

Environmental Assessment
Wild Horse Gathering Inside of the Green Mountain
Wild Horse Herd Management Area
EA Number WY-050-EA2-031



U.S. Department of the Interior
Bureau of Land Management
Lander Field Office
April 2002

April 25, 2002

The Bureau of Land Management (BLM), Lander Field Office has prepared an environmental analysis (EA) for gathering of wild horses in the Green Mountain Wild Horse Herd Management Area. The attached EA provides the detail about this gather. If you are interested in participating and have concerns, issues, or alternatives you would like to see addressed, please respond with your written comments by **May 28, 2002**. Send written comments to:

Bureau of Land Management
Lander Field Office
P.O. Box 589
Lander, Wyoming 82520

Written comments, including the names and addresses of respondents, will be available for public review at the BLM Lander Field Office during regular business hours (7:45 - 4:30 P.M.), Monday through Friday (except Federal holidays) after the comment period closes and may be published as part of the environmental process. Individual respondents may request confidentiality. If you wish to withhold your name and/or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety. If you have any questions you may contact the BLM at the above address or contact Roy Packer at 307-332-8400.

Sincerely

Jack Kelly
Field Manager

Environmental Assessment

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EA Number WY-050-EA2-031

Prepared By

United States Department of Interior
Bureau of Land Management
Lander Field Office, Lander Wyoming

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ABBREVIATIONS

AML	Appropriate Management Level
AUM	Animal Unit Months
BLM	U.S. Department of Interior, Bureau of Land Management
CFR	Code of Federal Regulations
EA	Environmental Assessment
HMA	Wild Horse Herd Management Areas
LFO	Bureau of Land Management, Lander Field Office
WSA	Wilderness Study Area
DR	Decision Record
RMP	Resource Management Plan
IMP	Interim Management Plan
EIS	Environmental Impact Statement
PMA	Population Management Action

INTRODUCTION

With passage of the Wild Horse and Burro Act of 1971, Congress found that: “Wild horses are living symbols of the pioneer spirit of the West”. In addition, the Secretary of the Interior was ordered to “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands”. From the passage of the Act, through present day, the Bureau of Land Management, Lander Field Office has endeavored to meet the requirements of this portion of the Act. The procedures and policies implemented to accomplish this mandate have been constantly evolving over the years.

Throughout this period, BLM experience has grown, and the knowledge of the effects of current and past management on wild horses and burros has increased. For example, wild horses have been shown to be capable of 18 to 25% increases in numbers annually. This can result in a doubling of the wild horse population about every 3 years. At the same time, nationwide awareness and attention has grown. As these factors have come together, the emphasis of the wild horse and burro program has shifted.

Program goals have expanded beyond simply establishing “thriving natural ecological balance” (setting the appropriate management level (AML)) for individual herds, to include achieving and maintaining viable vigorous and stable populations.

The BLM, Lander Field Office (LFO) proposes to gather excess wild horses in the Green Mountain Wild Horse Herd Management Area (HMA) to maintain the Appropriate Management Level (AML) in the herd area. In order to accomplish this, the BLM would remove approximately 220 excess horses from the population of this HMA. The proposed action includes the capture, removal, transportation, and associated handling of the approximate number of horses noted above from the area identified. The exact numbers and distribution to be removed will be finalized just prior to beginning the removal action in order to ensure that the prescribed numbers of horses (the AML) will remain in the area after the conclusion of the proposed removal action.

The Green Mountain HMA is managed with a recognized individual population; however, it is interrelated and overlapping with both the Stewart Creek and Crooks Mountain HMA’s because of known animal migration behavior. There is no geographic separation between the Stewart Creek HMA and the Green Mountain HMA even though there is an historic allotment boundary fence. All of the gates between the two HMAs are open a significant portion of the year. There are no fences between the populations of the Crooks Mountain HMA and the Green Mountain HMA, and though separated geographically, animal interchange between the two areas occurs. This allows for regular interchange and movement of horses between the populations of the three HMAs. This interchange also ensures overall genetic health for the wild horses in the HMAs. (Blood tests will be conducted at the time of gathering to verify that the herd is maintaining genetic viability.)

The AML for this HMA has been previously established based on monitoring data and following a thorough public review (refer to the Lander Resource Area Wild Horse Herd Management Plan, Lander Herd Management Area Evaluation / Capture plan and the associated Environmental Analyses (EAs) WY-036-EA3-010 and WY-036-EA3-013). These documents are available for public review at the Lander Field Office.

PURPOSE AND NEED

The purpose of the action is to achieve and maintain the wild horse AML, collect information on herd characteristics, determine herd health, maintain sustainable rangelands, and maintain a healthy and viable wild horse population. The purpose for management of wild horses is to comply with law and policy pertaining to wild free roaming horses on public lands. The policy of the BLM addresses a range of topics including establishment and maintenance of the AML in the HMA in a humane, safe, efficient, and environmentally sound manner.

The need for management of wild horses is to maintain a thriving natural ecological balance and to preserve the multiple-use relationships that exist in the HMA. The health of the public rangelands that wild horses and other animals depend on must be maintained in conformance with 43 CFR 4180.

The AML for the Green Mountain HMA is 170-300 wild horses. This range was established in the ROD (Record of Decision for EA WY-036-EA3-010 and WY-036-EA3-013). Inventories of wild horse populations in the area occurred in February of 1998 and again in February and March of 2000 and 2001. These inventories identified the continued presence of excess wild horses within the Green Mountain HMA. The BLM has received requests from private landowners within the HMA to remove wild horses. The proposed action would meet current laws, regulations, and implement previous decisions.

The proposed action would limit wild horse distribution to the HMA, respond to specific requests for removal of wild horses from private lands, and mitigate damage to private and public lands. Establishment of the HMA occurred