	BLM - LaBarge Creek	61,294	113,700	54	13,337	22
Middle Beaver Creek	21,539	BLM - Middle Beaver Creek	1,911	23,450	8	65	3
Muddy Creek North	37,036	BLM - Muddy Creek North	19,055	56,091	34	6,547	34
Muddy Creek South	52,354	BLM -Muddy Creek South	7,818	60,172	13	1,663	21
North Horse Creek	31,907	BLM - North Horse Creek	1,556	33,463	5	16	1
Pine Creek	63,992	BLM - Pine Creek	258	64,250	0	17	7
South Beaver	50,777	BLM - South Beaver	21,996	72,773	30	4,867	22
South Horse Creek	19,843	BLM - South Horse Creek	259	20,102	1	40	15
Upper Hoback North	78,835	BLM -Upper Hoback North	12,297	91,132	13	2,461	20
Upper New Fork	66,144	BLM - Upper New Fork	4,229	70,373	6	152	4
Total	**724,746**		**227,769**	**953,755**	**24%**	**47,098**	**21%**

Rock Springs Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
31	55,422	BLM - 31-RS	1,804	57,226	3	421	23
Sandy/Lander	55,820	BLM - Sandy/Lander	19,971	75,791	26	7,088	35
Upper Big Sandy	51,438	BLM - Upper Big Sandy	7,185	58,623	12	4,768	66
Total	**162,680**		**28,960**	**191,640**	**15%**	**12,277**	**42%**

Worland Field Office

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
Wood River	168,451	BLM - Wood River 1	2,993	181,505	2	1,650	55
		BLM - Wood River 2	2,253		1	1,412	63
		BLM - Wood River 3	6,323		3	2,840	45
Total	**168,451**		**11,569**	**181,505**	**6%**	**5,902**	**51%**

Total for All Field Offices

Forest Service LAU Name	Forest Service LAU Acres	BLM LAU Name	BLM LAU Acres	Combined Acres	% BLM Acres	BLM LAU Habitat Acreage	BLM LAU % Habitat
Total	**3,104,692**		**477,187**	**3,440,604**	**14%**	**130,131**	**27%**

CODY FIELD OFFICE

The Cody Record of Decision and Approved Resource Management Plan (RMP) was signed in November 1990 (BLM 1990a). The RMP provides the management direction for approximately 891,600 acres of public surface lands and 1,508,000 acres of federal mineral estate within the Cody FO. The Cody FO is located in north central Wyoming and occupies portions of Big Horn and Park Counties.

Environmental Baseline

This section presents a summary of the known LAUs in the Cody FO and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats. Ten LAUs from the adjacent National Forest extend onto BLM land. In addition, 3 areas have been delineated as potential habitat not associated with a USFS LAU and are too small to be declared a BLM LAU (**Table 3)**. The LAUs cover 33,125 acres on BLM land in this FO.

Habitat has been delineated for the Cody FO. Some of this habitat (1,756 acres) is not located within an LAU. This situation reflects the fact that the habitat was not of sufficient size to delineate an LAU, but can be recognized and protected as potential habitat on its own. There are 26,798 acres of BLM LAU habitat, comprising 81% of the total BLM LAU acreage (**Table 3, Map 3**).

There are 61 lynx records from the Cody FO in the WYNDD database (**Table 2** and **Appendix A**) (WYNDD 2003). The Wyoming Game and Fish Department conducted lynx surveys in conjunction with Shoshone National Forest during winter of 1995/1996. A fruitless trapping effort prompted a move to the Wyoming Range portion of the Bridger-Teton National Forest in western Wyoming for further surveys.

Existing Conservation Measures

The following section presents measures included in the Cody RMP that may directly or indirectly minimize impacts to the lynx:

(a) “Through land exchanges, the BLM will try to acquire nonfederal lands…that contain recovery habitat for threatened or endangered species” (BLM 1990a, p. 13).

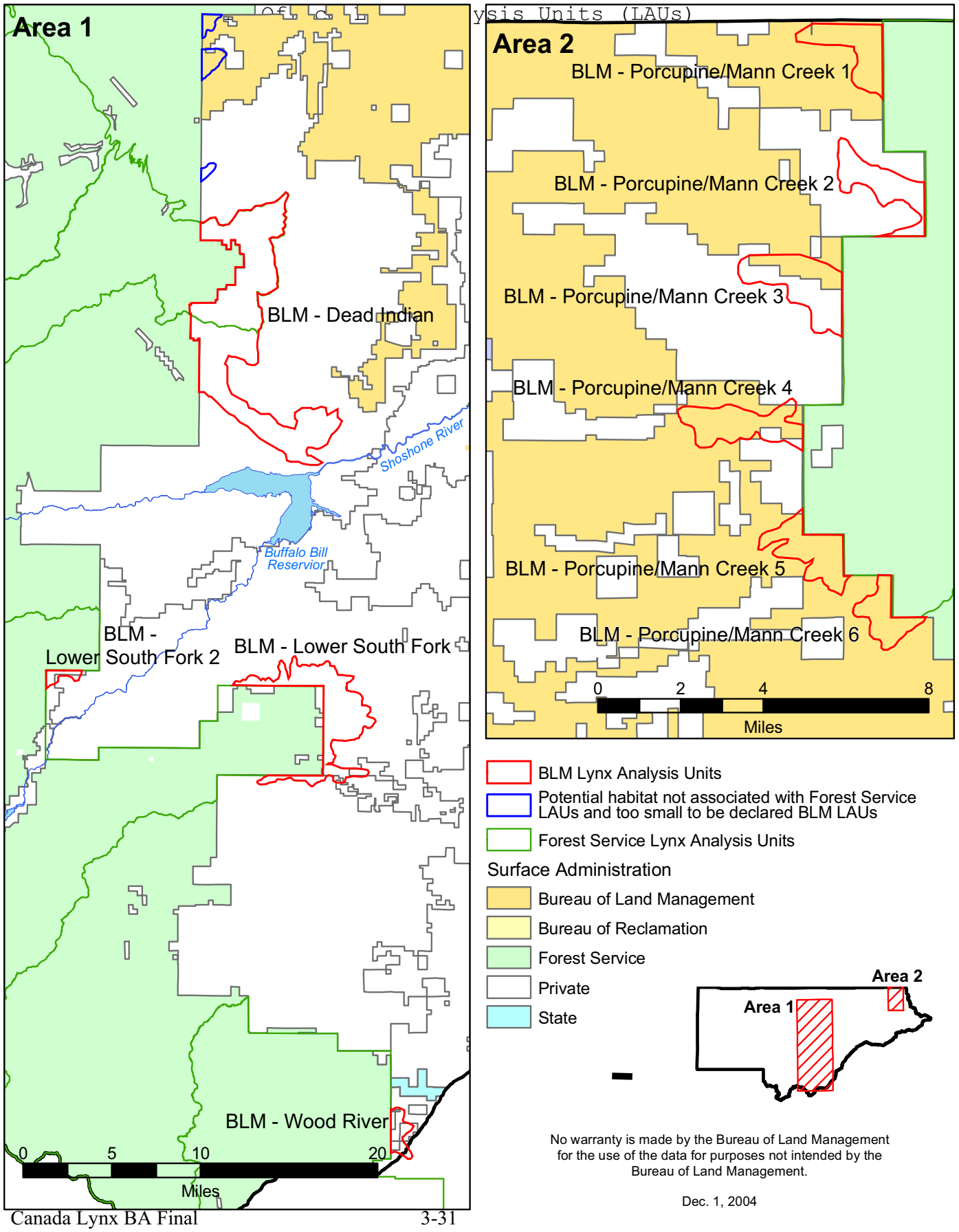
(b) “Vehicular use on BLM-administered public lands is designated as limited to designated roads and trails in the following areas – Essential and recovery habitat for threatened and endangered species” (BLM 1990a, p. 22).

(c) “Use of chemicals on noxious weeds will be controlled in areas designated as essential or recovery habitat for threatened, endangered, or sensitive plant and animal species in accordance with site-specific habitat requirements” (BLM 1990a, p. 39).

(d) “The BLM will make every reasonable attempt to coordinate with these agencies (Wyoming Game and Fish Department and U.S. Fish and Wildlife Service) and others who are interested in fish and wildlife habitat management activities on BLM-administered public lands and to accommodate their interests and concerns whenever possible” (BLM 1990a, p.40).

(e) “Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational

Map 3: Cody Field Office Lynx Analysis Units



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plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications)" (BLM 1990a, Appendix B, p.60).

(f) "The construction or development of a range improvement project would be denied if the proposal would affect or jeopardize the continued existence of federally listed threatened or endangered plant or animal species and/or its habitat. Consultation and coordination with USFWS would be required under such conditions to determine acceptable mitigating measures to avoid possible impacts" (BLM 1990a, Appendix G, p.94).

Analysis of Proposed Management Actions and Effects

The Cody RMP (BLM 1990a) includes descriptions of each management prescription applied within the FO. These activities are summarized in the Introduction, above. Refer to the Cody RMP for a complete explanation of each prescription.

Air Quality Management

Management Actions

No specific management actions are presented with this program. However, actions conducted under other resource programs, including fire or minerals management, will be conducted in a manner so as to avoid violation of the Wyoming and National ambient air quality standards. There are currently no air quality monitoring stations within any lynx habitat or LAUs in the Cody FO area.

Effects Analysis

Actions related to air quality management will result in no impacts to lynx behavior, denning habitat, or foraging habitat. The actions associated with air quality management are extremely small in scope, of short duration, and unlikely to occur in lynx habitat.

Determination

No monitoring stations are currently in any lynx LAUs on BLM lands in the Cody FO. Implementation of air quality management actions, as presented in the Cody RMP (1990a), will have **no effect** on the lynx, due to a lack of overlap of management activities and lynx habitat.

Areas of Critical Environmental Concern

Management Actions

There are five ACECs in the Cody FO: Brown/Howe Dinosaur, Carter Mountain, Five Springs Falls, Little Mountain, and Sheep Mountain Anticline. Exploration and development of leasable minerals is allowable in three of the ACECs; locatable minerals entry is allowable in one, and closed in two of the ACECs; and saleable minerals exploration and development is allowed in one and closed in one of the ACECs. Geophysical exploration is open in one and closed in one of the ACECs. All four are avoidance areas for right-of-way, and all allow continuation of livestock grazing. At Carter Mountain, surface-disturbing activities are prohibited on slopes greater than 7% to protect fragile tundra vegetation and soils.

Effects Analysis

This program analysis is for the creation and management of ACECs. The BLM- Lower South Fork LAU is within the Carter Mountain ACEC, BLM Porcupine/Mann Creek 6 LAU is in the Five Springs Falls ACEC, BLM Porcupine/Mann Creek 3 LAU is in the Little Mountain ACEC. No LAUs are found within the Brown/Howe Dinosaur ACEC, nor the Sheep Mountain Anticline ACEC. Management actions authorized within these ACECs, but not associated with ACEC management, will be analyzed under that specific activity. There are no specific impacts to lynx in the establishment of an ACEC and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Determination

Implementation of ACEC management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **beneficial effects,** because the act of designation of an ACEC has no disadvantageous impacts on lynx and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Cultural and Paleontological Management

Management Actions

The management objective for cultural and paleontological resources is to protect, study, and expand the interpretation of these resources.

Effects Analysis

Actions associated with cultural resource and paleontological management are sparsely distributed across the landscape, are very small in physical extent, and involve very little disturbance to the area. Frequently, the goal is to leave the area intact with no disturbance. These activities are unlikely to occur in lynx habitat.

Determination

Implementation of cultural resource management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for cultural resource management actions to cause harassment, displacement, injury, and mortality of lynx.

Fire Management

Management Actions

Portions of the FO that are located west of State Highway 120 and east of the Bighorn River are designated as full suppression areas for wildfires. This area occupies 240,100 acres. The remainder of the FO, approximately 841,100 acres, is designated a limited fire suppression area. Some methods of wildfire suppression will be restricted in sensitive FOs. The use of heavy equipment will be restricted or prohibited in areas of fragile soils, in wetland and riparian areas, on lands above significant caves, on Sheep Mountain west of Cody, on Carter Mountain, and in timbered areas of the east end of Rattlesnake Mountain.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities. Prescribed fire may also benefit lynx by providing regenerative growth that, in time, will be favorable to snowshoe hares.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in Cody RMP (1990), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000). In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Forestland Management

Management Actions

The forestland management objective is to improve forest resource and wildlife habitat values. Forestlands on Rattlesnake Mountain are in a restricted forest management area.

Effects Analysis

Forestland management actions occur in coniferous habitats, which are the same areas used by lynx. Timber management creates different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000). This reduces habitat quality and quantity for lynx and their prey. Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the

potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Determination

Implementation of forest management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts.

Geothermal Management

Management Actions

There are currently no geothermal leases in the Cody FO area and the potential for geothermal development activities in or near LAUs is extremely low.

Effects Analysis

Activities and potential effects to lynx that result from development of geothermal resources are not unique and are similar to potential effects from mineral and oil and gas development. However, all known geothermal activities are at a great distance from lynx and their habitat. It is not anticipated that there will be any impacts to lynx behavior or denning and foraging habitat.

Determination

Implementation of geothermal management actions, as presented in the Cody RMP (1990a), will have **no effect** on the lynx because these activities do not occur in or near lynx habitat.

Hazardous Materials, Hazardous Waste, and Other Hazards Management

Management Actions

The hazardous materials, hazardous waste, and other hazards management objective is to protect public health and safety on BLM-administered public lands and prevent waste contamination due to any BLM-authorized actions.

Effects Analysis

Emergency responses to hazardous materials, hazardous waste, and other hazards occur very infrequently, are limited in scale, and typically restricted to roadways or other areas of human activity, where lynx will likely have become accustomed to some degree of human disturbance.

Determination

Implementation of hazardous materials management actions, as presented in the Cody RMP (1990a), will have **no effect** on the lynx. This determination is based on the premise that no public vehicle access occurs within any lynx habitat or LAU, therefore, releases of hazardous materials and subsequent response actions that would harass or displace lynx and disturb or destroy suitable lynx and hare habitats would not occur.

Lands and Realty Management

Management Actions

The BLM will seek to acquire and retain access in several areas, including recreational access along the North and South Forks of the Shoshone River.

Approximately 55,900 acres of BLM-administered lands have been identified for disposal in the Cody FO. Proposals for disposal of any BLM-administered lands in the FO will be considered. All disposal actions will be assessed for potential effects to other important resources prior to approval. Priority will be given to disposal of lands proposed to meet community needs. Exchange will be the preferred method of disposal or acquisition of lands by BLM. Lands included in several sections within the Cody FO will be targeted for acquisition because these lands contain recovery habitats for threatened and endangered wildlife species.

Designated utility and pipeline corridors and communication site windows include areas of existing right of way concentration areas and three existing communication sites. These designated corridors and windows are the preferred locations for future communication sites and utility and pipeline rights of way. Most of the FO is open for location of utility and transportation systems. Proposals will be addressed on an individual basis with emphasis on avoiding potential conflict areas.

The areas within 2 miles of the Bighorn River and within 1 mile of the Shoshone and Greybull Rivers and the Clark Fork of the Yellowstone River are avoidance areas for construction of aboveground power lines.

Reviews of withdrawn lands, under section 204(I) of Federal Land Policy and Management Act (FLPMA), will be completed to determine whether withdrawals are serving or needed for their intended purposes. These reviews are not a part of developing the RMP. Thus, no decisions are made on the termination of any withdrawals in this RMP. Existing stock driveway withdrawals will be retained, although the BLM reserves the right to modify historic trailing routes and use to mitigate any impacts associated with trailing, or to deny trailing use if the impacts cannot be adequately mitigated.

Withdrawals from locatable mineral entry and development will be initiated on the BLM-administered Bighorn River HMP/RAMP tract and the BLM-administered by BLM in the Yellowtail Wildlife Habitat Management Unit (HMU). Withdrawals from locatable mineral entry and development will be initiated on the Five Springs Falls ACEC and in the Little Mountain ACEC.

About 500,000 acres of land administered by BLM that were classified under the provisions of the Classification and Multiple Use (C&MU) Act were initially reviewed in 1981. At that time, C&MU retention classifications and segregations from the land laws were terminated on all but 2,840 acres and segregations from the mining laws were terminated on 200 acres.

The C&MU classifications in the FO were established by BLM and no other agencies or administrative

authorities were involved. Approximately 493,000 of these acres were classified for retention in federal ownership for multiple use management and were segregated from disposal through operation of public lands laws. The remaining 7,000 acres were also classified for retention and multiple acres were also classified for retention and multiple use management and segregated from disposals, but in addition, were segregated from mineral location through operation of the mining laws, to protect important resource values.

Review of the remaining 497,000 acres of lands administered by BLM in the FO indicated that all of the classifications were either no longer serving their intended purpose or no longer needed for their intended purpose. These lands will be managed as follows:

Any terminations of C&MU classifications that were not completed in 1981, will be completed.

When classification terminations are processed, they will be reviewed to identify needed refinements to the RMP management decisions or to identify the need for new protective withdrawals to be initiated. If necessary, the RMP will be amended.

Recreation values and rare plants at Five Springs Falls and important caves and scenic values with the Little Mountain ACEC will remain closed to locatable mineral entry and development under the existing C&MU classifications, until after the new withdrawals are in place.

All remaining lands under previous C&MU classifications will be managed under the various provisions and management decisions of the Cody RMP, as they apply.

Effects Analysis

Management of existing access and acquisition of new access to lands administered by BLM will not alter lynx behavior. Improved or new access to lands under new administration may result in positive effects to lynx habitats by securing these lands and managing them under BLM provisions.

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as LAUs or important travel corridors would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. Roads can be a source of fragmentation of lynx habitat resulting in reduced mobility, and in mortality to lynx resulting from collisions. The degree of these impacts is correlated with traffic volume and speed, and road width. The construction of roads within rights of way may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats.

Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. The overall goal of FO staff is to maintain lands that contain potential habitat for the lynx; however, large transfer of acreage due to land tenure actions may occur.

The issuance of ROWs and leases (utility transportation corridors), specifically ROWs for ditches, canals, and roads may affect the lynx if the associated construction is within the vicinity of travel corridors. This

may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. The issuance of temporary use permits, and construction activities associated with fencing of revegetation sites require an analysis to determine if they are present in potential habitat areas and travel corridors and would have similar short-term avoidance impacts.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant affect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities that could have a negative affect on the lynx; closing areas creates undisturbed habitat for lynx.

Actions associated with C&MU are not expected to impact lynx behavior or habitats.

Conservation Measures in place (Section 4) that relate to lands and realty management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as the evaluation of effects on key linkage areas in situations of proposed land exchanges, land sales, and special use permits.

Determination

Implementation of land resource management actions, as provided in the Cody RMP (1990a) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Access Management

Management Action

The BLM access policy in Wyoming is to acquire permanent exclusive easements (BLM controls and includes rights for the public) over mainline roads on the BLM transportation plan. A BLM mainline road is considered the principal access into larger blocks of BLM-administered public lands or into tracts of BLM-administered lands with high resource values. The BLM will seek to acquire administrative access along Trail Creek to Rattlesnake Mountain, which includes BLM-Dead Indian LAU. Priority emphasis will be placed on acquisition of public access to the Cedar Mountain and Little Mountain areas which includes the BLM Porcupine/Mann Creek 3 LAU on Little Mountain. Existing public access to BLM-administered public lands in the Carter Mountain area will be continued, with BLM- Lower South Fork LAU on Carter Mountain.

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Negotiations of new easements are considered surface disturbing activities subject to NEPA and may receive protective measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be

allowed applies to easements also. There are more skilled map readers or users of GPS since the RMP was signed which has enabled recreation users to legally access portions of these lands by foot or horseback. Adjacent U.S. Forest Service and some private landowners provide limited access.

Determination

Implementation of access management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for easement acquisitions to cause harassment, displacement, injury, and mortality of lynx.

Livestock Grazing Management

Management Actions

The total authorized livestock grazing use will not exceed 90,895 animal unit months (AUMs). Livestock grazing will not be allowed in Bighorn River HMP/RAMP tracts, which totals approximately 2,500 acres.

The Guidelines for Livestock Grazing Management on BLM land in Wyoming apply.

Effects Analysis

Although the RMP and the Guidelines for Livestock Grazing Management on BLM land provide some regulatory guidance for protecting the riparian areas used by snowshoe hares for foraging and by lynx for movement corridors, impacts to these areas do occur. Domestic livestock grazing in riparian areas can alter the structure and composition of aspen and riparian shrubs that hares depend upon. In areas with high elk numbers, this loss of vegetation can be further exacerbated. Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Grazing also causes a reduction in fine fuels, thus affecting fire regimes and subsequent regeneration.

In areas within the elevational range of lynx, grazing in shrub-steppe communities also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush. Lynx will use these sagebrush areas for foraging when prey are abundant there, and will make exploratory and dispersal movements outside of their forested habitats onto shrub-steppe communities, during which they would require alternate prey such as sage grouse, jackrabbits, and ground squirrels.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and

that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

Determination

Implementation of livestock grazing management actions, as provided in the Cody RMP (1990a) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Minerals Management

Management Action

Surface-disturbing activities associated with all types of mineral exploration and development and geophysical exploration are subject to application of the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities.

The coal screening process has not been conducted in the FO. Interest in exploration or leasing of Federal coal will be handled on a case-by-case basis. If an application for a coal lease should be received in the future, an appropriate land use and environmental analysis, including the coal screening process, will be conducted to determine whether the coal areas are acceptable for development and for leasing.

All parts of the FO that are open to oil and gas exploration are open to geophysical exploration. Those lands identified as closed to oil and gas exploration are also closed to geophysical exploration. On lands with "no surface occupancy" restrictions for oil and gas exploration and development activities, only causal use geophysical exploration will be allowed, unless otherwise specified. Surface disturbance restrictions for geophysical exploration activities apply to both leased and unleased land.

With the exception of the McCullough Peaks Wilderness Study Area, the FO is open to oil and gas leasing, subject to appropriate restrictions for surface disturbing activities. Throughout the FO, oil and gas reclamation plans will be prepared to improve reclamation in old fields and to allow for orderly development of new fields. Restrictions or requirements that are no longer applicable, insufficient, or too restrictive may be changed only with the use of conservation measures or Conditions of Approval in authorizing Applications for Approval, Plans of Operation, or Plans of Development.

Effects Analysis

Human activity associated with oil and gas and mineral development can negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources will alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx and increased intrusion by non-specialized competing predators such as bobcat, coyote, and wolf. Additional impacts are a consequence of increased access into habitat, increased fragmentation, loss of snowshoe hare and red squirrel habitat, associated noise and human activity, associated hazards (such as chemical toxins), and temporal and spatial project considerations.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the

LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Determination

Implementation of geology and mineral management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands; the implementation of Conservation Measures (1-6 under "All Programs", and 1-2 under "Energy Development"); the protections in place for threatened and endangered species; and the low potential for existing and current mineral and energy development to cause harassment, displacement, injury, and mortality of lynx due to mineral activities.

Off-Road Vehicle Management

Management Action

Unless otherwise specified, vehicle use on BLM-administered public lands in the FO is designated as limited to existing roads and trails. Several areas, including the Bentonite Hills, Irma Flats, and Lovell Lakes Motocross Area, have been designated as open to ORV use. Vehicle use on BLM-administered lands is designated as limited to designated roads and trails in the following areas:

- Essential and recovery habitat for threatened or endangered species;
- Areas with fragile soils or with Class I or II Visual Resource Management ratings;
- Areas containing significant cultural or paleontological resources;
- Areas over important caves or cave passages;
- The Bighorn River and West Slope Special Recreation Management Areas;
- Rattlesnake Mountain; and
- The Carter Mountain, Little Mountain, and Sheep Mountain Anticline ACECs and in the McCullough Peaks area.

Effects Analysis

The RMP restricts ORV use to existing roads and trails. However, the only existing road/trail in an LAU cannot be accessed by the public, and the access from Shoshone National Forest has natural barriers. Thus there are no impacts to lynx, their habitat, or their prey as a consequence of this management action. The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the lack of potential for disturbance to lynx or their prey due to lack of access, and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Recreation Management

Management Action

The objective of recreation management is to enhance opportunities for primitive recreation while increasing visitor services in some areas. Within the FO, recreation areas have been designated as special or extensive. Five special recreation management areas (SRMAs) are designated in the FO, which occupy approximately 125,000 acres of BLM-administered surface lands. The remainder of the FO is designated as an extensive recreation management area (ERMA). Recreational uses of the Bighorn River, such as fishing, boating, and hunting, will be managed under the Bighorn River HMP/RAMP.

Effects Analysis

There is no motorized access for members of the public to the forested areas within lynx habitat and LAUs in this FO. Access is generally very difficult and is by foot or horseback, so consequently is very minimal with very little impact to lynx from recreation management actions. The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), the no net increase in over-the-snow routes and play areas in LAUs, restriction on actions that degrade or compromise landscape connectivity or linkage areas, requirement that trails, roads, and lift termini be designed to direct use away from diurnal security habitat, and the evaluation of permits that promote snow compacting activities.

Determination

Implementation of recreation resource management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the fact that this activity does not occur in lynx habitat due to lack of access, and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Visual Resource Management

Management Actions

The objective of visual resource management (VRM) is to maintain or improve scenic values and visual quality throughout the planning area.

Effects Analysis

Actions associated with VRM will not directly impact lynx behavior or habitats. Potentially, a request for movement of a structure or project due to VRM classification out of a higher classification area to a lesser classified area might move the project into lynx habitat or LAU. Impacts to lynx by such moves would be precluded by the lynx conservation measures. The exclusion of some activities and structures from designated view sheds may have a secondary positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Determination

Implementation of visual management actions, as presented in the Cody RMP (1990a), is **not likely to**

adversely affect the lynx, due to possible **beneficial effects**. This determination is based on the fact that implementation of the visual resources management involves no anticipated disturbance to lynx habitat.

Watershed Management

Management Action

A maintenance priority is placed on approximately 700 acres of existing spreader dikes and 10 existing retention dams in the FO. Other watershed projects will be maintained as necessary. Watershed improvement practices in the Wyoming's Bighorn Basin water quality plans will be implemented to reduce sediment loading in the streams and river segments. Priority stream segments for use of watershed improvement practices and development of watershed activity plans include portions of the Shoshone and Bighorn rivers:

Priority 1: The Shoshone River (from its confluence with the Bighorn River to the Buffalo Bill Dam). Priority drainages within the Shoshone sub-basin include Whistle, Deer, Coon, and Sand Creeks, Roan Wash, and Foster Gulch.

Priority 2: The Bighorn River (from Bighorn Reservoir to Greybull). Priority drainages within the Bighorn sub-basin are Crystal, Bear, and Dry Bear Creeks.

Surface disturbing activities will be prohibited within 500 feet of surface water and riparian areas, except when necessary and when their impacts can be avoided or mitigated. However, sagebrush control is allowed within 500 ft, unless site-specific environmental analysis indicates otherwise.

Effects Analysis

Actions associated with watershed management will not negatively impact lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and none are proposed to occur in lynx habitat or LAUs. The watershed improvement practices along the Shoshone and Bighorn rivers are at great distances from the LAUs in this FO. Management actions might also benefit lynx because they are likely to improve riparian vegetation and habitat for lynx and their prey if a lynx were to travel outside normal, defined habitat or LAUs .

Determination

Implementation of soil and water resource management actions, as presented in the Cody RMP (1990a), will have **no effect** on the lynx. This determination is based on the fact that watershed actions are not planned to occur in lynx habitat.

Wild and Scenic River Management

Management Action

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation.

Effects Analysis

Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species. One WSR segment, Porcupine Creek, flows along the northern boundary of the BLM-Porcupine/Mann Creek 3 LAU. The WSR designation will place protections to maintain and possibly enhance this creek segment, providing additional protections for lynx and their habitats and their prey base. Often lynx den in areas along waterways as the vegetation is generally more dense and downed spruce trees along these stretches provide denning habitat.

Determination

Implementation of WSR management activities, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the premise that lynx habitat will be further protected by WSR designation from activities authorized by the BLM.

Wild Horse Management

Management Action

The objective of wild horse management in the McCullough Peaks Wild Horse Herd Management Area (WHHMA) is to maintain a viable herd 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. The McCullough Peaks WHHMA will be managed to maintain a population of 100 wild horses until monitoring data indicate changes in the population level are necessary.

Effects Analysis

Actions associated with wild horse management in the McCullough Peaks WHHMA are expected to be limited to occasional herding, corralling, and transporting of horses. These activities occur in areas distant from the LAUs and it is unlikely that lynx would travel through the basin between the Shoshone and Bighorn National Forests. These actions are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats.

Determination

Implementation of wild horse management, as presented in the Cody RMP (1990a), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within the McCullough Peaks WHHMA. Lynx would be extremely unlikely to travel through the lower-elevation basin that encompasses the WHHMA as it is outside of normal habitat or LAUs and therefore be adversely affected by actions associated with management of wild horses.

Wilderness Management

Management Action

Wilderness Study Areas (WSAs) on public lands are single-use resources managed in accordance with decisions issued by the U.S. Congress. The BLM manages activities to ensure that proposed actions are consistent with the land use plan in effect for the area.

Effects Analysis

The absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values. Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values.

All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines. These actions are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats and actually likely have beneficial effects for lynx.

Determination

Implementation of WSA management activities, as presented in the Cody RMP (1990a), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within any BLM WSA within the planning area.

Wildlife and Fish Management

Management Action

Vegetative manipulations and application of the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be used to maintain or improve uncommon and important wildlife habitats such as wetlands, mountain shrublands, shrub steplands, Douglas-fir, Engelmann spruce-subalpine fir, and aspen-conifer forestlands. Surface disturbance restrictions will be applied on BLM-administered tracts managed under the Bighorn River HMP/RAMP (recreation area management plan) (approximately 2,500 acres), and on BLM-administered lands in the Yellowtail Wildlife habitat management unit (HMU) (approximately 4,070 acres). For the protection of prey bases essential to threatened or endangered birds, spraying of insecticides will not be allowed until after a site-specific environmental analysis. When practical, BLM will consult with WGFD in applying impact minimization measures for wildlife needs and before waiving, allowing exceptions to, or modifying wildlife-related land use restrictions and impact minimization measure s. The BLM will make a reasonable attempt to coordinate with WGFD and USFWS regarding fish and wildlife management on BLM-administered lands and to accommodate their interests and concerns whenever possible.

These projects are designed to improve habitat for species such as the lynx and northern goshawk, such as conifer removal in aspen stands to reduce encroachment. In other cases it may be a matter of responding to an action undertaken by a different party, such as occurred on the flank of Carter Mountain after a salvage sale. BLM fenced some areas to protect aspen suckers from elk foraging in the cleared areas.

Effects Analysis

The implementation of management actions associated with wildlife habitat management will likely have positive effects by maintaining or improving existing habitat conditions that will benefit lynx and their prey. Many of the actions are, in fact, directed at lynx habitat improvement. There is the possibility that in some cases, lynx would avoid areas where activities would create a temporary disturbance.

Determination

Implementation of wildlife habitat management actions, as presented in the Cody RMP (1990a), is **not likely to adversely affect** the lynx due to **insignificant effects.** Although there is the possibility of some occasional and small degree of disturbance, this determination is based on the potential for these actions to benefit the lynx by maintaining or enhancing habitats used by snowshoe hares, sage grouse, and jackrabbits in shrub steplands, mountain shrublands, Douglas fir, Engelmann spruce-subalpine fir, and aspen-conifer forestlands.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Cody RMP management actions.

TABLE 4 SUMMARY OF DETERMINATIONS FOR THE CODY RMP

Resource	Determination
ACEC	Not likely to adversely affect, due to beneficial effects
Air Quality	No effect
Cultural and Paleontological	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Forestland	Not likely to adversely affect, due to insignificant effects
Geothermal	No effect
Hazardous Materials	No effect
Lands and Realty	Not likely to adversely affect, due to insignificant effects
Livestock Grazing	Not likely to adversely affect, due to insignificant effects
Access	Not likely to adversely affect, due to insignificant effects
Minerals	Not likely to adversely affect, due to insignificant effects
Off-Road Vehicles	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to discountable effects
Visual Resources	Not likely to adversely affect, due to beneficial effects
Watershed	No effect
Wild and Scenic Rivers	Not likely to adversely affect, due to beneficial effects
Wild Horses	No effect
Wilderness	No effect
Wildlife and Fish	Not likely to adversely affect, due to insignificant effects

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Cody FO. Future State, tribal, local, or private actions in the Cody FO include the following (Harrell 2003):

- Oil field exploration proposed for the western side of the Bighorn Mountains
- Bentonite and gypsum mining on the western side of the Bighorn Mountains
- Seismic exploration outside of the town of Clark, near the Clark's Fork River
- Possible coal exploration in coal seams throughout the Cody FO

Some of these possible projects are situated near LAUs. There are LAUs on the western side of the Bighorn Mountains, where oil field exploration, and bentonite and gypsum mining may occur. There are 2 LAUs just west of Clark, where seismic exploration may occur. Certain components of these projects, if completed, could directly or indirectly affect lynx or their habitats. In addition to the cumulative impacts resulting from the BLM activities described previously, implementation of the Cody RMP could add further impacts to the lynx that may result from current non-federal actions.

KEMMERER FIELD OFFICE

The Record of Decision for the Kemmerer Resource Management Plan, signed on April 29, 1986, is a comprehensive plan for managing the Kemmerer FO (BLM 1986a). The Kemmerer FO occupies approximately 1.63 million acres in southwestern Wyoming. The FO occurs in Lincoln, Sweetwater, and Uinta Counties, and includes some lands in Idaho and Utah. These lands outside of Wyoming are managed for range resources only under the Kemmerer RMP.

The approved Kemmerer RMP represents a selection of management actions that will resolve the planning issues and provide multiple use management of the public lands and resources that will best meet present and future needs. As previously mentioned in this document, the Wyoming approved stipulations will be used, as appropriate, to condition development activities in all programs where surface disturbing activities take place and where the objectives of the RMP include the protection of important resource values. Restrictions specifically set forth in resource management plans are complementary to those included in the Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities and BLM Guidelines for Livestock Grazing Management and are not all-inclusive.

The objectives of the RMP are to provide a degree of protection to certain resources rather than to restrict other activities. Four areas of no surface occupancy have been designated within the FO. These restricted areas include: bald eagle communal winter roosting sites (Woodruff Narrows, Morgan Canyon, and Rock Creek), the Bridger Antelope Trap, sensitive plant locations, and lands within a ¼ mile radius of perennial streams in the Raymond Mountain ACEC.

Environmental Baseline

This section presents a summary of the known LAUs in the Kemmerer FO and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may have influenced lynx and their habitats. There are 24 LAUs designated for the FO, including 2 stand-alone LAUs at the south end of the Bridger-Teton NF, Commissary Ridge and Dempsey Ridge. These are shown in **Table 3** and **Map 4**. These LAUs take up 60,153 acres on BLM land in this FO.

Habitat has been delineated for the Kemmerer FO in the north, in the 2 stand-along LAUs, and in the south as an extension of the Wasatch National Forest LAUs. Some of this habitat is located within LAUs, and some is not. The delineated habitat separate from LAUs, as occurs in the northern part of the FO, reflects the fact that the habitat was not of sufficient size to delineate an LAU, but can be recognized and protected as potential habitat on its own. There are 27,163 acres of BLM LAU habitat, comprising 45% of the total BLM LAU acreage. In addition, there are 900 acres not within LAUs (**Table 3**).

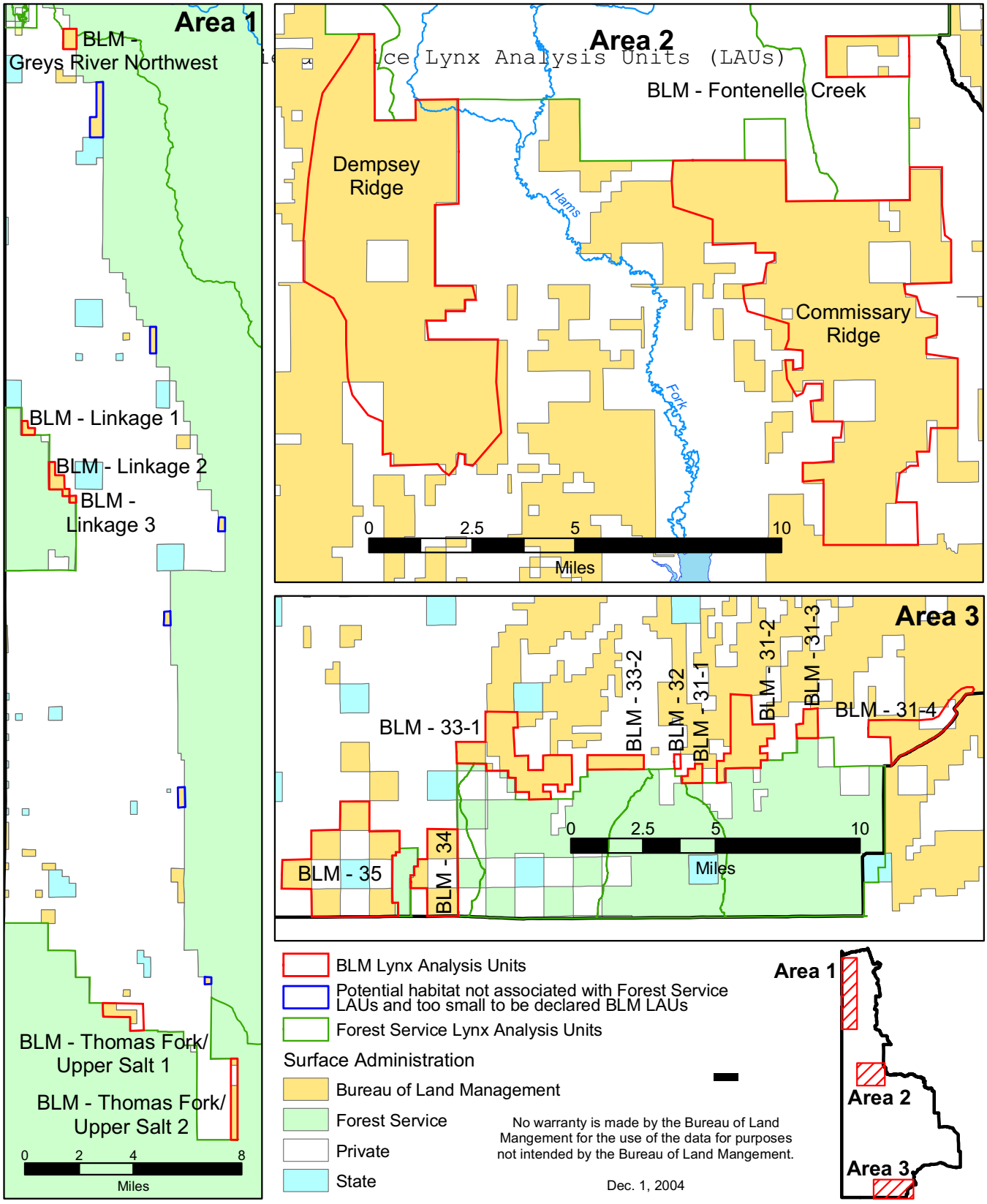
There are 50 lynx records in the WYNDD database from the Kemmerer FO (**Table 2** and **Appendix A**) (WYNDD 2003).

Existing Conservation Measures

The following section presents measures included in the Kemmerer RMP that may directly or indirectly minimize impacts to the lynx.

(a) “No activity or surface disturbance will be allowed for up to a ¾ mile radius from active raptor nest sites from February 1 through July 31 (except that bald eagle and peregrine falcon restrictions extend from February 1 through August 15). A nest site will be considered active if it has been used within the

Map 4:
Kemmerer Field Office Lynx Analysis Units



past three years. Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors" (BLM 1986a, p. 9, 29).

Analysis of Proposed Management Actions and Effects

The Kemmerer RMP (BLM 1986a) includes descriptions of each management prescription applied within the FO. These activities are summarized in the Introduction, above. The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be applied to all surface disturbing or disruptive activities.

Air Quality Management

Management Actions

No specific management actions are presented with this program. However, actions conducted under other resource programs, including fire or mining, will be conducted in a manner so as to avoid violation of the Wyoming and National ambient air quality standards. There are currently no air quality monitoring stations within any lynx habitat or LAUs in the Kemmerer FO area.

Effects Analysis

Actions related to air quality management will result in no impacts to lynx behavior, denning habitat, or foraging habitat. The actions associated with air quality management are extremely small in scope, of short duration, and unlikely to occur in lynx habitat.

Determination

No monitoring stations are currently in any lynx LAUs on BLM lands within the Kemmer FO. Implementation of air quality management actions, as presented in the Kemmerer RMP (1986), will have **no effect** on the lynx, due to a lack of overlap of management activities and lynx habitat.

Geology and Minerals Management

Management Actions

Geophysical, oil and gas, and mineral (for example; coal, sodium, oil shale, phosphate, and locatable and salable minerals) exploration will occur throughout the Kemmerer FO. More recently, wind farms are being erected, especially on ridgetops. Measures that are specific to wildlife and habitat resources are included in the management of geology and mineral resources. To protect riparian areas, no surface disturbance will be allowed within 500 feet of perennial streams or live water.

Effects Analysis

Human activity associated with oil and gas and mineral development can negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources will alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx and increased intrusion by non-specialized competing predators such as bobcat, coyote, and wolf. Additional

impacts are a consequence of increased access into habitat, increased fragmentation, loss of snowshoe hare and red squirrel habitat, associated noise and human activity, associated hazards (such as chemical toxins), and temporal and spatial project considerations.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Determination

Implementation of geology and mineral management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx habitat and LAUs.

Soils Management

Management Actions

BLM's activities associated with the soils resource will continue to be prioritized and based upon:
1) evaluation and interpretation of soils in relation to project design and development; 2) identification and inventory of soils for baseline data; 3) identification and implementation of methods to reduce accelerated erosion; and 4) provision of soil and climatic data in support of rangeland monitoring, inventory, and project design and development.

The protection of trees, shrubs, and ground cover from damage during construction will be required. Backfill will be required to be replaced in a similar sequence and density to preconstruction conditions. The restoration of normal surface drainage will be required. Any mulch used will be free of mold, fungi, or noxious weed seeds. The grantee or lessee will be responsible for the control of all noxious weed infestations on surface disturbances.

Recognized roads will be used when the alignment is acceptable for the proposed use. Generally, roads will be required to follow natural contours; be constructed in accordance with acceptable standards; and be reclaimed to BLM standards. On newly constructed roads and permanent roads, the placement of topsoil, seeding and stabilization will be required on all cut and fill slopes. No unnecessary side-casting of material on steep slopes will be allowed. Reclamation of abandoned roads will include requirements for reshaping, recontouring, resurfacing with topsoil, installation of water bars, and drill seeding on the contour. Stripped vegetation will be spread over the disturbance for nutrient recycling, where practical.

On well pads and facility locations, special attention will be given to parts of the surface use plant covering reclamation. This plan will include objectives for successful reclamation covering; soil stabilization, plant community composition, and desired vegetation density and diversity. The development of facilities on slopes between 25 and 40% will be restricted unless soil erosion controls can be ensured and adequate revegetation is expected. No surface occupancy will be allowed on slopes greater than 4%. Abandoned sites must be satisfactorily rehabilitated by the lessee.

Existing road locations will be used where possible to minimize surface disturbances. Where possible, clearing of pipeline and communication line rights of way will be accomplished with the least degree of

disturbance to topsoil. Where topsoil removal is necessary, it will be stockpiled and respread over the disturbance after construction and backfilling are completed. Vegetation removed from the right of way will also be required to be re-spread to provide protection, nutrient recycling, and a natural seed source.

Effects Analysis

The implementation of soils management involves planning for not allowing actions that will cause soil erosion and modifying others to avoid soil erosion. There are no impacts from this management action on lynx. However, activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Other surface disturbing activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

Determination

Implementation of soil resource management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx habitat and LAUs. Management of soil resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, localized or small in scale, and generally not likely to occur in lynx habitat. Implementation of soil resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats.

Water Management

Management Actions

Activities within the Kemmerer FO will be managed to comply with state and Federal water quality standards.

Effects Analysis

Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be

primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

The above types of actions associated with watershed management would take place very rarely, if at all within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Actions associated with watershed management are likely to improve riparian vegetation and habitat for lynx and their prey

Determination

Implementation of water resource management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx, lynx habitat or LAUs. Management of water resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, localized or small in scale, and generally not likely to occur in lynx habitat. Implementation of water resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats and are likely to improve riparian vegetation and habitat for lynx and their prey.

Livestock Management and Rangeland Program Summary

Management Actions

All noxious weed control will adhere to measures allowed in the Record of Decision for the Rock Springs District Noxious Weed Control EA or applicable updated guidance. Cooperation with county weed and pest control programs will continue.

Predator control will continue in accordance with the Rock Springs District Animal Damage Control Plan. No herds of wild and free-roaming horses will be maintained in the Kemmerer FO.

Forage will be produced for livestock grazing and, at the same time, other resource values will be protected or enhanced. The overall objective will be to improve range condition on "I" allotments and to maintain range condition on other allotments. A long-term increase of 31,901 AUMs, for a total of up to 193,901 AUMs could be realized through management actions. Any realized forage increases will be distributed among various resource uses to achieve overall management objectives.

Vegetation manipulation projects will be proposed on up to 82,610 acres. Vegetation manipulation will be designed to minimize adverse impacts to wildlife habitat and to improve it, whenever possible. WGFD will be consulted in advance on all vegetation manipulation projects.

Approximately 4,500 acres of unallotted public lands that support approximately 646 AUMs could be made available for grazing. However, some of these lands may be disposed of through the Lands program.

No conversion of sheep to cattle will be allowed in allotments with riparian problems without a plan to address riparian issues. Management actions and range improvements proposed would have to be in place before a conversion is authorized.

Riparian areas will be addressed on all "I" category allotments during the development of monitoring or allotment management plans. This objective will be established on allotments as riparian problems are identified and priorities for implementation are adjusted.

Effects Analysis

Domestic livestock grazing in riparian areas in suitable lynx habitat can alter the structure and composition of aspen and riparian shrubs that hares depend upon. Cattle and sheep grazing in excess of the designated amount of forage may create competition for forage and reduction in escape cover for hares and other small mammals. Light to moderate grazing will not be likely to substantively reduce forage for snowshoe hares.

Grazing in shrub-steppe communities within the elevational range of lynx also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush.

Predator control activities conducted by permittees on the range they graze, such as shooting, trapping, and poisoning to control coyotes, cougar, bear, and bobcat, may lead to incidental lynx mortality especially in the higher elevation allotments. This event has a low likelihood of occurring and causing lynx deaths.

Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Modifications in grazing to improve riparian habitats, including a reduction in grazing, fencing of riparian areas, weed control, and other improvements in riparian ecological function may benefit the lynx.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance

allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

Determination

Implementation of livestock grazing management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the small surface area that would be likely to have higher grazing pressure within the small area covered by allotments in suitable lynx habitat in this FO, and the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Fish and Wildlife Habitat Management

Management Actions

Management actions will be directed toward maintaining or improving riparian habitat condition by minimizing impacts: from surface disturbing activities in or near the riparian zone through the use of avoidance; by crossing on temporary or permanent bridges or culverts; and through the reclamation to promote native riparian vegetation.

Big game winter range will be improved using mechanical treatment, burning, or other vegetation manipulation methods. Seasonal closures for motorized vehicles may be used to protect big game winter range, as has been the case for the past three years from January 1 to April 30.

Management actions in riparian areas and wetlands will include measures to preserve, protect, and if necessary, restore natural functions. The objectives will be to minimize the degradation of stream banks and the loss of riparian habitat. Riparian areas in the Thomas Fork drainage will be managed to re-establish riparian/willow vegetation. Wetland areas will be improved for waterfowl production and sage grouse brood rearing. Stream improvement practices to improve riparian and wetlands areas for fisheries habitat will be implemented.

No activities that would jeopardize the continued existence of threatened and endangered species will be allowed in habitat for those species. USFWS will be contacted prior to implementing projects that may affect habitat for threatened and endangered species. If a “may affect” situation is identified, a biological assessment will be prepared and formal consultation with USFWS will be initiated.

Inventories to locate important wildlife habitat will be conducted as funds are available. Inventories will be conducted to provide baseline data for a proposed management action, such as an HMP, or to provide information in response to other program activities. Important wildlife habitat will be monitored to determine seasonal habitat use and to identify areas in need of habitat improvement.

Effects Analysis

Management actions associated with wildlife habitat management have potential impacts that are dependent on several factors including the number of people involved with each field effort, the time of year, duration of field activities, use of heavy machinery versus hand tools, and type of lynx habitat

affected. Lynx have a reasonable tolerance for human presence and may not alter how they use the landscape as a consequence (Aubry et al. 2000). In addition, precautionary measures for endangered species should provide additional protection. The implementation of these actions will likely have positive effects by maintaining or improving existing habitat conditions, especially riparian areas, which will benefit lynx and their prey. In some cases, however, lynx would likely avoid areas where activities are taking place due to the temporary disturbance created by these activities.

Determination

Implementation of wildlife habitat management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx due to **insignificant effects**. This determination is based on the low probability that lynx will be disturbed by specific management actions, the low potential for these actions to alter lynx behavior, and many of these actions may actually improve lynx habitat.

Recreation Management

Management Actions

Recreation area management plans (RAMPs) will be developed for prime areas of recreation potential. These include the Raymond Mountain Area, Pine Creek, Dempsey Ridge, Commissary Ridge, Upper Hams Fork, and Upper Smith's Fork areas.

Visual resources will continue to be evaluated as part of activity and project planning. Visual resource management (VRM) classes will be updated as situations change so that appropriate baseline information is included in project level planning. Large, long-term facilities will be required to be colored to blend with the natural environment when this is not in conflict with safety or with the purpose for which the facility has been designed.

For Off-Road Vehicle use, most of the Kemmerer FO (98%) will be designated "limited" to existing roads and trails except for necessary tasks. The entire Kemmerer FO will be open to snowmobile use, with the exception of big game winter ranges. WSAs are closed to all OHVs except snow machines.

Effects Analysis

Actions associated with recreational management and use, have the potential to detrimentally impact lynx behavior and habitats. Activities that create compacted snow conditions, such as snowshoeing and cross-country skiing, reduce the special advantage that lynx have to move through deep snow with their large paws. This allows for the intrusion of less-specialized predators such as bobcats, wolves, and coyotes into areas that would otherwise be the exclusive domain of the lynx. These other predators compete for prey and can prey on lynx. This argument is, however, a source of debate. An increase in human activity associated with management actions or use may cause lynx to avoid or abandon otherwise suitable habitats. Recreational use is often concentrated in riparian areas. Impacts to these habitats may reduce or eliminate foraging habitat for snowshoe hares.

The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), the no net increase in over-the-snow routes and play areas in LAUs, restriction on actions that degrade or compromise landscape connectivity or linkage areas, requirement that trails, roads, and ski-lift termini be designed to direct use away from diurnal security habitat, and the evaluation of permits that promote snow compacting activities.

Determination

Implementation of recreation management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Visual Resource Management

Management Action

Visual resources will continue to be evaluated as part of activity and project planning. Visual resource management (VRM) classes will be updated as situations change so that appropriate baseline information is included in project level planning.

Effects Analysis

Actions associated with VRM will not directly impact lynx behavior or habitats. Actions associated with VRM will not directly impact lynx behavior or habitats. Potentially, a request for movement of a structure or project due to VRM classification out of a higher classification area to a lesser classified area might move the project into lynx habitat or LAU. Impacts to lynx by such moves would be precluded by the lynx conservation measures. The exclusion of some activities and structures from designated view sheds may have a secondary positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Determination

Implementation of visual management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the fact that implementation of VRM involves no anticipated disturbance to lynx habitat and may actually have a secondary positive effect of limiting disturbances by preserving or minimizing disturbance to habitats that may be suitable to lynx or their prey.

Off-Road Vehicle Management

Management Action

Most of the Kemmerer FO (1,600,054 acres) will be designated “limited” to existing roads and trails except for necessary tasks. The Kemmerer FO will remain open to snowmobile use, except that big game winter ranges may be closed to minimize stress to wintering animials. Closures will vary depending on conditions developed through cooperation with the Wyoming Game and Fish Department. ORV designations will match Forest Service designations at the boundary of the Bridger-Teton and Wasatch National Forests. In areas designated as either “limited” to designated roads and trails or “limited” to existing roads and trails for off-road vehicle use, motorized vehicles must stay on designated or existing roads and trails, unless allowed an exception by the authorized officer. This limitation applies to all activities involving motorized vehicles. Vehicular travel in crucial and important wildlife habitats and during crucial and important periods will be restricted seasonally, as necessary (strutting grounds, spawning beds, big game ranges, calving/fawning periods, etc.).

Effects Analysis

Much of the Kemmerer FO is not subject to open ORV use. ORV use in the FO is best characterized as limited in frequency and intensity. No major new recreational programs or activities are anticipated in the FO. ORV management and use in the Rock Springs FO is not expected to result in detrimental effects to lynx behavior or denning, travel, or foraging habitats. The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low likelihood that effects from ORV use could result in take and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat including LAUs.

Land Management

Management Actions

Authorizations in the Lands Program will be conditioned to avoid undue adverse impacts to other important resource values and sensitive areas.

Effects Analysis

Management of existing access and acquisition of new access to lands administered by BLM will not alter lynx behavior. Improved or new access to lands under new administration may result in positive effects to lynx habitats by securing these lands and managing them under BLM provisions.

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as LAUs or important travel corridors would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. Roads can be a source of fragmentation of lynx habitat resulting in reduced mobility, and in mortality to lynx resulting from collisions. The degree of these impacts is correlated with traffic volume and speed, and road width. The construction of roads within rights of way may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats.

Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. The overall goal of FO staff is to maintain lands that contain potential habitat for the lynx; however, large transfer of acreage due to land tenure actions may occur.

The issuance of ROWs and leases (utility transportation corridors), specifically ROWs for ditches, canals, and roads may affect the lynx if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. The issuance of temporary use permits, and construction activities associated with fencing of revegetation sites require an analysis to determine if they are present in potential habitat areas and travel corridors and would have similar short-term avoidance impacts.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant effect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities that could have a negative affect on the lynx; closing areas creates undisturbed habitat for lynx.

Conservation Measures in place (Section 4) that relate to lands and realty management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as the evaluation of effects on key linkage areas in situations of proposed land exchanges, land sales, and special use permits.

Determination

Implementation of land resource management actions, as provided in the Kemmerer RMP (1986) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Access Management

Management Action

During oil and gas operations, roads will considered for long-term support of all programs. Access will be sought to areas which will be intensively managed for timber production. Temporary easements may be used for specific actions for short time periods. A high priority area for access acquisition will be the Meeks Cabin area in support of the forestry program.

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Negotiations of new easements are considered surface disturbing activities subject to NEPA and may receive protective measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be allowed applies to easements also. There are more skilled map readers or users of GPS since the RMP was signed which has enabled recreation users to legally access portions of these lands by foot or horseback. Adjacent U.S. Forest Service and some private landowners provide limited access.

Determination

Implementation of access management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for easement acquisitions to take place in lynx habitat or LAUs the could cause harassment, displacement, injury, and mortality of lynx.

Forestry Management

Management Actions

Forest management practices will be directed to prevent insect or disease infestations. Clearcuts will generally be limited to no more than 25 acres in size. Exceptions on this acreage limitation may be made (e.g., for insect or disease infestations). Clearcuts will be laid-out considering stand characteristics, topography, and other resource values.

Areas of new seedling establishment will be inventoried at specified intervals; areas not meeting stocking standards will be reforested using native species. Silvicultural treatments will be identified for specific areas to improve the stands. Treatment may include burning, chaining, cutting, or shearing. Rehabilitation surveys will be conducted on old logging and fire areas to determine if regeneration is sufficient to ensure proper stocking of a new timber stand. The effects of grazing will also be assessed and remedial action (e.g., fencing) may be taken to protect reproduction. The objective is to achieve a fully stocked stand within 15 years. When, prior to 15 years, it is apparent that natural regeneration will not result in a fully stocked stand and if funding is available, the area will be planted. Natural regeneration of a fully established stand normally takes from 5 to 9 years, and depends on a number of factors including soil, site location, topography, moisture, and aspect.

Road development will be kept to a minimum. Road locations and specifications will be selected to meet transportation needs, safety requirements, and consideration of other resource values. Timber harvest and associated activities will be planned in a sequence that will be least disruptive to wildlife. An engineering analysis will be required where road grades exceed 10%. Roads will be routed away from areas that are likely to slump or slide. Cross drain culverts, water bars, or ditches will be installed, as needed to prevent erosion or washing away of the road. Temporary roads will normally be rehabilitated and closed after logging.

Effects Analysis

Forestland management actions occur in all forest types, including aspen and coniferous habitats, which are the same areas used by lynx. Timber management creates different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000). This reduces habitat quality and quantity for lynx and their prey. Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Determination

Implementation of forest management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts.

Cultural and Historic Management

Management Actions

All significant historical, archaeological, and cultural sites will be protected or mitigated. Interpretive signing will be developed. The trail register will be stabilized and preserved. A campground at Emigrant Springs (Dempsey) will be considered as a part of total development. Interpretive signs will be placed at the Alfred Corum gravesite and at nearby ruts of the Oregon Trail. Cultural resources management plans will be developed for significant sites. The need for such activity plans will be determined on a case-by-case basis.

Effects Analysis

Actions associated with cultural resource management are unlikely to occur (they are very infrequent), are typically in a very small area, have little impact, and are of short duration. These activities are unlikely to occur in lynx habitat.

Determination

Implementation of cultural resource management actions, as presented in the Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat and LAUs on BLM-administered lands, the protections in place for threatened and endangered species (including lynx), and the low potential for cultural resource management actions to cause harassment, displacement, injury, and mortality of lynx.

Fire Management

Management Actions

The Kemmerer FO is divided into nine fire management areas that share common management objectives, topographic boundaries, or land ownership patterns. Fire suppression efforts within these areas will be driven by property threatened or resource benefits derived. All new developments that could be damaged by wildfire will be required to have a fuel break stipulation to prevent the spread of fire from adjacent vegetation to the development.

If, due to potential resource damage, a need for full suppression is clearly indicated (Option I), suppression procedures are initiated. Where there are limited benefits to be derived from fire (Option II),

the costs of suppression versus expected benefits are analyzed. This may result in limited suppression efforts. When fire may result in important resource benefits (Option III), four primary parameters will be evaluated to determine if fire would result in potentially unacceptable impacts or in conditions that would make it difficult to control the fire. If at some point, one or more of the parameters becomes unfavorable, management of the fire would revert to Option I (full suppression). These parameters include: 1) threat to persons or property, 2) adverse weather conditions or forecast, and 3) resource impacts. These parameters will be monitored throughout the course of the burn.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities. Prescribed fire may also benefit lynx by providing regenerative growth that, in time, will be favorable to snowshoe hares.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in Kemmerer RMP (1986), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000). In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Wild and Scenic River Management

Management Action

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation.

Effects Analysis

Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species.

Determination

Implementation of WSR management activities, as presented in the Kemmerer RMP (1986), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within any BLM wild and scenic river segment within the planning area.

Wild Horse Management

Management Action

No herds of wild and free-roaming horses will be maintained in the Kemmerer FO. There are five wild horse areas in the KFO (Slate Creek, Cumberland, Carter Lease, Granger Lease and North Granger), but no horses are managed in these areas.

Effects Analysis

No herds of wild and free-roaming horses exist in the Kemmerer FO. Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. If wild horses are managed in these five areas in the future, these activities would not affect lynx as all five areas are outside of LAUs. It is unlikely that lynx would travel through the open country where the wild horse areas occur. So, wild horse activities are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats.

Determination

As no wild horses occur in the Kemmerer FO and potential implementation of any future wild horse management will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within wild horse areas. Lynx would be extremely unlikely to travel through the lower-elevation basin that encompasses these wild horse areas, as they are outside of normal habitat or LAUs and therefore be adversely affected by actions associated with management of wild horses.

Wilderness Management

Management Action

Wilderness Study Areas (WSAs) on public lands are single-use resources managed in accordance with decisions issued by the U.S. Congress. The BLM manages activities to ensure that proposed actions are consistent with the land use plan in effect for the area.

Effects Analysis

The absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values. Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values.

All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines. These actions are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats and actually likely have beneficial effects for lynx.

Determination

Implementation of WSA management activities, as presented in the Kemmerer RMP (1986), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within any BLM WSA within the planning area.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Kemmerer RMP management actions.

TABLE 5 SUMMARY OF DETERMINATIONS FOR THE KEMMERER RMP

Resource	Determination
Air Quality	No effect
Geology and Minerals	Not likely to adversely affect, due to insignificant effects
Soils	Not likely to adversely affect, due to discountable effects
Water	Not likely to adversely affect, due to discountable effects
Livestock and Rangeland	Not likely to adversely affect, due to insignificant effects
Fish and Wildlife	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to insignificant effects
Visual	Not likely to adversely affect, due to beneficial effects
ORV	Not likely to adversely affect, due to insignificant effects
Land	Not likely to adversely affect, due to insignificant effects
Access	Not likely to adversely affect, due to discountable effects
Forestry	Not likely to adversely affect, due to insignificant effects
Cultural and Historic	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Wild and Scenic Rivers	No effect
Wild Horses	No effect
Wilderness	No effect

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Kemmerer FO. One example is the proposed logging of 160 acres on private land within the

Commissary Ridge LAU. Potential effects that could affect lynx or their habitats in the Kemmerer FO include the following:

- Existing and proposed wind farms
- Hard rock mining (including coal, trona, and phosphates)
- Livestock grazing on private lands
- Non-federal oil and gas fields and related energy development
- Vehicle collisions
- Logging on private lands within LAUs

Some of these possible projects are situated on or near LAUs. Certain components of these projects, if completed, could directly or indirectly affect lynx or their habitats. In addition to the cumulative impacts resulting from the BLM activities described previously, implementation of the Cody RMP could add further impacts to the lynx that may result from current non-federal actions.

LANDER FIELD OFFICE

The Record of Decision for the Lander Resource Management Plan (RMP) was signed in June 1987 (BLM 1987a). The Lander FO occupies portions of Hot Springs, Fremont, Sweetwater, Natrona, and Carbon counties in central Wyoming. The Lander FO includes approximately 2.5 million acres of surface lands and 2.7 million acres of federal mineral estate.

Environmental Baseline

This section presents a summary of the known LAUs in the Lander FO and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats. Five LAUs from the adjacent Shoshone National Forest at the west end of the FO in the Dubois area extend onto BLM land. These LAUs take up 115,611 acres on BLM land in this FO (**Table 3, Map 5**).

Habitat has been delineated for the Lander FO, all within an LAU. There are 10,893 acres of BLM LAU habitat, comprising 9% of the total BLM LAU acreage (**Table 3**).

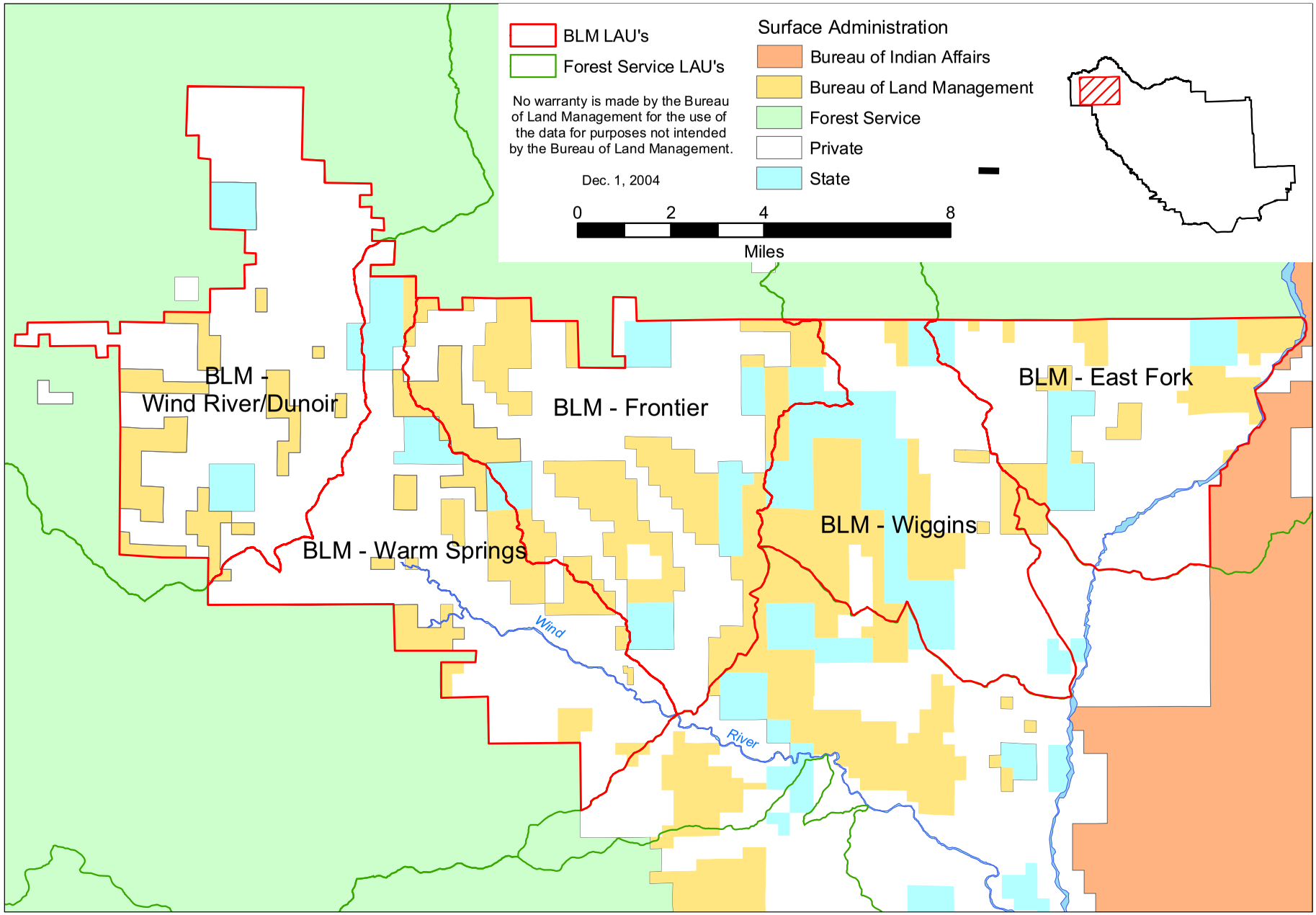
In earlier Forest Service (FS) mapping efforts, Shoshone FS LAUs were defined for the Wind Rivers in the Fitzpatrick Wilderness (LAUs 14 and 15), and by Lander (LAUs 16, 17, and 18). In a reevaluation of these, the FS determined that they did not contain lynx habitat (Hinschberger 2004), and they were subsequently dropped by the FS. BLM followed suit and dropped these LAUs as well. Although this will be reevaluated by staff at Shoshone NF, it is doubtful that they will be reinstated (Hinschberger 2003).

The RMP was divided into 13 management units that were delineated through a process involving intensive public input and professional judgment by BLM personnel. The breakout by management units focused the management actions to the specific areas in the field office. The 5 LAUs are in the East Fork and Dubois Area Management Units.

In addition to the LAUs discussed above, the Lander FO also has potential lynx travel corridors in the Crooks and Green mountains. In combination with the Seminoe and Ferris mountains in the Rawlins FO, these mountains provide a continuous mountainous linkage between the Medicine Bow Mountains and the Wind River Range.

There are 31 lynx records from the Lander FO in the WYNDD database, although none are on BLM land (**Table 2** and **Appendix A**) (WYNDD 2003). Staff with the Wyoming Game and Fish Department observed lynx tracks near Dubois in the Horse Creek/Burroughs Creek area, and near Lander in the Limestone Mountain area. Private individuals reported lynx observations from Brooks Lake Creek and Kitten Creek near Dubois, and on Horse Creek near Dubois (Wyoming Game and Fish Department 1998).

Map 5: Lander Field Office Lynx Analysis Units



Existing Conservation Measures

The following section presents measures included in the Lander RMP that may directly or indirectly minimize impacts to the lynx.

(a) "BLM will continue to work closely with the Wyoming Game and Fish Department in all matters affecting fish and wildlife resources" (BLM 1987, p. 4).

(b) "ORV management will focus more intensive management on those management units having crucial wildlife values" (BLM 1987, p. 9).

(c) "New oil and gas leases issued in areas rated as having moderate, low or no potential for the occurrence of oil and gas reserves will include a no-surface-occupancy restriction to protect water quality, fisheries, riparian areas, sage grouse leks, steep slopes, threatened and endangered species, significant cultural sites, sensitive visual resources, and elk and moose crucial winter range. In addition, seasonal restrictions will be applied to the leases to protect important wildlife habitat areas" (BLM 1987, p.27, 40, 43, 45, 50, 60, and 69).

(d) "Crucial wildlife areas will be critically examined before placement of any range improvement projects that can result in increased livestock use in these areas. Some crucial wildlife areas will require special intensive management actions" (BLM 1987, p. 80).

(e) No activities will be permitted in habitat for threatened or endangered species that would jeopardize the continued existence of such species. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement. The U.S. Fish and Wildlife Service will be consulted before implementing projects that may affect threatened and endangered species habitat. If a "may effect" situation is determined to exist by BLM biologists, then consultation with the U.S. Fish and Wildlife Service will be initiated according to Section 7 of the Endangered Species Act of 1973, as amended (BLM 1986b, p.31).

Analysis of Proposed Management Actions and Effects

The Lander RMP (BLM 1987a) describes each management prescription applied within the FO. These activities are summarized in the Introduction, above. Refer to the Lander RMP for a complete description of each management prescription (BLM 1987a).

Energy and Minerals

Management Action

Less than 1% of the slightly more than 2.7 million acres of federal mineral estate within the FO will be closed to leasing. All but 12,000 acres of the open acreage will be managed under a management prescription that will allow for enhanced management of the oil and gas resources by being less restrictive of oil and gas development related to other surface resource values in known geological structures and areas rated as having a high potential for the occurrence of oil and gas. This would be accomplished over the life of this plan as analyses are done to determine where the restrictions can be modified and still avoid significant impacts to other resources. In addition, as new information on the potential occurrence of oil and gas in any given area is obtained or new discoveries of oil and gas reserves are made, the potential rating for the area will be revised to reflect new data. New leases issued in these areas will be issued under the management prescription for that new rating.

Oil and gas leases issued within the FO will be conditioned with stipulations to protect other important resource values. If a particular method of geophysical exploration could be conducted within the constraints necessary to protect other resources, it will be allowed.

Specifically, the East Fork Management Unit will be designated a no-leasing area for oil and gas. Should drainage occur, BLM will recommend leasing under such stipulations as agreed upon by the Wyoming Game and Fish Department, the U.S. Fish and Wildlife Service and the BLM.

The entire Dubois Area Management Unit will be open for oil and gas leasing, where some old oil and gas leases with producing wells are located. New oil and gas leases issued in areas rated as having moderate, low or no potential for the occurrence of oil and gas resources will include a no-surface-occupancy restriction to protect water quality, fisheries, riparian areas, sage grouse leks, steep slopes, threatened and endangered species, Warm Springs Canyon, the area around Torrey Lake and significant cultural sites. In addition, seasonal restrictions will be applied to the leases to protect important wildlife habitat areas. In areas with moderate, low or no potential for occurrence of oil or gas, restrictions will be applied automatically before lease issuance. These restrictions could be waived later if appropriate. In areas of high potential for the occurrence of oil or gas, including Known Geological Structures (KGS), restrictions will not be automatically applied before lease issuance. Instead, new oil and gas leases issued in these areas will be conditioned with no-surface-occupancy and seasonal restrictions on a case-by-case basis and only when necessary to avoid a significant adverse impact on another resource. This plan will further provide for the enhancement of oil and gas development in KGSs and high-potential areas through the waiver of lease restrictions, upon demonstration by the lessee that adverse impacts to other resources could be minimized.

Waiver of the NSO requirement would be subject to the same test used to initially justify its imposition. The record must show that because conditions or uses have changed, less restrictive requirements would protect the public interest.

All federal lands within the FO will be open to locatable mineral exploration and development unless specifically withdrawn or segregated from appropriation under the mining laws. At the present time, approximately 1% of the federal mineral estate within the FO is closed to locatable mineral exploration and development. The portion of the FO that will be closed to locatable mineral exploration and development will increase by 30,000 acres to approximately 2% of the total federal mineral estate within the FO. The additional acreage proposed for withdrawal will be withdrawn to protect crucial wildlife habitat in the East Fork Elk Winter Range (LAUs 9 and 10) and Whiskey Mountain Bighorn Sheep Winter Range, and the remaining acreage will be scattered throughout the FO in small tracts primarily for the protection of significant cultural and historical resources. One hundred ninety acres in the Warm Springs Canyon area (LAU 13) of the Dubois Area Management Unit is also withdrawn.

In addition, in an attempt to minimize the acreage withdrawn to protect significant surface resource values, the plan will require that plans of operation be approved for all exploration and mining operations in certain areas designated as ACECs. Notices of intent usually allowed for operations disturbing five acres or less will not be allowed.

Prospecting, exploration and development, and leasing of phosphate resources will be allowed. The phosphate deposits are located in a belt running along the northeast flank of the Wind River Range and extend into three different management units. Phosphate activities within the Red Canyon and Lander Slope Management Units will require stringent stipulations and impact minimization measures to protect surface-resource values. The Beaver Creek Management Unit, which contains approximately one-half of the known phosphate resources will remain open to exploration, development, and leasing with fewer restrictions than will be the case in the Red Canyon and Lander Slope Management Units. In the Red

Canyon and Lander Slope Management Units, these restrictions will adversely affect the economic recovery of the phosphate resource. No significant phosphate resources are located in the Dubois area of the field office.

Exploration and development of other minerals, such as sand and gravel, building stone, and other common minerals, will be allowed on a demand basis and consistent with the limitations and restrictions imposed on oil and gas, locatable minerals, and phosphate exploration and development within the FO.

In the 1990s, before lynx were listed, the Forest Service received APDs on lands under their administration. At that time Lander FO leased some parcels but no NOS/APDs have been received on those leases (Carroll 2003).

Effects Analysis

Human activity associated with oil and gas and mineral development may negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources may alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx. However, large portions of two LAUs (BLM-East Fork and BLM-Wiggins) have been designated no-leasing for oil and gas. Because of T&E species resource values, a no surface occupancy restriction would apply to the remainder of those two LAUs. And the protective measures provided by the Conservation Measures ensure clear limitations on lynx habitat loss, stipulations that limit timing of activities, and minimization of snow compaction.

The Lander RMP has language that protects T&E species and their habitats in general. All surface and human presence disturbances/activities, including leasables, geophysical exploration, and salables, are subject to the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. Whenever possible, management actions in habitats for threatened or endangered species will be designated to benefit those species through habitat improvement. No-surface-occupancy restrictions are applied to threatened or endangered species habitat.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Determination

Implementation of geology and mineral management actions, as presented in the Lander RMP (1987a), **is not likely to adversely affect,** due to **insignificant effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands; the implementation of Conservation Measures (1-6 under “All Programs”, and 1-2 under “Energy Development”); the protections in place for threatened and endangered species; and the low potential for existing and current mineral and energy development to cause harassment, displacement, injury, and mortality of lynx due to mineral activities.

Fish and Wildlife

Management Actions

Improvement of aquatic and riparian habitats for fish, beaver, moose, and many other animals will receive to priority in the South Pass and Beaver Creek Management Units, high priority in the Green Mountain Management Unit, and special attention in the Red Canyon Management Unit. Aquatic and riparian habitat management plans will be developed for an area encompassing parts of the upper Sweetwater River and Beaver Creek drainages and for the Green Mountain area.

Improvement of important big game ranges will receive high priority. The use of prescribed burning, cutting, thinning, planting, seeding, pitting, herbicide treatment, or other appropriate methods will be employed. Priority areas for action will be the Red Canyon and Lander Slope Management Units for elk and other big game habitat, the Whiskey Mountain unit for bighorn sheep, the southwest part of Beaver Creek unit and the South Pass unit for moose and mule deer, and the Sweetwater Rocks portion of the Gas Hills unit for mule deer. Terrestrial habitat management plans will be developed for the Red Canyon and Lander Slope units, the Sweetwater Rocks, and the south-central part of the Beaver Creek unit.

The East Fork Management Unit allows cooperative habitat improvement projects developed with the Wyoming Game and Fish Department to continue. These will include a variety of actions such as prescribed burning or other cultural practices, seeding, pitting, herbicide treatment, water development, etc. Any projects initiated will be designed to improve habitat for wintering elk, the priority species on the unit, or to benefit other species if the project will not cause significant negative effects on the elk population. Projects that will benefit elk, but that will also have significant negative effects on other important species, probably will not be undertaken.

Development of small-scale, simple, or routine habitat improvement projects and maintenance of useful existing projects will be continued throughout the FO. Such action will be subject to normal interdisciplinary environmental review, and budgetary and management constraints.

Effects Analysis

Management actions associated with wildlife habitat management may influence lynx behavior by causing lynx to avoid or abandon habitats experiencing active management projects. Potential impacts are dependent upon several factors including the number of people involved with each field effort, the time of year, duration of field activities, use of heavy machinery versus hand tools, and type of habitat affected. The implementation of wildlife management actions in the Dubois area will likely have positive effects by maintaining or improving existing habitat conditions that will benefit lynx and their prey.

Determination

Implementation of wildlife habitat management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx due to **insignificant effects**. Although there is the possibility of some occasional and small degree of disturbance, this determination is based on the potential for these actions to benefit the lynx by maintaining or enhancing habitats used by snowshoe hares, sage grouse, and jackrabbits in shrub steplands, mountain shrublands, Douglas fir, Engelmann spruce-subalpine fir, and aspen-conifer forestlands.

Forest Management

Management Actions

Most of the timber management in the FO will occur in the Green Mountain Management Unit. Small volumes may be offered from South Pass and Dubois units and larger volumes from the Lander Slope unit.

Minor forest products will continue to be sold from timbered areas on a demand basis, depending on resource management objectives. Most fuel wood cutting will occur in the Green Mountain Management Unit.

Sawtimber volumes offered in the Green Mountain Management Unit will be approximately two million board feet (MMBF) per year and minor forest product volumes will be 1.5 to 2 MMBF per year. This will be undertaken for 10 years, or until the majority of the larger timber has been salvaged.

From the Lander Slope unit, approximately 10 MMBF will be offered in a large sale that will take up to five years to harvest. After completion of this sale, logging activity will cease for 10 years, and another sale could be offered. The primary objective of the harvesting program will be to achieve management of the timber resources by salvaging the dead and dying timber and regenerating the harvested areas. However, other resource objectives, such as habitat enhancement, will be integrated into management plans to enhance these other values.

These will not be sustained-yield harvests, but will be salvage of the dead and dying timber and will eventually create an uneven-aged forest that will have many benefits, including enhancement of wildlife habitat. Individual clear-cut areas, in all cases, will be limited to 25-acre blocks.

In the Dubois Area Management Unit small timber sales will be offered if there is a demand. The objective will be to improve the condition of the timber on small areas by regenerating harvested areas. This will be mainly to benefit wildlife habitat in these areas.

Timber resources in the Dubois Area Management Unit are quite limited; therefore, opportunity for timber harvest is also quite limited. There are only 2,000 acres of timber stands scattered over this area, with the majority in the Sand Butte and Hat Butte Areas.

Physical access to the timber stands is difficult because of the rough terrain, but could be accomplished from at least two different directions. Legal access through private lands is lacking; however, this should not be a problem if negotiated sales were utilized.

Prescribed burning techniques will be included in management plans for conifer and aspen stands to achieve multiple resource objectives. Standard and special provisions will be employed on all sales and burns to achieve management objectives. The size of prescribed burns will be determined on an individual project basis. Regeneration of all harvested and burned areas will be assured, either through natural or artificial regeneration.

Most of the timber acquisition activities are initiated by small companies seeking timber for fencing projects or log cabins. There are currently no large-scale timber sales or large clear-cuts planned (Oberlie 2003).

Effects Analysis

Forest management actions in the Lander FO will primarily occur in upland coniferous forests in the Green Mountain Unit. In the Lander FO, LAUs are only indicated at the interface with the Shoshone National Forest in the Dubois Unit. However, some timber management activities may occur in the Dubois area.

Timber management creates different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000). Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey. However, protective measures are in place with the Conservation Measures and Best Management Practices: the former limit habitat loss, disallow salvage harvest in potential denning habitat, only allow pre-commercial thinning when stands no longer provide hare habitat, ensure that aspen stand harvest prescriptions favor aspen regeneration, and that commercial thinning is designed to retain and improve small diameter conifers and shrubs favored by hares; the latter include a diverse array of practices that will protect and improve lynx habitat.

Determination

Implementation of forest management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the limited forest resources on BLM-administered lands in the Dubois area, the fact that many of these stands are not suitable lynx habitat, the existing protections for threatened and endangered species provided for in the RMP, and the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts. Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Land Ownership Adjustments and Utility Systems

Management Actions

The majority of the 2.5 million areas of public lands in federal ownership will be retained. Based upon the analysis in the Lander RMP/EIS, 108 tracts, encompassing 12,500 acres, could be considered for future disposal through either sale or exchange. Of these, 3,286 acres have already been exchanged.

Major utility and transportation systems will be located to make use existing corridors whenever possible, to provide for cost-efficient routes and to provide for protection of other resource values such as scenery and wildlife. Most of the area will be open for location of major utility systems. However, areas with the most potential conflicts have already been identified as areas to avoid. The avoidance areas will be areas where rights of way may be granted only when no feasible alternative route or designated rights of way corridor is available. These areas include Whiskey Mountain Bighorn Sheep Winter Range, the East Fork Crucial Elk Winter Range, the Dubois Badlands, the Lander Slope, Red Canyon, South Pass, Sweetwater

Canyon, the Sweetwater Rocks, and ¼ mile or the visible horizon, whichever is less, on each side of the Oregon/Mormon Pioneer National Historic Trails.

Effects Analysis

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. However, current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. BLM lands identified as lynx habitat or important travel corridors would not be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. The grouping of utility lines minimizes disturbance and helps to protect larger blocks of land from fragmentation.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant effect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities creating undisturbed habitat for lynx and would have positive affects on lynx.

Determination

Implementation of land resource management actions, as provided in the Lander RMP (1987a) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low potential for issuance of right-of-way and leases for utility transportation corridors, ditches and canals, and roads; temporary use permits; and fencing of revegetation sites to disturb lynx behavior and affect their ability to use suitable habitat and travel corridors between habitats. And because Conservation Measures (1-6 under "All Programs", and 1 under "Lands Management") are in place to limit potential habitat loss, and to ensure that key linkage areas are evaluated prior to land resource management actions.

Recreation Management

Management Action

Management and maintenance will be provided at seven existing recreational sites, including Atlantic City, Big Atlantic Gulch, and Cottonwood campgrounds; Split Rock and Devil's Gate interpretive sites; and Wild Horse Point Overlook and Castle Gardens picnic areas. The Split Rock and Devil's Gate interpretive sites are included in the Oregon/Mormon Pioneer National Historic Recreation Management Plan.

An interpretive marker will be added for the Red Canyon National Landmark overlook. Hazard reductions will be implemented and maintained on Green Mountain and South Pass. Plans for resource protection and maintenance of dispersed recreational opportunities and settings in the South Pass Historic mining area will be provided in a recreation management plan.

BLM will continue to monitor recreational use throughout the FO. Area personnel will supervise recreational use and provide enforcement of recreation-oriented regulations and special designations. Monitoring and use supervision will be accomplished by patrolling high-use areas and contacting users in the field. Special efforts will be made to ensure compliance with the terms of special recreation-use permits, authorizing commercial guide/outfitter services, permits for tours of the Oregon/Mormon Pioneer National Historic Trails, and special designations dealing with recreation such as 14-day camping limit on public lands and off-road vehicle designations. Quotas will be established for commercial hunting camps in the Green Mountain, Lander Slope, Red Canyon, and Whiskey Mountain Management Units.

The East Fork Management Unit requires minimal management for recreation. Emphasis will be on resolving user conflicts and providing resource protection. The Dubois Area Management Unit will best be managed consistently with other extensive recreation management area objectives where dispersed recreation will be encouraged and where visitors will have freedom of recreation choice with minimal regulation.

Effects Analysis

Recreation in the Dubois area is managed for dispersed activity. Winter activities, such as snowmobiling and cross-country skiing, may cause short-term behavioral avoidance by lynx where they occur. Snowmobiling is allowed on BLM-administered lands in the Dubois area, but ownership patterns and closures prevent the use of some of the BLM-administered lands to snowmobiles and motorized vehicles either seasonally or year-long. Lynx use of BLM-administered lands in the winter is probably limited due to competition with other predators for winter-killed big game.

Determination

Implementation of recreation resource management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the fact that recreation use is dispersed and is limited in the winter by land ownership patterns and seasonal closures, creating short-term and insignificant impacts because, although they are in LAUs, the lynx habitats on BLM-administered lands are extremely limited and fragmented. This determination is also based on the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000); the no net increase in over-the-snow routes and play areas in LAUs; restriction on actions that degrade or compromise landscape connectivity or linkage areas; the requirement that trails, roads, and ski-lift termini be designed to direct use away from diurnal security habitat; and the evaluation of permits that promote snow compacting activities.

Off-Road Vehicles (ORVs)

Management Actions

Existing ORV designations completed in 1981 on one-half of the FO will be continued. Designations will

be completed on the remaining areas of public lands. ORV management will focus more intensive management on those management units having crucial wildlife values, significant visual resources, high watershed sensitivity, and outstanding natural character. Intensive management will limit ORV use to designated roads and vehicle routes and impose seasonal closures (from approximately December through June) on areas or roads where vehicle use is totally incompatible with other resource values. ORV use in the remainder of the FO will be limited to existing roads and vehicle routes, except for the performance of necessary tasks. Examples include hunters retrieving big game harvests, repairing range improvements, managing livestock, and mineral activities where surface disturbance does not total more than five acres.

Off-road vehicle use in both the Dubois Area and East Fork Management Units will be limited to existing roads and vehicle routes.

Effects Analysis

ORV use is limited to existing roads, and thus is not authorized in the FO area. The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx due to **insignificant effect**. This determination is based on the fact that ORV use is only allowed on existing roads and trails in this FO. Very minimal impacts might occur if an ORV traveled into lynx habitat to perform necessary tasks, and the existing Conservation Measures in place will prevent adverse effects from occurring to lynx or their habitat.

Cultural and Natural History Management

Management Action

In the Dubois area, the only listed cultural and natural history activity is the Warm Springs Canyon flume, natural bridge, and geyser. These will receive enhanced protection. A management plan will be completed for the Warm Springs Canyon flume in the Dubois Area Management Unit, following a study of stabilization needs of the flume.

Effects Analysis

Actions associated with cultural and natural history resource management may occur in the Dubois areas. Like all other surface disturbing activities, cultural resource management actions would have to analyze impacts to threatened and endangered species and their habitat, and would be subject to the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The BLM performs inventory activities as well as land management activities. 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 impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity varies between

inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

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 cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Determination

Implementation of cultural resource management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species and lynx conservation measures, and the low potential for cultural resource management actions to take place within lynx habitat or LAUs that could cause harassment, displacement, injury, and mortality of lynx.

Fire Management

Management Action

Approximately 2% of the lands administered by the BLM in the Lander FO will be under full fire suppression, with no equipment restrictions. Full fire suppression management has the objective of suppressing all wildfires as quickly as possible with all available resources. This prescription applies to the East Fork and Dubois Area Management Units. Approximately 60% of the lands administered by the BLM will have full suppression of wildfires with limited or restricted use of heavy equipment. This does not preclude the use of heavy equipment, such as bulldozers, but does limit their use on initial attack and requires fire authorities to analyze a fire situation critically before committing heavy equipment to a fire. Approximately 38% of the public lands in the FO will be under limited suppression of wildfires. There will be no initial attack on the fire and an observer will monitor a wildfire to determine if management objectives are met. Suppression of wildfire will occur when the fire (a) exceeds or has the potential to exceed the size specified in a predetermined plan, (b) threatens private property, (c) threatens man-made structures, or (d) threatens human life. Prescribed burns will be allowed in all management units.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx. However, the lynx habitat on the BLM-administered lands occurs at the lower elevations within the LAUs. Those BLM portions of the LAUs are considered urban-interface because of the proximity to the town of Dubois and the large proportion of private lands

intermixed with the BLM which have year-long or seasonal residences. BLM lands in the Dubois area have very little, if any, denning habitat.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities. However, unlike wild fire, prescribed fire is considered a surface disturbing activity subject to NEPA and may receive mitigation measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be allowed applies to prescribed fire and other kinds of mechanical and chemical vegetative controls. Prescribed fires could be used to increase foraging habitat by improving snowshoe hare habitat. Restrictions on the type of tools and heavy equipment that are used, the time of year, the use of off-road vehicles, the number of people on the project, etc., could be implemented to ensure that prescribed fires have as few negative impacts as possible, and possibly have positive impacts on lynx or hares.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000), the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for fire management actions to cause harassment, displacement, injury, and mortality of lynx. In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Access Management

Management Action

Access roads no longer needed would be rehabilitated, as outlined in the RMP. Negotiations with private landowners concerning BLM access easements will be proposed for areas where public or administrative access is or will be needed.

The public lands in the East Fork Management Unit have adequate public access. The existing transportation system will be maintained.

The Tappan Creek Road in the Dubois Area Management Unit is not available for public access. The public lands in the management unit are largely land-locked. Easements on this road will provide public access to several hundred acres of public land and will tie into the national forest land. Legal access will provide important access for hunting and sightseeing. This road will be seasonally closed (November 20

through April 15) because the area is an important elk migration corridor. Tappan Creek Road was the only easement need identified in the RMP for the entire Dubois area.

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Negotiations of new easements are considered surface disturbing activities subject to NEPA and may receive protective measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be allowed applies to easements also. There are more skilled map readers or users of GPS since the RMP was signed which has enabled recreation users to legally access portions of these lands by foot or horseback. Adjacent U.S. Forest Service and some private landowners provide limited access.

Determination

Implementation of access management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for easement acquisitions to cause harassment, displacement, injury, and mortality of lynx.

Soils, Water, and Air Management

Management Action

The public lands within the Lander FO will be managed in a manner that will protect and improve the quality of the soil, water and air resources associated with the public lands. This will include project and plan review to ensure proper consideration of these resources and that enhancement opportunities are not overlooked. Also, monitoring of soil erosion, water quality and air quality will be conducted as necessary to track the effectiveness of specific projects and management schemes.

Effects Analysis

Air Quality Management: Currently there are no air quality monitoring stations within any lynx habitat or LAUs in the Cody FO area.

Water Resources Management: Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

The above types of actions associated with watershed management would take place very rarely, if at all within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Actions associated with watershed management are likely to improve riparian vegetation and habitat for lynx and their prey.

Soil Resources Management:

The implementation of soils management involves planning for disallowing actions that will cause soil erosion and modifying others to avoid soil erosion. There are no impacts from this management action on lynx. However, activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Other surface disturbing activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

Determination

Air Quality Management: No monitoring stations are currently in any lynx LAUs on BLM lands in the Cody FO. Implementation of air quality management actions, as presented in the Lander RMP (1987a), will have **no effect** on the lynx, due to a lack of overlap of management activities and lynx habitat.

Soils and Water Resources Management: Implementation of soil and water resource management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx, lynx habitat, or LAUs. Management of soil and water resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, localized or small in scale, and generally not likely to occur in lynx habitat. Implementation

of soil and water resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats.

Livestock Grazing Management

Management Action

The Lander FO has two grazing study areas: Green Mountain and Gas Hills. Rangeland program summaries (RPSs) for these study areas are included in the RMP. There are 291 allotments in the Lander FO. Category M allotments comprise 29% of the allotments and 27% of the acreage in the FO. Category C allotments comprise 28% of the allotments and 4% of the acreage in the FO. Category I allotments comprise 43% of the allotments and 69% of the acreage in the FO.

Management decisions affecting grazing use will be made when monitoring data are sufficient to support those decisions. They may include changing livestock numbers, periods of use, or a combination of both. Monitoring will be a continuing process to assure that any changes in grazing use accomplish the objectives. If monitoring studies indicate a need to further modify periods of use, livestock numbers, class of livestock, or grazing systems, these adjustments will be made after consultation with the affected livestock operators and any other affected parties.

Effects Analysis

Domestic livestock grazing in riparian areas in suitable lynx habitat can alter the structure and composition of aspen and riparian shrubs that hares depend upon. Cattle and sheep grazing in excess of the designated amount of forage may create competition for forage and reduction in escape cover for hares and other small mammals. Light to moderate grazing will not be likely to substantively reduce forage for snowshoe hares.

Grazing in shrub-steppe communities within the elevational range of lynx also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush.

Predator control activities conducted by permittees on the range they graze, such as shooting, trapping, and poisoning to control coyotes, cougar, bear, and bobcat, may lead to incidental lynx mortality especially in the higher elevation allotments. This event has a low likelihood of occurring and causing lynx deaths.

Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Modifications in grazing to improve riparian habitats, including a reduction in grazing, fencing of riparian areas, weed control, and other improvements in riparian ecological function may benefit the lynx.

Determination

Implementation of livestock grazing management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the small surface area that would be likely to have higher grazing pressure within the small area covered by allotments in suitable lynx habitat in this FO and the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

Wild Horse Management

Management Action

Seven wild horse herd management areas have been designated in the Lander FO; no wild horse management areas occur in the Dubois area. Wild horse herd management plans will be developed in Category I Allotments that will specify necessary measures to maintain a healthy, viable herd that is consistent with multiple-use objectives for the allotment. The 1979 population level of wild horses will be set as the maximum level for an interim population level. Wild horses will be monitored, along with the habitat, to allow further adjustments as necessary to maintain viable herds and satisfactory range condition. As funding allows, horse numbers will be reduced with roundup expected every 5 years. All horses will be removed from the East Beaver Allotment number 1801. Appropriate Management Levels were established in the RMP for the Environmental Assessments for the Evaluation of Wild Horse Herd Areas completed in 1993 and 1994. The upper and lower AMLs are 50-100 for Dishpan Butte Herd; 60-100 for Conant Creek Herd; 50-86 for Rock Creek Mountain Herd; 160-250 for Muskrat Basin Herd; 60-82 for Antelope Hills/Cyclone Rim Herd; 65-100 for Crooks Mountain Herd; and 170-300 for Green Mountain Herd.

Effects Analysis

No herds of wild and free-roaming horses occur in the Dubois area of the Lander FO. Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. Management activities of wild horses in these seven areas would not affect lynx as all seven areas are outside of LAUs. It is unlikely that lynx would travel through the open country where the wild horse areas occur. So, wild horse activities are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats.

Determination

As no herds of wild and free-roaming horses occur in the Dubois area of the Lander FO, wild horse management will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within wild horse areas. Lynx would be extremely unlikely to travel through the lower-

elevation habitat that encompasses these wild horse areas, as they are outside of normal habitat or LAUs and therefore be adversely affected by actions associated with management of wild horses.

Wild and Scenic River Management

Management Action

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation.

Effects Analysis

Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species.

Determination

Implementation of WSR management activities, as presented in the Lander RMP (1987a), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within any BLM wild and scenic river segment within the planning area.

Wilderness Management

Management Action

Five management units in the Lander FO contain wilderness study areas (WSAs). These units encompass 8 WSAs totaling 52,987 acres and include Sweetwater Canyon, Sweetwater Rocks (four WSAs), Whiskey Mountain, Dubois Badlands, and Cooper Mountain.

Effects Analysis

Management actions associated with wilderness management will not result in detrimental impacts to lynx behavior or their habitats. None of the LAUs contain land within a WSA, although the northwest boundary of the Dubois Badlands WSA and a portion of the southeastern boundary of the BLM-Frontier LAU are the same for about a 5/8 mile overlap.. These actions could result in positive effects to lynx by limiting harassment and disturbance to suitable denning, travel, and foraging areas.

Determination

Implementation of the wilderness management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **beneficial effects**. This determination is based on the potential

that these actions will limit the harassment and displacement of lynx and maintain or protect suitable lynx habitats.

Areas of Critical Environmental Concern

Management Action

Approximately 117,000 acres, representing 4.7% of the Lander FO will be designated as areas of critical environmental concern (ACECs) and will require intensive management of all activities. The following areas will be designated ACEC in the Lander FO:

- Lander Slope Management Unit (25,000 acres of federal surface)
- Red Canyon Management Unit (15,000 acres of federal surface)
- Whiskey Mountain Management Unit (4,000 acres of federal surface)
- East Fork Management Unit (1,000 acres of federal surface)
- Dubois Badlands Management Unit (5,000 acres of federal surface)
- Majority of the South Pass Management Unit (12,000 acres of federal surface)
- Portion of Green Mountain Management Unit (18,000 acres of federal surface)
- Beaver Creek Management Unit (7,000 acres of federal surface)

Significant sites and segments along the Oregon/Mormon Pioneer Natural Historic Trails will be designated an ACEC and are located within the Beaver Creek and Gas Hills Management Units. These sites and segments include approximately 22,600 acres of protective corridor on surface lands administered by BLM; approximately 3,100 acres of current withdrawal or proposed withdrawals; and approximately 7,000 acres of trail corridor on split estate lands. There are approximately 780 acres of partially impacted sites and segments on surface lands administered by BLM that are included in the ACEC but will be considered on a case-by-case basis and approximately 450 acres on split estate.

Effects Analysis

This program analysis is for the creation and management of ACECs. Management actions authorized within these ACECs, but not associated with ACEC management, will be analyzed under that specific activity. There are no impacts to lynx in the establishment of an ACEC and ACEC management is generally more restrictive in nature, protecting lynx and their habitats. Both BLM – East Fork and BLM – Wiggins LAUs contain public lands within the East Fork ACEC, BLM – Wiggins LAU contains lands within the Dubois Badlands ACEC, and BLM – Frontier LAU shares about 5/8 of a mile off public lands along its southeast border with the Dubois Badlands ACEC. Management actions authorized within these ACECs, but not associated with ACEC management, will be analyzed under that specific activity. There are no specific impacts to lynx in the establishment of an ACEC and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Determination

Implementation of ACEC management actions, as presented in the Lander RMP (1987a), is **not likely to adversely affect** the lynx, due to **beneficial effects,** because the act of designation of an ACEC has no disadvantageous impacts on lynx and ACEC management is more restrictive in nature, protecting lynx and their habitats.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Lander RMP management actions.

TABLE 6 SUMMARY OF DETERMINATIONS FOR THE LANDER RMP

Resource	Determination
Energy and Minerals	Not likely to adversely affect, due to insignificant effects
Fish and Wildlife	Not likely to adversely affect, due to insignificant effects
Forest	Not likely to adversely affect, due to insignificant effects
Land Ownership and Utilities	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to insignificant effects
Off-Road Vehicles	Not likely to adversely affect, due to insignificant effects
Cultural and Natural History	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Access	Not likely to adversely affect, due to discountable effects
Soils and Water	Not likely to adversely affect, due to discountable effects
Air	No effect
Livestock Grazing	Not likely to adversely affect, due to insignificant effects
Wild Horses	No effect
Wild & Scenic Rivers	No effect
Wilderness	Not likely to adversely affect, due to beneficial effects
ACECs	Not likely to adversely affect, due to beneficial effects

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Lander FO. Potential effects that could affect lynx or their habitats in the Lander FO include the following:

- Subdivision development along rivers (especially along the Wind River near Dubois) that results in habitat fragmentation
- Sand and gravel operations along river corridors
- Livestock grazing on private lands
- Timber harvesting

Some of these activities are situated near important lynx habitats or linkages on BLM-administered lands. Certain components of these projects, if completed, could directly or indirectly affect lynx or their habitats. In addition to the cumulative impacts resulting from the BLM activities described previously, implementation of the Lander RMP could add further impacts to the lynx that may result from current non-federal actions.

PINEDALE FIELD OFFICE

The Record of Decision and Resource Management Plan (RMP) for the Pinedale FO was signed in December 1988 (BLM 1988b). This plan provides the management direction for approximately 931,000 acres of public surface land and 1,185,000 acres of federal mineral estate that are administered by the BLM in the Pinedale FO. This plan addresses BLM-administered lands in Sublette, Lincoln, and Teton Counties.

Environmental Baseline

This section presents a summary of the known LAUs in the Pinedale FO and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats. There are 15 LAUs that extend out from the Bridger-Teton LAUs on the east face of the Wyoming Range, at the north end in the Hoback Junction area, and on the west face of the Wind Rivers (**Map 6**). These LAUs encompass 227,769 acres on BLM land (**Table 3**).

Potential lynx habitat has been mapped, and is all contained within LAUs. There are 47,098 acres of potential habitat in the FO, representing 21% of the total LAU acreage (**Table 3**).

There are 118 lynx records from the Pinedale FO area, 7 of which are on BLM land (**Table 2**, **Appendix A**) (WYNDD 2003). Staff with the Wyoming Game and Fish Department observed lynx tracks in the Horse Creek area near Merna; and private individuals reported lynx from Middle Piney Creek near Big Piney (Wyoming Game and Fish 1998). Two lynx were captured and outfitted with radio collars, a male in December 1996 and a female in March 1997 (Squires and Laurion 2000). These animals were followed for a period of three years. The male crossed from the Wyoming Range in the Hoback Junction area and traversed into the Wind Rivers, across the northern end of the FO (Andrews 2003).

Existing Conservation Measures

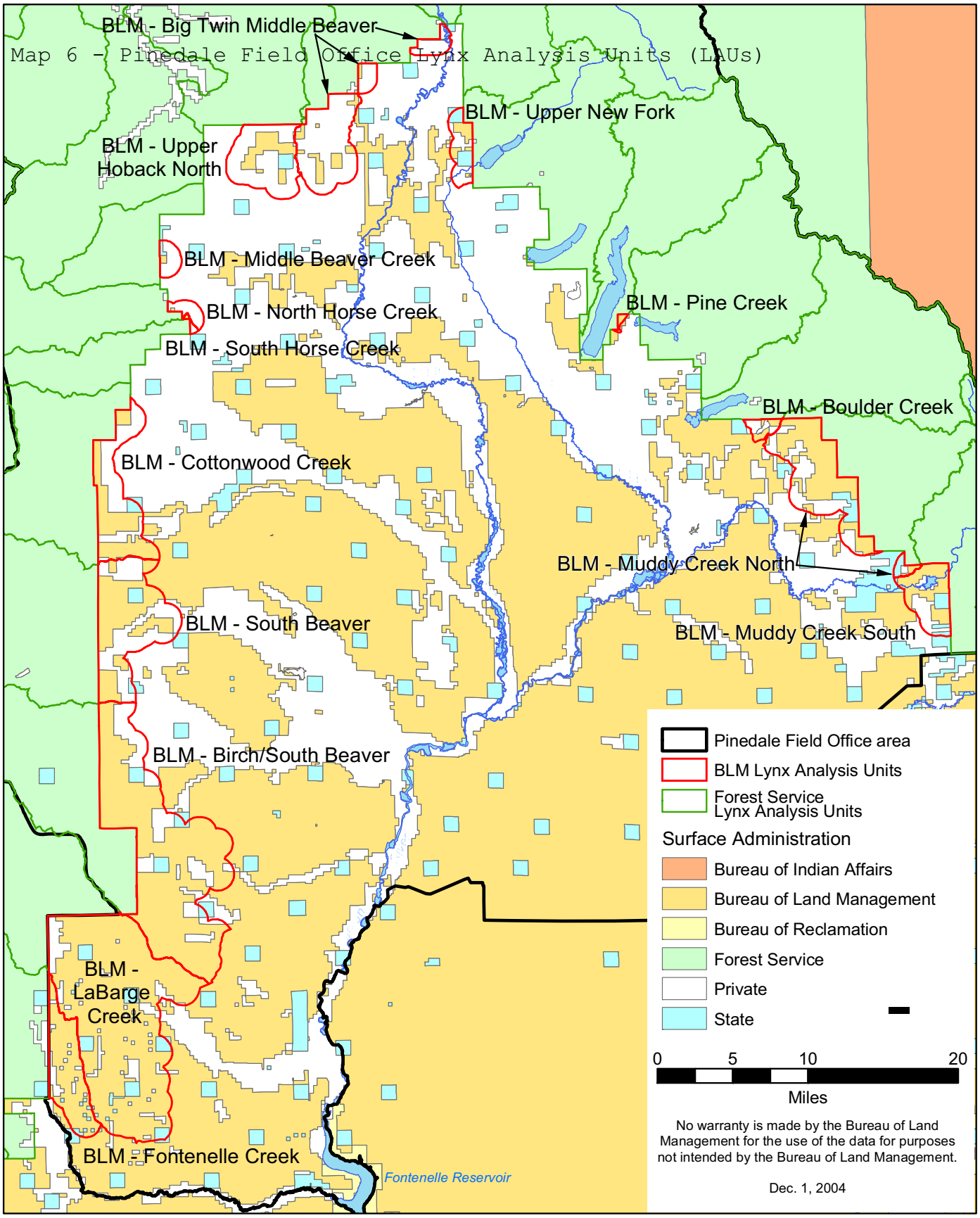
The following section presents measures included in the Pinedale RMP that may directly or indirectly minimize impacts to the lynx.

(a) "Threatened and endangered (T&E) species and their habitats will be protected. Actions which would degrade habitat to a point of jeopardizing the continued existence of a T&E species will not be allowed. The U.S. Fish and Wildlife Service (USFWS) will be consulted on any action with reasonable potential to affect endangered species or their habitats. A biological assessment will be prepared on all proposals where T&E species habitat will or may be affected and a biological opinion will be requested from the USFWS. All actions will include consideration for T&E plant and animal species. The Pinedale FO will continue to be inventoried to identify potential habitat and occurrence of T&E species. Identification of habitat occupied by T&E species and habitat with potential to help support these species would be managed in accordance with the national recovery plans." (BLM 1988b, p.21).

(b) "Habitat occupied by federally listed T&E plant and animal species will be monitored to ensure compliance with the Endangered Species Act)" (BLM 1988b, p.21).

(c) "To protect important raptor nesting habitat, activities or surface use will not be allowed from February 1 through July 31 within certain areas encompassed by the authorization. The same criteria apply to defined raptor winter concentration areas from November 15 through April 30" (BLM 1990a, Appendix A-1, p. 59). These actions will also protect female lynx with young, and through the winter, in areas where lynx overlap with raptors.

Map 6: Pinedale Field Office Lynx Analysis Units



(d) "Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications)" (BLM 1990a, Appendix A-1, p.59).

Analysis of Proposed Management Actions and Effects

The Pinedale RMP (BLM 1988b) includes descriptions of each management prescription applied within the FO. These activities are summarized in the Introduction, above. Refer to the Pinedale RMP for a complete explanation of each prescription.

Surface Disturbance Restriction Decisions

Management Actions

Necessary protection from surface-disturbing activities will be provided for wintering wildlife on about 461,090 acres of crucial and noncrucial winter range. Seasonal restrictions will be incorporated into all land use authorizations where appropriate. This includes approximately 13,440 acres of noncrucial elk winter range in the Bench Corral area; approximately 3,400 acres of noncrucial elk winter range in the Miller Mountain area; and approximately 12,800 acres of noncrucial deer winter range in the Mesa area.

No surface occupancy will be allowed on elk feedgrounds. Exceptions may be allowed if analysis indicates that proposed activities will either benefit or cause no adverse impacts to the elk. Further public input will be required for exceptions that are not designed to specifically benefit elk. No activity or surface disturbance will be allowed in elk calving areas during periods of use, usually between May 1 and June 30.

Sage grouse nesting areas will be protected in accordance with the Wyoming BLM mitigation guidelines. Surface occupancy or use, including but not limited to the drilling of wells, the construction of well pads, roads, pipelines, or other types of rights of way, and/or the installation of permanent or high profile structures (buildings, storage tanks, overhead powerlines, etc.) within 1/4 mile of a sage grouse lek (strutting ground) will be restricted or prohibited unless the operator and Authorized Officer arrive at an acceptable plan to mitigate anticipated impacts. Activity will generally be restricted to existing roads and trails. Other activities may be allowed if environmental analysis indicates that nesting sage grouse concentrations will not be adversely affected. Activity between the hours of 12 midnight and 9:00 a.m. will not be allowed within approximately one half mile of leks (e.g., during strutting season).

Seasonal restrictions will be applied to active raptor nests. Priority for further inventory of raptor nest locations will be given to areas where activities and surface disturbance are proposed.

No surface disturbance will be allowed within 500 feet of riparian habitat, wetland, and (or) live water unless a high potential for successful rehabilitation exists and(or) impacts will be temporary in nature. No surface disturbance will be allowed on the Upper Green River special recreation management area, except as identified in a management plan for that area. No surface disturbance will be allowed within one-quarter mile or the visual horizon (whichever is closer) of contributing segments of historic trails. Waste disposal facilities (e.g., drilling fluid pits, solid waste, and sanitary facilities) will not be authorized on floodplains, wetlands, and related riparian zones. Surface disturbance will be minimized in crucial

watersheds, such as Soap Holes Basin and Tip Top, with emphasis on reducing soil erosion and sediment and salinity contributions to the Green River Basin water system. Surface-disturbing activities will be appropriately restricted in accordance with the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities and standard practices applied to surface-disturbing activities.

No surface occupancy will be allowed on cultural sites 48SU301, 48SU350, and 48LN300, and on developed and semi-developed recreation sites. No exceptions will be allowed without further public input. The NSO established for cultural resource site 48SU301 was established on a 160 aliquot part subdivision so that it could be readily and legally described in land description terms. The intent of the NSO is to prohibit surface occupancy on the physical cultural resource properties of the site. It is also intended to prohibit surface occupancy within the immediate viewshed of the various site properties (i.e., that portion of the viewshed that occurs within the NSO boundary). It was not intended to prohibit surface occupancy in those portions of the NSO that occur outside the viewshed and that contain no cultural properties.

No surface occupancy will be allowed in the Rock Creek drainage within the Rock Creek Area of Critical Environmental Concern (ACEC) (approximately 4,200 acres). The only exceptions are activities proposed to benefit the Colorado River cutthroat trout habitat. No exceptions will be allowed without further public input.

Effects Analysis

Implementation of surface disturbance restrictions throughout the Pinedale planning area will not detrimentally impact lynx behavior or habitats. Measures intended to restrict surface disturbances and minimize the effects from activities that disturb the surface will most likely result in secondary effects that are beneficial to the lynx and its prey.

Determination

Implementation of surface disturbance restriction management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **beneficial effects**. Efforts intended to limit activities that disturb the surface and their potential impacts may benefit lynx and their prey.

Air Quality Management

Management Actions

No specific management actions are presented with this program. However, actions conducted under other resource programs, including fire or mining, will be conducted in a manner so as to avoid violation of the Wyoming and National ambient air quality standards. There are currently no air quality monitoring stations within any lynx habitat or LAUs in the Pinedale FO area.

Effects Analysis

Actions related to air quality management will result in no impacts to lynx behavior, denning habitat, or foraging habitat. The actions associated with air quality management are extremely small in scope, of short duration, and unlikely to occur in lynx habitat.

Determination

No monitoring stations are currently in any lynx LAUs on BLM lands within the Pinedale FO.

Implementation of air quality management actions, as presented in the Pinedale RMP (1988), will have **no effect** on the lynx, due to a lack of overlap of management activities and lynx habitat.

Minerals Management

Management Action

The 7,636-acre Scab Creek area will be closed to oil and gas leasing. The remainder of the planning area (approximately 1,185,000 acres) will be open to consideration for leasing, exploration, and development of oil and gas. Once an oil and gas lease has been issued, it constitutes a valid existing right and BLM cannot unilaterally change the terms and conditions of a lease. Therefore, in areas where oil and gas exploration and development activities are restricted or in areas closed to oil and gas leasing, an existing lease in the area would not be affected by the closure and restrictions cannot be added to the lease. Closures and additional lease restrictions could not be fully implemented until after a lease expires and new leases are issued for the same area. However, additional restrictions can be applied at the Application for Permit to Drill (APD) stage, and at subsequent development stages, that would mitigate potential impacts from oil and gas operations within existing lease areas so long as rights to develop the leases remain intact.

The BLM will evaluate industry-proposed measures to protect health and safety through the drilling permit process. Of particular concern will be the requirements of approved contingency plans for hydrogen sulfide (H_2S) release. Requirements of operators could include conducting dispersion analyses to determine ambient H_2S concentrations during well blowouts, collecting onsite meteorological data, preparing detailed evacuation plans, and placing offsite warning signs.

The Riley Ridge Project Monitoring Program will be continued. Further monitoring will include gathering of geological data in the Deadline Ridge-Graphite Hollow crucial elk winter range to aid in preparation of the proposed activity plan. Monitoring will be coordinated with other resource monitoring programs such as wildlife, surface and ground water quality, grazing, and cultural resources, as appropriate.

Geophysical notices of intent will be evaluated on a case-by-case basis. All acreage in the planning area will be subject to various appropriate limitations (e.g., vehicle use restrictions), including about 517,170 acres subject to seasonal limitations. In addition, the use of explosive charges may not be allowed in any area if analysis determines that unacceptable adverse impacts would occur. Generally, all authorizations will be issued with appropriate application of surface disturbance impact minimization requirements.

Specific limitations include: Approximately 7,636 acres in the Scab Creek area will be closed to geophysical activities; areas closed to ORV use will also be closed to vehicle use for geophysical activities; in the Beaver Creek Area of Critical Environmental Concern (ACEC), geophysical vehicles will be restricted to existing roads and trails; geophysical vehicle travel through developed and semi-developed recreation sites will be restricted to established roads and trails, geophysical activities in the remaining no surface occupancy (NSO) areas (mostly cultural sites and elk feedgrounds) will be evaluated on a case-by-case basis and may be restricted if unacceptable impacts would occur to other resources (e.g., water quality, cultural, wildlife, recreation, and visual resource values).

The Rock Creek ACEC and surrounding area (about 17,000 acres) will be available for consideration for oil and gas leasing with appropriate stipulations, following the completion of an activity plan and associated environmental analysis. That portion of the Rock Creek ACEC within the Rock Creek

watershed boundary will be leased with an NSO stipulation for protection of the pure strain of Colorado River cutthroat trout in Rock Creek.

Leasing guidelines and objectives in the remaining parts of the Rock Creek ACEC and portions of the adjacent Deadline Ridge-Graphite Hollow crucial elk winter range will be established in a site-specific minerals/wildlife management plan (activity plan) and environmental analysis. This plan will include an evaluation of the ongoing elk habitat use study and compilation of geologic data.

The plan will also include the following direction:

Oil and gas leasing direction, regarding related activities in the evaluation area east of the Rock Creek ACEC, will be designed to ensure continued elk winter use in the Deadline Ridge-Graphite Hollow area. Oil and gas development will be allowed if determined to be compatible with continued elk use of the crucial winter range. No substantial adverse impacts to this elk habitat will be allowed.

Oil and gas leasing direction, regarding related activities in the evaluation area west of the Rock Creek ACEC, will be guided by the RMP multiple use guidelines and objectives. Evaluation may allow for some development on this portion of the crucial elk winter range, as long as RMP planning objectives are met.

The Deadline Ridge-Graphite Hollow wildlife/leasing study and activity plan will identify any suitable areas for surface occupancy based on the previously mentioned mineral leasing guidelines and objectives. Any requests for relief from leasing restrictions that are in conflict with these guidelines and objectives will be analyzed on an individual basis. Based on the analysis, either the conflicting actions would be denied or a plan amendment would be initiated to modify the plan objectives.

Upon completion of the Deadline Ridge-Graphite Hollow activity plan, large contiguous areas may be offered for lease with the NSO stipulation. These areas may only be accessed through directional drilling. The NSO stipulation would be used, rather than a no lease provision, under the assumption that industry is the best judge of whether technology would enable access to the oil and gas resources in compliance with the terms of the lease.

Leasing with the NSO stipulation could become necessary if the area is characterized by steep, and in many cases unstable slopes, with stream/riparian zones "filling" the valley bottoms. Any disturbance on the steep slopes or in the riparian zone threatens the crucial elk and cutthroat trout habitats directly.

With the exception of withdrawn lands, the planning area will be open to mineral location. Areas identified in the future as needing total protection from locatable mineral activities will be closed to mineral location and considered for withdrawal. For example, if analysis of the Rock Creek drainage portion of the Rock Creek ACEC indicates that this level of protection is necessary, a withdrawal from mineral location will be initiated on the area (approximately 4,200 acres).

Applications for mineral sales (e.g., sand, gravel) will be analyzed and processed on a case-by-case basis and appropriate surface disturbance impact minimization requirements will be included in permits. The established common use area in sections 15, 22, 27, and 34, T27N, R115W, will remain available for development. However, those portions of the common use area in sections 15 and 22 will be managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review until Congress acts upon the wilderness recommendations.

In the Pinedale FO, oil and gas drilling is occurring in high-elevation forested areas, on the east side of the Wyoming Range. The APDs are on hold, and 12 wells are waiting for APDs at present. Some of these are in an LAU (Carroll 2003).

Effects Analysis

Human activity associated with oil and gas and mineral development can negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources will alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx and increased intrusion by non-specialized competing predators such as bobcat, coyote, and wolf. Additional impacts are a consequence of increased access into habitat, increased fragmentation, loss of snowshoe hare and red squirrel habitat, associated noise and human activity, associated hazards (such as chemical toxins), and temporal and spatial project considerations.

Determination

Implementation of geology and mineral management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Natural History and Paleontological Resources Management

Management Action

Natural history and paleontological resource values will be managed to protect and preserve representative samples of these values that are present in the planning area.

Effects Analysis

Actions associated with natural history and paleontological resource management are unlikely to occur (they are very infrequent), are typically in a very small area, have little impact, and are of short duration. These activities are unlikely to occur in lynx habitat.

Determination

Implementation of natural history and paleontological resource management actions, as presented in the Pinedale RMP (1988b), are **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for these resource management actions to occur in lynx habitat or LAUs which might cause harassment, displacement, injury, and mortality of lynx.

Soils and Watershed Management

Management Action

The BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities and the standard practices applied to surface-disturbing activities are used to control nonpoint sources of water pollution. These are examples of best management practices (BMPs) relative to the Clean Water Act of 1972, as amended. As other BMPs for nonpoint sources of water pollution are developed, they will be incorporated into the guidance for this plan where they conform with the RMP objectives.

Projects proposed on BLM-administered lands will be evaluated on a case-by-case basis for affects on soil and water resources. Soil management practices will be applied on a site-specific basis using soil survey data, and will be related to the soil characteristics such as the steepness of slopes, the length of slope, and soil chemistry and composition. Watershed management practices will follow similar guidelines.

Examples of management practices to be applied throughout the planning area include seasonal closures due to saturated soil conditions and the standard practices applied to surface-disturbing activities. At certain times of the year, use will be precluded until soil moisture is such that the use or activity will not result in degradation of the soil resource and watershed condition. These closures occur predominately in the spring and autumn.

A monitoring program for specific surface waters will be continued to identify trends on water quality. Public drinking water at recreation sites will also be protected and monitored to be in compliance with EPA safe-drinking water standards.

A Level II ground water study of the Riley Ridge/LaBarge area will be completed to define the ground water resource and to determine what additional ground water monitoring and protective measures are necessary in regard to subsurface activities conducted in the area (e.g., oil and gas drilling activities).

Ground water protection will continue to be provided by applying appropriate procedures. Special precautions will be taken to ensure protection of ground water quality when surface disturbance is to occur on ground water recharge zones.

An activity plan for reducing erosion and channel degradation will be prepared for the Tip Top watershed. Specific actions could include road maintenance, recontouring, and reseeding of disturbed sites to help achieve soil stabilization.

A watershed/recreation plan will be prepared on the Stuart Point-Mount Airy area for reducing sedimentation while still allowing off-road vehicle (ORV) use. A more detailed description of this area can be found in the ORV section.

All actions will comply with Executive Orders 11988 Floodplain Management and 11990 Protection of Wetlands, and the State of Wyoming Department of Environmental Quality water quality standards.

Effects Analysis

Soil Resources Management:

The implementation of soils management involves planning for disallowing actions that will cause soil erosion and modifying others to avoid soil erosion. There are no impacts from this management action on

lynx. However, activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Other surface disturbing activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

Water Resources Management: Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

The above types of actions associated with watershed management would take place very rarely, if at all within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Actions associated with watershed management are likely to improve riparian vegetation and habitat for lynx and their prey.

Determination

Implementation of soil and water resource management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is

based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx, lynx habitat, or LAUs. Management of soil and water resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, localized or small in scale, and generally not likely to occur in lynx habitat. Implementation of soil and water resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats.

Wildlife Habitat Management

Management Actions

In the Deadline Ridge-Graphite area, management emphasis will be placed on maintaining crucial elk winter habitat. In elk feedgrounds, management emphasis will be on maintenance of habitat quality and continued use of the areas as elk feedgrounds. To maintain the integrity of the elk feedgrounds, certain activities would be constrained on lands near them. The NSO restriction would be imposed for all activities except those that have impacts which are temporary in nature or that are compatible with elk habitat management.

The U.S. Fish and Wildlife Service (USFWS) will be consulted on any action with reasonable potential to affect endangered species or their habitats. A biological assessment (BA) will be prepared on all proposals where T&E species habitat will or may be affected and a biological opinion will be requested from the USFWS.

Threatened and endangered (T&E) species and their habitats will be protected. Actions that would degrade habitat to a point of jeopardizing the continued existence of a T&E species will not be allowed. The Pinedale planning area will continue to be inventoried to identify potential habitat and occurrence of T&E species. Identification of habitat occupied by T&E species and habitat with potential to help support these species would be managed in accordance with the national recovery plans. Potential habitat includes high density prairie dog towns for black-footed ferrets, wetlands for whooping cranes, high cliffs over riparian zones for peregrine falcons, and cottonwood stands along the Green, New Fork, and East Fork rivers for bald eagles. Management prescriptions for potential habitat will include consideration for future occupancy by T&E species. Key habitat characteristics will be identified to help ensure maintenance of high quality areas for natural reoccupation.

Habitat occupied by federally listed T&E plant and animal species will be monitored to ensure compliance with the Endangered Species Act. The Colorado River cutthroat trout (once a Category 2 species, but now no longer considered for listing under the ESA (FRN April 20, 2004)) will be monitored in cooperation with the Wyoming Game and Fish Department.

Areas with habitat having potential to support transplanted or introduced wildlife species (other than T&E species) will be identified in the development of activity plans and managed in accordance with the RMP objectives. Proposals for introductions or species transplants to BLM-administered public lands will be evaluated and analyzed, and the impact to and of other resources will be considered. Cooperative agreements will be developed, if necessary, to facilitate species transplants and habitat management.

Mule deer, elk, antelope, and sage grouse use patterns will be monitored. Habitat trend for the species will be interpreted through survey data collected, in cooperation with livestock and watershed studies and monitoring activities. Interdisciplinary selection of key areas and plant species will ensure that crucial habitats are monitored.

The East Front Aquatic Habitat Management Plan (HMP) will be implemented to promote riparian habitat management and protect the Colorado River cutthroat trout. In addition, this HMP and the Upper Green River HMP will include consideration of habitat improvement and related projects for enhancing habitat for waterfowl and aquatic species.

Riparian area maintenance, improvement, and restoration will help promote quality fish habitat on streams and lakes. Coordination with WGFD will continue on the Comprehensive Management and Enhancement Plan for the Colorado River cutthroat trout in Wyoming to improve habitat and expand the range of these trout so they are no longer in threat of extinction. Efforts to control siltation into the East Fork and New Fork rivers will be pursued to improve the water quality of these fisheries. Water Quality Standards for other fishing streams and lakes will be coordinated with WGFD and the State Department of Environmental Quality. Adherence to these standards will help maintain existing fish habitat.

High priority will be given to improvement of wildlife habitat through vegetation manipulation. Any areas identified in the future as suitable for treatment to benefit wildlife will be considered.

Vegetation treatments for livestock grazing and other resource objectives will include consideration of wildlife objectives and related restrictions. Habitat will also be enhanced by other improvements, such as development of water facilities. During development and implementation of activity plans (e.g., allotment, timber, watershed, or wildlife habitat management plans), consideration of habitat improvement needs and locations will be included. Waterfowl habitat will be considered for enhancement through improvements, specifically the Upper Green River HMP and East Front Aquatic HMP update, will provide waterfowl and fisheries habitat improvement projects. Road closures may be imposed to protect fisheries and elk habitat. The Wyoming Game and Fish Department is conducting a study of big game response to oil and gas development on the Riley Ridge natural gas project area. Findings and recommendations from this study will be used in considering future development of minerals on big game ranges.

Effects Analysis

The implementation of management actions associated with wildlife habitat management will likely have positive effects by maintaining or improving existing habitat conditions that will benefit lynx and their prey. Many of the actions are, in fact, directed at lynx habitat improvement. Management actions associated with wildlife habitat management have potential impacts that are dependent on several factors including the number of people involved with each field effort, the time of year, duration of field activities, use of heavy machinery versus hand tools, and type of lynx habitat affected. Lynx have a reasonable tolerance for human presence and may not alter how they use the landscape as a consequence (Aubry et al. 2000). In addition, precautionary measures for endangered species should provide additional protection. The implementation of these actions will likely have positive effects by maintaining or improving existing habitat conditions, especially riparian areas, which will benefit lynx and their prey. In some cases, however, lynx would likely avoid areas where activities are taking place due to the temporary disturbance created by these activities

Determination

Implementation of wildlife habitat management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx due to **insignificant effects**. Although there is the possibility of some occasional and small degree of disturbance, this determination is based on the potential for these actions to benefit the lynx by maintaining or enhancing habitats used by snowshoe hares, sage grouse, and

jackrabbits in shrub steplands, mountain shrublands, Douglas fir, Engelmann spruce-subalpine fir, and aspen-conifer forestlands.

Livestock Grazing Management

Management Actions

The current grazing preference objective of 107,907 animal unit months (AUMs) will be maintained or increased through implementation of allotment management plans (AMPs), range improvements, and vegetation manipulation. If these measures fail to provide the grazing preference objective, while providing for protection of other resource values as established in the plan, livestock reductions may become necessary. Any adjustments in livestock grazing use will be made as a result of monitoring and in consultation with grazing permittees and other affected interests.

The 20,991 acres of unallotted forage on public lands will be considered for allocation on a case-by-case basis in accordance with RMP goals and objectives. The number of AUMs to be allocated will be determined after the lands have been evaluated. Adequate stock trails will be maintained to support livestock trailing needs. Adequate forage for wintering elk will be provided to the extent possible (population levels based on Wyoming Game and Fish Department 1987 population objectives) in the Bench Corral, Miller Mountain-Fort Hill, Riley Ridge, and Graphite elk winter ranges. In cases where adequate forage for wintering elk is not available, adequate forage could be provided through a combination of management practices, including livestock grazing systems, grazing adjustments, and vegetation manipulation. Livestock water developments on crucial elk winter ranges will only be allowed if they do not result in adverse impacts to the crucial range.

Initial categorization is 41 “I” allotments, 141 “M” allotments, and 26 “C” allotments. New allotment management plans (AMPs) will be written and implemented on “I” allotments. New AMPs or activity plans will require environmental analyses. All grazing systems will be designed to maintain or improve plant diversity. Specific objectives will be determined during AMP preparation to provide forage diversity for antelope, mule deer, and sage grouse as well as livestock. Grazing systems will be designed to limit forage competition for forbs and other desirable plants, particularly in the spring of the year.

Some allotments have very small acreages available for treatment. Because of the high cost of treating such small areas, they are not likely to be treated. Other allotments containing large acreages may not receive the total projected treatment due to resource considerations (e.g., sage grouse nesting areas and erodible soils). Acreage of brush control may increase or decrease on certain allotments depending on rangeland management needs addressed in AMPs and other activity plans.

All brush control projects will involve site-specific environmental analysis; coordination with affected livestock operators and the WGFD; and will include multiple use objectives for other resource uses including livestock, wildlife, and watershed.

Prescribed fire will generally be the preferred method of vegetation manipulation for the conversion of brushland to grassland. Wildfires occurring in areas with a fire prescription will be allowed to burn as long as they remain within the prescriptions and meet land use objectives. Other vegetation manipulation methods will be considered on a case-by-case basis.

To reduce streambank degradation, salt blocks for livestock and wildlife use will not be placed within 500 feet of live water, wetland, or riparian areas, unless activity plans show that it is necessary to meet management objectives.

Any forage increases realized from management prescriptions and range improvement practices will be allocated to wildlife, watershed, and livestock. Site-specific objectives for wildlife, watershed, and livestock grazing will be developed to identify each resource use to receive a forage allocation.

Actual forage allocation from forage increases will be based on site-specific analysis and must conform to the multiple use objectives of the activity plans. The allocation of forage resulting from treatments financed by permittees, as in "M" category allotments that do not have crucial wildlife ranges, will be evaluated on a case-by-case basis. More forage may be allocated to livestock grazing than to other resource uses, in accordance with the current federal grazing regulations, including consistency with the multiple use management objectives set forth in this document. Consultation with the affected parties will be necessary at the outset of planning for the project allocating increased forage to ensure satisfactory proportioning of the additional forage.

Monitoring of the range and the vegetation resource will be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. These data will be used to support and direct grazing management decisions consistent with national policy. Ecological range site condition mapping will be completed.

Effects Analysis

Although the RMP and the Guidelines for Livestock Grazing Management on BLM land provide some regulatory guidance for protecting the riparian areas used by snowshoe hares for foraging and by lynx for movement corridors, impacts to these areas do occur. Domestic livestock grazing in riparian areas can alter the structure and composition of aspen and riparian shrubs that hares depend upon. In areas with high elk numbers, this loss of vegetation can be further exacerbated. Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Grazing also causes a reduction in fine fuels, thus affecting fire regimes and subsequent regeneration.

In areas within the elevational range of lynx, grazing in shrub-steppe communities also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush. Lynx will use these sagebrush areas for foraging when prey are abundant there, and will make exploratory and dispersal movements outside of their forested habitats onto shrub-steppe communities, during which they would require alternate prey such as sage grouse, jackrabbits, and ground squirrels.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

Fencing activities authorized by the livestock grazing management program may include fence construction and repair, designing and implementing grazing systems, and building livestock exclosures for important riparian habitat. Water management activities associated with range management may include the development of reservoirs, springs, pipelines, and wells, and access authorization. Permit and lease management activities include conducting monitoring studies, performing project work to enhance and improve riparian zones and uplands, managing stock driveways, and developing management plans and agreements.

In some cases cross fencing (subdividing an allotment, pasture or ranch by fencing) is used to accomplish management needs or when a parcel is leased by more than one lessee. Temporary fencing, including electric fencing may be authorized to accomplish management goals. Fencing might be used to reduce grazing intensity, distribute grazing away from important resources (streams, springs, riparian areas, wetlands, cottonwood galleries, etc.). When fencing is proposed, either permanent or temporary, fences are built to standards developed in the Fencing BLM Manual Handbook (H-1741-1, Fencing, Rel. 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), stringing wire, digging postholes, building fence braces, building rock jacks, cutting or removing on or off site building materials (fence posts, rails, gathering rocks, etc.), weed management (spraying, cutting, pulling, etc.), or if the project is large enough, the possibility of camps for workers. The use of corrals for confinement of livestock for various purposes (sheep shearing, overnight holding of livestock, etc.) would require construction and maintenance activities including, hauling building materials, heavy equipment use, access to the corral site, etc.

The livestock grazing program may also include rangeland improvements such as stock water ponds, pits, or reservoirs; pipeline and trough systems; spring developments; storage tanks and troughs; wells; or temporary tanks and water hauling. These off-stream water improvements better distribute the use and intensity of use by livestock away from streams, rivers or wetlands and help protect important riparian areas, but could require the use of hand tools, mechanical or heavy equipment, hauling/transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. Placement of salt and mineral blocks or riding horseback and physically moving livestock are other forms of livestock distribution.

Rangeland restoration to improve range health is also a part of livestock management. These activities might include aerial seeding and possibly herbicide application, seeding by disking or drilling (using a tractor or other heavy equipment), fertilizing, plowing, chaining, or rangeland pitting.

Most livestock operators use off-highway vehicles (OHVs), i.e.: pick-up trucks; off road vehicles (ORVs), i.e.: motorcycles or “4-wheelers,” or ride horseback or walk to access their allotments. “Herding ” (moving) livestock through walking, horseback riding, and the use of dogs to distribute livestock on allotments or trailing (move them from one location to another - on or off of allotments), and the use of domestic sheep bed grounds (a temporary site to bed down flock(s) of sheep) and associated sheep herder camps are commonly employed methods of livestock operations. Road construction and maintenance, for access to various livestock operations would again require heavy equipment use, possible mechanical vegetation removal or spraying with herbicides, and material hauling.

Forage needs for wildlife and adequate vegetation cover for watershed protection are considered before additional livestock use is authorized. Livestock management includes, authorizing livestock grazing, and adjusting season of use, distribution, kind, and number of livestock. Salt or mineral supplements may be provided, which causes livestock concentrations, but can also move or distribute livestock away from water sources.

Determination

Implementation of livestock grazing management actions, as provided in the Pinedale RMP (1988b) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Riparian Management

Management Actions

The objectives for riparian management will be to maintain, improve, or restore riparian value to enhance forage, habitat, and stream quality. Priority for riparian areas management will be given to those areas identified as Wyoming BLM sensitive fish species habitat, including habitat for native cutthroat trout. Management actions may include reductions in livestock numbers, adjustments in grazing distribution patterns, fencing, herding, livestock conversions, etc. Unallotted public lands containing riparian areas will be managed according to the same objective, with emphasis on wildlife and watershed objectives, but not necessarily to the exclusion of livestock uses. Refer to management actions described under all other programs for accomplishing riparian objectives. Riparian management is an integral part of all resources and related management programs. Those activities that affect or are affected by riparian values, will take into account the riparian objectives and direction. Resource values and uses that affect or are affected by riparian values include: wildlife and fisheries habitat, forest resources, livestock grazing, ORV 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.

Effects Analysis

Actions associated with riparian management include increased human presence and use of machinery or fire to implement management actions that may detrimentally influence lynx behavior briefly while they are being conducted. The potential for these effects is low and the intensity is not expected to have lasting detrimental effects to lynx behavior. Implementation of vegetation management actions are likely to result in positive effects to lynx habitats in riparian areas, particularly foraging habitats, such as the creation or expansion of habitats suitable to potential terrestrial prey species.

Determination

Implementation of the riparian management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low potential for these actions to harass or displace lynx. The long-term results of riparian management may benefit the lynx by creating or supplementing habitats that support snowshoe hares.

Wild Horse Management

Management Actions

The objective of wild horse management will be to resolve conflicts for water and forage between wild horses and other resource uses. All wild horses will be removed from the planning area and made available for adoption through BLM sponsored adoption program. No forage or other resources will be provided to wild horses. There are two wild horse areas, La Barge and desert, but neither are wild horse management areas.

Effects Analysis

Actions associated with wild horse management are expected to be limited to occasional herding, gathering, corralling, and transporting of horses. These activities will not occur in forested habitats. These actions are not expected to detrimentally impact the behavior of lynx or foraging, denning, or travel habitats as they would occur outside of lynx habitat or LAUs.

Determination

Implementation of wild horse management, as presented in the Pinedale RMP (1988b), would have **no effect** on lynx. This determination is based on now wild horse management areas within the Pinedale planning area, the extremely low likelihood that lynx would be adversely affected by actions associated with management of wild horses, and the fact that wild horses inhabit lower elevation basins with extremely low occurrence by lynx.

Forest Management

Management Actions

The objectives of forest management will be to provide a supply of forest products to the various segments of the public and to maintain or enhance other resource management objectives. Consistent with forest management and other resource management objectives, the forested lands are classified into four management categories:

Category 1, Intensive Management, will include areas where the forested lands would be managed for multiple-use, but with emphasis placed on forest product utilization and forest management activities.

Category 2, Restricted Management, will include forested lands where wildlife, watershed, and recreation resource values will be emphasized and actions such as partial cutting, extended forest crop rotations, etc., or other restrictions to forest management, would be applied.

Category 3, Management to Enhance or Maintain Other Resources, will only allow forest management activities (e.g., harvesting or thinning) on lands in this category when such activities will benefit resources or values other than forestry or will promote public safety. All forestlands included in this category are not included in the forest management base or in timber harvest calculations.

Category 4, No Forest Management, includes all areas where forest management is excluded.

Approximately 24,223 acres of commercial conifer would be available for production of forest products. Of this 24,223 acres, approximately 20,836 acres would be subject to harvest method/equipment use and minimum cover level restrictions (Category 2). The remaining 3,387 acres would be unrestricted, except for general forest management guidelines applicable to all forest management activities (Category 1). Approximately 13,506 acres of woodland (Categories 1 and 2) will be available for forest product disposals on a demand basis. An additional 3,113 commercial conifer and woodland acres will be removed from the forest base (Categories 3 and 4). The 1,611 acres in Category 3 will be available for forest management activities when such activities are deemed necessary to maintain the integrity of the resource being protected (e.g., wildlife, watershed) or to promote public safety. All forestlands in categories 1, 2, and 3 will be available for emergency salvage of timber damaged or killed through insects, disease, wildfire, or other such events.

Forested lands in Categories 1 and 2 will be managed to harvest an estimated 18.2 million board feet of timber over a 20-year period. Average annual harvest level will involve approximately 137 acres, but may vary to meet individual sale area objectives, depending on proposed harvest methods and individual sale conditions.

Sales of forest products (sawtimber, firewood, Christmas trees, posts, poles, and wildlings) will be made available to individuals and to commercial vendors. Forest product sales will be conducted on all forest areas, except where specifically excluded (e.g., the Rock Creek drainage and 7,636 acres in the Scab Creek area).

In addition to harvest, approximately 1,200 acres of precommercial thinning will occur during the 20-year period (BLM 1985a). Precommercial thinning projects will generally be designed to achieve an 8-foot spacing (e.g., roughly 680 trees per acre would be left uncut) and should not significantly affect cover levels.

Within the general forest management objective and guidelines, each of the following four management units has separate sub-objectives and planned actions. The Deadline-Pinegrove unit will be managed to give full protection to the Colorado River cutthroat trout in the Rock Creek drainage and to maintain October 1985 levels of forest cover for wildlife in the remainder of the unit. Approximately 953 acres will be available for harvest over a 20-year period. All forest management activities will be excluded in the Rock Creek drainage. A minimum of 90% of the conifer acreage in the Graphite and Riley Ridge crucial elk winter ranges will be maintained. Annual cover level fluctuations will not be allowed except for emergency salvage. No clearcutting or road construction will be allowed within 1,000 feet of Beaver Creek. Exceptions will be granted only if additional site-specific analysis verifies that such actions will not adversely affect crucial Colorado River cutthroat trout habitat.

The North Piney unit will be managed to give full protection to the elk feedgrounds and to maintain October 1985 levels of forest cover for wildlife, primarily elk. All forest management activities will be excluded from the Finnegan and North Piney elk feedgrounds, except when such management would be necessary to maintain the integrity of the feedground environment. Approximately 680 acres will be harvested for forest products over a 20-year period.

The Miller Mountain unit will be managed to provide full protection to forested portions of the Fort Hill-Fontenelle elk winter range and to maintain approximately 90% of the conifer acreage in the remainder of the unit in cover for wildlife. Forest management activities will be excluded from the Fort Hill elk winter range. Exceptions will be allowed for emergency salvage when the wildlife will benefit. Approximately 396 acres or 10% of the conifer base, excluding the Fort Hill winter range, will be harvested over a 20-year period.

The Eastside-Hoback unit will be managed to give full protection to the forested portions of the elk feedgrounds and to manage the remaining forested lands for forest products on an allowable harvest/sustained yield basis. Approximately 781 acres will be harvested for forest products over the next 20 years. Forest management activities will be excluded from the Franz and Scab Creek elk feedground, except for salvage and sanitation harvests when necessary to maintain the integrity of the feedground environment to benefit the elk.

Effects Analysis

Forestland management actions occur in coniferous habitats, which are the same areas used by lynx. Timber management creates different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000).

This reduces habitat quality and quantity for lynx and their prey. Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Determination

Implementation of forest management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts.

Wilderness Management

Management Actions

Proposed wilderness areas will be managed for wilderness values in accordance with the decision of Congress. The two wilderness study areas (WSAs) in the planning area, the Scab Creek WSA and the Lake Mountain WSA, were evaluated in two previous wilderness environmental impact statements (BLM 1981 and BLM 1983). As a result of these analyses, the BLM recommended the Scab Creek WSA for designation as wilderness and the Lake Mountain WSA for nondesignation as wilderness. Both recommendations are pending further processing and Congressional decision.

Until Congress acts, these WSAs will be managed under the "Interim Management Policy and Guidelines for Lands Under Wilderness Review" (BLM 1987b). Congressional decisions on the Scab Creek and Lake Mountain WSAs will be incorporated into the approved Pinedale RMP. Should Congress designate one or both of the WSAs (partially or entirely) as wilderness, the management of the designated areas will be for wilderness values, as described in the appropriate wilderness EIS. Should Congress not designate one or both areas (partially or entirely) as wilderness, the management of the nondesignated areas will be in accordance with the approved Pinedale RMP. The undesignated areas will lose their identity as WSAs and will be managed along with the adjoining area as prescribed in the approved Pinedale RMP.

Effects Analysis

Management actions associated with wilderness management will not result in detrimental impacts to lynx behavior or their habitats. These actions will result in positive effect to lynx by limiting harassment and disturbance to suitable denning, travel, and foraging areas. The designation of WSA status is simply a designation, and tempers or stipulates from a WSA viewpoint, specific protections or management of other BLM authorized actions. WSA classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSA status is a beneficial impact on wildlife and plant species. The Scab Creek WSA encompasses portions of the BLM – Boulder Creek and BLM – Muddy Creek North LAUs, providing added protections for these areas.

Determination

Implementation of the wilderness management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **beneficial effects**. This determination is based on the potential that these actions will limit the harassment and displacement of lynx and maintain or protect suitable lynx habitats.

Visual Resource Management

Management Actions

The objective of VRM will be to maintain overall integrity of visual resources while allowing for modification and changes to occur to meet other resource objectives. VRM classes have been established in line with overall resource management objectives of the approved Pinedale RMP. These are subject to change and further definition as more inventories and evaluations are conducted. A program will be initiated to improve the visual quality of oil fields in the planning area by working with the companies to reduce the visual impact of existing facilities. Projects of all types within established VRM class areas will generally be required to conform with the objectives and characteristics of the classification, or the project will be modified in order to meet the VRM class objective. Short-term modifications in portions of visual class areas may be approved if a site specific environmental analysis determines that impacts would be acceptable. The VRM class areas will be monitored periodically for cumulative impacts that may potentially conflict with their classifications.

Effects Analysis

Actions associated with visual resource management will not directly impact lynx behavior or habitats. Potentially, a request for movement of a structure or project due to VRM classification out of a higher classification area to a lesser classified area might move the project into lynx habitat or LAU. Impacts to lynx by such moves would be precluded by the lynx conservation measures. The exclusion of some activities and structures from designated view sheds may have a secondary positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Determination

Implementation of visual management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the fact that implementation of the visual resources management involves no anticipated disturbance to lynx habitat and likely will provide a positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Off-Road Vehicle Management

Management Actions

The Bench Corral elk winter range will be closed to all ORV use, including over-the-snow vehicles, from November 15 through April 30. Lands around the Franz, Finnegan, Scab Creek, Fall Creek, and North Piney feedgrounds will also be closed to ORV use and unauthorized human presence from November 15 through April 30. The Deer Hills, Oil Field, and Mesa deer and antelope winter ranges will have a winter travel limitation restricting vehicle travel from November 15 through April 30 on an as-needed basis. These seasonal limitations will be implemented in cooperation with the Wyoming Game and Fish

Department during severe winters or periods of disturbance of the wildlife wintering in these areas of concern. One hundred twenty acres in the Holden Hill area will be closed to all ORV use.

In general, off-road vehicle use will be monitored periodically to determine actual use and public demands. Monitoring of high density roaded areas will be conducted as described in the section on Access Management. The Desert General Use area will remain open to generalized ORV uses. This is an area of over 224,000 contiguous acres of public land. The Desert Open Area will be monitored to determine if unacceptable impact levels are occurring or being approached, which will require that ORV use be re-evaluated and limited accordingly.

Effects Analysis

In areas designated as "closed" or "restricted," suitable foraging and denning habitats will likely receive little or no impacts from ORV use. In other areas, where ORV use is limited to existing trails, these definitions are sometimes loosely interpreted by the user group and new roads may be created as well as deepening of unofficial roads. Sometimes these roads become very abundant in some areas, fragmenting vegetation and reducing cover for lynx and their prey.

The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the RMP, is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Recreation Management

Management Actions

Management emphasis will be placed on the current recreation management areas including Scab Creek, the Green and New Fork rivers, Oregon Trail routes, and Boulder Lake. Recreation facilities will be installed where needed to accommodate the anticipated recreation uses and use levels and to provide for adequate public health and safety.

The order of priority for recreation management will be:

- Congressionally designated areas,
- Major rivers and lakes where BLM has clear jurisdiction,
- Areas with outstanding recreation resource values not already provided for in the area, and
- Areas where the recreation capacity is regularly exceeded, threatening other important resource values.

Cooperative recreation projects and those with contributed funding can be given priority for development in conformance with established recreation objectives and priorities. Withdrawals from exploration and development of locatable minerals will be pursued, as necessary, on developed and semi-developed recreation sites (currently about 585 acres). Recreation management for the Scab Creek area, the Green and New Fork rivers, and the Oregon Trail routes will emphasize maintaining or improving the quality of

the sites and the recreation experience. Public lands along the Green and New Fork rivers will be managed to provide fishing and floatboating opportunities. Necessary facilities will be developed to provide for protection of users and the resources. Boulder Lake will be established as a special recreation management area and related recreation facilities will be developed to improve public access and use opportunities. A maximum 16-day camping limit will be implemented throughout the planning area. Areas requiring shorter limits will be posted. Written authorizations will be required for longer periods. A temporary, no overnight camping stipulation may be imposed in an emergency. Where applicable, recreation facilities will be developed and managed in a manner that will maintain, restore, and improve riparian values. Special recreation permits, commercial recreation uses, and major competitive recreation events will include impact minimization developed to ensure the protection of other resources in accordance with objectives of all resource values involved.

Effects Analysis

Actions associated with recreational management and use have the potential to detrimentally impact lynx behavior and habitats. Activities that create compacted snow conditions, such as snowshoeing and cross-country skiing, reduce the special advantage that lynx have to move through deep snow with their large paws. This allows for the intrusion of less-specialized predators such as bobcats, wolves, and coyotes into areas that would otherwise be the exclusive domain of the lynx. These other predators compete for prey and can prey on lynx. This argument is, however, a source of debate. An increase in human activity associated with management actions or use may cause lynx to avoid or abandon otherwise suitable habitats. Recreational use is often concentrated in riparian areas. Impacts to these habitats may reduce or eliminate foraging habitat for snowshoe hares.

The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), the no net increase in over-the-snow routes and play areas in LAUs, restriction on actions that degrade or compromise landscape connectivity or linkage areas, requirement that trails, roads, and lift termini be designed to direct use away from diurnal security habitat, and the evaluation of permits that promote snow compacting activities.

Determination

Implementation of recreation management actions, as presented in the Pinedale RMP (1988), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Wild and Scenic Rivers Management

Management Actions

It was determined that five upstream public land parcels along the Green River review segment meet the Wild and Scenic River (WSR) suitability factors and should be managed to maintain or enhance their outstandingly remarkable values for any possible future consideration for inclusion in the NWSRS. The suitable determination is based on the unique qualities of the diverse public land resources and their regional and national significance, making them worthy of future consideration for addition to the NWSRS.

Interim management practices for the five public land parcels along the Green River meeting the scenic classification (involving 8.56 miles along the river) will focus on maintaining or enhancing the

outstandingly remarkable scenic, recreational, and historic values and the relatively unmodified character of the area in a near-natural setting. Any activities that would conflict with this objective are prohibited. Some intrusions on the public lands involved may be allowed if they are not readily evident or are short-lived, and do not adversely affect maintaining the scenic classification.

Effects Analysis

Because of their isolation, rugged character, and naturalness, designation as a Wild and Scenic River is not expected to detrimentally influence lynx behavior or impact suitable denning, travel, and foraging habitats. These actions will likely result in positive effects by maintaining or enhancing habitats suitable for lynx and their prey. The following WSR segments flow through lynx LAUs: the East Fork River (includes Irish Canyon Creek) – flows through BLM-Muddy Creek South LAU; Scab Creek (includes Jenna Creek) flows through BLM-Muddy Creek North LAU; and Silver Creek (includes North Fork of Silver Creek and an unnamed tributary) flows through BLM-Muddy Creek North LAU. At the time of designation, further consideration of details will be given to potential impacts to Canada lynx.

Determination

Implementation of WSR management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **beneficial effects**. This determination is based on the potential that these actions will help maintain or possibly improve habitats used by lynx and their prey.

Cultural Resource Management

Management Actions

The cultural resources will be managed to: 1) resolve conflicts between cultural resources and other resource uses; 2) provide appropriate levels of protection for significant cultural resources; 3) design cultural resource management actions to maintain the value of cultural resources; and 4) provide for the scientific and educational use of cultural resources. Cultural resource management activity plans (such as the Oregon/Mormon Pioneer National Historic Trails Management Plan) will be completed and implemented to identify, salvage, and protect cultural and historical sites. Activity plans will be prepared for any current or future sites listed on, or determined eligible for the National Register of Historic Places (NRHP), including sites 48LN300, 48SU350, and 48SU301, and the Overlook Rock Shelter, the Aspen Stone Circle site, the Cora Butte alignment site, the Willow Lake site, and the Boulder Lake site. Site-specific management prescriptions will be developed in the activity plans. Significant cultural resource sites will be nominated to the National Register of Historic Places. As necessary, withdrawal from exploration and development of locatable minerals on significant cultural resource sites will be pursued.

Effects Analysis

The BLM performs cultural inventory activities as well as land management activities. 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 impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity

varies between inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

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 cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Determination

Implementation of cultural resource management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the premise that actions associated with cultural and natural history resource management are infrequent in occurrence, are typically in a very small area, have little impact, are of short duration, and the low potential for cultural resource management actions to cause harassment, displacement, injury, and mortality of lynx. These activities are also unlikely to occur in lynx habitat.

Lands and Realty Management

Management Actions

The lands and realty management objective will be to provide land use authorizations in support of public needs. Prior to taking any disposal action, an environmental analysis will be conducted on the proposal and the involved lands will be evaluated for compliance with the disposal criteria listed in and for consistency with objectives of this RMP. Approximately 6,400 acres have been identified as suitable for future consideration for disposal, and another 14,500 acres have been identified as suitable for consideration for disposal only by exchange. Proposals to dispose of any other BLM-administered public lands will be considered and evaluated on a case-by-case basis. Special attention will be given to retaining enough public lands at the Cora Y highway crossing, at the south end of Fremont Lake, and at other important wildlife migration routes to provide for free movement of migrating big game animals. Acquisition of nonfederal lands will be pursued by BLM, if needed, to accomplish management objectives of this RMP. Such acquisition will primarily be considered in areas of predominantly federal ownership, when other management options such as cooperative agreements are not available, and then primarily through exchange. Lands actions (e.g., exchanges) will be pursued to enhance and maintain key wildlife habitats. Land exchanges to acquire state and private lands in crucial habitats in important and predominantly federal management areas (e.g., Rock Creek ACEC, New Fork Potholes, key riparian areas) will be pursued.

Desert Land Entry petition applications will be disqualified when the public lands are identified as:

Lands within the capability classes that the Department of Agriculture, Agricultural Stabilization and Conservation Service, is seeking to remove from cultivation under the Conservation Reserve Program.

Lands that the Department of the Agriculture, Soil Conservation Service show as being "nonirrigable."

Lands identified as sensitive, unique, or necessary to fulfill the management objectives of this RMP.

Agricultural land entry petition applications will also be disqualified when the public lands would be utilized for the growth of government price-supported crops, or when use of water supplies would deplete an underground water supply beyond its annual recharge capability, thus threatening existing water users.

Whenever necessary, withdrawals in support of other resource management objectives and actions will be pursued. Public lands within active livestock driveways that are continuing to serve their designated purpose, will continue to be segregated from all forms of disposal under the public land laws. The withdrawals for stock driveways that are not serving their designated purpose will be terminated. Mineral locations on stock driveways will be handled under 43 CFR 3815. Disposal proposals that will not be compatible with the continued use or purpose of stock driveways will not be approved. Existing land withdrawals (held by agencies other than BLM) currently encumbering public lands will be reviewed to determine the need for continuation, modification, revocation, or termination of the withdrawals. Classification and Multiple Use Act retention and disposal classifications (Orders W-19140, W-25810, and W-12668) in Sublette and Lincoln counties will be terminated. In areas covered by these orders, discretionary management under the provisions of the Federal Land Policy and Management Act (FLPMA) will be consistent with the provisions of the RMP.

Areas closed to mineral leasing, having a no surface occupancy (NSO) restriction, or other otherwise identified as unsuitable for surface disturbance or occupancy in other sections of this RMP will be managed as avoidance or exclusion areas for rights of way. Such areas include, but are not limited to, recreation and cultural sites, the Rock Creek ACEC, and the Deadline Ridge-Graphite evaluation area. However, following a supporting environmental analysis, some types of rights of way projects may be allowed in such areas if they: a) would not create substantial surface disturbance; b) would be located in areas with a high potential for reclamation; c) would have impacts which would be temporary in nature; and d) would be compatible with the resource values being protected.

Areas requiring impact minimization measures and restrictions for surface-disturbing activities will be managed as restricted areas for rights of way. Restrictions include, but are not limited to, seasonal restrictions for wildlife, sensitive watersheds, steep slopes, ORV designations, and other measures necessary to prevent degradation of cultural, historical, and recreational sites. Restricted areas for rights of way include wildlife crucial winter ranges, the Beaver Creek ACEC, the Upper Green River Special Recreation Management Area (SRMA), and the Soap Holes area. Areas that are not identified as avoidance, exclusion, or restriction areas are considered open to rights of way. Two transportation/transmission corridors are designated. Actual corridor widths will be flexible within the constraints provided in the various resource objectives of the RMP.

Corridors are preferred routes for transportation and transmission facilities. Identification of corridors does not preclude location of transportation and transmission facilities in other areas, if environmental analysis indicates that the facilities are compatible with other resource values and objectives. Further identification of corridors does not mandate that transportation and transmission facilities will be located there if they are not compatible with other resource uses, values, and objectives in and near the corridors or if the corridors are saturated. Each right of way application will be reviewed and analyzed using the environmental data that exist for the area as a basis to determine compatibility with existing uses and resource values.

Effects Analysis

Management of existing access and acquisition of new access to lands administered by BLM will not alter lynx behavior. Improved or new access to lands under new administration may result in positive effects to

lynx habitats by securing these lands and managing them under BLM provisions.

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as LAUs or important travel corridors would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. Roads can be a source of fragmentation of lynx habitat resulting in reduced mobility, and in mortality to lynx resulting from collisions. The degree of these impacts is correlated with traffic volume and speed, and road width. The construction of roads within rights of way may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats.

Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. The overall goal of FO staff is to maintain lands that contain potential habitat for the lynx; however, large transfer of acreage due to land tenure actions may occur.

The issuance of ROWs and leases (utility transportation corridors), specifically ROWs for ditches, canals, and roads may affect the lynx if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. The issuance of temporary use permits, and construction activities associated with fencing of revegetation sites require an analysis to determine if they are present in potential habitat areas and travel corridors and would have similar short-term avoidance impacts.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant affect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities that could have a negative affect on the lynx; closing areas creates undisturbed habitat for lynx.

Conservation Measures in place (Section 4) that relate to lands and realty management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as the evaluation of effects on key linkage areas in situations of proposed land exchanges, land sales, and special use permits.

Determination

Implementation of lands and realty resource management actions, as provided in the Pinedale RMP (1988b) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Access Management

Management Actions

The objective for access management is to provide suitable public access to BLM-administered public lands.

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Potential effects to lynx behavior are likely to be limited in nature and not have lasting negative effects. Alteration of habitats is expected to be limited to upland habitats. The localized nature of potential disturbance to local habitats, related to access, are not expected to result in changes to foraging habitats that will have long-term effects to lynx or their prey.

Determination

Implementation of access management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the low likelihood that activities associated with creating or expanding access would occur in lynx habitat or LAUs and would result in adverse effects to the lynx.

Fire Management

Management Actions

The objective of fire management is to protect public safety, life, and property while providing the maximum benefits of both prescribed fire and wildfire to overall resource management. Fire will be considered a vegetative manipulation option to:

- Convert brush to other desired species,
- Rejuvenate desired species,
- Increase forage,
- Increase vegetation nutrient value and palatability,
- Promote wildlife habitat diversity,
- Improve vegetative cover on areas with insufficient protective ground cover, and
- Maintain or improve range, wildlife habitat, and watershed condition.

Fire will also be considered a management option for disposal of timber slash, seedbed preparation, hazard reduction, control of disease or insects, thinning, or species manipulation in support of forest management objectives. In preparing activity plans, consideration will be given to fire applications in meeting resource management objectives. A fire management action plan will be written for the planning area. Specific boundaries and fire management prescriptions will be consistent with or in support of the other identified resource values and management objectives.

Areas will be identified where a prescribed set of conditions will be acceptable in the event of an ignition. Prescribed fires will generally be confined to 200 acres or less in areas where current vegetation stages are desirable. Fire protection on public lands will be managed by taking appropriate suppression actions through the fire management plan. Resource and operational support for presuppression and suppression

planning will be coordinated with the Forest Service, Sublette County Sheriff's Office, Wyoming State Forestry Division, and local fire protection districts.

Wilderness areas will be managed as prescribed fire areas. Fire suppression in wilderness areas requires restraint in suppression methods. In any designated wilderness areas, the fire management objective will be to manage fire in ways that will cause the least degradation to wilderness values.

Prescribed burning will be conducted so as to:

- Not violate ambient air quality standards,
- Avoid visibility impairment,
- Minimize public nuisance, and
- Minimize smoke intrusions into sensitive areas.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities. Prescribed fire may also benefit lynx by providing the regeneration of shrubs and other plants favored by snowshoe hares.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000). In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Areas of Critical Environmental Concern

Management Actions

The objective for managing the Rock Creek ACEC is protection of the Rock Creek drainage to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout and to provide crucial winter range for a portion of the Piney elk herd. The entire ACEC area and the Deadline-Graphite elk winter range area (approximately 17,100 combined acres) will be deferred from mineral leasing until a mineral and wildlife evaluation is completed. The entire ACEC will be managed as a right of way avoidance or exclusion area, where rights of way will not be allowed unless a supporting environmental analysis indicates that the action meets the objective for the ACEC, minimal impacts would occur, and(or) the action would benefit the Colorado River cutthroat trout or elk habitat.

A No Surface Occupancy (NSO) restriction for leasable minerals and other surface-disturbing activities will be applied in the 4,200-acre Rock Creek drainage (unless activities are for the purpose of benefiting the Colorado River cutthroat trout). Geophysical exploration activities in this area are restricted to portable methods only. The use of explosive charges will be prohibited if analysis determines that unacceptable adverse resource impacts would result. If analysis indicates this level of protection is necessary, the drainage area will be closed to exploration and development of locatable minerals, and a withdrawal from mineral location and surface entry will be pursued. Livestock grazing and related improvements will continue to be allowed, provided no adverse affects occur to the Rock Creek drainage. No forest management activities will be allowed within the drainage. The drainage will be managed as a Class I VRM area and will be closed to ORV use, including over-the-snow vehicles (43 CFR 8340.0-5).

Approximately 1,000 acres of the ACEC (that portion outside the drainage) will be evaluated to identify any locations where surface occupancy can be allowed. Geophysical exploration activities in this area will be evaluated on a case-by-case basis and will be restricted if analysis determines that unacceptable adverse impacts would occur to the water quality, fisheries, wildlife, recreation, or visual values in the area. This portion of the ACEC will be open to exploration and development of locatable minerals. A plan of operations will be required for any locatable minerals activities in the area. This portion of the ACEC will be managed as a Class II VRM area, and ORV use will be limited to existing roads and trails with seasonal restrictions to protect wintering wildlife. The objectives for managing the Beaver Creek ACEC are to assure quality aquatic habitat for the sensitive Colorado River cutthroat trout and to protect elk calving habitat. The area is open for consideration of mineral leasing and related activities. All vehicle use, including geophysical exploration vehicles, will be limited to existing roads and trails. This area will be closed to the use of explosive charges if analysis determines that unacceptable adverse impacts would occur to the water quality, fisheries, wildlife, recreation, or visual values in the area. The Beaver Creek ACEC will be managed to maintain, improve, or restore riparian habitat conditions. The ACEC will be managed as a Class III VRM area.

A detailed activity plan will be prepared to establish guidelines for uses that could affect or jeopardize habitat quality for the Colorado River cutthroat trout and elk calving. Management prescriptions in the activity plan will include identifying specific transportation routes to reduce the potential for spills of toxic materials, and needs for seasonal use or other types of restrictions, in compliance with the decisions stated above.

Surface disturbance within 1,000 feet of the streams and on slopes of 25% or greater will be prohibited. Partial timber cutting will be allowed provided that no adverse impacts will occur to the Colorado River cutthroat trout. Clearcutting or road construction within 1,000 feet of Beaver Creek will not be allowed.

Exceptions will be granted only if additional site-specific analysis verifies that such actions will not adversely affect crucial Colorado River cutthroat trout habitat. Roads and rights of way will follow existing alignments unless design criteria will preclude adverse impacts to the trout and elk calving habitat. Stream crossings will be limited to lower elevations and gentler slopes. Use of equipment and vehicles, including geophysical exploration activities, will be allowed if consistent with the objectives of the ACEC.

Effects Analysis

The effect being analyzed here is the designation or creation and management of ACECs. The BLM-Birch South Beaver LAU is within the Beaver Creek ACEC and the BLM-LaBarge Creek LAU is within the Rock Creek ACEC. Management actions authorized within these ACECs, but not associated with ACEC management, that could result in detrimental impacts to lynx behavior or their habitats, such as allowed minerals development, will be analyzed under that specific activity. There are no specific impacts to lynx breeding, foraging, or denning habitat from planning actions associated with the establishment of an ACEC and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Determination

Implementation of ACEC management actions, as presented in the Pinedale RMP (1988b), is **not likely to adversely affect** the lynx, due to **beneficial effects,** because the act of designation of an ACEC has no disadvantageous impacts on lynx and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Pinedale RMP management actions.

TABLE 7 SUMMARY OF DETERMINATIONS FOR THE PINEDALE RMP

Resource	Determination
Surface Disturbance Restrictions	Not likely to adversely affect, due to beneficial effects
Air Quality	No effect
Minerals	Not likely to adversely affect, due to insignificant effects
Natural History and Paleontological Resources	Not likely to adversely affect, due to discountable effects
Soils and Watershed	Not likely to adversely affect, due to discountable effects
Wildlife Habitat	Not likely to adversely affect, due to insignificant effects
Livestock Grazing	Not likely to adversely affect, due to insignificant effects
Riparian	Not likely to adversely affect, due to insignificant effects
Wild Horse	No effect
Forest	Not likely to adversely affect, due to insignificant effects
Wilderness	Not likely to adversely affect, due to beneficial effects
Visual Resources	Not likely to adversely affect, due to beneficial effects
Off-road Vehicle	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to insignificant effects
Wild and Scenic Rivers	Not likely to adversely affect, due to beneficial effects
Cultural Resources	Not likely to adversely affect, due to discountable effects
Lands and Realty	Not likely to adversely affect, due to insignificant effects

Access	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Areas of Critical Environmental Concern	Not likely to adversely affect, due to beneficial effects

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Pinedale planning area.

Potential effects that could affect lynx or their habitats in the Pinedale FO include the following:

Subdivision development along rivers (especially along the New Fork and Green Rivers)
Natural gas development south of Pinedale
Sand and gravel operations along river corridors

Certain components of these projects, if completed, could directly or indirectly affect lynx or their habitats. In addition to the cumulative impacts resulting from the BLM activities described previously, implementation of the Pinedale RMP could add further impacts to the lynx that may result from current non-federal actions.

PINEDALE FIELD OFFICE: SNAKE RIVER RMP

The Snake River RMP was initiated in 1999 and completed in April of 2004. The Snake River planning area occupies 1,345 acres within the Pinedale FO, comprised of lands in and along the Snake River in the Jackson, Wyoming area. A biological assessment was prepared and completed on June 16, 2003 and the USFWS responded with a biological opinion completed on January 2, 2004.

Environmental Baseline

See the Pinedale FO portion in section 3.0 – Analysis of Resource Management Plans for a general discussion of the environmental baseline for the lynx. There are no LAUs in the Snake River Planning Area. Grand Teton National Park has 5-6 LAUs in that area that have not yet been finalized, but none of these abut BLM land. Two BLM parcels are located within Grand Teton National Park and will likely be transferred (Andrews 2003). In the January 2004 Biological Opinion on the BA for the Snake River RMP, the USFWS concurred with the Pinedale FO that activities authorized by the BLM will have **No Effect** on the Canada lynx. No further analyses are pursued in this document for the Snake River RMP.

RAWLINS FIELD OFFICE

The Record of Decision and Approved Resource Management Plan for the Rawlins FO was signed in November 1990 (BLM 1990b). The Rawlins FO occupies portions of four counties including Laramie, Albany, Carbon, and Sweetwater in south central Wyoming. Approximately 12.5 million acres are within the administrative boundary of the Rawlins FO. The Great Divide RMP provides the management direction for approximately 5 million acres, 4 million acres of BLM public surface lands and an additional 1 million acres of federal mineral estate. The remaining 7.5 million acres are administered by other agencies, primarily the U.S. Forest Service, private owners, or the State of Wyoming. The Great Divide RMP does not address these acres because the plans proposed by the Forest Service and other agencies provide the basis for the BLM's administration of subsurface resources.

Environmental Baseline

There are no LAUs or lynx habitat on BLM land in this FO. All the LAUs in the Rawlins FO occur on the Medicine-Bow National Forest in the Medicine Bow and Sierra Madre mountain ranges. This resulted from a mapping effort coordinated between the Medicine Bow National Forest and BLM, during which it was determined that the Forest Service LAUs could not reasonably be extended onto BLM land due to lack of suitable habitat. The forest stands on BLM land are comprised mostly of lodgepole and ponderosa pine and juniper, not the forest types suitable to lynx and snowshoe hares. As no lynx habitat or LAUs occur within the Rawlins FO, no further analysis will be conducted on the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats. .

The Rawlins FO does, however, have non-delineated potential travel linkage and movement corridors that may be of value to lynx. These include: 1) a number of riparian corridors coming out of the Sierra Madre range; 2) the low-elevation, sparsely forested lodgepole and ponderosa pine and juniper stands between the Medicine Bow and Sierra Madre ranges may be useful for movement between the two mountain ranges; and 3) a potential corridor along the Shirley, Seminoe and Ferris mountains, which (along with the Green and Crooks mountains) form a linkage between the Medicine Bow Range and the Wind River Range. An action plan delineating these three linkage corridors and determining any management restrictions needs to be developed to further the conservation of the lynx.

There are 9 records from the WYNDD in the FO, one of which is on BLM land (**Table 2** and **Appendix A**) (WYNDD 2003). As a consequence of the lynx reintroduction efforts in Colorado, collared lynx have been documented at some point in time in Natrona, Converse, Carbon, and Albany counties (Shenk 20003. As of March 2004, there were 4 collared lynx from Colorado in the Medicine Bow NF (Defenders of Wildlife electronic newsletter). This is the first year that the Colorado Division of Wildlife (CDOW) has documented collared lynx in Wyoming in the winter months. Previously, the movements up to Wyoming had all occurred during the summer exploratory movements that have been observed in a number of the Colorado animals and reported for naturally occurring lynx as well (Squires and Laurion 2000). CDOW made visual observations on these lynx in Wyoming during 2003 and they were in good habitat and appeared to be healthy (Shenk 2003). In June 2004, 1 den with 3 kittens was located in southern Wyoming on the Medicine Bow NF. Unfortunately, the female was found dead of an unknown cause, buried in a pine squirrel midden, in July 2004 and the kittens are assumed dead (http://wildlife.state.co.us/species_cons/lynx/).

ROCK SPRINGS FIELD OFFICE

The Record of Decision and approved Resource Management Plan (RMP) for the Green River Resource Area was signed in August 1997 (BLM 1997). The Green River RMP provides management direction for approximately 3.6 million acres of public land surface and 3.5 million acres of federal mineral estate on what is currently managed by the Rock Springs FO. The Rock Springs FO occurs in the southwestern portion of Wyoming and includes portions of Sweetwater, Lincoln, Sublette, Fremont, and Uinta counties.

Environmental Baseline

This section presents a summary of the known LAUs in the Rock Springs FO and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats. Two LAUs from the Wind River Range on adjacent Bridger-Teton National Forest at the north end of the FO extend onto BLM land, and 1 LAU extends east onto BLM from the Wasatch National Forest. The FS has mapped LAUs on Flaming Gorge, but these do not contain lynx habitat extending onto BLM, and thus are not included. The BLM LAUs take up 28,960 acres on BLM land in this FO (**Map 7**).

Habitat has been delineated for the Rock Springs FO and is located entirely within an LAU. There are 12,277 acres of BLM LAU habitat, comprising 42% of the total BLM LAU acreage (**Table 3**).

There are 3 lynx records from the Rock Springs FO in the WYNDD database, one of which was on BLM land (**Table 2** and **Appendix A**) (WYNDD 2003). In addition to those three records, Animal Damage Control trappers took a lynx in 1968 just northeast of Big Sandy Reservoir (Dunder 2003).

Existing Conservation Measures

The following section presents measures included in the Rock Springs/Green River RMP that may directly or indirectly minimize impacts to the lynx.

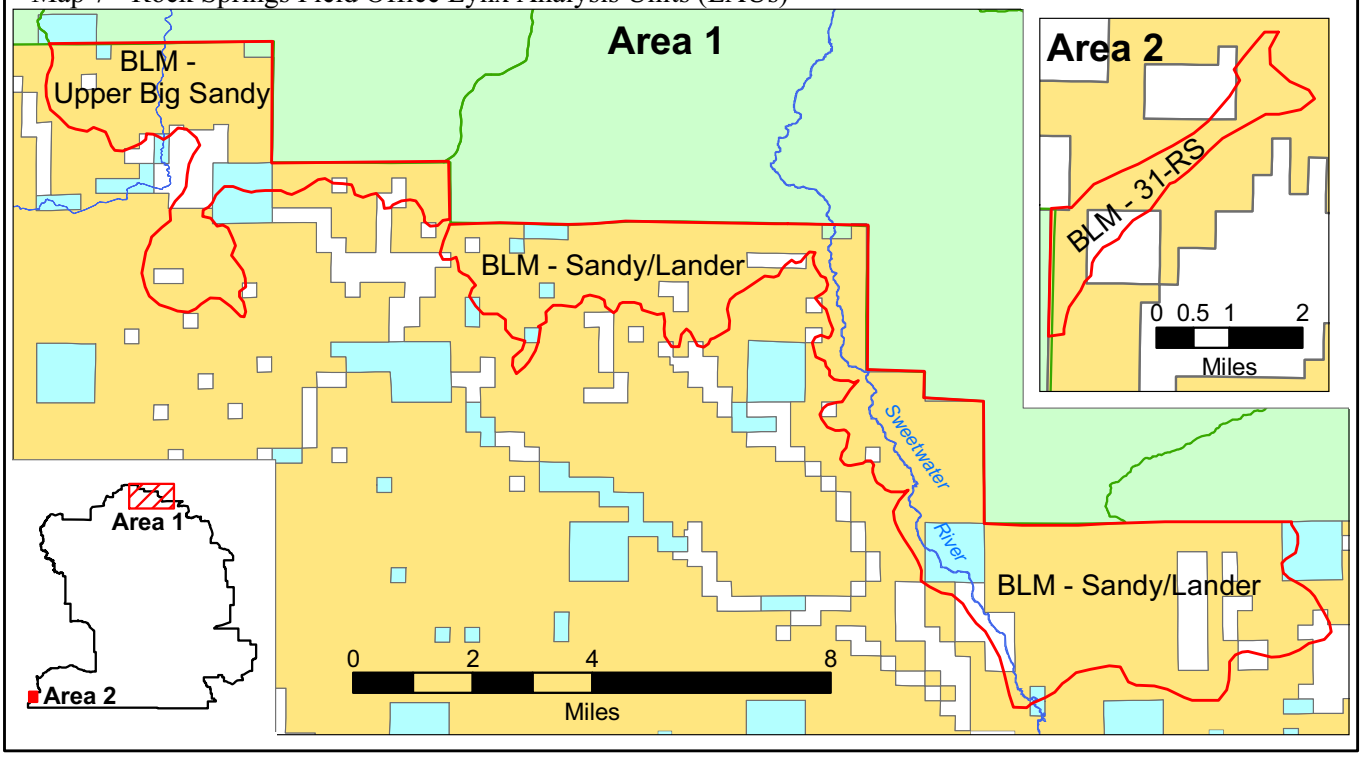
(a) “Timber harvesting activities will be restricted seasonally, as appropriate, to protect big game wintering and parturition activity, grouse, (sage, sharptail, etc.) strutting and nesting, and raptor nesting activity” (BLM 1997, p.8).

(b) “Timing limitations (seasonal restrictions) will be applied when activities occur during crucial periods or would adversely affect crucial or sensitive resources. Such resources include, but are not limited to, soils during wet and muddy periods, crucial wildlife seasonal use areas, and raptor nesting areas” (BLM 1997, p.12).

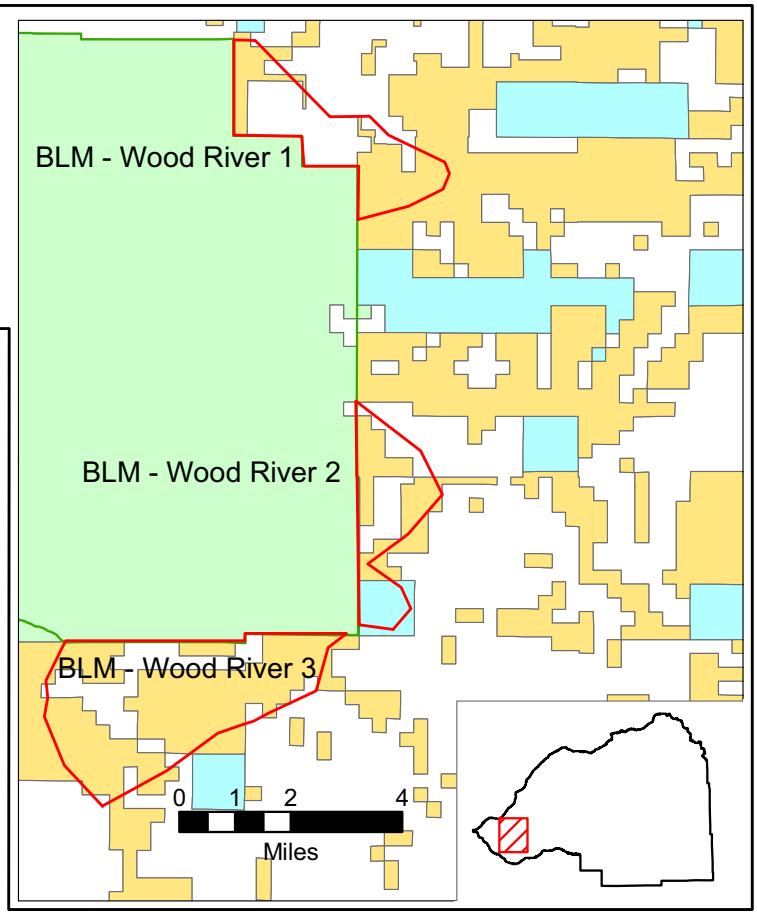
(c) “The Coal Occurrence and Development Potential area is subject to continued field investigations, studies, and evaluations to determine if certain methods of coal mining can occur without having a significant long-term impact on wildlife, cultural, and watershed resources, in general, and on threatened and endangered plant and animal species and their essential habitats. These studies include keeping resource databases current (e.g., where existing raptor nests become abandoned or where new raptor nests become established, etc.), analysis of effects to wildlife and threatened and endangered species habitats and populations, and the cumulative effects of mining operations and other activities in the area” (BLM 1997, p. 13).

Map 7:
Rock Springs Field Office Lynx Analysis Units

Map 7 - Rock Springs Field Office Lynx Analysis Units (LAUs)



Map 8:
Worland Field Office, Grass Creek Portion, Lynx Analysis Units



BLM Lynx Analysis Units

Forest Service Lynx Analysis Units

Surface Administration

Bureau of Land Management

Forest Service

Private

State

No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the Bureau of Land Management.

Dec. 1, 2004

Analysis of Proposed Management Actions and Effects

The RMP includes descriptions of each management prescription included in the FO. The following text briefly summarizes the activities and any specific impact minimization measures associated with each management prescription. The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be applied to all surface disturbing or disruptive activities. As described previously in this document, these guidelines include timing limitations and no surface occupancy restrictions that will minimize potential effects to lynx and their prey. Refer to the Green River RMP for a complete explanation of each management action.

Air Quality Management

Management Action

Special requirements (e.g., use authorization stipulations, impact minimization measures, conditions of approval, etc.) to alleviate air quality impacts will be identified on a case-by-case basis and included in use authorizations (including mineral leases). Examples of such requirements would include: limiting emissions, spacing of source densities, requiring the collection of meteorological and/or air quality data, covering conveyors at mine sites (to lower dust emissions), and placing restrictions on flaring of natural gas (to reduce sulfur emissions).

Plant facilities could be authorized where they minimize air quality impacts over the FO, particularly the Flaming Gorge National Recreation Area. They may not be authorized where they might cause heavy fog conditions that are hazardous to public health by causing black ice on major highways, or possibly extreme and continual fog that could inhibit transportation or recreation activities.

The State of Wyoming has the authority and responsibility to regulate air quality impacts within the state, including Class I areas. The BLM will continue to cooperate and coordinate with the USDA-Forest Service, U.S. Environmental Protection Agency, and the State of Wyoming, in managing and monitoring air resources. For example, air quality data (e.g., atmospheric deposition, or acid rain, monitoring data) will be used to determine actual impacts from air pollutant emission sources, and emission levels will be inventoried and tracked to predict potential impacts, including effects on the Bridger Wilderness Area (which is a Prevention of Significant Deterioration Class I area) and to provide detailed information on proposed emission sources.

Air quality stations used to monitor particulates, if located in an LAU, could cause disturbances to lynx through the building/construction of the station and associated access roads, maintenance and upkeep, and equipment reading and repair. No monitoring stations are currently in any lynx LAUs on BLM lands in Wyoming, although additional Federal and state funded stations are being placed in western Wyoming annually.

Effects Analysis

Actions related to air quality management will not result in negative impacts to lynx behavior or habitats. There are currently no air quality monitoring stations within any lynx habitat or LAUs in the Rock Springs FO area. Implementation of these management actions will likely result in maintaining or improving environmental conditions throughout the FO, which may have secondary benefits to the lynx and its prey.

Determination

Implementation of air quality management actions, as presented in the Green River RMP (1997), will have **no effect** on the lynx. This is due to the fact that there are currently no air quality monitoring stations within any lynx habitat or LAUs in the Rock Springs FO area and management actions do not occur within lynx habitat.

Cultural, Natural History, and Paleontological Resource Management

Management Action

The BLM will cooperate with the National Park Service in implementing the Oregon/Mormon Pioneer National Historic Trails Management Plan. Developments such as roads, pipelines, and power lines may be allowed to cross trails in areas where previous disturbance has occurred and the trail segment has lost the characteristics that contribute to its National Register significance. Motorized vehicles, such as those used for geophysical exploration, or large heavy vehicles such as buses used in recreational tours, or similar activities, could cross and drive down the trails, provided a site specific analysis determines that no adverse effects will occur. Geophysical activities such as shotholes, blasting, and vibroseis locations could, generally, be allowed, provided they are at least 300 feet from the trail, do not occur directly on the trail, and a site specific analysis determines that visual intrusions and adverse effects will not occur. No blading will be allowed on any historic trail unless necessary to protect life or property. Historic trails are not available for use as industrial access roads (e.g., oil and gas drilling access roads, haul roads for heavy truck traffic).

The Parting-of-the-Ways historical site will be protected by closing it to exploration and development of locatable and saleable minerals and pursuing a withdrawal from mineral location. An existing 40-acre mineral location withdrawal in the area will be retained. The site will be managed under the prescriptions for management in the Oregon/Mormon Pioneer National Historic Trails Management Plan.

Management of historic roads and trails that are eligible for the NRHP but are not Congressionally designated include the Overland Trail, the Cherokee Trail, and the Point of Rocks to South Pass Road. LaClede Stage Station and Dug Springs Stage Station on the Overland Trail will be protected as exclusion areas and will be closed to surface disturbing activities that could adversely affect the sites. These sites will be closed to exploration and development of locatable minerals and entry under the land laws, and withdrawals will be pursued. Cultural resource management plans may be written for these sites, and interpretive and visitor management efforts would be allowed as necessary.

Five significant rock art sites and their surrounding viewsheds (within 1/2 mile) will be managed to protect their cultural and historical values. Surface disturbing activities and visual intrusions will be prohibited within these areas if they would adversely affect these values. Management of visitor use at rock art sites may include interpretive signing, fencing, barriers, and other activities. The Cedar Canyon, LaBarge Bluffs, Sugarloaf, Tolar, and White Mountain rock art sites are exclusion areas, and are closed to surface disturbing activities that could adversely affect rock art resources. These sites are closed to:

- The location of mining claims and entry under the land laws (withdrawals will be pursued as necessary and the existing Sugarloaf and White Mountain withdrawals will be retained;
- Mineral material sales for sand, gravel, or other types of construction or building materials;
- The use of explosives and blasting; and
- The use of fire retardant chemicals containing dyes. Off-road vehicular use, including vehicles used for geophysical exploration activities, are limited to designated roads and trails.

The Tri-Territory Marker is an exclusion area and is closed to surface disturbing activities that could adversely affect it; and exploration and development of locatable minerals. A withdrawal will be pursued. The site will be open for consideration of activities such as fencing, interpretive signs, or barriers to ensure protection of the area. A cultural resource activity plan may be prepared for the site, if necessary.

Archeological data will be synthesized in the Little Colorado Desert, Greater Nitchie Gulch, and Wamsutter Arch concentrated oil and gas development areas and the areas will be managed with the objective of facilitating surface disturbing or disrupting activities without sacrificing significant archeological values. These areas may be eligible for listing on the NRHP because of their scientific information content. Playa lake areas with high cultural site density would be managed as historic districts. Management prescriptions for surface disturbing activities in playa lake areas will be developed on a case-by-case basis. A programmatic memorandum of agreement for data recovery with the SHPO and ACHP would also be pursued. Each playa may be managed as an NRHP eligible historic district (Blue Forest, Blue Point, and Adobe Town Rim).

The Pine Springs ACEC (6,030 acres) is closed to surface disturbing activities. About 2,000 acres in the area will be closed to exploration and development of locatable minerals and entry under the land laws. Withdrawal from these activities will be pursued. The existing 90-acre withdrawal will be retained. Cultural resource management plans may be written for the site, and interpretive and visitor management efforts may be allowed as necessary.

Consultation with appropriate Native American tribes concerning areas of concern to them for traditional cultural purposes will be in accordance with the American Indian Religious Freedom Act and BLM Manual 8160-1 Handbook. Native American consultation would occur within the context of specific development proposals, but will also be an ongoing process between BLM and affected Indian tribes and traditional cultural leaders.

Collecting of vertebrate fossils may be allowed with written authorization, which may be issued only to an academic, scientific, governmental, or other qualified institution or individual. Collection of common invertebrate fossils and petrified wood for hobby purposes is allowed on public lands and is regulated under 43 CFR 3600, 43 CFR 3622, and 43 CFR 8365. A site protection plan may be written and implemented for the Farson Fossil Fish Beds.

The Steamboat Mountain and Boars Tusk-Killpecker Sand Dunes areas will be managed to protect the unique geological and ecological features and to provide for public interpretation of these features. The road around Boars Tusk is closed.

The BLM performs inventory activities as well as land management activities. 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 impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity varies between inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

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 cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails.

Effects Analysis

Actions associated with cultural, natural history, and paleontological resource management are unlikely to occur (they are very infrequent), are typically in a very small area, have little impact, and are of short duration. These activities are unlikely to occur in lynx habitat.

Determination

Implementation of cultural resource management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species and lynx conservation measures, and the low potential for cultural resource management actions to take place within lynx habitat or LAUs that could cause harassment, displacement, injury, and mortality of lynx.

Fire Management

Management Action

Ambient air quality standards will be maintained during prescribed fire operations. Heavy equipment or actions that will cause surface disturbance will be used only after a site-specific analysis has been performed and approved. Activities that cause surface disturbance will be considered on a case-by-case basis. Priority areas for wildfire suppression will be identified in fire management activity plans for the FO. A site-specific analysis will be prepared for sensitive areas such as special status plant species, cultural sites, historic trails, and ACECs to determine the appropriate suppression activity that will be acceptable. Use of chemical fire suppression agents is prohibited in rock art sites. Generally, use of chemical fire suppression agents is prohibited in special management areas, unless or until a wildland fire situation analysis is completed or an activity plan for the special management areas identifies chemical suppression agents as an allowable use. Wildfires occurring in forested areas will be appropriately suppressed in accord with resource values threatened, as determined on a case-by-case basis. Wildfires occurring in or directly threatening a developed or active timber sale will receive priority suppression control action. Non-commercial timber stands may be included in prescribed fire activities. Standard management practices such as pile and broadcast burning may be permitted in all forested areas.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities. Prescribed fire may also benefit lynx over time by causing the regeneration of shrubs favored by snowshoe hares.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000). In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Forests and Woodlands Management

Management Action

The FO is divided into four timber compartments for timber management: Wind River Front, Pine Mountain, Little Mountain, and Hickey Mountain-Table Mountain. Hickey Mountain-Table Mountain will be managed as described in the woodland prescriptions. The Wind River Front is a restricted forest management area where forest resources will be managed for commercial forest values, to improve the health, vigor, and diversity of forest stands, and still give full consideration to other resource values such as watershed, wildlife, minerals, recreation, and scenic values. Pine and Little Mountain areas will be managed to enhance other resources, and activities will be designed to benefit these other resource uses. Priority for timber harvesting will be given to mature, decadent, and diseased trees.

Where possible, and within RMP objectives, timber compartments (commercial and woodland forest lands) will be managed to meet the local demand for minor forest products. These are typically small scale timber sales that occur every 3rd or 4th year only, as well as annual firewood sales, including some commercial sales on the Wind Rivers; there are also cordwood sales with 3-5 cords as the limit (Dunder 2003). The major consideration for timber harvesting in the Wind River Front is to improve the condition of the forest stand with emphasis on meeting wildlife habitat needs. The major consideration for harvesting in other areas is to provide watershed stability and habitat for wildlife needs. Soil, watershed, and wildlife cover are important considerations. Timber stand conditions and management considerations will dictate harvest methods and size and shape of units.

Clearcutting is not allowed within 100 feet of drainages or standing and flowing waters. Other logging activity, such as thinning or cable logging, could occur within the 100-foot zone if other resource values will not be adversely affected. Timber harvesting activities will be restricted seasonally, as appropriate, to protect big game wintering and parturition activity, grouse (sage, sharptail, etc.) strutting and nesting, and raptor nesting activity. Approximately 1,436 acres of commercial timber within big game winter ranges

are closed to logging activity, usually from November 15 to April 30. If the logging unit encompasses big game parturition habitats, the area is closed to timber harvest activities usually from May 1 through June 30. There will be no logging activity within grouse nesting sites and raptor nesting sites usually from February 1 to July 31.

Commercial conifer stands will be managed under the guidelines for suppression of wildfires. Aspen and juniper stands will be open to prescribed fire activities to enhance watershed and wildlife values. Habitat fragmentation will be prevented if it has a negative ecological effect. Special management areas (old growth, scientific research areas) will be identified and appropriate management incorporated into activity plans. Woodland Forests - Juniper, Aspen, and Limber Pine Woodland forest areas will be managed using silvicultural practices that promote stand viability. Treatments could include thinning, harvesting, chaining, and burning. The vegetative material resulting from these treatments will normally be sold through public demand sales. Woodland forest acreage will be maintained. Treatments may be implemented that influence successional stages, but such treatments will not permanently convert the areas to another vegetation type. Old aspen stands may be replaced by stands of sprouting aspen by various treatment methods (e.g., burning). Old decadent trees may be left standing or downed to provide cover or other habitat for wildlife, and juniper stands may be replaced where they are encroaching into other vegetation types. Silvicultural treatments in mature timber stands will be designed to improve wildlife habitat and watershed condition, i.e., create small openings to provide forage for wildlife and accumulate snow drifts to increase moisture.

Effects Analysis

Forest management actions will occur in upland coniferous forests. The priority for timber harvesting given to mature and decadent trees could reduce potential denning habitat. Lynx could be impacted by timber management activities that would reduce cover and forage for snowshoe hares.

Forestland management actions occur in coniferous habitats, which are the same areas used by lynx. Much of the management activity will be directed towards improvement of forests for wildlife, including lynx, which would be beneficial to habitat for lynx and their prey. However, overall timber management creates different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000). This reduces habitat quality and quantity for lynx and their prey. Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Determination

Implementation of forest management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts.

Hazardous Materials and Other Hazards Management

Management Action

The primary objective of hazardous materials management is to protect public and environmental health and safety on public lands administered by BLM. Hazardous materials management also seeks to comply with federal and state laws, prevent waste contamination due to any BLM-authorized actions, and to minimize federal exposure to the liabilities associated with waste management on public lands.

Effects Analysis

Hazardous materials and waste management policies are integrated into all BLM programs. Public lands contaminated with hazardous wastes are reported, secured, and cleaned according to federal and state laws, regulations, and contingency plans. The clean-up of hazardous sites generally requires the use of heavy equipment, transport trucks, other vehicles and human presence. Warnings are issued to potentially affected communities and individuals if hazardous material is released on public land. If a spill of hazardous materials occurs, the site will be reported, secured, and cleaned and an emergency consultation conducted with the USFWS. Emergency responses to hazardous materials, hazardous waste, and other hazards occur very infrequently, are limited in scale, and typically restricted to roadways or other areas of human activity, where lynx will likely have become accustomed to some degree of human disturbance.

Determination

Implementation of hazardous materials management actions, as presented in the Green River RMP (1997), will have **no effect** on the lynx. This determination is based on the premise that very limited public vehicle access occurs within any lynx habitat or LAU, therefore, releases of hazardous materials and subsequent response actions that would harass or displace lynx and disturb or destroy suitable lynx and hare habitats would not occur.

Lands and Realty Management

Management Action

Areas are designated for avoidance or exclusion to rights of way where these uses are incompatible with management of sensitive resources and/or would have unacceptable impacts. Areas designated as utility windows, rights of way concentration areas, and existing communication sites will be preferred locations for future grants.

Withdrawals that no longer serve the purpose for which they were established will be revoked. Prior to revocation, withdrawn lands will be reviewed to determine if any other resource values require withdrawal protection. The Multiple Use Management Classification as it affects public lands in the FO (200 acres) will be revoked. An additional 63 acres inundated by water under Flaming Gorge Reservoir may be withdrawn for the Bureau of Reclamation. Public Water Reserves will be terminated where no longer needed, and acquired where the need exists. No BLM-administered public lands within the FO are available for agricultural entry under Desert Land Entry (43 CFR 2520).

Access to public lands will be provided throughout the FO. Where necessary and consistent with ORV designations, access will be closed, or restricted in specific areas to protect public health and safety, and to protect significant resource values (see ORV Management discussion). Easements will be pursued where practical, to provide access to public lands for recreational, wildlife, range, cultural/historical,

mineral, special management area, and other resource management needs (about 300 acres).

Effects Analysis

Management of existing access and acquisition of new access to lands administered by BLM will not alter lynx behavior. Improved or new access to lands under new administration may result in positive effects to lynx habitats by securing these lands and managing them under BLM provisions.

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as LAUs or important travel corridors would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. Roads can be a source of fragmentation of lynx habitat resulting in reduced mobility, and in mortality to lynx resulting from collisions. The degree of these impacts is correlated with traffic volume and speed, and road width. The construction of roads within rights of way may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats.

Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. The overall goal of FO staff is to maintain lands that contain potential habitat for the lynx; however, large transfer of acreage due to land tenure actions may occur.

The issuance of ROWs and leases (utility transportation corridors), specifically ROWs for ditches, canals, and roads may affect the lynx if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. The issuance of temporary use permits, and construction activities associated with fencing of revegetation sites require an analysis to determine if they are present in potential habitat areas and travel corridors and would have similar short-term avoidance impacts.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant affect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities that could have a negative affect on the lynx; closing areas creates undisturbed habitat for lynx.

Conservation Measures in place (Section 4) that relate to lands and realty management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as the evaluation of effects on key linkage areas in situations of proposed land exchanges, land sales, and special use permits.

Determination

Implementation of land resource management actions, as provided in the Green River RMP (1997) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Access Management

Management Action

Access to public lands will be provided throughout the planning area. Where necessary and consistent with ORV designations, access will be closed, or restricted in specific areas to protect public health and safety, and to protect significant resource values. Easements will be pursued where practical, to provide access to public lands for recreational, wildlife, range, cultural/historical, mineral, special management area, and other resource management needs (about 300 acres).

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Negotiations of new easements are considered surface disturbing activities subject to NEPA and may receive protective measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be allowed applies to easements also. There are more skilled map readers or users of GPS since the RMP was signed which has enabled recreation users to legally access portions of these lands by foot or horseback. Adjacent U.S. Forest Service and some private landowners provide limited access.

Determination

Implementation of access management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for easement acquisitions to take place in lynx habitat or LAUs the could cause harassment, displacement, injury, and mortality of lynx.

Livestock Grazing Management

Management Action

Authorized grazing use will not exceed the recognized permitted active AUMs (318,647 AUMs). Public lands will be made available for livestock grazing while considering the needs of other resources. Livestock grazing will be managed on 31 I category allotments, 18 M category, and 29 C category Allotments, and one allotment may not be categorized.

Interdisciplinary monitoring studies will be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions and to determine if vegetation objectives will be met for all affected resource values and uses (livestock grazing, wild horses, wildlife, watershed, etc.).

The Palmer Draw area (970 acres) and special management exclosures are closed to livestock grazing. All developed and some semi-developed recreation areas are closed to livestock grazing and will be fenced to reduce conflicts between uses. Authorized grazing preference may be reduced in areas with excessive soil

erosion and poor range condition, if allotment evaluation warrants such a change, or to provide forage for wildlife, wild horse, and recreational uses.

Site-specific analyses will be conducted where necessary to help determine how to alleviate conflicts between wildlife use, livestock grazing, and development activities. Unallotted forage on public lands will be appropriately allocated to wildlife, wild horses, livestock grazing, and for watershed improvement on a case-by-case basis. Salt or mineral supplements for livestock are prohibited within 500 feet of water, wetlands, or riparian areas unless analysis shows that watershed, riparian, and wildlife objectives and values would not be adversely affected. Salt or mineral supplements are prohibited on areas inhabited by special status plant species or other sensitive areas. Range improvements will be directed at resolving or reducing resource concerns, improvement of wetland/riparian areas, and overall improvement of vegetation/ground cover.

Water sources may be developed in crucial wildlife winter ranges only when consistent with wildlife habitat needs. Such sources will be designed to benefit livestock, wild horses, and wildlife. Alternative water supplies or facilities for livestock may be provided to relieve livestock grazing pressure along stream bottoms and improve livestock distribution. Construction of fences may be considered to meet management objectives. Fence construction in big game use areas and known migration routes will require site-specific analysis. Fences on public lands will be removed, modified, or reconstructed if documented wildlife or wild horse conflicts occur. Requests for conversions of kinds of livestock and changes in seasons of grazing use will be considered on a case-by-case basis through an environmental analysis. Noxious weed infestations will be controlled through livestock management or by environmentally acceptable mechanical, chemical, or biological means.

Effects Analysis

Domestic livestock grazing in riparian areas in suitable lynx habitat can alter the structure and composition of aspen and riparian shrubs that hares depend upon. Cattle and sheep grazing in excess of the designated amount of forage may create competition for forage and reduction in escape cover for hares and other small mammals. Light to moderate grazing will not be likely to substantively reduce forage for snowshoe hares.

Grazing in shrub-steppe communities within the elevational range of lynx also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush.

Predator control activities conducted by permittees on the range they graze, such as shooting, trapping, and poisoning to control coyotes, cougar, bear, and bobcat, may lead to incidental lynx mortality especially in the higher elevation allotments. This event has a low likelihood of occurring and causing lynx deaths.

Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Modifications in grazing to improve riparian habitats, including a reduction in grazing, fencing of riparian areas, weed control, and other improvements in riparian ecological function may benefit the lynx.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

A more descriptive analysis of livestock grazing activities can be found in Section 3.0 above under the "Programs and Actions" depictions.

Determination

Implementation of livestock grazing management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the small surface area that would be likely to have higher grazing pressure within the small area covered by allotments in suitable lynx habitat and LAUs in this FO, and the Conservation Measures in place that will preclude adverse effects on lynx or their habitat.

Minerals Management

Management Action

The objective of minerals management is to maintain or enhance opportunities for mineral exploration and development while protecting other resource values. Public lands within the checkerboard areas of landownership are open to mineral leasing and development with impact minimization measures to be applied on a case-by-case basis.

Public lands within the checkerboard area are open to mineral leasing and development (to promote mineral resource recovery) with appropriate impact minimization measures to be applied on a case-by-case basis. BLM-administered public lands not specifically closed are open to consideration for oil and gas leasing. Public lands closed to leasing include lands within the Red Creek ACEC and portions of the Wind River Front. The remainder of public lands in the FO are open to consideration for oil and gas leasing with appropriate impact minimization measures. Where maximum protection of resources is necessary, a No Surface Occupancy requirement will be imposed. Timing limitations (seasonal restrictions) will be applied when activities occur during crucial periods or would adversely affect crucial or sensitive resources. Such resources include, but are not limited to, soils during wet and muddy periods, crucial wildlife seasonal use areas, and raptor nesting areas. Where controlled use or restrictions on specific activities are needed but do not necessarily exclude activities, controlled surface use or surface disturbance restrictions will be designed to protect those resources. These restrictions will be placed on areas where resources could be avoided or adverse effects could be mitigated. To the extent that laws and regulations allow, the areas closed to oil and gas leasing will remain closed to leasing of oil and gas unless drainage results in a loss of federal minerals through production on adjacent private or state lands (drainage).

Geothermal resources are open to leasing consideration in areas that are open to oil and gas leasing consideration. Areas closed to oil and gas leasing are also closed to geothermal leasing. Exploration and development of geothermal resources are subject to application of impact minimization requirements for surface disturbing activities and other activities in the same manner as they are applied to oil and gas

exploration and development activities. No geothermal leases occur within the Green River planning area.

With appropriate limitations and impact minimization requirements for the protection of other resource values, all BLM-administered public lands and Federal coal lands in the Rock Springs FO, except for those lands identified as closed, are open to coal resource inventory and exploration to help identify coal resources and their development potential.

The Coal Occurrence and Development Potential area is subject to continued field investigations, studies, and evaluations to determine if certain methods of coal mining can occur without having a significant long-term impact on wildlife, cultural, and watershed resources, in general, and on threatened and endangered plant and animal species and their essential habitats. Such investigations, studies and evaluations may be conducted on an as-needed or case-by-case basis in reviewing individual coal leasing or development proposals (e.g., mine plans) or, if opportunities or needs arise, area-wide studies may be conducted. These studies include keeping resource databases current (e.g., where existing raptor nests become abandoned or where new raptor nests become established, etc.), analysis of effects to wildlife and threatened and endangered species habitats and populations, and the cumulative effects of mining operations and other activities in the area. Consultation with other agencies (e.g., USFWS, WGFD), interested parties, and industry, will occur as needed or required.

Big game crucial winter ranges and birthing areas are open to further consideration for federal coal leasing and development with a provision for maintaining a balance between coal leasing and development, and adequate crucial winter range and birthing area habitats to prevent significant adverse impacts to important big game species. This will be accomplished through controlled timing and sequencing of federal coal leasing and development in these areas.

The greater Cooper Ridge and Elk Butte areas are open to further consideration for federal coal leasing and development, pending further study (about 25,368 acres). This study is for the purpose of defining the extent of any deer and antelope crucial winter range in the area, and for determining if certain methods of coal mining can occur in the area without having a significant long-term impact on the deer and antelope herds.

For the protection of important rock art sites, other important cultural resource values, and important geologic and ecologic features, Federal coal lands with these important values are open to consideration for further leasing and development by subsurface mining methods only.

In general, cultural sites on federal coal lands are avoidance areas for surface disturbing activities. As avoidance areas, cultural sites are open to consideration for coal leasing and development with appropriate measures to protect these resources. Surface disturbing activities associated with such actions as surface coal mining methods, exploration drilling, construction and location of ancillary facilities, roads and other types of rights of way, etc., will be avoided, if possible. In cases where it is not possible to avoid these areas, intensive impact minimization of the surface disturbing activities (primarily excavation and other data recovery measures) will be emphasized.

Active grouse leks (sage and sharptail grouse) and the area within a 1/4 mile radius of active leks are avoidance areas for surface disturbing activities and are open to consideration for federal coal leasing and development with the following requirements:

Surface disturbing activities associated with such actions as surface coal mining methods, exploration drilling, construction of roads and other types of rights of way, etc., will be avoided in these areas, if

possible. In cases where it is not possible to avoid these areas, intensive impact minimization of the surface disturbing activities will be emphasized.

Permanent and high profile structures, such as buildings, overhead powerlines, other types of ancillary facilities, etc., are prohibited in these areas.

During the grouse mating season, surface uses and activities are prohibited between the hours of 6:00 p.m. and 9:00 a.m., within a 1/2 mile radius of active leks (i.e., those leks occupied by mating birds).

Wetland and riparian areas on federal coal lands are avoidance areas for surface disturbing activities and are open to consideration for coal leasing and development with the following requirements: surface disturbing activities associated with such actions as surface coal mining methods, exploration drilling, construction of ancillary facilities, roads and other types of rights of way, etc., will be avoided in these areas, if possible. In cases where it is not possible to avoid these areas, intensive impact minimization of the surface disturbing activities will be required.

Most of the FO is open to consideration of mineral material sales and activity except for areas where such activity would cause unacceptable impacts. As sale areas, community pits, and localized common use areas become established to provide for sales of mineral materials, such as moss rock and sand, their use and management will be in conformance with other resource objectives.

The mineral classification withdrawals in the FO (phosphate, coal, oil shale) will be revoked. In some areas, these classification withdrawals will remain in effect until replaced with an appropriate withdrawal for other, appropriate purposes (see Special Management Area section). Other withdrawals from mineral location will be pursued to provide protection to important resource values.

Most of the FO is open to consideration of geophysical activities except where off-road vehicle use or explosive charges would cause unacceptable impacts. Geophysical activities will generally be required to conform to the ORV designations and ORV management prescriptions for the FO. However, geophysical exploration has been and will continue to be routinely granted site-specific authorization for off-road vehicle use subject to appropriate limitations to protect various resources identified during analysis of proposed actions.

Generally, shotholes and vibroseis activity will be restricted or disallowed within 300 feet of historic and recreational trails; however, exceptions may be allowed if supported by a site-specific analysis. Geophysical travel through developed and semi-developed recreation sites is restricted to existing roads and trails. Geophysical exploration on sections of the Sweetwater River, identified as having potential for wild classification under the Wild and Scenic Rivers Act requirements, is limited to foot access and placement of surface cables. No motorized vehicle use is allowed in these areas. Surface charges may be allowed if a site specific analysis determines no adverse impacts would occur to river values.

Effects Analysis

Human activity associated with oil and gas and mineral development may negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources will alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx and increased intrusion by non-specialized competing predators such as bobcat, coyote, and wolf. Additional impacts are a consequence of increased access into habitat, increased fragmentation, loss of snowshoe

hare and red squirrel habitat, associated noise and human activity, associated hazards (such as chemical toxins), and temporal and spatial project considerations.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Determination

Implementation of geology and mineral management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Off-Road Vehicle Management

Management Action

Areas for ORV rallies, cross-country races, and outings may be provided on a permit basis. Approximately 170,000 acres are closed to off-road vehicle use to protect naturalness and outstanding opportunities for solitude, or primitive and unconfined recreation. In areas designated as either "limited" to designated roads and trails or "limited" to existing roads and trails for off-road vehicle use, motorized vehicles must stay on designated or existing roads and trails, unless allowed an exception by the authorized officer. This limitation applies to all activities involving motorized vehicles. Vehicular travel in crucial and important wildlife habitats and during crucial and important periods will be restricted seasonally, as necessary (strutting grounds, spawning beds, big game ranges, calving/fawning periods, etc.).

Effects Analysis

Much of the Rock Springs FO is not subject to open ORV use. ORV use in the FO is best characterized as limited in frequency and intensity. No major new recreational programs or activities are anticipated in the FO. ORV management and use in the Rock Springs FO is not expected to result in detrimental effects to lynx behavior or denning, travel, or foraging habitats. The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low likelihood that effects from ORV use could result in take and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat including LAUs.

Recreation Resource Management

Management Action

Most public lands in the FO are open to consideration of all individual, commercial, and competitive

outdoor recreation uses. Camping in other riparian areas is allowed within 200 feet of water. Areas will be closed to camping if resource damage occurs. Special recreation permits will be considered on a case-by-case basis.

The Continental Divide National Scenic Trail, Continental Divide Snowmobile Trail, the Green River, and the Wind River Front are designated special recreation management areas (SRMAs) to place management emphasis on enhancing recreation opportunities and to focus management on areas with high recreation values or areas where there are conflicts between recreation and other uses. The remainder of the FO will be managed as an extensive recreation management area (ERMA).

The Wind River Front is a designated SRMA. The Wind River Front SRMA is all of the BLM-administered public lands that lie north of Township 27, east of Highway 191, northwest of Highway 28, and south of the Bridger-Teton and Shoshone National Forests. To facilitate management, the area is divided into two units. The boundary between the two units is the Continental Divide, and the eastern unit includes the Prospect Mountains.

The management objective emphasis for the Eastern Unit of the SRMA is for scenic, watershed, and wildlife values; recreation use; riparian and vegetation resources; and to provide protection to the Class I airshed in the Bridger Wilderness. Major facilities (including linear facilities) are generally prohibited in this unit. Some facilities could be allowed if analysis indicates that the management objectives for the unit could be met. The Eastern Unit of the SRMA is closed to mineral leasing. Surface disturbing activities must conform to unit management objectives. The 500 acres associated with the *Boechera pusilla* portion of the Special Status Plants ACEC is closed to ORV use. In the remainder of the unit, ORV use is limited to designated roads and trails. Seven BLM-administered public land parcels along the Sweetwater River (involving about 9.7 miles of the river) will be managed under the Wild and Scenic Rivers Act interim management guidelines. The suitable public land parcels along the river are closed to mineral location and withdrawal from the public land laws, including the mining laws, will be pursued.

The management objective emphasis for the Western Unit of the SRMA is for dispersed recreation uses such as camping, hunting, and fishing, with full consideration given to wildlife, cultural, vegetation, watershed values, and mineral development activity. This unit of the SRMA is open to mineral leasing. Transportation planning will be completed prior to allowing development in the unit. Linear facilities will be required to conform with the transportation plan and follow existing routes and previously disturbed areas. Surface disturbing activities are prohibited in the Dry Sandy Swales and the area within 1 mile of Dry Sandy Swales.

No new recreational programs or activities are anticipated or foreseen in this FO.

Effects Analysis

Actions associated with recreational management and use do not detrimentally impact lynx behavior and habitats. A groomed snowmobile trail runs through suitable lynx habitat, and snowshoe hares and jackrabbits are sometimes hunted from snowmobiles. The impact of such hunting on lynx prey is negligible.

The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), the no net increase in over-the-snow routes and play areas in LAUs, restriction on actions that degrade or compromise landscape connectivity or linkage areas, requirement that trails, roads, and lift termini be designed to direct use away from diurnal security habitat, and the evaluation of permits that promote snow compacting activities.

Determination

Implementation of recreation resource management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low likelihood that hare hunting from snowmobiles would cause a substantive impact to hare populations, lynx and LAUs and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat by other forms of recreational use.

Special Status Species Management

Management Action

The objectives of special status species management are to:

- Maintain or enhance essential and important habitat and prevent destruction or loss of species' communities and important habitat;
- Provide opportunities for enhancing or expanding the habitat; and
- Prevent the need for listing these species as threatened or endangered.

Special status species (SSS) are those plant and animal species which are proposed for listing, officially listed (threatened and endangered), or candidates for listing as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act; those listed or proposed for listing by a state in a category implying potential endangerment or extinction; and those designated by each BLM State Director as sensitive. The management actions for SSS apply only to BLM-administered public lands. Emphasizing management of these species on public lands and preventing these species from being listed as threatened or endangered would benefit most programs within the Rock Springs FO. When species are listed as threatened and endangered, by law they become more universally protected on private, and state-owned lands, in addition to federal lands.

Any management actions on potential habitat of special status plant species communities on federal land or on split estate lands (i.e., non-federal land surface ownership with BLM-administered federal minerals ownership) will require searches for the plant species prior to project or activity implementation to determine the locations of special status plant species and essential and/or important habitats. Special status plant populations are closed to activities that could adversely affect these species and their habitat. Management requirements in habitat areas may include prohibiting or limiting motorized vehicle use, surface uses, and explosive charges or any other surface disturbing or disruptive activity that may cause adverse effects to the plants.

Locations of special status plant species are open to consideration for mineral leasing with a no surface occupancy requirement. Should new special status plant species be identified, they will be managed under the same prescriptions described above for the known species. Management prescriptions for threatened and endangered species and proposed threatened and endangered species will be developed on a case-by-case basis in consultation with the U.S. Fish and Wildlife Service. Known locations of special status species will be evaluated on a case-by-case basis to determine if they meet the relevance and importance criteria to be considered for ACEC designation.

Effects Analysis

Management actions associated with special status species will not result in detrimental impacts to lynx behavior or their habitats. These actions will result in positive effects to lynx by limiting harassment and

disturbance to denning, travel, and foraging areas.

Plant and animal resource inventories often include sampling and documenting plant and animal population and habitat occurrence and conditions. Techniques can include anything from satellite imagery mapping and interpretation; to the actual measurement of resource transect parameters on the ground, or the collection of information for laboratory analysis. These activities often include off-road field travel, but generally no significant surface disturbance requiring large reclamation efforts. Many of the same techniques are often used for monitoring management implementation effectiveness following implementation of a set of management projects or actions.

Habitat development and improvement projects may include, but are not limited to; the development of water sources or water regulating structures including spring developments, guzzlers, dikes or water spreading devices, development of islands in ponds and reservoirs, modification of existing projects, construction of artificial avian or raptor nesting structures, construction of cover brush piles that would provide cover for small prey mammals or snowshoe hares, and construction and maintenance of fences. Fencing projects in the SSS program are typically small in area, to create an exclosure or to protect a watering project or other habitat feature and would usually not exceed 100 to 200 feet on a side. These actions could require the use of hand tools, mechanical or heavy equipment, hauling or transporting materials (gravel, dirt, tanks, etc.), and clearing vegetation. When fencing is proposed, whether permanent, temporary, or electric, they are built to fencing standards developed in the BLM Fencing Manual Handbook (H-1741-1, Fencing, Rel 1-1572, 12/6/1989). These standards are required to reduce the amount of restriction or hazards to wildlife. Fence construction and maintenance would likely require access to the site, possible removal of vegetation or uneven surface materials (rocks, trees, sand, etc.), digging postholes, stringing wire, building fence braces, building fence jacks, cutting or removing building materials on or off site, (fence posts, rails, rocks, etc.) weed management (spraying, cutting, pulling, etc.). Generally, permanent roads are not constructed for access to SSS program project sites.

Determination

Implementation of the special status species management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the potential that these actions, even though the secondary affects would provide an overall benefit to the lynx and lynx habitat, might cause limited short–term harassment and displacement of lynx, as the activities would be occurring in lynx habitat or LAUs. The overall affects would be to minimize adverse effects to denning, travel, and foraging habitats and improvement of lynx habitat, including enhancement of prey habitat. Implementing the conservation measures for the lynx would also minimize the impacts to lynx and lynx habitat and LAUs.

Vegetation Management

Management Action

Riparian habitat will be maintained, improved, or restored to provide wildlife and fish habitat, improve water quality, and enhance forage conditions. Where possible, acquisition of additional riparian area acreage will be pursued to enhance riparian area management. The minimum management goal for riparian areas is to achieve proper functioning condition. This is considered the first priority for vegetation management. Desired plant communities must meet the criteria for proper functioning condition.

Desired plant community objectives for upland and riparian areas will be established for the FO through individual site-specific activity and implementation planning and as updated ecological site inventory data become available. All activity and implementation plans will incorporate desired plant community objectives.

Prescribed fire will generally be the preferred method of vegetation manipulation to convert stands of brush to grasslands and to promote regeneration of aspen stands and/or shrub species.

Vegetation manipulation projects will be conducted to reach multiple use objectives and will involve site-specific environmental analysis and coordination. All vegetation manipulation projects will involve site-specific environmental analysis; coordination with affected livestock operators and the WGFD; and will include multiple use objectives for resource uses including livestock grazing, wildlife, recreation, and watershed. Vegetation treatments will be designed to be compatible with special status plant species. For example, spraying, burning, mechanical disturbances, etc. will not be allowed to adversely affect these plant species.

Riparian habitat in proper functioning condition is the minimum acceptable status or level within the Rock Springs FO. Under this RMP, 75% of the riparian areas should, within 10 years, have activity and implementation plans in various states of implementation that will allow riparian areas to achieve or maintain proper functioning condition. Site-specific activity and implementation plans will be used to identify methods to achieve or maintain proper functioning condition in riparian areas.

The next step beyond basic proper functioning condition of riparian areas is the achievement of desired plant communities. Desired plant community objectives will be developed on riparian areas based on any of several different methods, including Ecological Site Inventory, comparison areas (comparison areas would have similar soils, aspect, vegetation, and precipitation), and estimating the structural component that can be achieved in the short term. Desired plant community objectives can be short and long term.

While the desired plant community establishes objectives for the riparian area or upland plant community, the Desired Future Condition establishes goals for entire watersheds (or larger blocks of land) involving all activities and resources.

Effects Analysis

Actions associated with vegetation management, including increased human presence and use of machinery or fire to implement management actions, may occasionally have a detrimental influence on lynx behavior. The potential for these effects is low. Riparian habitats are most likely to experience vegetation management actions. These habitats are diverse and widespread throughout the FO and therefore, isolated disturbances resulting from vegetation management practices are not expected to limit the availability or quality of riparian habitats. The use of prescribed fire as vegetation manipulation to convert stands of brush to mixed brush and grasslands are very unlikely to cause disturbance to lynx because this is not their primary habitat. This conversion of stands of brush to intermixed grassland/shrub steplands, and the promotion of aspen stands and/or shrub species regeneration, will benefit lynx by increasing the amount and quality of habitat for snowshoe hares, sage grouse, and jackrabbits.

Determination

Implementation of the vegetation management actions, as presented in the Green River RMP (1997), is n**ot likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the premise that although these actions my take place within lynx habitat or LAUs, it is very unlikely that

these actions will harass or displace lynx. Results of vegetation management will likely benefit the lynx by creating or supplementing habitats that support prey species.

Visual Resource Management

Management Action

To minimize adverse effects on visual resources while maintaining the effectiveness of land-use allocations.

Effects Analysis

Actions associated with VRM will not directly impact lynx behavior or habitats. Potentially, a request for movement of a structure or project due to VRM classification out of a higher classification area to a lesser classified area might move the project into lynx habitat or LAU. Impacts to lynx by such moves would be precluded by the lynx conservation measures. The exclusion of some activities and structures from designated view sheds may have a secondary positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Determination

Implementation of VRM actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the fact that implementation of VRM involves no anticipated disturbance to lynx habitat and may actually have a secondary positive effect of limiting disturbances by preserving or minimizing disturbance to habitats that may be suitable to lynx or their prey.

Watershed/Soils Management

Management Action

Management in the FO will emphasize:

- Reduction of sediment, phosphate, and salinity load in drainages where possible;
- Maintaining and improving drainage channel stability; and
- Restoring damaged wetland areas.

Surface disturbing and construction activities (e.g., mineral exploration and development activities, pipelines, powerlines, roads, recreation sites, fences, wells, etc.) that could adversely affect water quality, and wetland and riparian habitat, will avoid the area within 500 feet of or on 100-year floodplains, wetlands, or perennial streams and within 100 feet of the edge of the inner gorge of intermittent and large ephemeral drainages. Proposals for linear crossings in these areas will be considered on a case-by-case basis.

Effects Analysis

Soil Resources Management:

The implementation of soils management involves planning for disallowing actions that will cause soil erosion and modifying others to avoid soil erosion. There are no impacts from this management action on

lynx. However, activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface. Other surface disturbing activities associated with soil resources may include reclamation of abandoned mine lands (AML) and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. These reclamation programs are covered under the hazardous materials section of this document.

Water Resources Management: Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

The above types of actions associated with watershed management would take place very rarely, if at all within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Actions associated with watershed management are likely to improve riparian vegetation and habitat for lynx and their prey.

Determination

Management of soil and water resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, small in

scale, and not likely to occur in lynx habitat. Implementation of soil and water resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats. Implementation of soil and water resource management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx, lynx habitat, or LAUs. Management of soil and water resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas.

Wild and Scenic River Management

Management Action

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation.

Effects Analysis

Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species. One WSR segment, the Sweetwater River, flows through the BLM-Upper Big Sandy LAU. The WSR designation will place protections to maintain and possibly enhance this creek segment, providing additional protections for lynx and their habitats and their prey base. Often lynx den in areas along or near waterways as the vegetation is generally denser with more meisic trees such as spruce trees, which when downed along these stretches, provide denning habitat for lynx.

Determination

Implementation of WSR management activities, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the premise that lynx habitat will be further protected by WSR designation from activities authorized by the BLM.

Wild Horse Management

Management Action

Wild horses will be managed within five Wild Horse Herd Management Areas. These are the White Mountain, Divide Basin, Adobe Town, Salt Wells, and Little Colorado Wild Horse Herd Management Areas. An appropriate management level of 1,105 to 1,600 wild horses will be maintained among the five herd management areas.

The site specific activity plans for the five wild horse herd management areas in the FO will be maintained to conform with RMP objectives for vegetation management and implemented. Specific

habitat objectives for herd management areas will be developed. Water developments will be provided if necessary, to improve herd distribution and manage forage utilization. Water developments on crucial winter ranges could be allowed if they conform with wildlife objectives and do not result in adverse impacts to the crucial winter range. Wild horse herd management will be directed to ensure that adequate forage (about 17,400 AUMs) will be available to support appropriate management levels in the herd units and that herds maintain appropriate age, sex, and color ratios. Selective gathering programs will be implemented in each of the wild horse herd management areas. Gathering plans will be prepared for removal of excess horses from inside and outside the wild horse herd management areas. Other resource uses will be maintained and protected consistent with those resource management objectives while maintaining viable, healthy wild horse herds and appropriate herd management levels.

Effects Analysis

Wild horse management activities in the five wild horse management areas would not affect lynx as all five areas are outside of, and not in close proximity to, any LAUs within the Rock Springs FO. Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. Wild horse management activities are not expected to have any detrimental impact on the behavior of denning lynx, foraging or denning habitats, or lynx in forested habitats where they spend most of their time.

Determination

Implementation of wild horse management, as presented in the Green River RMP (1997), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within wild horse management areas. Lynx would be extremely unlikely to travel through the lower-elevation habitat that encompasses these wild horse areas, as they are outside of normal habitat or LAUs and therefore be adversely affected by actions associated with management of wild horses.

Wilderness Management

Management Action

The objective of wilderness management is to retain the wilderness quality and manage the Wilderness Study Areas (WSAs) in the FO in accordance with the Interim Management Policy and Guidelines for Lands Under Wilderness Review, until Congress acts on designation.

Discretionary uses within or adjacent to WSAs will be reviewed to ensure they do not create conflicts with management and preservation of wilderness values. Should Congress designate the WSAs in the FO (partially or wholly) as wilderness, the management of the designated areas will be for wilderness values, either as described in the appropriate wilderness EIS or as directed by Congress. Should Congress not designate areas (partially or wholly) as wilderness, the management of the nondesignated areas will be in accordance with the approved Green River RMP or as otherwise directed by Congress.

Effects Analysis

Management actions associated with wilderness management will not result in detrimental impacts to lynx behavior or their habitats. The absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values. Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to

determine potential impacts to known or potential wilderness values. These actions are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats, but will most likely result in beneficial effects to lynx by limiting harassment and disturbance to denning, travel, and foraging areas. All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines.

Determination

Implementation of the wilderness management actions, as presented in the Green River RMP (1997), will have **no effect** on the lynx. This determination is based on the fact that while these actions will limit the harassment and displacement of lynx and maintain or protect suitable lynx habitats, no lynx habitat or LAUs occur within any BLM WSA, or in close proximity to a WSA, within the planning area.

Wildlife Management

Management Action

To the extent possible, suitable wildlife habitat and forage will be provided to support the Wyoming Game and Fish Department (WGFD) 1989 Strategic Plan objectives. Changes within WGFD planning objective levels will be considered based on habitat capability and availability and site specific analysis. High value wildlife habitats will be maintained or improved by reducing habitat loss or alteration and by applying appropriate distance and seasonal restrictions and rehabilitation standards to all appropriate activities.

Needed special management and riparian management exclosures will be developed and/or maintained, and exclosure plans will be implemented for enhancement of wildlife habitat. Exclosures are closed to livestock grazing use and no AUMs in these areas will be available for livestock use. Aquatic, wetland, and riparian habitat are not suitable for disposal unless opportunities exist for land exchange for lands of equal or better value.

Habitat management plans will be developed, where needed, particularly for highly developed and disturbed areas to mitigate wildlife habitat losses. Plans could include habitat expansion efforts, T&E species reintroduction, and population goals and objectives. Such actions as preparing transportation plans and reclaiming roads, seeding, and vegetation enhancement (vegetation treatments, fencing), water developments, and reclamation actions to reduce the amount of disturbance, will be considered. Areas identified for consideration of such plans include, but are not limited to, the Little Colorado Desert (including the Fontenelle II and Blue Forest units), Nitchie Gulch, Wamsutter Arch, Patrick Draw, and Cedar Canyon areas.

Management activities at present are limited to water development projects for big game at lower elevations, inventories and monitoring, and exclosures including 3 in LAUs abutting the Bridger-Teton NF. The fencing for these exclosures is being replaced with strand wire to allow lynx movement in and out of the exclosures.

Effects Analysis

Management actions associated with wildlife habitat management may influence lynx behavior by causing lynx to avoid or abandon habitats experiencing active management projects. Potential impacts are dependent on several factors including the number of people involved with each field effort, the time of year, duration of field activities, use of heavy machinery versus hand tools, and type of habitat affected.

The implementation of these actions will likely have positive effects by maintaining or improving existing habitat conditions that will benefit lynx and their prey. Overall very little activity is occurring under this management prescription. Exclosures occurring within LAUs will likely benefit lynx and hares by allowing vegetation to develop in the absence of grazing.

Determination

Implementation of wildlife habitat management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the premise that although these actions my take place within lynx habitat or LAUs, it is very unlikely that these actions will harass or displace lynx. Results of vegetation management will likely benefit the lynx by creating or supplementing habitats that support prey species.

Special Designation Management Areas

Management Action: Areas of Critical Environmental Concern

Several Areas of Critical Environmental Concern (ACEC) are identified in the Rock Springs FO. These ACECs are each managed to achieve specific goals and objectives unique to the resource values identified within each ACEC. A detailed description of specific management goals and objectives for each ACEC is available in the Green River RMP (BLM 1997). Portions of the Special Status Plant Species ACEC are within the BLM-31-RS LAU in the southwest corner of the Rock Springs FO. The ACEC is broken into numerous small polygons encompassing rare plant species habitats.

Effects Analysis

Management actions associated with special designation management areas will not result in detrimental impacts to lynx behavior or their habitats. These actions will likely result in beneficial effects to lynx by limiting harassment and disturbance to potentially suitable denning, travel, and foraging areas. The management actions analyzed for each ACEC relate to the designation of these areas. Many surface disturbing activities are excluded from this ACEC. The only impacting activity allowed would be a very light impact from searches conducted to look for additional plant locations or to monitor existing plant populations. These searches would take place during the plant growing season when lynx would not likely be in the ACEC areas.

Determination

Implementation of the special designation management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **beneficial effects,** because the act of designation of an ACEC has no disadvantageous impacts on lynx and ACEC management is more restrictive in nature, protecting lynx and their habitats.

Management Action: Historic Trails – The Lander Road

The Lander Road, Burnt Ranch to Buckskin Crossing segment covering 33.0 miles of BLM lands, has an adjoining boundary of about one quarter mile with the BLM-Sandy/Lander LAU and crosses through roughly one half mile of the BLM-Upper Big Sandy LAU. This National Historic Trail (NHT) segment is a unique trial in that it was engineered by a U.S. Army engineer (Col Fredrick Lander) and built as an engineered road, and utilized by the military – differing from most non-engineered western emigration routes. This trail section has very high recreation and interpretive values and is strongly recommended that it be developed as a scenic byway and that efforts be made to keep the view free of significant intrusions.

Effects Analysis

The area around this NHT segment is closed to fluid mineral leasing and the area within one quarter mile of the trail or the visual horizon (whichever is less) will be an avoidance area for surface disturbing activities. Most other management actions such as roads, pipelines, powerlines, seismic activities, etc. will be allowed along with very high recreational usage. These actions, other than recreational use, will result in beneficial effects to lynx by limiting harassment and disturbance to potentially suitable denning, travel, and foraging areas. The high recreational usage along this trail segment would likely result in a decrease in use of the area by foraging or traveling lynx. Denning by lynx would most likely not occur in this area as little if any denning habitat exists there.

Determination

Implementation of NHT management actions, as presented in the Green River RMP (1997), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the limited use of this area by lynx during times of high recreational use (spring, summer and fall) and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat by recreational use along this trail segment.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Green River RMP management actions.

TABLE 8 SUMMARY OF THE DETERMINATIONS FOR THE GREEN RIVER RMP

Resource	Determination
Air Quality	No effect
Cultural, Natural History, and Paleontological Resources	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Forest and Woodlands	Not likely to adversely affect, due to insignificant effects
Hazardous Materials	No effect
Lands and Realty	Not likely to adversely affect, due to insignificant effects
Livestock Grazing	Not likely to adversely affect, due to insignificant effects
Minerals	Not likely to adversely affect, due to insignificant effects
Off-Road Vehicles	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to insignificant effects
Special Status Species	Not likely to adversely affect, due to insignificant effects
Vegetation	Not likely to adversely affect, due to insignificant effects
Visual Resources	Not likely to adversely affect, due to beneficial effects
Watershed/Soils	Not likely to adversely affect, due to discountable effects
Wild and Scenic Rivers	Not likely to adversely affect, due to beneficial effects
Wild Horses	No effect
Wilderness	No effect
Wildlife	Not likely to adversely affect, due to insignificant effects
Special Designation Areas: ACECs	Not likely to adversely affect, due to beneficial effects
Special Designation Areas: NHTs	Not likely to adversely affect, due to insignificant effects

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Rock Springs FO and that might affect the lynx and its habitat. Existing and proposed activities on non-federal lands that could affect lynx or their habitats include:

- Coal mine operations
- Coalbed methane
- Transmission lines
- Seismic exploration
- Trona (soda ash) mining
- A proposed power plant
- Proposed wind farms
- Livestock grazing on private lands
- Municipal dump expansions
- Housing developments

Most of these activities are situated away from important lynx habitats. However, certain components of these projects, if completed, could directly or indirectly affect lynx or their habitats. Implementation of the Green River RMP would not change any potential effects to the lynx that may result from current non-federal actions.

WORLAND FIELD OFFICE: GRASS CREEK RMP

The Record of Decision and Approved Resource Management Plant (RMP) for the Grass Creek Resource Area of the Worland BLM Office was signed in September 1998 (BLM 1998). The resource management plan (RMP) provides the management direction for approximately 968,000 acres of public land surface and 1,171,000 acres of federal mineral estate. The Worland FO occurs in the north-central portion of Wyoming, occupying portions of Big Horn, Hot Springs, Park, and Washakie counties.

Environmental Baseline

This section presents a summary of the known LAUs, and an analysis of the effects of past and ongoing human activities (including Federal, State, tribal, local and private) that may influence lynx and their habitats in the Grass Creek RMP. The Worland FO contains 3 LAUs that are separate portions of 1 LAU that extends out from the Shoshone National Forest onto BLM land, and is in the Grass Creek Planning Area (**Map 8**). These LAU areas take up 11,569 acres on BLM land.

Habitat has been delineated for the Worland FO and is located within the LAUs. There are 5,902 acres of BLM LAU habitat, comprising 51% of the total BLM LAU acreage (**Table 3**).

There is 1 lynx record from the Worland FO in the WYNDD database, from the west slope of the Bighorn range, which would place it in the Washakie RMP area (**Table 2** and **Appendix A**) (WYNDD 2003).

Existing Conservation Measures

The following section presents measures included in the Grass Creek RMP that may directly or indirectly minimize impacts to the lynx or their prey:

(a) "The BLM will participate with the FWS in the evaluation and designation of critical habitat for threatened or endangered species on BLM-administered lands. If proposed surface-disturbing or disruptive activities could affect these species, the BLM will consult with the FWS as required by the Endangered Species Act"(BLM 1998, p. 22).

(b) "No activities or surface use will be allowed on that portion of the authorization area identified within (legal description) for the purpose of protecting (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) habitat" (BLM 1998, Appendix 3, p. 60).

(c) "Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications)" (BLM 1998, Appendix 3, p. 60).

(d) "The following conditions would be evaluated during the review process. The degree to which any of these conditions apply to a proposed ownership adjustment may or may not make the lands suitable for sale, exchange, transfer, or acquisition - Tracts identified as potential recovery habitat for federally listed endangered, threatened, candidate, or emphasis species" (BLM 1998, Appendix 4, p. 75).

Analysis of Proposed Management Actions and Effects

The RMP includes descriptions of each management prescription applied within the FO. The following text briefly summarizes the activities and any specific impact minimization measures associated with each management prescription. The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be applied to all surface-disturbing or disruptive activities. As described previously in this document, these guidelines include timing limitations and "no surface occupancy" restrictions that will minimize potential effects to lynx and their habitats. Refer to the Grass Creek RMP for a complete explanation of each prescription.

Air Quality Management

Management Actions

No specific management actions are presented with this program. However, actions conducted under other resource programs, including fire or mining, will be conducted in a manner so as to avoid violation of the Wyoming and National ambient air quality standards. Air quality stations used to monitor particulates, if located in an LAU, could cause disturbances to lynx through the building/construction of the station and associated access roads, maintenance and upkeep, and equipment reading and repair. No monitoring stations are currently in any lynx LAUs on BLM lands in Wyoming, although additional Federal and state funded stations are being placed in western Wyoming annually.

Effects Analysis

Actions related to air quality management will result in no impacts to lynx behavior, denning habitat, or foraging habitat. The actions associated with air quality management are extremely small in scope, of short duration, and unlikely to occur in lynx habitat and will not result in negative impacts to lynx behavior or habitats. There are currently no air quality monitoring stations within any lynx habitat or LAUs in the Worland FO area. Implementation of these management actions will likely result in maintaining or improving environmental conditions throughout the FO, which may have secondary benefits to the lynx and its prey.

Determination

Implementation of air quality management actions, as presented in the Grass Creek RMP (1998), will have **no effect** on the lynx. This is due to the fact that there are currently no air quality monitoring stations within any lynx habitat or LAUs in the Rock Springs FO area and management actions do not occur within lynx habitat.

Cultural, Paleontological, and Natural History Resources Management

Management Action

The management objective is to protect and preserve important cultural, paleontological, and natural history resources. Expand opportunities for scientific and educational uses of these resources.

Effects Analysis

The BLM performs inventory activities as well as land management activities. During inventory activities, the BLM inventories, categorizes, and preserves cultural resources; conducts field activities;

perform 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 impact minimization plans before other resource program surface-disturbing activities may take place. Inventory activities commonly entail the use of hand tools, power tools, heavy machinery, vehicle use and localized human activity. Inventories are divided into Class I, Class II, and Class III inventories. The BLM does cultural resource inventories normally in response to surface-disturbing projects. Intensity varies between inventories. Inventories may involve 2-7 individuals and trucks, and may last from one day to several weeks.

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 cultural resource program may propose installation of protective fencing of trail segments, stabilize deteriorating buildings, acquire access to sites when necessary, perform certain surface-disturbing activities, pursue land withdrawals, pursue cooperative agreements, protect sites with avoidance stipulations or conditions of approval, and identify and interpret historic trails. Cultural resource interpretive sites, such as historic trails or rock art sites, may be developed to provide public benefits such as scenic overlooks, signs, and walking trails. Actions associated with cultural, paleontological, and natural history resource management are unlikely to occur (they are very infrequent), are typically in a very small area, have little impact, and are of short duration. These activities are unlikely to occur in lynx habitat.

Determination

Implementation of cultural resource management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the relatively small amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species and lynx conservation measures, and the low potential for cultural resource management actions to take place within lynx habitat or LAUs that could cause harassment, displacement, injury, and mortality of lynx.

Fire Management

Management Action

The objectives of fire management are to cost-effectively protect life, property, and resource values from undesired wildland fire, and use prescribed and wildland fire to achieve multiple-use management goals. The Worland District Fire Management Plan will be maintained and revised, as necessary, and implemented. The plan will address fire management on a watershed or landscape scale, in order to meet desired plant community and other resource management objectives identified in this RMP and in future activity plans. The use of minimal impact suppression techniques will restrict fire vehicles to existing roads and trails on public lands near the Legend Rock Petroglyph Site and within 0.25 mile of the high-water mark at Wardel Reservoir, to protect riparian habitat and a great blue heron rookery. Other travel restrictions will be considered in future activity planning. The construction of fire lines will be avoided if natural fire breaks can be used.

The use of bulldozers generally is prohibited in riparian and wetland areas, in areas of significant cultural resources or historic trails, and in important wildlife birthing areas. Fire retardant drops by air tankers are prohibited within 200 feet of water. The use of heavy equipment to construct fire lines and the use of chemical and dye retardants will be restricted or prohibited near rock art. Prescribed and wildland fire will be used to accomplish resource management objectives. When prescribed fires are planned, and when

wildland fires are managed, the potential for habitat fragmentation will be evaluated. Actions that would disrupt or divide habitat blocks, other than temporarily, will be avoided. When fire and mechanical or biological treatments can be used effectively to manage vegetation, they will be preferred over chemical treatments. Surface-disturbing and disruptive activities associated with all types of fire management will be subject to appropriate impact minimization measures developed through use of the mitigation guidelines.

Effects Analysis

Fire management actions, particularly actions associated with wildfire suppression and prescribed fire, whether planned or unplanned, have the potential to occur in habitats occupied by lynx. Fire exclusion alters the natural mosaic of successional stages that promote the mixture of denning and foraging habitats on the landscape level. This limits the function of fire in perpetuating the vegetation conditions that are optimal for hares and lynx. Road construction associated with fire suppression can lead to increased access into higher altitude sites by generalist predators such as coyotes, wolves, and bobcats. These species can be predators and competitors with lynx.

Prescribed burning, construction of firelines, use of off-road vehicles, and use of hand tools and heavy equipment all have the potential for disturbing lynx and may negatively affect lynx behavior by causing them to abandon or avoid habitats. In addition, terrestrial habitats, including lynx foraging, denning, and linkage habitats, may be disturbed and altered through these activities.

The use of fire and mechanical or biological treatments to effectively manage vegetation, when these actions are used to improve the mosaic of vegetation types and dense undergrowth favored by lynx and their prey, will benefit the lynx in the long run by improving habitat.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat, as specified in the LCAS (Ruediger et al. 2000). In addition, post-disturbance assessments are required prior to salvage to evaluate potential for lynx denning and foraging habitat, and the minimization of roads and fire lines as well as the requirement of revegetation after fire suppression activities. These measures will provide protection for lynx and their habitat.

Determination

Implementation of fire management actions, as presented in Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the protection provided by the Conservation Measures listed in Section 4, which follow the LCAS (Ruediger et al. 2000), as well as the judicial use of prescribed fire and mechanical or biological treatments to manage vegetation for lynx. In the event of a wildfire and immediate suppression is required in an LAU, as many conservation measures as possible will be applied that do not hinder safety or property protection. The USFWS will be contacted and emergency consultation will take place at the earliest possible time if LAUs or lynx habitat are affected/impacted.

Forestland Management

Management Action

The objective of forestland management is to maintain and enhance the health, productivity, and biological diversity of forest and woodland ecosystems. Road construction for harvesting timber or for conducting forest management practices is prohibited on slopes greater than 25%, unless site-specific

environmental analyses demonstrate that adverse effects can be mitigated or avoided. Skidder-type yarding is prohibited on slopes greater than 45%. Other logging operations on slopes steeper than 45% are limited to technically, environmentally, and economically acceptable methods such as cable yarding. Emphasis for silvicultural practices and timber harvesting will be placed on areas where forest health is the primary concern (including forests that are infested by mistletoe or mountain pine beetles). A variety of forest silvicultural and cutting methods will be used such as clearcutting, shelterwood, individual tree selection, and various regeneration treatments.

In important seasonal wildlife habitat areas, clearcuts generally will not exceed 300 yards (approximately 15 acres) in any direction. Wildlife escape cover will be maintained by keeping a corridor of trees around, or on one or more sides of, roads, clearcuts, parks, wetlands, and wallows. Trees and snags will not be cut if they provide important habitat for cavity or snag-nesting wildlife. When harvests are planned, the potential for habitat fragmentation will be evaluated. Actions that would disrupt or divide habitat blocks, other than temporarily, will be avoided. Slash disposal will be tailored to promote reforestation, minimize erosion, and allow ease of movement for wildlife. Forest products will be sold from limber pine and juniper woodland areas to meet public demand for posts, poles, firewood, and specialty wood consistent with wildlife habitat requirements. Harvesting firewood on public lands along desert waterways and the Bighorn and Greybull rivers is prohibited. Prescribed and wildland fire will be used to improve aspen stands, regenerate old age forest stands, manage for desired successional stages and forest species composition, and rehabilitate harvest areas. Surface-disturbing and disruptive activities associated with all types of forest management will be subject to appropriate impact minimization measures developed through use of the mitigation guidelines.

Effects Analysis

Forest management actions will occur in upland coniferous forests. A number of protective components are incorporated into the RMP, including avoidance of cutting trees and snags that provide for snag-nesting wildlife, the limitations on clearcuts, and maintenance of wildlife escape cover. However, no mention is made of lynx and protective measure for them or their habitat.

Timber management has the potential to create different patterns of forest stand types than the patchwork of early and late succession conditions resulting from fire and other finer-scale disturbance agents (Ruediger et al. 2000). This reduces habitat quality and quantity for lynx and their prey. Timber harvest may cause reduction of large woody debris, which may eliminate potential denning sites, reduce kitten survival, and reduce availability of snowshoe hares and red squirrels. Pre-commercial thinning has direct negative effect on hare habitat, at least in the short term. Clear cutting (including stand replacement), logging operations, road and landing construction, shearing, helicopter logging, and disease treatment sprayings all have the potential to disturb lynx by eliminating lynx and hare habitat and cover, or causing heavy disturbance in habitat used by lynx and their prey.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as restrictions on pre-commercial thinning, salvage, harvest prescriptions in aspen stands, and improvement harvests, and the protection of linkages and connectivity. These measures will provide protection for lynx and their habitat.

Determination

Implementation of forest management actions, as presented in Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the numerous

measures in the forestland management plan that contains measures that are protective of wildlife, and the Conservation Measures in place, which will protect lynx and their habitat from adverse impacts.

Hazardous Materials and Waste Management

Management Action

The management objective is to protect public health and safety and the environment on public lands, emphasize waste reduction and pollution prevention for BLM-authorized and initiated actions, comply with applicable federal and state laws, prevent waste contamination from 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.

Effects Analysis

Hazardous materials and waste management policies are integrated into all BLM programs. Public lands contaminated with hazardous wastes are reported, secured, and cleaned according to federal and state laws, regulations, and contingency plans. The clean-up of hazardous sites generally requires the use of heavy equipment, transport trucks, other vehicles and human presence. Warnings are issued to potentially affected communities and individuals if hazardous material is released on public land. If a spill of hazardous materials occurs, the site will be reported, secured, and cleaned and an emergency consultation conducted with the USFWS. Emergency responses to hazardous materials, hazardous waste, and other hazards occur very infrequently, are limited in scale, and typically restricted to roadways or other areas of human activity, where lynx will likely have become accustomed to some degree of human disturbance.

Determination

Implementation of hazardous materials management actions, as presented in the Grass Creek RMP (1998), will have **no effect** on the lynx. This determination is based on the premise that very limited public vehicle access occurs within any lynx habitat or LAU, therefore, releases of hazardous materials and subsequent response actions that would harass or displace lynx and disturb or destroy suitable lynx and hare habitats would not occur.

Lands and Realty Management

Management Action

The BLM will pursue public access on important roads and trails identified in the BLM transportation plan. The transportation plan will be updated as necessary and implemented to provide access to large blocks of public land or to smaller parcels of land having high public values. The BLM will maintain or improve existing opportunities for public access in the upper Grass Creek area. Emphasis will be placed on acquisition of access to public lands on the Bighorn and Greybull rivers to enhance recreational opportunities and wildlife management. The BLM will pursue a combination of motorized and nonmotorized vehicle access in the Enos Creek, the upper Cottonwood Creek, and the upper South Fork of Owl Creek areas of the Absaroka Mountain foothills. Goals are to provide vehicle access to the South Fork of Owl Creek to improve fishing and other recreational opportunities and to acquire foot and horseback access to the Shoshone National Forest. All access will be limited seasonally and to specific routes as appropriate. The BLM will pursue limited motorized vehicle access on roads in the Red Canyon Creek area consistent with an overall objective to emphasize primitive recreation.

Access to specific areas may be closed or restricted to protect public health and safety. Before access is upgraded in the vicinity of important cultural, paleontological, natural history, wildlife habitat, or other sensitive resources, the security and protection of these resources will be carefully considered.

Before any public lands are exchanged or sold, or before the BLM would attempt to acquire any other lands in the planning area, the BLM will consult with county commissioners and other representatives of local government in the affected areas. Other affected and interested citizens will also be given opportunities to comment. About 1,220 acres will be considered for suburban expansion, community landfills, industrial and commercial development, and other public needs near the communities of Worland, Thermopolis, Meeteetse, and Basin. Agricultural trespass on public land generally will be resolved by prohibiting the unauthorized use; however, land sales, exchanges, or leases could resolve agricultural trespass in some cases. Leases might be used to develop the lands as wildlife food and cover areas. Proposals for sale, exchange, or transfer of public land will be subject to appropriate criteria. Priority will be given to landownership adjustments that meet community needs. The preferred method of adjusting landownership is exchange. Approximately 33,700 acres of public lands that are difficult or uneconomic to manage will have priority consideration for public sale, Recreation and Public Purposes Act lease or patent, exchange, or transfer of jurisdiction to another agency. Proposals for the sale, exchange, or transfer of other public lands in the planning area will be considered on a case-by-case basis. Exchanges will be pursued to improve management of important seasonal wildlife habitat areas in the upper portions of Owl, Cottonwood, Gooseberry, and Grass creeks. Exchanges will be pursued along Gooseberry Creek, the upper portions of Cottonwood and Grass creeks, the Bighorn and Greybull rivers, and on lands where other riparian areas occur. The purposes for these exchanges will be to consolidate public land, enhance public access, and improve public land manageability. A cooperative management agreement will be pursued with private landowners to enhance and conserve the Legend Rock Petroglyph Site. Cooperative agreements or land exchanges to improve wild horse management will be pursued on about 12,000 acres of privately-owned land.

All coal and phosphate withdrawals and classifications on approximately 180,780 acres will be terminated and the lands will be returned to operation of the 1872 Mining Law. A locatable mineral withdrawal will be pursued on about 1,200 acres of public land to protect recreation and wildlife values on public river tracts along the Bighorn River. Locatable mineral withdrawals will be pursued within 0.5 mile of the Legend Rock Petroglyph Site and in the immediate vicinity of rock art in the Meeteetse Draw area near Thermopolis. A locatable mineral withdrawal will be pursued in the Upper Owl Creek ACEC on about 16,300 acres of public land to protect scenic values, wildlife habitat, soil, and water.

Effects Analysis

Pursuit of recreational access to the Absaroka Mountain foothills and the Shoshone National Forest will increase human use of forest lands used by lynx. This increased recreational access in the higher-elevation forests will likely include cross-country ski and snowshoe trails. Whereas lynx are specialized carnivores in the deeper snows these habitats typically experience, the compacted snow trails resulting from winter recreation can provide access to generalist predators such as coyotes and bobcats that may be competitors and predators of lynx. Other lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as suitable or occupied lynx habitats would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Management of existing access and acquisition of new access to lands administered by BLM will not alter lynx behavior. Improved or new access to lands under new administration may result in positive effects to lynx habitats by securing these lands and managing them under BLM provisions.

Lands and realty management actions are not expected to negatively impact lynx behavior or habitats. Current BLM land holdings would be evaluated for unique characteristics prior to disposal, including suitability and use by lynx. Lands identified as LAUs or important travel corridors would not likely be available for disposal. Lands not under BLM jurisdiction that are suitable or occupied lynx habitats may be targeted for acquisition and subsequent management by BLM. Such acquisitions would provide benefits to lynx habitats that may not be afforded under non-federal ownership.

Corridors are designated and managed to accommodate power lines, communication towers, pipelines, and roads. Roads can be a source of fragmentation of lynx habitat resulting in reduced mobility, and in mortality to lynx resulting from collisions. The degree of these impacts is correlated with traffic volume and speed, and road width. The construction of roads within rights of way may open new areas to human activity that may cause lynx to avoid or abandon otherwise occupied habitats.

Disposal or transfer of public lands with potential lynx habitat through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents may affect the lynx's ability to utilize suitable habitat and travel corridors linking desirable habitats. The overall goal of FO staff is to maintain lands that contain potential habitat for the lynx; however, large transfer of acreage due to land tenure actions may occur.

The issuance of ROWs and leases (utility transportation corridors), specifically ROWs for ditches, canals, and roads may affect the lynx if the associated construction is within the vicinity of travel corridors. This may cause short-term behavioral avoidance of these areas by the lynx due to the presence of human activity. The issuance of temporary use permits, and construction activities associated with fencing of revegetation sites require an analysis to determine if they are present in potential habitat areas and travel corridors and would have similar short-term avoidance impacts.

The acquisition of access easements as well as Rights-of-way/leases include powerlines, communication sites, pipelines, ditches and canals, roads (includes stream crossings), well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities, temporary use permits, and fence re-vegetation sites and designate, cancel, or change stock trail driveways activities may cause short-term behavioral avoidance of these areas during construction/maintenance operations and would have an insignificant affect on the lynx. The establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation would close areas from certain activities that could have a negative affect on the lynx; closing areas creates undisturbed habitat for lynx.

Conservation Measures in place (Section 4) that relate to lands and realty management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as the evaluation of effects on key linkage areas in situations of proposed land exchanges, land sales, and special use permits.

Determination

Implementation of land resource management actions, as provided in the Grass Creek RMP (1998) is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Access Management

Management Action

The BLM will pursue public access on important roads and trails identified in the BLM transportation plan. The transportation plan will be updated as necessary and implemented to provide access to large blocks of public land or to smaller parcels of land having high public values. Access to specific areas may be closed or restricted to protect public health and safety. Before access is upgraded in the vicinity of important cultural, paleontological, natural history, wildlife habitat, or other sensitive resources, the security and protection of these resources will be carefully considered.

Effects Analysis

Development of new and expansion of existing access to lands administered by BLM may detrimentally influence lynx behavior or alter suitable denning, travel, or foraging habitats. Negotiations of new easements are considered surface disturbing activities subject to NEPA and may receive protective measures as outlined in the BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities. The restriction that no activities that negatively impact threatened or endangered species would be allowed applies to easements also. There are more skilled map readers or users of GPS since the RMP was signed which has enabled recreation users to legally access portions of these lands by foot or horseback. Adjacent U.S. Forest Service and some private landowners provide limited access.

Determination

Implementation of access management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the minimal amount of suitable lynx habitat on BLM-administered lands, the protections in place for threatened and endangered species, and the low potential for easement acquisitions to take place in lynx habitat or LAUs the could cause harassment, displacement, injury, and mortality of lynx.

Livestock Grazing Management

Management Action

Important riparian habitat areas on public lands will be fenced to control the duration and timing of livestock use, if the condition of these areas is declining and other types of grazing management do not produce a favorable response. Access to water for use by livestock and wildlife will be provided. Surface-disturbing and disruptive activities associated with all types of range project construction and maintenance will be subject to appropriate impact minimization measures developed through use of the mitigation guidelines.

Effects Analysis

Although the RMP and the Guidelines for Livestock Grazing Management on BLM land provide some regulatory guidance for protecting the riparian areas used by snowshoe hares for foraging and by lynx for movement corridors, impacts to these areas do occur. Domestic livestock grazing in riparian areas can alter the structure and composition of aspen and riparian shrubs that hares depend upon. In areas with high elk numbers, this loss of vegetation can be further exacerbated. Grazing also may lead to other adverse environmental effects, including increased soil erosion, degradation of stream bank conditions, introduction of noxious weeds, and the reduction of viable aspen and riparian shrub recruitment (Chaney

et al. 1990; Kaufman and Krueger 1984; Menke et al. 1996). Grazing also causes a reduction in fine fuels, thus affecting fire regimes and subsequent regeneration.

In areas within the elevational range of lynx, grazing in shrub-steppe communities also may have impacts on lynx. This occurs when cattle graze on the intermixed grassland understory, which, especially with spring grazing, encourages growth of the sage. Mid- to late seral stages and a lack of heavy grazing have been suggested as the goal in managing shrub steplands for lynx (Ruediger et al. 2000), but the availability of a well-developed understory of grasses is also important. Sage grouse and jackrabbits, both alternate prey species for lynx, prefer the edges created by interspersed grassland patches within the shrub steppe rather than solid sagebrush. Lynx will use these sagebrush areas for foraging when prey are abundant there, and will make exploratory and dispersal movements outside of their forested habitats onto shrub-steppe communities, during which they would require alternate prey such as sage grouse, jackrabbits, and ground squirrels.

Conservation Measures in place (Section 4) for livestock grazing management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as: restrictions on livestock in openings created by fire or timber harvest; evaluation and careful management of grazing in aspen stands, shrub-steppe communities, and riparian areas; restrictions on over-snow access; requirement that predator control activities be conducted by Wildlife Services through a formal Section 7 consultation; and that weed assessments and control be conducted so as to optimize snowshoe hare habitat in high-elevation riparian areas.

A more descriptive analysis of livestock grazing activities can be found in Section 3.0 above under the “Programs and Actions” depictions.

Determination

Implementation of livestock grazing management actions, as provided in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the small surface area that would be likely to have higher grazing pressure within the small area covered by allotments in suitable lynx habitat and LAUs in this FO, and the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Minerals Management

Management Action

The coal screening process (as identified in 43 CFR 3420.1-4) has not been conducted in the planning area. Interest in the exploration for, or the leasing of, federal coal will be handled case by case.

The entire planning area (about 1,171,000 acres of BLM-administered mineral estate) is open to oil and gas leasing consideration. About 20,200 acres of BLM-administered mineral estate are open to leasing consideration with a "no surface occupancy" stipulation.

All coal and phosphate withdrawals and classifications will be terminated and the lands involved will be returned to operation of the 1872 Mining Law. Except for specific areas identified as closed, the planning area is open to the staking of mining claims and operation of the mining laws for locatable minerals. A locatable mineral withdrawal will be pursued on about 1,200 acres of public land to protect recreation and wildlife values on tracts of public land along the Bighorn River. A locatable mineral withdrawal will be pursued on public lands within 0.5 mile of the Legend Rock Petroglyph Site and on public lands in the

immediate vicinity of the rock art in the Meeteetse Draw area near Thermopolis. A locatable mineral withdrawal will be pursued in the Upper Owl Creek ACEC on about 16,300 acres of public land to protect scenic values, wildlife habitat, soil, and water.

Except for specific areas identified as closed, the planning area is open to consideration for sale of mineral materials (for example, sand and gravel) and related exploration and development activities. No topsoil will be sold. The Legend Rock Petroglyph Site and public lands within 0.5 mile are closed to the sale of sand and gravel and other mineral materials. Public lands in the Meeteetse Draw Rock Art Area are closed to the sale of sand and gravel and other mineral materials. The sale of sand and gravel will be avoided on public lands adjoining the Greybull and Bighorn rivers.

All parts of the planning area that are open to consideration for oil and gas leasing, exploration, and development are open to consideration for geophysical exploration subject to appropriate impact minimization measures. On lands where surface-disturbing activities are prohibited or on lands closed to off-road vehicle (ORV) use, casual use geophysical exploration will be allowed.

Effects Analysis

Human activity associated with oil and gas and mineral development may negatively impact lynx behavior by causing them to avoid or abandon these areas. Construction of roads, pads, or access by OHVs, and other facilities associated with development of mineral resources will alter or destroy existing terrestrial habitats that may be suitable lynx foraging habitats or linkages between suitable habitats, such as in forested or shrub-steppe habitats. Increased vehicle traffic associated with mineral and geology exploration, development, and operation may lead to increases in vehicle collisions with lynx and increased intrusion by non-specialized competing predators such as bobcat, coyote, and wolf. Additional impacts are a consequence of increased access into habitat, increased fragmentation, loss of snowshoe hare and red squirrel habitat, associated noise and human activity, associated hazards (such as chemical toxins), and temporal and spatial project considerations.

Conservation Measures in place (Section 4) include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), as well as stipulations and conditions of approval for minerals development that place limits on timing and surface use and occupancy that are developed at the leasing and NOS/APD stages, and the minimization of snow compaction when authorizing and monitoring developments.

Determination

Implementation of geology and mineral management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat.

Off-Road Vehicle Management

Management Action

The objective for ORV management is to maintain or enhance opportunities for ORV use while avoiding adverse effects of vehicle travel on other resource values. Unless otherwise specified, ORV use on BLM-administered public land is limited to existing roads and trails. Motorized vehicle use is prohibited on wet soils and on slopes greater than 25%, when and where unnecessary damage to vegetation, soils, or water quality would result. Over-the-snow vehicles are subject to the same requirements and limitations as all other ORVs until activity planning specifically addresses their use. An open area for ORV "play" will be

established west of Worland on about 900 acres. On areas designated as closed or limited to designated roads and trails, the off-road use of a motorized vehicle on public lands will be prohibited unless the use is otherwise authorized by a permit or license. Signs will be posted and maps or brochures will be published to explain this requirement.

Effects Analysis

Much of the Grass Creek planning area is closed to motorized traffic year long. ORV use in the FO is best characterized as limited in frequency and intensity. ORV management and use in the Grass Creek planning area is not expected to result in detrimental effects to lynx behavior or denning, travel, or foraging habitats. The Conservation Measures in place for all activities include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000).

Determination

Implementation of ORV management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the low likelihood that effects from ORV use would result in any take or lynx habitat or LAU degradation, and the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Recreation Management

Management Action

The objective of recreation management is to enhance opportunities for primitive recreation in some areas while increasing visitor services in other areas to meet needs for more developed forms of recreation. Special Recreation Management areas are designated on BLM-administered public lands in the Absaroka Mountain foothills, Badlands, and Bighorn River areas. All other public lands will be managed as an Extensive Recreation Management Area. Recreational uses of public lands along the Bighorn River for fishing, hunting, and float boating are managed under the Bighorn River Habitat and Recreation Area Management Plan. Emphasis will be placed on acquisition of access to public lands on the Bighorn and Greybull rivers to enhance recreational opportunities and wildlife management. Surface-disturbing and disruptive activities associated with the construction, maintenance, and use of roads, campgrounds, interpretive sites, and other recreational facilities will be subject to appropriate impact minimization measures developed through use of the mitigation guidelines.

Effects Analysis

Actions associated with recreational management and use have the potential to detrimentally impact lynx behavior and habitats. An increase in human activity associated with management actions or use may cause lynx to avoid or abandon otherwise suitable habitats. Recreational use is often concentrated in riparian areas. Impacts to these habitats may be detrimental to lynx traveling or foraging in these areas. Winter recreational activities that cause compaction of snow along trails provide avenues for coyotes, bobcats, and wolves that may compete with lynx and/or prey on them occasionally.

The Conservation Measures in place for recreation management include the assessment of habitat in suitable and unsuitable condition and the ensuing limitations on percentage of disturbance allowable to habitat as specified in the LCAS (Ruediger et al. 2000), the no net increase in over-the-snow routes and play areas in LAUs, restriction on actions that degrade or compromise landscape connectivity or linkage

areas, requirement that trails, roads, and lift termini be designed to direct use away from diurnal security habitat, and the evaluation of permits that promote snow compacting activities.

Determination

Implementation of recreation management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to lynx or their habitat.

Vegetation Management

Management Action

As appropriate, buffer zones for treatment of weeds will be provided along streams, rivers, lakes, and riparian areas, including riparian areas along ephemeral and intermittent streams. Treatments will avoid raptor and upland game bird nesting seasons and other times when loss of cover or disturbance by equipment could be detrimental. Projects that may affect threatened or endangered plants or animals will be postponed or modified to protect the presence of these species. In such cases, the BLM will consult with the U.S. Fish and Wildlife Service (USFWS) as required by the Endangered Species Act. Certified noxious weed-seed free vegetative products will be used on all BLM-administered public lands in the Grass Creek planning area.

The following objectives for desired plant communities (DPC) will be applied on an individual basis in consultation with land-use proponents and other affected or interested citizens. Actions required to achieve these objectives will normally be implemented through allotment management and other site-specific activity plans, and through reclamation plans for activities like pipeline construction, oil and gas exploration, and bentonite mining.

Desired plant communities are described according to the percentages of trees, shrubs, grasses, and forbs within each community. Descriptions are by weight estimate unless canopy cover percent is specified. Barren, alpine, and high gradient/rocky riparian communities are not discussed.

On at least 600,000 acres of public lands in the planning area (not containing important wildlife habitat) the following DPC objectives will emphasize watershed protection, forestland health, and livestock grazing.

Salt Desert Shrub Communities: shrubs 30 to 60%, grasses 30 to 60%, forbs 5 to 15%, with shrubs increasing on high saline sites.

Salt Bottom Communities: shrubs 20 to 40%, grasses 50 to 70%, forbs 5 to 15%.

Basin Grassland/Shrub Communities: shrubs 10 to 20%, grasses 60 to 80%, forbs 10 to 20%.

Foothills-Mountain Grassland/Shrub Communities: shrubs 10 to 30%, grasses 60 to 80%, forbs 10 to 20%.

Low Gradient/Alluvial Riparian Communities, Canopy Composition: shrubs 0 to 15%, grasses and grasslikes 70 to 90%, forbs 5 to 15%.

Intermediate Riparian Communities, Canopy Composition: trees and shrubs 10 to 30%, grasses and grasslikes 50 to 70%, forbs 10 to 30%.

Desert Cottonwood Riparian Communities, Canopy Composition: trees and shrubs 10 to 30%, grasses and grasslikes 50 to 70%, forbs 10 to 30%.

Woodland Communities: Same as Foothills-Mountain Grassland/Shrub Communities on areas where establishment of limber pine and juniper has occurred on deeper soils. There is no specific objective where woodlands occur on very shallow soils.

Mixed Conifer/Deciduous Forest Communities: Promote overall species and structural diversity. Promote aspen growth in some areas, consistent with site-specific objectives for resource management, including commercial forest production. Manage 80% of forestlands for hiding and thermal cover (50% of these stands will have thermal cover characteristics). Ten percent of the forestlands will be managed for old growth.

Effects Analysis

Actions associated with vegetation management, including increased human presence and use of machinery or fire to implement management actions, may occasionally have a detrimental influence on lynx behavior. The potential for these effects is low. Riparian habitats are most likely to experience vegetation management actions. These habitats are diverse and widespread throughout the FO and therefore, isolated disturbances resulting from vegetation management practices are not expected to limit the availability or quality of riparian habitats. The use of prescribed fire as vegetation manipulation to convert stands of brush to mixed brush and grasslands are very unlikely to cause disturbance to lynx because this is not their primary habitat. This conversion of stands of brush to intermixed grassland/shrub steplands, and the promotion of aspen stands and/or shrub species regeneration, will benefit lynx by increasing the amount and quality of habitat for snowshoe hares, sage grouse, and jackrabbits.

Determination

Implementation of the vegetation management actions, as presented in the Grass Creek River RMP (1998), is n**ot likely to adversely affect** the lynx, due to **insignificant effects**. This determination is based premise that although these actions my take place within lynx habitat or LAUs, it is very unlikely that these actions will harass or displace lynx outside of their primary habitat. Results of vegetation management will likely benefit the lynx by creating or supplementing habitats that support prey species.. Results of vegetation management will likely benefit the lynx by creating or supplementing habitats that support prey species.

Visual Resource Management

Management Action

The management objective is to maintain or improve scenic values throughout the planning area.

Effects Analysis

Actions associated with VRM will not directly impact lynx behavior or habitats. Actions associated with VRM will not directly impact lynx behavior or habitats. Potentially, a request for movement of a structure or project due to VRM classification out of a higher classification area to a lesser classified area might

move the project into lynx habitat or LAU. Impacts to lynx by such moves would be precluded by the lynx conservation measures. The exclusion of some activities and structures from designated view sheds may have a secondary positive effect of limiting disturbance of habitats that may be suitable for lynx or their prey.

Determination

Implementation of visual management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to possible **beneficial effects**. This determination is based on the fact that implementation of VRM involves no anticipated disturbance to lynx habitat and may actually have a secondary positive effect of limiting disturbances by preserving or minimizing disturbance to habitats that may be suitable to lynx or their prey.

Watershed Management

Management Action

The objective is to maintain or improve water quality to support state of Wyoming designated uses, and comply with state water quality standards. Reduce erosion by increasing ground cover, including vegetative litter, and maintain standing vegetation after grazing. Improve watershed condition on about 274,000 acres of public land in the Fifteenmile Creek watershed, and reduce the overall level of sediment delivery to the Bighorn River from this area. Stabilize upland vegetation and increase vegetative ground cover on about 15,000 acres to reduce overland water flow, erosion, and sedimentation. Improve watershed condition elsewhere in the planning area, especially on uplands in poor or fair ecological condition.

Effects Analysis

Water Resources Management: Activities authorized under water resources management may 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.

Monitoring of streams and rivers for water quality would be very small and short term in nature (a few hours or less). Monitoring would be done with small, hand held kits on site, or water samples would be collected and analyzed in a laboratory off site. Other activities would be to measure stream channelization and evaluate streambank and riparian conditions. Access for these activities would be primarily by vehicle (pickup truck, etc.) and monitoring would be done by personnel walking into and along streams and rivers. Permanent in-stream flow monitoring and continuous water quality analysis gauging stations would be small structures that would require some construction to build (backhoe, concrete truck or a lift to place a pre-built structure) and some disturbance to streams or rivers during construction and occasional maintenance activities.

Other smaller scale water resource activities would include plugging abandoned wells to prevent contamination or cross contamination of water aquifers and reclaiming (recontouring and revegetating) the associated drill pad. This activity would consist of pouring concrete into the well casing to plug the well, requiring: vehicles, concrete trucks, concrete pumper trucks, personnel, etc. Reclamation of the drill pad after plugging would require the use of loaders, backhoes, graders or bulldozers, seeding equipment, and trucks and trailers to haul the equipment. Instream flow control structures such as drop structures (made of logs, rock baskets, or concrete); weirs; revetments (streambank erosion control structures (trees, logs, etc.)); rip-rap (rocks, boulders, logs, etc.); placing gravel or concrete in streams for crossings and

fish spawning; culverts, all requiring equipment and personnel to construct. Equipment might include: vehicles, backhoes, bulldozers, skid loaders, concrete trucks, etc. Planting of riparian plant species to reduce erosion and sediment movement along watercourses would be done either using hand held tools (shovels, augers, or just jamming stems into the ground (willows, cottonwoods, etc.)) or with smaller equipment like motorized augers, backhoes, tree spades, etc.).

The above types of actions associated with watershed management would take place very rarely, if at all within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Actions associated with watershed management are likely to improve riparian vegetation and habitat for lynx and their prey.

Soil Resources Management:

The implementation of soils management involves planning for disallowing actions that will cause soil erosion and modifying others to avoid soil erosion. There are no impacts from this management action on lynx. However, activities associated with soil mapping/sampling may include surveying, core drilling, use of pick-up truck mounted soil augers and core samplers (1 ½" to 2" in diameter) and back-hoes (usually around 12-24" in width and pits may be up to 6' deep) for digging soil characterization pits and trenches, using hand held shovels to dig holes or pits, and associated human and vehicle disturbances. These trenches are backfilled and revegetated/reseeded when surveys are complete. Disturbances are usually very small of short duration in nature and will reclaim to the native terrain/vegetation quickly. Surface soil erosion studies may also be conduced. These soil resource related activities in the planning area are mainly in support of other programs. Soil mapping and identification may require the digging of trenches to identify and measure soil horizons below the surface.

Management of watershed resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with watershed management actions are infrequent, small in scale, and would take place very rarely, if at all, within any lynx habitats or LAUs and would likely have minimal or no negative impacts on lynx behavior or their denning or foraging habitats. Implementation of watershed resource management actions may maintain or improve the condition of some habitats and therefore may result in beneficial effects to foraging or linkage habitats and are likely to improve riparian vegetation and habitat for lynx and their prey.

Determination

Management of watershed resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas. The activities associated with this management action are infrequent, small in scale, and not likely to occur in lynx habitat. Implementation of watershed resource management actions may maintain or improve the condition of some habitats and therefore may result in secondary beneficial effects to foraging or linkage habitats. Implementation of soil and water resource management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **discountable effects**. This determination is based on the Conservation Measures in place that will preclude adverse effects to the lynx or its habitat and will minimize or remove impacts to lynx, lynx habitat, or LAUs. Management of watershed resources is not expected to detrimentally impact lynx behavior or suitable denning or foraging areas.

Wild Horse Management

Management Action

The objective of wild horse management is to maintain free-roaming wild horses in an ecological balance within the Fifteen Mile Wild Horse Herd Management Area (WHHMA). The herd area will be managed for an initial herd size of at least 70 and no greater than 160 mature animals. To the extent possible, horses will be managed at the lower end of this range during periods of drought. Long-term wild horse numbers will be established through monitoring, multiple-use allocations, and revision of the herd area activity plan. The Fifteen Mile Wild Horse Herd Gathering Plan will be kept up-to-date and implemented for roundups. Emphasis will be placed on gathering horses that wander outside the herd area or onto privately owned lands. Cooperative agreements or land exchanges to improve wild horse management will be pursued on about 12,000 acres of privately owned land. Livestock grazing in the herd area is limited to domestic sheep use during November through March, unless an environmental analysis indicates that another kind or time of use is appropriate. The watershed protection, forestland management, and livestock grazing DPC objective will be used in the herd management area. In the herd management area, grazing strategies will be designed to allow a combined forage utilization of 30% of the current year's growth in other plant communities that are grazed during the growing season. In the herd management area, combined forage utilization up to 40% of the current year's growth will be allowed in all plant communities that are grazed when plants are dormant. Wild horses will be allocated 2,300 AUMs of forage annually. The maximum allowable forage use by domestic livestock in the herd area will be 3,370 AUMs per year. Development of additional water sources in the herd area will be considered to improve horse distribution and manage forage utilization. Surface-disturbing and disruptive activities associated with wild horse management will be subject to appropriate impact minimization measures developed through use of the mitigation guidelines.

Effects Analysis

Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. These actions are not expected to detrimentally impact the behavior of denning lynx, or lynx in forested habitats where they spend most of their time. Wild horse management activities in the Fifteenmile WHHMA would not affect lynx as it is outside of, and not in close proximity to, any LAUs within the Worland FO. Actions associated with wild horse management are expected to be limited to occasional herding, corralling, and transporting of horses. Wild horse management activities are not expected to have any detrimental impact on the behavior of denning lynx, foraging or denning habitats, or lynx in forested habitats where they spend most of their time.

Determination

Implementation of wild horse management, as presented in the Grass Creek RMP (1998), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within wild horse management areas. Lynx would be extremely unlikely to travel through the lower-elevation habitat that encompasses the Fifteenmile WHHMA, as it is outside of normal habitat or LAUs and therefore be adversely affected by actions associated with management of wild horses.

Wild and Scenic River Management

Management Action

The objectives of wild and scenic rivers management for public lands administered by the BLM that meet the wild and scenic rivers suitability factors are to maintain or enhance their outstandingly remarkable values and wild and scenic rivers (WSR) classifications until Congress considers them for possible designation.

Effects Analysis

Wild and Scenic Rivers Management activities of the BLM include studying segments of the river for potential classification by Congress. The suitable determination is based on the uniqueness of the diverse land resources and their regional and national significance, making them worthy of any future consideration for addition to the WSR system. The designation of WSR status is simply a designation, and tempers or stipulates from a WSR resource viewpoint, specific protections or management of other BLM authorized actions. WSR classifications, in and of themselves, do not place on-the-ground projects or ground disturbing activities. Generally, WSR status is a beneficial impact on wildlife and plant species.

Determination

Implementation of WSR management activities, as presented in the Grass Creek RMP (1998), will have **no effect** on the lynx. This determination is based on the fact that no lynx habitat or LAUs occur within any BLM wild and scenic river segment within the planning area.

Wildlife and Fish Habitat Management

Management Action

The objective of wildlife and fish habitat management is to maintain or enhance riparian and upland habitat, promote species diversity, and allow the expansion of wildlife and fish, where appropriate. The BLM will continue to work with the USFS, USFWS, WGFD, and the Wind River Indian Reservation in developing a healthy bighorn sheep herd in the Absaroka and Owl Creek mountains. Nest sites, roosts, cottonwood trees, and other potential critical habitats related to hunting and concentration areas for bald eagles will be protected, especially along the Bighorn and Greybull rivers. As one measure to protect these habitats, firewood harvesting is prohibited on public lands in these areas.

The BLM will cooperate with the WGFD and local irrigators in negotiations directed at establishing minimum pool elevations for reservoirs with fisheries potential. Reservoirs and riparian areas will be maintained to improve or enhance potential fisheries. The BLM will encourage the design of reservoirs to enhance fisheries where potential exists. Consistent with the overall management objective to maintain or enhance fisheries habitat, existing game and nongame fish habitat will be protected and the BLM will consider the introduction of fish where habitat potential exists. Approximately 28 miles of stream habitat will be managed for game fish; 60 additional miles will be managed for nongame fish.

Accelerated conifer encroachment and reduction in aspen has occurred in and around the Absaroka Range as a consequence of 100 years or so of grazing and fire suppression. Management practices to improve wildlife habitat in these areas involve a combination of prescribed fire and mechanical treatment.

Burning in riparian areas reduces the encroachment of limber pine, juniper, and sagebrush, and increases growth of willows, aspen, and forbs, which are preferred by snowshoe hares. As aspen clones are resprouting, fencing is used to protect them from browsing by elk and moose until they reach a height of 10 ft.

Effects Analysis

Management actions associated with wildlife habitat management may influence lynx behavior by causing lynx to avoid or abandon habitats experiencing active management projects. Potential impacts are dependent upon several factors including the number of people involved with each field effort, the time of year, duration of field activities, use of heavy machinery versus hand tools, and type of lynx habitat affected. The implementation of management actions to counter loss of aspen and increased conifer encroachment will likely have positive effects by maintaining or improving existing habitat conditions that will benefit lynx and their prey by providing increased cover for lynx and forage for snowshoe hares.

Determination

Implementation of wildlife and fish habitat management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx due to **insignificant effects**. This determination is based on the premise that although these actions my take place within lynx habitat or LAUs, it is very unlikely that these actions will harass or displace lynx. Results of vegetation management will likely benefit the lynx by creating or supplementing habitats that support prey species.

Wilderness Management

Management Action

The objective of wilderness management is to retain the wilderness quality and manage the Wilderness Study Areas (WSAs) in the FO in accordance with the Interim Management Policy and Guidelines for Lands Under Wilderness Review, until Congress acts on designation.

Discretionary uses within or adjacent to WSAs will be reviewed to ensure they do not create conflicts with management and preservation of wilderness values. Should Congress designate the WSAs in the FO (partially or wholly) as wilderness, the management of the designated areas will be for wilderness values, either as described in the appropriate wilderness EIS or as directed by Congress. Should Congress not designate areas (partially or wholly) as wilderness, the management of the nondesignated areas will be in accordance with the approved Green River RMP or as otherwise directed by Congress.

Effects Analysis

Management actions associated with wilderness management will not result in detrimental impacts to lynx behavior or their habitats. The absence of roads, total aerial extent, naturalness, solitude, or a primitive and unconfined type of recreation, and other ecological, geological, educational, scenic, or historical features may be considered wilderness values. Activities associated with this program may include inventories to identify wilderness areas, public involvement with the wilderness study process, authorization of mining claims under unique circumstances, or evaluations of proposed actions to determine potential impacts to known or potential wilderness values. These actions are not expected to detrimentally impact Canada lynx behavior or foraging or denning habitats, but will most likely result in beneficial effects to lynx by limiting harassment and disturbance to denning, travel, and foraging areas.

All WSAs are managed under the Interim Management Policy (IMP) until Congress issues management guidelines.

Determination

Implementation of the wilderness management actions, as presented in the Grass Creek RMP (1998), will have **no effect** on the lynx. This determination is based on the fact that while these actions will limit the harassment and displacement of lynx and maintain or protect suitable lynx habitats, no lynx habitat or LAUs occur within any BLM WSA, or in close proximity to a WSA, within the planning area.

Area of Critical Environmental Concern Management

Management Action

The objective of managing the Upper Owl Creek Area as an ACEC is to protect overlapping and important big game habitats and migration corridors, fisheries habitat, shallow soils, alpine vegetation and rare plants, diverse cultural resources and Native American traditional values, primitive recreational opportunities, and high scenic quality. Management will include limiting or prohibiting surface-disturbing activities and closing the area to, and pursuing withdrawal from, the staking and development of mining claims to protect fragile soils, alpine tundra, important wildlife habitat, and scenic values. A detailed activity plan will be prepared for the Upper Owl Creek ACEC before the BLM approves any proposal for major surface-disturbing activity in the area. This activity plan will include assistance from the development proponent and other affected and interested citizens to determine whether some surface occupancy could be allowed in the area. Impact minimization measures considered in the analysis will include access corridors and cluster development. For any mining claims with prior existing rights, a plan of operations will be required for all mining claim-related activities, other than casual use, in the Upper Owl Creek ACEC.

Effects Analysis

The effect being analyzed here is the designation or creation and management of ACECs. The BLM-Wood River 3 LAU is within the Upper Owl Creek ACEC. Management actions authorized within this ACEC, but not associated with ACEC management, that could result in detrimental impacts to lynx behavior or their habitats, such as allowed minerals development, will be analyzed under that specific activity. There are no specific impacts to lynx breeding, foraging, or denning habitat from planning actions associated with the establishment of an ACEC and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Determination

Implementation of the ACEC management actions, as presented in the Grass Creek RMP (1998), is **not likely to adversely affect** the lynx, due to **beneficial effects,** because the act of designation of an ACEC has no disadvantageous impacts on lynx and ACEC management is generally more restrictive in nature, protecting lynx and their habitats.

Summary of Determinations

The following is a summary of the effects determinations developed for each of the Grass Creek RMP management actions.

TABLE 9 SUMMARY OF DETERMINATIONS FOR THE GRASS CREEK RMP

Resource	Determination
Air Quality	No effect
Cultural, Paleontological, and Natural History Resources	Not likely to adversely affect, due to discountable effects
Fire	Not likely to adversely affect, due to insignificant effects
Forestland	Not likely to adversely affect, due to insignificant effects
Hazardous Materials and Wastes	No effect
Lands and Realty	Not likely to adversely affect, due to insignificant effects
Access	Not likely to adversely affect, due to discountable effects
Livestock Grazing	Not likely to adversely affect, due to insignificant effects
Minerals	Not likely to adversely affect, due to insignificant effects
Off-road Vehicles	Not likely to adversely affect, due to insignificant effects
Recreation	Not likely to adversely affect, due to insignificant effects
Vegetation	Not likely to adversely affect, due to insignificant effects
Visual Resources	Not likely to adversely affect, due to beneficial effects
Watershed Resources	Not likely to adversely affect, due to discountable effects
Wild Horses	No effect
Wild and Scenic Rivers	No effect
Wildlife and Fish Habitat	Not likely to adversely affect, due to insignificant effects
Wilderness	No effect
ACECs	Not likely to adversely affect, due to beneficial effects

Cumulative Effects

Cumulative effects include future State, tribal, local, or private actions that are reasonably certain to occur in the Grass Creek planning area. Existing and proposed activities on non-federal lands in the Worland planning area that could affect lynx or their habitats include:

- Oil and gas development on private lands

Implementation of the Grass Creek RMP would not change any potential effects to the lynx that may result from current non-federal actions.

WORLAND FIELD OFFICE: WASHAKIE RMP

The Record of Decision and Approved Resource Management Plan (RMP) for the Washakie Resource Area was signed in September 1988 (BLM 1988a). The Washakie RMP applies to the management of approximately 1.23 million acres of public land and approximately 1.6 million acres of federal mineral estate within the Washakie Resource Area. The Washakie Resource Area is in north-central Wyoming and occupies portions of Big Horn, Washakie, and Hot Springs counties. The Washakie, Grass Creek, and Cody RAs are included in the Worland District.

Environmental Baseline

The Worland FO deals with portions of 1 LAU which is primarily on the Shoshone National Forest and extends out onto BLM land in the Grass Creek Planning Area (**Map 8**). There are no LAUs mapped in the Washakie Resource Area. There is 1 lynx record in the WYNDD database, from the west slope of the Bighorn range (**Table 2** and **Appendix A**) (WYNDD 2003). However, this is not within the Washakie RMP area.

As a consequence of no lynx habitat in this resource area, no analysis is required.

4.0 CONSERVATION STRATEGIES

Strategies for the conservation of lynx contain three elements:

- Existing conservation measures, which are included under each FO and are taken from the RMP for each FO;
- Conservation Measures, which are binding, and are listed in the section below; and
- Best Management Practices, which are non-binding recommendations to be followed to the fullest extent practicable. These can be applied to LAUs as well as parcels of suitable habitat not within LAUs. These are listed below.

Both sections below are generally adapted from the standards and guidelines listed in Chapter 7 (Conservation Measures) of the LCAS (Ruediger et al. 2000). These conservation strategies will be applied to lynx habitat within LAUs, and also may be applied to lynx habitat not within LAUs. The LCAS indicates that in following the Conservation Measures listed therein, projects are generally not expected to have adverse effects on lynx. Because that document will likely be revised, and changes to these measures are ongoing as new information becomes available, it is advisable to review the website (http://www.fs.fed.us/r1/wildlife/carnivore/Lynx/lcas.pdf) as new projects come up.

The Conservation Measures are stated at both broad and specific scales, at programmatic and project planning levels. Programmatic measures and plans provide broad direction for management activities and may either be substantive (e.g., requiring that certain amounts of habitat always be maintained), or procedural (e.g., requiring that certain analyses be conducted at the project level). Substantive direction in programmatic plans of necessity is written to address typical conditions that would be encountered. Project planning implements the broad programmatic direction by accomplishing procedural requirements and designing activities that tailor substantive management direction to the unique conditions and circumstances of a particular site.

CONSERVATION MEASURES

These Conservation Measures are intended to conserve the lynx, and to reduce or eliminate adverse effects from the spectrum of management activities on BLM land. These measures are provided to outline opportunities to benefit the lynx, and to help avoid negative impacts through the thoughtful planning of activities. Plans that incorporate them, and projects that implement them, are generally not expected to have adverse effects on lynx, and implementation of these measures across the range of the lynx is expected to lead to conservation of the species (Ruediger et al. 2000).

These Conservation Measures are binding measures that BLM shall implement in order to facilitate conservation of lynx. LAUs typically encompass both lynx habitat (may or may not be currently in suitable condition for denning or foraging habitat) and other areas (such as lakes, low elevation ponderosa pine forest, and alpine tundra). The Conservation Measures listed below generally apply only to lynx habitat within the LAUs. However, their use in areas of lynx habitat or potential lynx habitat not fitting the criteria of an LAU is encouraged.

However, because it is impossible to provide measures that will address all possible actions, in all locations across the broad range of the lynx, it is imperative that project-specific analysis and design be completed, for all actions that have the potential to affect lynx. Circumstances unique to individual

projects or actions and their locations may still result in adverse effects on lynx. In these cases, additional or modified Conservation Measures may be necessary to avoid or minimize adverse effects.

The order in which the Conservation Measures appear below does not imply their relative priority.

All Programs

1. Within an LAU, BLM shall ensure that mapping occurs of lynx habitat and non-habitat, and that denning habitat, foraging habitat, and topographic features important for lynx movement are mapped. BLM or project proponent shall identify whether all lynx habitat within an LAU is in suitable or unsuitable condition. This will involve interagency coordination where LAUs cross administrative boundaries.

2. BLM shall limit disturbance within each LAU to 30% of the suitable habitat within the LAU. If 30% of the habitat within an LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of management activities. BLM shall map oil and gas production and transmission facilities, mining activities and facilities, dams, timber harvest, and agricultural lands on public lands and evaluate projects on adjacent private lands, in order to assess cumulative effects. This will involve interagency coordination where LAUs cross administrative boundaries, primarily with the U.S. Forest Service.

3. BLM management actions shall not change more than 15% of lynx habitat within an LAU to an unsuitable condition within a 10-year period. This will involve interagency coordination where LAUs cross administrative boundaries.

4. BLM shall maintain denning habitat in patches generally larger than 5 acres, comprising at least 10% of lynx habitat. Where less than 10% is currently present within an LAU, defer any management actions that would delay development of denning habitat structure. This will involve interagency coordination where LAUs cross administrative boundaries.

5. BLM shall ensure that key linkage areas that may be important in providing landscape connectivity within and between geographic areas across all ownerships are identified, using best available science.

6. BLM shall ensure that habitat connectivity within and between LAUs is maintained.

7. BLM shall document lynx observations (tracks, sightings, along with date, location, and habitat) and provide these to the WYNDD; and request an annual update from them on all sightings for review in each FO.

Forest Management

1. Following a disturbance (blowdown, fire, insects) that could contribute to lynx denning habitat, BLM shall allow no salvage harvest when the affected area is smaller than 5 acres. Some exceptions apply, as specified in the LCAS timber management project planning standards.

2. BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.

3. In aspen stands, BLM shall ensure that harvest prescriptions apply that favor regeneration of aspen.

4. BLM shall ensure that improvement harvests (commercial thinning, selection, etc.) are designed to retain and improve recruitment of an understory of small diameter conifers and shrubs preferred by hares.

Fire Management

1. In the event of a large wildfire, BLM shall ensure that a post-disturbance assessment prior to salvage harvest is conducted, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.

2. BLM shall ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and shall ensure revegetation of those that are necessary. Construction on ridges and saddles should be avoided if possible.

Recreation

1. BLM shall allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas in LAUs unless the designation serves to consolidate unregulated use and improves lynx habitat through a net reduction of compacted snow areas. This is intended to apply to dispersed recreation, rather than existing ski areas. Winter logging activity is not subject to this restriction.

2. In lynx habitat within an LAU, BLM shall ensure that federal actions do not degrade or compromise landscape connectivity or linkage areas when planning and operating new or expanded recreation developments.

3. BLM shall ensure that trails, roads, and lift termini are designed to direct winter use away from diurnal security habitat.

4. To protect the integrity of lynx habitat, BLM shall ensure that (as new information becomes available) winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat are evaluated and amended as needed.

Livestock Grazing

1. BLM shall ensure that livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components is not allowed. This regeneration may take three years or longer, and will depend on site-specific conditions.

2. BLM shall ensure that grazing in aspen stands is managed to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.

3. Within lynx habitat, BLM shall ensure that livestock grazing in riparian areas and willow patches is managed to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.

4. On projects where over-snow access is required, BLM shall ensure use is restricted to designated routes.

5. Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, shall be conducted by Wildlife Services personnel in accordance with FWS recommendations established through a formal Section 7 consultation process.

6. BLM shall ensure that the potential importance of shrub-steppe habitats in the lynx habitat matrix and in providing landscape connectivity between blocks of lynx habitat is evaluated and considered as integral to overall lynx habitat where appropriate. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

7. In high-elevation riparian areas, especially those subject to grazing, BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.

Access

1. Within lynx habitat, BLM shall ensure that key linkage areas and potential highway crossing areas are identified, using best available science.

2. BLM shall work cooperatively and proactively with the Federal Highway Administration and State Departments of Transportation to identify land corridors necessary to maintain connectivity of lynx habitat and map the location of "key linkage areas" where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).

3. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

Lands Management

1. BLM shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on lynx habitat and key linkage areas.

Energy Development

1. If activities are proposed in lynx habitat, BLM shall ensure that stipulations and conditions of approval for limitations on the timing of activities and surface use and occupancy are developed at the leasing and NOS/APD stages. For example, requiring that activities not be conducted at night, when lynx are active; and avoiding activity near denning habitat during the breeding season (April or May to July) to protect vulnerable kittens.

2. BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. BLM shall encourage remote monitoring of sites that are located in lynx habitat, so that they do not have to be visited daily.

BEST MANAGEMENT PRACTICES

BLM considers the following Best Management Practices (BMPs) to be non-binding conservation practices that will, if implemented, aid in the conservation of the Canada lynx. BMPs for the Canada lynx may be applied to areas within LAUs as well as areas not within LAUs. These BMPs for the Canada lynx may be implemented on a case-by-case basis as appropriate.

1. Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris;

2. Design harvest units to mimic the pattern and scale of natural disturbances and retain natural connectivity across the landscape. Evaluate the potential of riparian zones, ridges, and saddles to provide connectivity

3. Provide for continuing availability of foraging habitat in proximity to denning habitat.

4. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc). Improvement harvests should be designed to retain and recruit the understory of small diameter conifers and shrubs preferred by hares; retain and recruit coarse woody debris, consistent with the likely availability of such material under natural disturbance regimes; and maintain or improve the juxtaposition of denning and foraging habitat.

5. Provide habitat conditions through time that support dense horizontal understory cover, and high densities of snowshoe hares. This includes, for example, mature multi-storied conifer vegetation. Focus vegetation management, including timber harvest and use of prescribed fire, in areas that have potential to improve snowshoe hare habitat (dense horizontal cover) but that presently have poorly developed understories that have little value to snowshoe hares.

6. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare and thus regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).

7. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.

8. Consider the need for pre-treatment of fuels before conducting management ignitions.

9. Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maximizes lynx denning habitat.

10. Map and monitor the location and intensity of snow compacting activities (for example, snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.) that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes available. Discourage recreational use in areas where it is shown to compromise lynx habitat. Such actions should be undertaken on a priority basis considering habitat function and importance.

11. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged.

12. Identify and protect potential security habitats in and around proposed developments or expansions.

13. Determine where high total road densities (>2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.

14. Minimize roadside brushing in order to provide snowshoe hare habitat.

15. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.

16. Limit public use on temporary and permanent roads constructed for access to timber sales, mines, and leases. Design new roads, especially the entrance, for effective closure. Upon project completion, reclaim or obliterate these roads.

17. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.

18. To reduce mistaken shooting of lynx, initiate and/or augment interagency information and education efforts throughout the range of lynx in the contiguous states. Utilize trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, etc., to inform the public of the possible presence of lynx, field identification, and their status.

19. Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.

20. Where feasible within identified key linkage areas, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey. Pursue opportunities for cooperative management with other landowners. Evaluate whether land ownership and management practices are compatible with maintaining lynx highway crossings in key linkage areas. On public lands, management practices will be compatible with providing habitat connectivity. On private lands, agencies will strive to work with landowners to develop conservation easements, exchanges, or other solutions.

21. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

22. In land adjustment programs, identify key linkage areas. Work towards unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisition.

23. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.

24. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx.

25. Using best available science, develop a plan to protect key linkage areas on federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project.

26. When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.

27. Protect existing snowshoe hare and red squirrel habitat.

5.0 REFERENCES

Agee, J.K. 2000. Disturbance ecology of North American boreal forests and associated northern mixed/subalpine forests. Pp. 39-82 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Anderson, E.M., and M.J. Lavallo. 2003. Bobcat and lynx. Pp. 758-786 In G.A. Feldhamer, B.C. Thompson, and J.A. Chapman (Eds.). Wild mammals of North America: Biology, management, and conservation (2nd Edition). The Johns Hopkins University Press, Baltimore.

Andrews, K. 2003. Personal Communication. Meeting and telephone calls with C. Meaney, Meaney & Company, Sept-Dec, 2003. Keith Andrews is a wildlife biologist with the Pinedale FO of the BLM.

Apps, C.D. 2000. Space-use, diet, demographics, and topographic associations of lynx in the southern Canadian Rocky Mountains: a study. Pages 351-371 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Aubrey, K.B., G.J. Koehler, and J.R. Squires. 2000. Ecology of Canada lynx in southern boreal forests. Pages 373-396 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Bailey, T. N., E. E. Bangs, M. F. Portner, J. C. Malloy, and R. J. McAvinchey. 1986. An apparent overexploited lynx population on the Kenai Peninsula, Alaska. Journal of Wildlife Management, 50:279-290.

Beauvais, G.P., D. Keinath, and J. Ratner. 2001. Habitat mapping and field surveys for lynx (*Lynx canadensis*) on lands administered by the USDI – Bureau of Land Management in Wyoming. Wyoming Natural Diversity Database, Laramie, Wyoming.

Berger, J. 2004. Personal communication with Carron Meaney, Meaney & Company. Joel Berger is a Research Biologist with the Wildlife Conservation Society, in Jackson, Wyoming. February 2004.

Bider, J. R. 1962. Dynamics and the tempero-spatial relations of a vertebrate community. Ecology 43:634-646.

Breckenridge, C. 2004. Personal communication with Carron Meaney, Meaney & Company. Connie Breckenridge is a Wildlife Biologist with the BLM in Lander, Wyoming. Telephone conversation on August 4, 2004.

Bureau of Land Management (BLM). 1981. Scab Creek Wilderness in Sublette County. Final Wilderness Report with Environmental Impact Statement. Rock Springs, Wyoming.

Bureau of Land Management (BLM). 1983. Draft Rock Springs District Wilderness Environmental Impact Statement. Rock Springs District, Rock Springs, Wyoming.

Bureau of Land Management (BLM). 1986a. Record of Decision for the Kemmerer Resource Management Plan and Rangeland Program Summary Document. Kemmerer Resource Area. Rock Springs, Wyoming. June 1986.

Bureau of Land Management (BLM). 1986b. Final Environmental Impact Statement for the Lander Resource Management Plan. Lander Resource Area. Rawlins District. Rawlins, Wyoming. July 1986.

Bureau of Land Management (BLM). 1987a. Record of Decision for the Lander Resource Management Plan. Lander Resource Area. Rawlins District. Rawlins, Wyoming. June 1987.

Bureau of Land Management (BLM). 1987b. Interim Management Policy and Guidelines for Lands Under Wilderness Review. BLM Manual. Washington, D.C.

Bureau of Land Management (BLM). 1988a. Record of Decision and Approved Resource Management Plan for the Washakie Resource Area. Washakie Resource Area. Worland District. Worland, Wyoming. September 1988.

Bureau of Land Management (BLM). 1988b. Record of Decision and Resource Management Plan for the Pinedale Resource Area. Pinedale Resource Area. Rock Springs District. Rock Springs, Wyoming. December 1988.

Bureau of Land Management (BLM). 1990a. Record of Decision and Approved Resource Management Plan for the Cody Resource Area. Cody Resource Area. Worland District. Worland, Wyoming. November

Bureau of Land Management (BLM). 1990b. Record of Decision and Approved Resource Management Plan for Great Divide Resource Area. Great Divide Resource Area. Rawlins District. Rawlins, Wyoming. November 1990.

Bureau of Land Management (BLM). 1997. Record of Decision and Green River Resource Management Plan. Green River Resource Area. Rock Springs District. Rock Springs, Wyoming. October 1997.

Bureau of Land Management (BLM). 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.

Buskirk, S.W. 2000. Habitat fragmentation and interspecific competition: Implications for lynx conservation. Pages 83-100 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Buskirk, S.W., L.F. Ruggiero, and C.J. Krebs. 2000a. Habitat fragmentation and interspecific competition: implications for lynx conservation . Pages 83-100 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Buskirk, S.W., et al. 2000b. Comparative ecology of lynx in North America. Pages 397-417 In Ruggiero, L.F. et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Cain, S. 2003. Personal Communication (telephone conversation with C. Meaney, Meaney & Company 12/8/03). Mr. Cain is Senior Wildlife Biologist with Grand Teton National Park.

Carbyn, L. N. and D. Patriquin. 1983. Observations on home range sizes, movement, and social organization of lynx, *Lynx canadensis* in Riding Mountain National Park, Manitoba. Canadian Field-Naturalist. 97:262-267.

Carroll, J. 2003. Personal Communication (telephone conversation with C. Meaney, Meaney & Company 12/2/03). Mr. Carroll is the State T & E Species Coordinator for BLM.

Chaney, E., W. Elmore, W.S. Platts. 1990. Livestock Grazing on Western Riparian Areas. Produced for the U.S. Environmental Protection Agency by the Northwest Resource Information Center, Inc., Eagle, Idaho.

Chapman, J.A., and J.E.C. Flux. 1990. Rabbits, hares and pikas: status survey and conservation action plan. IUCN/SSC Lagomorph Specialist Group. International Union for Conservation of Nature and Natural Resources, Gland, Switzerland.

Clark, T.W., and M.R. Stromberg. 1987. Mammals in Wyoming. University of Kansas Museum of Natural History.

Dunder, J. 2003. Personal Communication. Jim Dunder is a wildlife biologist with BLM in the Rock Springs FO.

Harrell, D. 2003. Personal Communication [April 8, 2003, telephone conversation with P. Avant, Biologist, Greystone Consultants]. RE: Future project information and cumulative effects within the Cody FO. Mr. Harrell is a wildlife biologist with the BLM, Cody, Wyoming.

Hinschberger, M. 2004. Personal Communication (December 8, 2003 and April 2004, telephone conversation with C. Meaney, Meaney & Company). Mr. Hinschberger is a district wildlife biologist for the Wind River and Washakie Ranger Districts in Shoshone National Forest.

Hodges, K.E. 2000. Ecology of snowshoe hares in southern boreal and montane forests. Pages 163-206 In L.F. Ruggiero et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Kauffman, J., and W. Krueger. 1984. Livestock impacts on riparian ecosystems and streamside management implications…a review. Journal of Range Management 37(5): 430-437.

Koehler, G.M. 1990. Population and habitat characteristics of lynx and snowshoe hares in north central Washington. Canadian Journal of Zoology, 68:845-851.

Koehler, G. M. and K. B. Aubry. 1994. Pages 74-98 *In* Ruggiero et al. (Eds.). The scientific basis for conserving forest carnivores: American marten, fisher, lynx and wolverine in the western United States. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. General Technical Report RM-254. 184 pp.

Koehler, G.M., and J.D. Brittell. 1990. Managing spruce-fir habitat for lynx and snowshoe hares. Journal of Forestry, 88:10-14.

Kurten, B., and E. Anderson. 1980. Pleistocene mammals of North America. Columbia University Press, New York.

Levins, R. 1970. Extinction. Lectures in mathematical life sciences, 2:75-107.

Litvaitis, J. A. 1992. Niche relations between coyotes and sympatric Carnivora. Pages 73-85 *In* A. H. Boer, ed. Ecology and management of the eastern coyote. University of New Brunswick Wildlife Research Unit, Fredericton, NB.

Loose, S. 2004. Personal communication with C. Meaney, Meaney & Company, March 2004. Mr. Loose is a wildlife biologist with the Medicine Bow National Forest.

McCord, C.M., and J.E. Cardoza. 1982. Bobcat and lynx. Pages 728-766 In J.A. Chapman and G.A. Feldhamer (Eds.). Wild mammals of North America. Johns Hopkins University Press, Baltimore.

McKelvey, K.S., S.W. Buskirk, C.J. Krebs. 2000a. Theoretical insights into the population viability of lynx. Pages 21-37 In L.F. Ruggiero et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

McKelvey, K.S., K.B. Aubry, Y.K. Ortega. 2000b. History and distribution of lynx in the contiguous United States. Pages 207-259 In L.F. Ruggiero et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Mech, L. D. 1973. Canadian lynx invasion of Minnesota. Biol. Conservation 5:151-152.

Menke, J. C. Davis, ands P. Beesley. 1996. Rangeland Assessment. Sierra Nevada Ecosystem Project: Final report to Congress, vol. III. Assessments, Commissioned Reports, and Background Information. Davis: University of California, Centers for Water and Wildland Resources.

Murray, D. L. and S. Boutin. 1991. The influence of snow on lynx and coyote movements: does morphology affect behavior? Oecologia. 88:463-469.

Murray, D. L., S. Boutin, M. O'Donoghue, and V. O. Nams. 1995. Hunting behavior of sympatric felid and canid in relation to vegetative cover. Animal Behavior 50:1203-1210.

Oberlie, Susan. 2003. Personal communication with Sue Oberlie, BLM biologist, Lander FO, September 2003.

O'Donoghue, M., S. Boutin, C. J. Krebs, G. Zuleta, D. L. Murray, and E. J. Hofer. 1998. Functional responses of coyotes and lynx to the snowshoe hare cycle. Ecology 79(4):1193-1208.

Poole, K. G. 1997. Dispersal patterns of lynx in the Northwest Territories. J. Wildlife Management. 61(2): 497-505.

Quinn, N.W.S., and G. Parker. 1987. Lynx. In Novak, N., Baker, J., Obbard, M (Eds.). Wild furbearer management and conservation in North America. Toronto, Ontario: Ministry of Natural Resources: 683-694.

Reeve, A.F., F. Lindsey, and S. Buskirk. 1986. Historic and recent distribution of the lynx in Wyoming. Wyoming Cooperative Fishery and Wildlife Research Unit, Laramie.

Root, T. 2003. Personal Communication (September 10, 2003), visit with Carron Meaney, Senior Ecologist, Meaney & Company. Mr. Root was a biologist with the USFWS, Cody, Wyoming.

Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Nancy, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and UDSI National Park Service. Missoula, MT.

Ruggiero, L.F. et al. (Eds.). 2000a. Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Ruggiero, L.F. et al. 2000b. The scientific basis for lynx conservation: qualified insights. Pages 443-454 In L.F. Ruggiero et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Shenk, T. 2003. Personal communication. Tanya Shenk is a research biologist and team leader for the Colorado Division of Wildlife on the lynx reintroduction in Colorado.

Squires, J.R. and T. Laurion. 2000. Lynx home range and movements in Montana and Wyoming: preliminary results. Pages 337-349 In L.F. Ruggiero et al. (Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder.

Tumlison, R. 1987. Felis lynx. Mammalian Species, 269:1-8.

U.S. Forest Service and BLM (USFS and BLM). 2004. Draft Environmental Impact Statement on the Northern Rockies Lynx Amendment, National Forests in Montana, parts of Idaho, Wyoming and Bureau of Land Management units in Idaho and parts of Utah. January 2004.

U.S. Fish and Wildlife Service (USFWS). 2000. U.S. Fish and Wildlife Service's biological opinion on the effects of National Forest Land and Resource Management Plans and Bureau of Land Management's Land Use Plans on Canada lynx in the contiguous United States, October, 2000. Denver, Colorado.

U.S. Fish and Wildlife Service (USFWS). 1998. Endangered Species Consultation Handbook. Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. U.S. Fish and Wildlife Service and National Marine Fisheries Service. March 1998.

Ward, R. P. M. and C. J. Krebs. 1985. Behavioural responses of lynx to declining snowshoe hare abundance. Canadian Journal of Zoology. 63:2817-2824.

Williams, R. 2004. Personal communication with C. Meaney, Meaney & Company, March 2004. Mr. Williams is a wildlife biologist with the Wasatch National Forest.

Wyoming Game and Fish Department. 1998. Threatened, endangered, and nongame bird and mammal investigations. Annual Completion Report.

Wyoming Fame and Fish Department. 1999. Threatened, endangered, and nongame bird and mammal investigations. Annual Completion Report.

Wyoming Natural Diversity Database (WYNDD). 2001. Habitat mapping and field surveys for lynx (*Lynx canadensis*) on lands administered by the USDI – Bureau of Land Management in Wyoming. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

Wyoming Natural Diversity Database (WYNDD). 2002. Habitat mapping of lynx analysis units of Bureau of Land management lands and surrounding areas in Wyoming. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

Wyoming Natural Diversity Database (WYNDD). 2003. Data compilation for C. Meaney, completed November 3, 2003. Unpublished report. Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

APPENDIX A
LYNX RECORDS FROM THE WYOMING NATURAL DIVERSITY DATABASE.

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Buffalo Field Office									
1988-07-03: UNLIKELY RECORD, 4 FEMALES REPORTED. Individual animal - unreliable observation	SHER	1988	7	T56N	R091W	26	BIGHORN MOUNTAINS, HEADWATERS OF LITLE BIGHORN RIVER EAST OF BALD MOUNTAIN CITY SITE, ABOUT 2 MI NORTH OF LITTLE BALD MOUNTAIN; TAKE FOREST ROAD OFF HIGHWAY 14 ALT.	1	
1990: ONE OBSERVED ON WIDENER PROPERTY FEEDING ON A DEER(?) CARCASS WITH A BOBCAT TREED BY THE LYNX. LOCATION AND DATES APPROXIMATE.^	SHER	1990	0	T54N	R085W	17	EAST SLOPE OF THE BIGHORN MOUNTIANS; UPPER RAPID CREEK DRAINAGE	2	
1 Adult Lynx Trapped or Killed in Summer; at 1400 meters.	Sher	1965	0	T54N	R085W	24	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Trapped or Killed in Summer; at 1500 meters.	Sher	1965	0	T54N	R085W	24	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Trapped or Killed in Autumn; at 3000 meters.	JOHN	1969	0	T51N	R85W	17	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 2400 meters.	JOHN	1970	0	T49N	R84W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen at 3000 meters.	JOHN	1972	0	T51N	R85W	9	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Autumn; at 2000 meters.	Sher	1979	0	T57N	R89W	2	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 1320 meters.	Sher	1980	0	T55N	R083W	27	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Seen in Summer; at 2900 meters.	JOHN	1981	0	T50N	R85W	10	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 1600 meters.	JOHN	1982	0	T51N	R83W	10	No written description of location given.	3	Original source from - Wyoming Game & Fish Department Wildlife Observation System; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2400 meters.	JOHN	1983	0	T47N	R084W	23	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
Casper Field Office									
1 Adult Lynx Trapped or Killed in	CONV	1983	0	T33N	R69W	15	No written description of	3	Original source from - Wyoming Game & Fish

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Autumn; at 1600 meters.							location given.		Department; Original report assigned a validity ranking to this record of - Certain
Lynx Tracks Seen in Winter; at 2100 meters.	CONV	1986	0	T30N	R074W	30	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
Cody Field Office									
1992-02-01: Observation by Cleo Richard, YNP visitor. "...grayish with large paws, tufted ears and no tail." Individual animal - unreliable observation	PARK	1992	2	T56N	R112W	5	Yellowstone Plateau, near Mt. Washburn, "Along Antelope Creek Ski Trail"	4	
1988-09-05: Observed by YNP employee.	PARK	1988	0	T57N	R105W	24	Northern Absaroka Mountains, Duck Lake, northeast of northeast corner of the lake. Access via paved road south off of US Highway 212 to Chain Lakes (1 mile) and continuing on unpaved road for approximately 2+ miles to Duck Lake on the south.	5	
1993-09-06 Observation by Frank Ford, reliable YNP employee.	TETO	1993	9	T51N	R112W	36	Yellowstone Plateau, Yellowstone Lake, western shore of the Southeast Arm, "near 5L9 on west side of SE arm of Yellowstone Lake."	6	
3 individual(s) observed.	TETO	1929	2	T54N	R117W	13	Between West Entrance and Madison Jct., in the Madison River drainage.	7	
1 individual(s) observed.	PARK	1930	1	T53N	R111W	35	Cub Creek, in the Cub Creek drainage.	7	
1 individual(s) observed.	PARK	1931	1	T57N	R110W	27	Soda Butte, in the Soda Butte Creek drainage.	7	
1 individual(s) observed.	PARK	1937	12	T57N	R111W	27	Mammoth Game Ranch, in the Yellowstone River drainage.	7	
2 individual(s) observed.	PARK	1944	2	T55N	R118W	26	West Yellowstone lookout tower, in the Madison River drainage.	7	
1 individual(s) observed.	PARK	1962	8	T54N	R113W	35	1.5 mi S of Dragon's Mouth, in the Yellowstone River drainage.	7	
1 individual(s) observed.	PARK	1974	8	T54N	R111W	23	Pelican Cone Lookout, in the Pelican Creek drainage.	7	
5 individual(s) observed.	PARK	1985	6	T55N	R115W	23	Norris Jct, in the Gibbon River drainage.	7	
1 individual(s) observed.	TETO	1988	9	T51N	R114W	3	NE OF NE CORNER OF DUCK LAKE, in the YELLOWSTONE RIVER	7	

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
							drainage.		
1 individual(s) observed.	PARK	1997	3	T57N	R112W	17	East of Elk Creek, in the Elk Creek drainage.	7	
1 Adult Lynx Trapped or Killed in Summer; at 1300 meters.	BIGH	1919	0	T53N	R91W	26	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Autumn; at 2000 meters.	Park	1920	0	T56N	R106W	9	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
Lynx Tracks Seen in Autumn; at 2400 meters.	Park	1928	0	T53N	R112W	15	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2100 meters.	Teto	1929	0	T54N	R117W	17	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2200 meters.	Park	1931	0	T55N	R110W	22	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2250 meters.	Park	1931	0	T55N	R110W	27	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2450 meters.	Park	1937	0	T50N	R111W	2	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Spring; at 2400 meters.	Teto	1937	0	T50N	R114W	13	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2600 meters.	Park	1938	0	T51N	R110W	28	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2750 meters.	Park	1939	0	T57N	R109W	16	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2300 meters.	Park	1940	0	T55N	R115W	4	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2050 meters.	Teto	1941	0	T52N	R116W	16	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Seen in Summer; at 2450 meters.	Teto	1944	0	T53N	R113W	25	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Spring; at 2195 meters.	Teto	1949	0	T54N	R117W	16	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 2000 meters.	Park	1960	0	T57N	R112W	26	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
									record of - Probable
1 Adult Lynx Seen in Summer; at 2500 meters.	Park	1960	0	T56N	R116W	27	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2200 meters.	Teto	1962	0	T54N	R116W	27	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2050 meters.	Park	1963	0	T57N	R114W	1	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2450 meters.	Park	1964	0	T53N	R111W	30	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2250 meters.	Teto	1969	0	T54N	R116W	34	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2100 meters.	Teto	1971	0	T54N	R117W	22	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2300 meters.	Park	1972	0	T55N	R115W	16	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2400 meters.	Teto	1974	0	T51N	R114W	15	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2400 meters.	Teto	1974	0	T51N	R114W	14	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2800 meters.	Park	1974	0	T47N	R108W	2	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2250 meters.	Teto	1975	0	T52N	R116W	21	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2800 meters.	Teto	1975	0	T51N	R113W	35	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2370 meters.	Teto	1975	0	T51N	R116W	3	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2250 meters.	Park	1976	0	T56N	R115W	16	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Seen in Spring; at 2250 meters.	Teto	1976	0	T52N	R116W	8	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Seen in Spring; at 2400 meters.	Teto	1977	0	T52N	R115W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2000 meters.	Park	1978	0	T48N	R102W	28	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2500 meters.	Park	1980	0	T58N	R109W	29	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Seen in Summer; at 2300 meters.	Teto	1980	0	T50N	R113W	20	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2400 meters.	Park	1981	0	T54N	R113W	22	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen at 1350 meters.	Park	1982	0	T56N	R103W	11	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Seen in Spring; at 1950 meters.	Park	1982	0	T55N	R104W	5	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 3250 meters.	Park	1982	0	T58N	R105W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2400 meters.	Teto	1983	0	T52N	R113W	17	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Autumn; at 1400 meters.	Park	1983	0	T56N	R102W	15	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
5 Adult Lynx Seen in Summer; at 2250 meters.	Park	1984	0	T56N	R111W	3	No written description of location given.	3	Original source from - Yellowstone National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 1600 meters.	Park	1984	0	T51N	R098W	9	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen in Winter; at 2250 meters.	Park	1984	0	T52N	R109W	4	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2250 meters.	Park	1985	0	T55N	R104W	16	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2250 meters.	Park	1985	0	T58N	R107W	19	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 3250 meters.	Park	1985	0	T50N	R108W	32	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Seen in Autumn; at 2500 meters.	Park	1985	0	T57N	R106W	4	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx tracks observed.	PARK	1997	0	T58N	R106W	15	Granite Lake	8	Original reliability rank assigned as - Reliable; Original data ID - WY 1
Kemmerer Field Office									
Tracks sank 4-8' into soft snow; not a heavy animal.	LINC	1999	1	T29N	R118W	6	Bridger Teton NF: ca. 1.5m NW of Salt River Pass.	9	Tracks observed and recorded on a "Mammal Observation Record," Wyoming fish and game.
1 adult observed.	LINC	1985	6	T26N	R118W	36	West Fork drainage of the Hams Fork; about 11m E of Border Junction.	10	
1 Lynx of unknown sex and age Trapped or Killed at 3000 meters.	Linc	1918	0	T31N	R117W	8	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 3000 meters.	Linc	1935	0	T31N	R117W	29	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Summer; at 2300 meters.	Linc	1949	0	T31N	R117W	30	No written description of location given.	3	Original source from - University of Kansas Museum of Natural History; Original report assigned a validity ranking to this record of - Certain
1 Lynx of unknown sex and age Trapped or Killed at 2500 meters.	Linc	1953	0	T28N	R116W	8	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2500 meters.	Linc	1953	0	T28N	R116W	8	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2250 meters.	Linc	1953	0	T34N	R116W	32	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2250 meters.	Linc	1953	0	T34N	R116W	32	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2250 meters.	Linc	1953	0	T34N	R116W	32	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2250 meters.	Linc	1958	0	T37N	R116W	19	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
2 Adults and 1 Juvenile Lynx Seen in Autumn; at 2600 meters.	Linc	1966	0	T25N	R116W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 3000 meters.	Uint	1968	0	T12N	R118W	21	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed in Autumn; at 2260 meters.	Uint	1970	0	T12N	R120W	21	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Lynx Tracks Seen in Autumn; at 2750 meters.	Subl	1970	0	T33N	R115W	21	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
2 Adult Lynx Trapped or Killed in Summer; at 2650 meters.	Linc	1972	0	T26N	R117W	12	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2700 meters.	Linc	1972	0	T26N	R116W	30	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2750 meters.	Linc	1973	0	T30N	R116W	28	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2500 meters.	Linc	1974	0	T27N	R117W	33	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen at 2400 meters.	Uint	1975	0	T13N	R114W	17	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2250 meters.	Linc	1975	0	T33N	R116W	15	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
2 Adult Lynx Seen in Winter; at 2700 meters.	Linc	1978	0	T29N	R117W	9	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2500 meters.	Linc	1979	0	T29N	R118W	18	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2750 meters.	Linc	1980	0	T33N	R115W	30	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2400 meters.	Linc	1981	0	T30N	R116W	29	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
4 Adults and 2 Juvenile Lynx Seen in Autumn; at 1900 meters.	Linc	1981	0	T37N	R116W	4	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2600 meters.	Linc	1983	0	T30N	R116W	17	No written description of location given.	3	Original source from - Wyoming Game & Fish Department Wildlife Observation System; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2250 meters.	Linc	1983	0	T32N	R116W	6	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2750 meters.	Linc	1983	0	T36N	R115W	29	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Seen in Summer; at 2450 meters.	Linc	1983	0	T26N	R117W	16	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2700 meters.	Subl	1984	0	T29N	R115W	30	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2750 meters.	Linc	1985	0	T30N	R117W	27	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 2400 meters.	Linc	1985	0	T29N	R118W	13	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2500 meters.	Linc	1986	0	T30N	R116W	8	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Female specimen collected.	LINC	1949	9	T31N	R118W	25	AFTON, 6 MI S, 6 MI E OF; COTTONWOOD LAKE	11	Lat/Long coordinates were generated from the written location provided.
1 lynx of unknown sex and age observed.	LINC	1992	0	T33N	R115W	8	Sheep Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 15
Lynx tracks observed.	LINC	1996	0	T33N	R115W	8	McDougal Gap	8	Original reliability rank assigned as - Reliable; Original data ID - WY 16
Lynx tracks observed.	LINC	1996	0	T33N	R117W	24	Bear Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 17
1 lynx of unknown sex and age observed.	LINC	1997	0	T31N	R116W	22	Box Canyon	8	Original reliability rank assigned as - Reliable; Original data ID - WY 20
1 lynx of unknown sex and age observed.	LINC	1997	0	T25N	R116W	14	Fontenelle Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 21
1 lynx found dead.	LINC	1993	0	T26N	R117W	28	Hams Fork	8	Original reliability rank assigned as - Reliable; Original data ID - WY 22
1 lynx of unknown sex and age observed.	LINC	1994	0	T26N	R116W	12	Mahogany Ridge	8	Original reliability rank assigned as - Reliable; Original data ID - WY 34
1 lynx of unknown sex and age observed.	LINC	1995	0	T26N	R116W	25	Mahogany Ridge	8	Original reliability rank assigned as - Reliable; Original data ID - WY 35
Lynx tracks observed.	LINC	1995	0	T26N	R117W	24	Commissary Ridge	8	Original reliability rank assigned as - Reliable; Original data ID - WY 36
6 animals trapped.	LINC	1969	0	T24N	R116W	5	Beaver Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 37
Lynx tracks observed.	LINC	1997	0	T26N	R117W	4	Hams Fork	8	Original reliability rank assigned as - Reliable; Original data ID - WY 38
Lynx tracks observed.	LINC	1993	0	T36N	R118W	25	Greys River	8	Original reliability rank assigned as - Reliable; Original data ID - WY 43
Lynx tracks observed.	LINC	1993	0	T30N	R117W	1	Greys River	8	Original reliability rank assigned as - Reliable; Original data ID - WY 44
Lynx tracks observed.	LINC	1985	0	T26N	R118W	25	Hams Fork	8	Original reliability rank assigned as - Reliable; Original data ID - WY 45
1 adult lynx seen at 2600 meters.	UINT	1975	0	T12N	R115W	5	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
									validity ranking to this record of - Probable
Lander Field Office									
Tracks observed during snowmachine survey	FREM	1997	12	T43N	R108W	0	Long Creek, Shoshone National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
Tracks observed on survey.	FREM	1998	3	T43N	R108W	2	Long Creek, Shoshone National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
Tracks observed on survey.	FREM	1998	4	T42N	R109W	0	Warm Springs/Sheridan Creek, Shoshone National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
1997:03-05: Tracks observed.	FREM	1997	3	T43N	R107W	12	Southern Absaroka Mountains, Horse Creek north of Dubois, ca 3 miles north of Horse Creek Ranger Station.	13	
1997-04-03: Tracks observed.	FREM	1997	4	T43N	R109W	24	Southern Absaroka Mountains, Middle Fork Long Creek, 4 miles east of the Wind River; access via USFS roads 513 and 552 from US Hwy 26/287.	14	
1 Adult Lynx Trapped or Killed in Autumn; at 2750 meters.	FREM	1893	0	T44N	R110W	34	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Winter; at 2100 meters.	FREM	1919	0	T41N	R107W	12	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Seen in Winter; at 2500 meters.	FREM	1980	0	T41N	R108W	3	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2800 meters.	FREM	1981	0	T41N	R109W	16	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Seen in Winter; at 2500 meters.	FREM	1983	0	T44N	R106W	2	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Lynx Tracks Seen in Winter; at 2800 meters.	FREM	1983	0	T41N	R108W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 3000 meters.	FREM	1983	0	T41N	R107W	31	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 3250 meters.	FREM	1985	0	T40N	R107W	1	No written description of location given.	3	Original source from - University of Wyoming Casper College; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 3250 meters.	FREM	1985	0	T39N	R106W	17	No written description of location given.	3	Original source from - University of Wyoming Casper College; Original report assigned a validity ranking to this record of - Probable
2 trails encountered side-by-side in soft wet snow, indicating 2 individuals traveling together. Date of observation is solidly within the breeding season suggesting the possibility that this is a mating pair.	FREE	2003	3	T43N	R107W	12	Upper Horse Creek area near Ramshorn, Shoshone National Forest	15	
Lynx tracks observed.	FREM	1998	0	T43N	R107W	14	Burroughs Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 3
Lynx tracks observed.	FREM	1998	0	T44N	R109W	36	W. Dunoir Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 5
1 lynx of unknown sex and age observed.	FREM	1994	0	T44N	R110W	34	Togwotee Pass	8	Original reliability rank assigned as - Reliable; Original data ID - WY 6
1 lynx of unknown sex and age observed.	FREM	1985	0	T42N	R108W	33	Union Pass Road	8	Original reliability rank assigned as - Reliable; Original data ID - WY 9
Lynx tracks observed.	FREM	1998	0	T41N	R108W	3	Wildcat Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 10
Lynx tracks observed.	FREM	1987	0	T3N	R4W	17	Wind River Reservation	8	Original reliability rank assigned as - Reliable; Original data ID - WY 23
1 lynx of unknown sex and age observed.	FREM	1993	0	T33N	R102W	2	Wind River Reservation	8	Original reliability rank assigned as - Reliable; Original data ID - WY 24
1 lynx of unknown sex and age observed.	FREM	1993	0	T2S	R2W	15	Wind River Reservation	8	Original reliability rank assigned as - Reliable; Original data ID - WY 25
Lynx tracks observed.	FREM	1996	0	T1S	R3W	16	Wind River Reservation	8	Original reliability rank assigned as - Reliable; Original data ID - WY 26
Lynx tracks observed.	FREM	1997	0	T30N	R100W	1	Limestone Moutain	8	Original reliability rank assigned as - Reliable; Original data ID - WY 27
1 lynx trapped.	FREM	1962	0	T1S	R4E	25	Beaver Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 30
Lynx tracks observed.	FREM	1997	0	T43N	R108W	3	Dunoir	8	Original reliability rank assigned as - Reliable; Original data ID - WY 31
1 lynx of unknown sex and age observed.	FREM	1997	0	T43N	R109W	8	Brooks Lake Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 32
2 lynx of unknown sex and age observed.	FREM	1997	0	T41N	R108W	4	Kitten Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 33
Lynx tracks observed.	FREM	1998	0	T43N	R107W	12	Horse Creek	8	Original reliability rank assigned as - Reliable; Original

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									data ID - WY 39
1 lynx trapped.	FREM	1971	0	T33N	R93W	23	Beaver Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 40
Newcastle Field Office									
1 Adult Lynx Trapped or Killed in Autumn; at 1240 meters.	West	1962	0	T45N	R62W	29	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 1500 meters.	CROO	1964	0	T49N	R063W	11	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen in Autumn; at 1300 meters.	CROO	1982	0	T51N	R066W	24	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
1 Adult Lynx Seen in Autumn; at 1300 meters.	CROO	1983	0	T51N	R066W	25	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen in Winter; at 1300 meters.	West	1984	0	T41N	R067W	20	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
Pinedale Field Office									
Tracks observed on survey.	FREM	1998	3	T44N	R110W	0	Togwotee Pass Area, Shoshone National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
Tracks observed on survey.	SUBL	1998	1	T39N	R109W	0	Upper Green River, Bridger National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
Tracks observed on survey	SUBL	1998	1	T39N	R109W	0	Upper Green River, Bridger National Forest. Exact location of survey routes and details are maintained by the Department's Lander Regional Office.	12	WFG report: Snowmachine snow track surveys for lynx in western Wyoming.
Specimen(s) collected, collector not given.	SUBL	1940	4	T38N	R114W	6	HOBACK RIM, SUBLETTE COUNTY, WYOMING	16	SKULL ONLY, TOTAL LENGTH:32 6/8, HINDFOOT:9 2/8, EAR 3 2/8, WEIGHT 17 POUNDS
1 Adult Lynx Trapped or Killed in Winter; at 2300 meters.	Subl	1908	0	T38N	R110W	14	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Autumn; at 2080 meters.	Teto	1917	0	T44N	R114W	4	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Trapped or Killed in Summer; at 2080 meters.	Teto	1917	0	T44N	R114W	4	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Summer; at 2080 meters.	Teto	1917	0	T44N	R114W	4	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Summer; at 2080 meters.	Teto	1917	0	T44N	R114W	4	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Autumn; at 2450 meters.	Teto	1917	0	T48N	R110W	18	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Lynx of unknown sex and age Trapped or Killed at 2500 meters.	Teto	1932	0	T44N	R113W	24	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Autumn; at 2250 meters.	Subl	1940	0	T36N	R112W	8	No written description of location given.	3	Original source from - University of Wyoming Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Seen in Spring; at 1950 meters.	Teto	1940	0	T43N	R116W	11	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2250 meters.	Teto	1949	0	T43N	R118W	14	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2000 meters.	Subl	1954	0	T38N	R114W	23	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Lynx of unknown sex and age Seen at 2100 meters.	Teto	1954	0	T45N	R114W	2	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2250 meters.	Teto	1955	0	T40N	R118W	9	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2500 meters.	Subl	1956	0	T34N	R114W	16	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Juvenile Lynx Trapped or Killed in Autumn; at 2250 meters.	Teto	1957	0	T42N	R118W	34	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Seen at 3000 meters.	Subl	1960	0	T39N	R109W	36	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Seen at 2700 meters.	Subl	1960	0	T29N	R114W	21	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Spring; at 2500 meters.	Subl	1962	0	T38N	R110W	27	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Lynx of unknown sex and age Trapped or Killed in Autumn; at 2750 meters.	Subl	1964	0	T34N	R114W	5	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed at 2100 meters.	Teto	1964	0	T42N	R115W	1	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2900 meters.	Subl	1965	0	T35N	R108W	16	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Seen at 2300 meters.	Subl	1965	0	T38N	R110W	11	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2100 meters.	Teto	1966	0	T46N	R115W	10	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2600 meters.	Subl	1966	0	T30N	R115W	29	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2250 meters.	Teto	1968	0	T47N	R115W	17	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2400 meters.	Subl	1968	0	T36N	R113W	24	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
2 Juvenile Lynx Seen in Autumn; at 2900 meters.	Subl	1968	0	T30N	R115W	23	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Track Seen in Autumn; at 3250 meters.	Subl	1969	0	T33N	R105W	2	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Autumn; at 2250 meters.	Subl	1969	0	T37N	R112W	36	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed at 2100 meters.	Teto	1970	0	T47N	R115W	29	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2750 meters.	Subl	1970	0	T28N	R114W	28	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed at 2300 meters.	Subl	1970	0	T38N	R110W	14	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult and 2 Juvenile Lynx Seen in Winter; at 2750 meters.	Subl	1970	0	T36N	R115W	25	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2400 meters.	Subl	1970	0	T37N	R112W	13	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
2 Adult Lynx Trapped or Killed at 2700 meters.	Linc	1970	0	T34N	R115W	5	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
1 Adult and 4 Juvenile Lynx Seen in Autumn; at 2500 meters.	Subl	1970	0	T34N	R114W	8	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2750 meters.	Subl	1970	0	T32N	R115W	19	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 3000 meters.	Subl	1970	0	T33N	R115W	34	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
2 Adults and 2 Juvenile Lynx Seen in Autumn; at 2400 meters.	Teto	1971	0	T47N	R115W	7	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2250 meters.	Teto	1971	0	T44N	R118W	15	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2500 meters.	Subl	1971	0	T36N	R113W	33	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2700 meters.	Subl	1972	0	T34N	R107W	33	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2500 meters.	Subl	1972	0	T39N	R109W	10	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2500 meters.	Subl	1972	0	T31N	R105W	10	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2750 meters.	Subl	1972	0	T35N	R114W	32	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
4 Adults and 1 Juvenile Lynx Trapped or Killed in Winter; at 2700 meters.	Subl	1972	0	T35N	R114W	28	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
3 Adult Lynx Trapped or Killed in Winter; at 2500 meters.	Subl	1972	0	T35N	R114W	14	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
4 Adult Lynx Trapped or Killed in Autumn; at 2500 meters.	Subl	1972	0	T35N	R114W	3	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2600 meters.	Subl	1973	0	T33N	R106W	16	No written description of location given.	3	Original source from - Bureau of Land Management; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed in Winter; at 2500 meters.	Subl	1973	0	T37N	R110W	8	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Seen in Summer; at 2100 meters.	Teto	1974	0	T45N	R115W	31	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1974	0	T32N	R115W	33	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1974	0	T32N	R115W	33	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2700 meters.	Teto	1974	0	T40N	R112W	14	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2250 meters.	Teto	1975	0	T48N	R115W	15	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Trapped or Killed at 2600 meters.	Subl	1975	0	T35N	R114W	33	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 2600 meters.	Subl	1975	0	T35N	R108W	5	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Trapped or Killed at 2800 meters.	Subl	1975	0	T28N	R114W	8	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2400 meters.	Teto	1975	0	T39N	R114W	29	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2400 meters.	Teto	1976	0	T47N	R117W	24	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2750 meters.	Teto	1976	0	T43N	R113W	16	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 3000 meters.	Teto	1977	0	T41N	R113W	27	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Teto	1977	0	T41N	R113W	5	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2800 meters.	Teto	1977	0	T42N	R114W	26	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2500 meters.	Subl	1978	0	T35N	R114W	26	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
3 Adult Lynx Seen in Spring; at 2500 meters.	Subl	1978	0	T35N	R114W	10	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Lynx Tracks Seen in Autumn; at 2600 meters.	Teto	1978	0	T45N	R113W	12	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2500 meters.	Teto	1979	0	T48N	R110W	18	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2750 meters.	Teto	1979	0	T44N	R116W	6	No written description of location given.	3	Original source from - University of Wyoming Casper College; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2500 meters.	Subl	1980	0	T33N	R114W	19	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen at 2500 meters.	Subl	1980	0	T37N	R112W	16	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2300 meters.	Subl	1980	0	T38N	R110W	35	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2600 meters.	Teto	1980	0	T39N	R115W	24	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult and 3 Juvenile Lynx Seen in Autumn; at 2750 meters.	Subl	1980	0	T31N	R114W	18	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2775 meters.	Subl	1981	0	T32N	R115W	35	No written description of location given.	3	Original source from - Wyoming Game & Fish Department Wildlife Observation System; Original report assigned a validity ranking to this record of - Probable
3 Adult and 2 Juvenile Lynx Tracks Seen in Winter; at 2450 meters.	Teto	1981	0	T46N	R112W	12	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Probable
2 Adults and 2 Juvenile Lynx Seen in Winter; at 2850 meters.	Subl	1981	0	T33N	R115W	16	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2250 meters.	Teto	1981	0	T46N	R114W	29	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2400 meters.	Teto	1981	0	T46N	R112W	2	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2400 meters.	Teto	1982	0	T43N	R116W	8	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2500 meters.	Linc	1982	0	T38N	R116W	27	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
1 Adult Lynx Seen in Spring; at 2800 meters.	Subl	1983	0	T39N	R111W	26	No written description of location given.	3	Original source from - Wyoming Game & Fish Department Wildlife Observation System; Original report assigned a validity ranking to this record of - Probable
1 Lynx of unknown sex and age Seen in Winter; at 2000 meters.	Teto	1983	0	T43N	R115W	20	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Questionable
Lynx Tracks Seen in Summer; at 2700 meters.	Teto	1983	0	T42N	R117W	18	No written description of location given.	3	Original source from - Grand Teton National Park; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1983	0	T38N	R111W	12	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2500 meters.	Teto	1983	0	T39N	R114W	23	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2200 meters.	Subl	1983	0	T32N	R108W	6	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Questionable
4 Adult Lynx Seen in Autumn; at 2500 meters.	Subl	1983	0	T29N	R115W	12	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1983	0	T39N	R111W	16	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1983	0	T39N	R111W	6	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Summer; at 2600 meters.	Teto	1984	0	T40N	R110W	33	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Autumn; at 2700 meters.	Subl	1984	0	T35N	R114W	29	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
2 Adult Lynx Tracks Seen in Winter; at 2500 meters.	Subl	1984	0	T37N	R111W	28	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2700 meters.	Subl	1984	0	T31N	R115W	3	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Spring; at 2600 meters.	Subl	1984	0	T32N	R115W	16	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Autumn; at 2800 meters.	Teto	1984	0	T40N	R112W	2	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Lynx Tracks Seen in Autumn; at 3300 meters.	Linc	1984	0	T31N	R116W	3	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
6 Adult Lynx Seen in Autumn; at 2750 meters.	Subl	1985	0	T31N	R115W	13	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen in Winter; at 2500 meters.	Subl	1985	0	T29N	R114W	6	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 Adult Lynx Seen in Winter; at 2500 meters.	Subl	1986	0	T34N	R114W	17	No written description of location given.	3	Original source from - Trapper Record, Taxidermist, Other Private Individual; Original report assigned a validity ranking to this record of - Probable
1 trail of tracks observed on corn snow. These tracks are within 100 yards of where possible, snowed on tracks were observed two weeks earlier.	SUBL	2003	4	T33N	R114W	16	Wyoming Range, east side near McDougal Gap, Little Maki Creek	15	
Lynx tracks observed.	FREM	1997	0	T46N	R110W	27	Soda Fork	8	Original reliability rank assigned as - Reliable; Original data ID - WY 7
Lynx tracks observed.	TETO	1998	0	T42N	R110W	6	Squaw Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 8
1 lynx of unknown sex and age observed.	TETO	1981	0	T40N	R110W	20	Mosquito Lake	8	Original reliability rank assigned as - Reliable; Original data ID - WY 11
Lynx tracks observed.	SUBL	1998	0	T38N	R109W	31	Gypsum Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 12
Lynx tracks observed.	SUBL	1998	0	T38N	R110W	9	Eagle Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 13
1 lynx of unknown sex and age observed.	TETO	1997	0	T43N	R116W	35	Moose	8	Original reliability rank assigned as - Reliable; Original data ID - WY 14
1 lynx of unknown sex and age observed.	SUBL	1989	0	T32N	R115W	20	Bare Mountain	8	Original reliability rank assigned as - Reliable; Original data ID - WY 18
1 lynx of unknown sex and age observed.	LINC	1996	0	T26N	R115W	1	Miller Mountain	8	Original reliability rank assigned as - Reliable; Original data ID - WY 19
Lynx tracks observed.	TETO	1987	0	T41N	R116W	17	Gros Ventre Butte	8	Original reliability rank assigned as - Reliable; Original data ID - WY 41
Lynx tracks observed.	SUBL	1983	0	T39N	R111W	26	Tosi Creek	8	Original reliability rank assigned as - Reliable; Original data ID - WY 42
4 lynx kittens of unknown sex observed.	SUBL	1998	0	T35N	R114W	4	Hoback River	8	Original reliability rank assigned as - Reliable; Original data ID - WY 46
Lynx tracks seen in winter at 2250 meters.	LINC	1986	0	T38N	R116W	26	No written description of location given.	3	Original source from - Wyoming Game & Fish Department; Original report assigned a validity ranking to this record of - Probable
1 adult lynx trapped or killed at 2200 meters.	TETO	0	0	T48N	R117W	13	No written description of location given.	3	Original source from - U.S. Forest Service; Original report assigned a validity ranking to this record of - Questionable
Rawlins Field Office									
1 observed walking.	CARB	1987	9	T18N	R79W	1	No written description provided.	10	former EOR 002. WOS obs_number: 000031104105

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
Record from WYGF-WOS, obs #021662; probably misidentified; 1 adult observed feeding. Individual animal - unreliable observation	ALBA	1983	1	T17N	R072W	36	Laramie Range, north of Sherman Hill in the vicinity of Schoolhouse Creek, 13 mi. northeast of Laramie.	1	
1 Adult Lynx Trapped or Killed in Summer; at 2800 meters.	CARB	1856	0	T17N	R80W	11	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Summer; at 2900 meters.	CARB	1856	0	T17N	R80W	26	No written description of location given.	3	Original source from - U.S. National Museum; Original report assigned a validity ranking to this record of - Certain
1 Adult Lynx Trapped or Killed in Autumn; at 2400 meters.	ALBA	1963	0	T14N	R72W	13	No written description of location given.	3	Original source from - Published Record (see literature cited); Original report assigned a validity ranking to this record of - Certain
Specimen collected.	CARB	1899	1	T22N	R77W	5	Aurora Lake	17	Lat/long coordinates were generated using the written location provided.
Observed in winter.	ALBA	1995	0	T13N	R72W	16	Albany County	8	Original reliability rank assigned as - Reliable; Original data ID - CO 140
1 lynx of unknown sex and age observed.	CARB	1986	0	T18N	R78W	6	Rock Mountain	8	Original reliability rank assigned as - Reliable; Original data ID - WY 28
1 lynx of unknown sex and age observed.	CARB	1990	0	T16N	R87W	35	Bridger Peak	8	Original reliability rank assigned as - Reliable; Original data ID - WY 29
Rock Springs Field Office									
Lynx Tracks Seen in Autumn; at 2100 meters.	Swee	1975	0	T26N	R110W	16	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
Lynx Tracks Seen at 2000 meters.	Swee	1975	0	T25N	R106W	29	No written description of location given.	3	Original source from - Wyoming Department of Agriculture; Original report assigned a validity ranking to this record of - Probable
Specimen collected.	SWEE	1935	7	T18N	R107W	30	2.8 mi W Green River	18	Coordinates generated based on written word description provided.
Worland Field Office									
From Jon Warder: "A lynx was sighted near a timber sale area by the contractor (Tom Lea, a logger for Cowboy Timber, contact Bruce Quade at 307-568-2792). It was observed at approximately 6pm walking on the snow-packed roadway. The operator got a good	BIGH	2002	11	T49N	R087W	1	West slope of Bighorn Range, The observation site was near the junction of FDR 404 and 407	19	Email received from Jon Warder 6 Feb, 2003 by Jason Bennett

References:

1 - Wyoming Game and Fish Department - Wildlife Observation System (WOS) (UNDWYO00WYUS)
2 - P.A.B. Widener - personal communication: Former EOR 210.
3 - Reeve, A., F. Lindzey, and S. Buskirk. 1986. Historic and recent distribution of the Lynx in Wyoming. Wyoming Cooperative Fishery and Wildlife Research Unit, Laramie, WY.
4 - YNP Wildlife Observation Records for 1992: Former EOR 214.
5 - YNP Wildlife Observation Database for 1988: Former EOR 213.

Biological	County	Year	Month	Township	Range	Section	Location	Reference	Documentation
6 - YNP Wildlife Observation Records for 1993: Former EOR 215.									
7 - Yellowstone NP Rare Animal Observation Database. Updated 1998.									
8 - Butterfield, B. 2001. Lynx distribution in the northwestern United States. Electronic dataset compiled by the Idaho Fish and Game Department, Boise, ID (U01BUT01WYUS).									
9 - Bob Luce - personal communication; Former EOR.									
10 - WYGF, wildlife observation system data.									
11 - Kansas University Natural History Museum (S02KUM01WYUS).									
12 - WGF Report: Snowmachine snow track surveys for lynx in western Wyoming.									
13 - Tom Laurion Wyoming Game and Fish Lynx, Wolverine, and Fisher Survey; Former EOR 212.									
14 - Tom Laurion Wyoming Game and Fish Lynx, Wolverine, and Fisher Survey; Former EOR 211.									
15 - Ratner, Jonathan B. (Bradford Environmental Research, Pinedale, Wyoming). Personal communication, March-April 2003. (U03RAT01WYUS).									
16 - UW Vertebrate Museum/Database - ONDUWY01WYUS.									
17 - American Museum of Natural History Dataset (S02AMN01WYUS).									
18 - University of California Berkeley - Museum of Vertebrate Zoology; website database; downloaded on 4/3/02.									
19 - Jon Warder, Forest Wildlife Biologist, Bighorn National Forest, 2013 Eastside 2nd St. Sheridan, WY 82801 jwarder@fs.fed.us (307) 674-2631.									

APPENDIX B
SUMMARY OF CANADA LYNX EFFECTS DETERMINATIONS AND LIST OF BLM MANAGEMENT ACTIONS AND ACTIVITIES

This appendix contains a summary of the Canada lynx effects determinations (**Table B-1**) and a list of BLM management actions with detailed activities that occur in the FOs (**Table B-2**). These detailed activities can serve as a checklist to review and consider during consultations for individual projects. The evaluation of the impact of a given management action and its associated activities will vary depending on the intensity and duration of the activity, its location within the FO, and the particulars of that activity in that FO.

TABLE B-1 SUMMARY OF CANADA LYNX EFFECTS DETERMINATIONS

Resources Management Plan (RMP) / Management Action	Cody	Kemmerer	Lander	Pinedale	Rock Springs (Green River RMP)	Worland (Grass Creek RMP)
Air Quality	NE	NE	NE	NE	NE	NE
Cultural/paleo./historical	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Fire Management	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Forest Management	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Minerals and Geology	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Hazardous Materials	NE	-------	-------	-------	NE	NE
Nat History & Paleontological				NLAA-d		
Lands and Realty	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Livestock Grazing	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
ORV/OHV use	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Recreation	NLAA-d	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Soils Management	-------	NLAA-d	-------	-------	-------	-------
Special Status Species	-------	-------	-------	-------	NLAA-i	-------
Sens. Plants/Vegetation	-------	-------	-------	-------	NLAA-i	NLAA-i
Visual	NLAA-b	NLAA-b	-------	NLAA-b	NLAA-b	NLAA-b
Wildlife and Fish	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i	NLAA-i
Wild and Scenic Rivers	NLAA-b	NE	NE	NLAA-b	NLAA-b	NE
Wild Horses	NE	NE	NE	NE	NE	NE
Geothermal	NE	-------	-------	-------	-------	-------
Special Areas/ACECs	NLAA-b	-------	NLAA-b	NLAA-b	NLAA-b	NLAA-b
Special Areas/NHTs					NLAA-i	
Watershed/water	NE	NLAA-d	-------	-------	-------	NLAA-d
Water/soils	-------	-------	NLAA-d	NLAA-d	NLAA-d	NE
Soil/Water/Air	-------	-------	-------	-------	-------	-------
Wilderness	NE	NE	NLAA-b	NLAA-b	NE	NE
Riparian	-------	-------	-------	NLAA-i	-------	-------
Access	NLAA-i	NLAA-d	NLAA-d	NLAA-d	NLAA-d	NLAA-d
Surface Disturb. Restr.	-------	-------	-------	NLAA-b	-------	-------

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

Air Quality

1) Apply dust control measures
2) Collect meteorological and/or air quality data
3) Cover conveyors at mine sites

Cultural/Paleontological/Historical

1) Identify and record cultural resources (including excavation and photography)
2) Photography
3) Inventory cultural resources
4) Develop interpretive sites
5) Use hand tools, power tools, heavy machinery
6) Field activities
7) Allow collection of invertebrate fossils
8) Stabilize deteriorating buildings
9) Surface disturbing activities
10) Map and collect surface material
11) Excavation
12) Stabilize erosion
13) Develop campgrounds
14) Cultural resource investigation
15) Fence cultural resources

Fire Management

1) Fire suppression
2) Damage rehabilitation
3) Prescribed burning
4) Construct firelines
5) Use off-road vehicles
6) Use heavy equipment
7) Use of hand tools and heavy machinery
8) Use bulldozers
9) Use chemical fire suppression agents (ground based)
10) Bulldozers in riparian and wetland areas
11) Fire retardant drops containing chemical dyes (aircraft dispersal)

Forest Management

1) Rehabilitation surveys
2) Assess effects of grazing
3) Allow firewood collection
4) Timber harvesting
5) Planting harvested areas
6) Fencing regenerated areas
7) Clearcuts
8) Selective cutting
9) Slash disposal

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

10 Allow harvest
11) Site regeneration
12) Stand replacement
13) Precommercial thinning
14) Firewood, posts, poles, Christmas trees, wildlings
15) Pursue legal access
16) Commercial thinning
17) Skidder-type yarding
18) Logging operations
19) Cable yarding
20) Roads and landings
21) Logging activity
22) Prescribed burning
23) Establish new seedlings
24) Chaining
25) Shearing
26) Road development
27) Install drain culverts, water bars, or ditches
28) Cut and remove diseased trees
29) Artificial regeneration
30) Slash will be lopped and scattered, roller chopped, or burned
31) Helicopter logging
32) Disease treatment by spraying
33) Spraying of Grasses and shrubs

Geothermal

1) Vehicle traffic
2) Road construction
3) Pod and facility construction
4) Powerline construction

Hazardous Material

1) Provide warnings
2) Establish precautions
3) Use precautionary measures
4) Secure and dispose of hazardous waste discharged on public lands
5) Report, secure, and clean up public lands contaminated with hazardous wastes

Lands and Realty

1) Stock driveway withdrawals
2) Locatable mineral entry withdrawals
3) Lease acres for landfills
4) Establish protective withdrawals
5) Acquire access easements
6) Acquire conservation easements
7) Disposal or transfer of public lands through desert land entry, public sale, exchange, State of

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents
8) Designate existing routes as right-of-way corridors
9) Pursue public access
10) Pursue cooperative agreements
11) Leases and disposals
12) Develop stipulations
13) Issue rights-of-way and leases (utility transportation corridors, communication sites)
14) Temporary use permits
15) New withdrawals
16) Seek legal access to timber management areas
17) Fence revegetation sites
18) Block linear rights-of-way to vehicle use
19) Road construction
20) Construction of powerlines, communication towers, pipelines, irrigation ditches, and roads
21) Develop recreation site facilities
22) Designate corridors
23) Adjust corridors
24) ROW: powerlines, pipelines, ditches and canals, roads, well pads, reservoirs, buried telephone and fiber optic lines, wind power generation farms and facilities, compressor stations and other facilities
25) Road closures/rehabilitation
26) Designate, cancel, or change stock trail driveways

Livestock Grazing
1) Designate stock trails
2) Livestock conversions
3) Livestock grazing
4) Construct exclosures
5) Provide access to water, develop stock ponds
6) Design and implement grazing systems (AMPs)
7) Provide salt or mineral supplements
8) Use safe and effective prairie dog control measures
9) Modify kinds of livestock and season of livestock use
10) Perform project work to enhance and improve riparian zones
11) Improve resource conditions
12) Noxious weed control
13) Control predators
14) Vegetation manipulation projects
15) Change composition of existing vegetation
16) Manage leases
17) Develop management plans and agreements
18) Range improvement projects
19) Abolish or change stock trails/driveways
20) Fence
21) Develop water facilities (catchments, reservoirs, springs, pipelines, and wells)
22) Sagebrush spraying

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

23) Prescribed fire treatment
24) Livestock grazing authorization (adjust season of use, distribution, kind, class, and number of livestock)
25) Implement new grazing systems
26) Establish salt stations
27) Supplement feeding authorization
28) Prescribed fire
29) Mechanical or biological vegetative treatments
30) Use heavy equipment
31) Construct, maintain and modify fences

Minerals

1) Apply dust control measures
2) Restrict flaring of natural gas
3) Lease with a "no surface occupancy" restriction
4) Lease with seasonal restrictions
5) Lease with other standard surface protection restrictions
6) Control/limit emissions
7) Reservoirs associated with water disposal
8) Compressor stations, product enhancement and disposal facilities
9) Pipelines associated with leases or units
10) Construction of new above-ground powerlines
11) Leasable minerals – authorization of competitive lease list for oil, gas, coal, oil shale, and geothermal steam
12) Leasable minerals – development and construction of coal pits, oil wells, gas, oil shale, and geothermal steam
13) Leasable minerals - construction and initial reclamation of coal pits, well pads, access roads, and reserve pits
14) Leasable minerals –surface reclamation for oil, gas, and coal
15) Locatable mineral - exploration and development (gold, silver, cobalt, etc.)
16) Power lines associated with leases or units
17) Wind power associated with leases or units
18) Saleable minerals – mineral material sales (sand and gravel, decorative stone, aggregate)
19) Geophysical exploration

ORV Use

1) Designate and implement closed areas for ORV Use
2) Designate and implement limited areas for ORV Use
3) Designate and implement open areas for ORV Use
4) Post signs
3) Monitor off-road vehicle use
4) Permit ORV events
5) Allow use of motorized over-the-snow vehicles
6) Perform necessary tasks requiring off-road vehicle use

Recreation

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

1) Allow casual recreational use (hiking, cross-country skiing, snowshoeing, etc.)
2) Restrict recreational use
3) Allow fishing and floatboating opportunities
4) Permit competitive recreational events
5) Maintain developed and undeveloped recreation sites
6) Allow camping
7) Develop public water sources for recreation facilities
8) Designate road use
9) Designate recreation areas
10) Allow hunting
11) Develop management plans
12) Designate ORV use
13) Identify hazards on the river
14) Maintain developed and undeveloped recreation sites
15) Provide public facilities and continued access
16) Allow use of motorized over-the-snow vehicles
17) With some exceptions, limit motorized vehicles to existing trails
18) Maintain public access
19) Pursue rights-of-way
20) Maintain or develop recreation sites and facilities
21) Monitor recreational use
22) Enforce recreation-oriented regulations
23) Patrol high-use areas and update recreational potential
24) Monitor, evaluate, and update recreational potential
25) Conduct field inventories
26) Place boundary signs and interpretive markers
27) Camping, hunting, fishing, off-road vehicle use
28) Construct and use roads
29) Add developments as opportunities arise
30) Develop campgrounds
31) Develop recreational trails
32) Cut trees and firewood
33) Construct and use roads
34) Commercial recreation uses

Special Areas

1) Protect petroglyphs, artifacts, and cultural deposits from weathering and vandalism
2) Land exchange
3) Close areas where accelerated erosion is occurring
4) Apply restrictions on ground-disturbing activities
5) Guide supervised tours
6) Evaluate noxious weed and grasshopper control measures
7) Logging and heavy equipment use restrictions
8) Develop recreational trails

T&E Species

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

1) Provide habitat
2) Protect known populations
3) Close known locations to surface disturbing activities, mineral material sales, off-road vehicle use, and the use of explosives and blasting
4) Conduct surveys

Vegetation

1) Pursue the acquisition of additional riparian areas
2) Plant species surveys
3) Conduct prescribed burns
4) Implement weed control programs
5) Plant trees
6) Improve riparian habitat
7) Use biological controls including species-specific insects and livestock grazing
8) Use mechanical control, including cutting and thinning with hand tools
9) Use heavy mechanical control, including brush beating, cutting, and thinning with machinery
10) Use chemical control (including aerial spraying)
11) Use of fire
12) Implement planting and seeding

Visual

1) Require facilities to blend with the natural environment
2) Reclaim watershed projects and water wells

Water Quality, Watershed and Soils Management

1) Prohibit surface discharge of produced water
2) Allow for surface discharges of produced water approved by the Wyoming DEQ
3) Restrict surface disturbance and prohibit new permanent structures
4) Limit surface disturbance and prohibit new permanent structures
5) Close areas, including roads, where accelerated erosion is occurring
6) Improve, maintain and restore riparian/wetland areas by restoring hydrologic function
7) Stream improvement practices such as increasing sinuosity in channels by using hand tools to construct natural structures which include rock or other natural materials
8) Design and install stream crossings that allow for appropriate sediment and flow passage
9) Develop riparian/wetland exclosures
10) Construction of artificial instream structures such as impoundments using heavy equipment, and steel, geo-textile fabrics, and other materials
11) Cutting, planting, and seeding to restore function in riparian/wetland areas
12) Implement pitting and maintain water-spreader dikes

Wild Horse

1) Construction of short-term temporary facilities (traps and holding facilities)
2) Construction of long-term permanent facilities (corrals, boundary fences, water development)
3) Gatherings using helicopters and riders
4) Herding, corralling, transporting

TABLE B-2 LIST OF BLM MANAGEMENT ACTIONS AND ASSOCIATED ACTIVITIES

Wild Rivers
1) Studies on segments of river
Riparian
1) Livestock conversions 2) Herding, livestock driving 3) Fence
Access
1) Pursue access across private lands 2) Purchase rights-of-way or easements, land exchange, reciprocal rights-of-way 3) Rehabilitate access roads no longer needed
Surface Disturbance Restrictions
1) Restrict surface disturbance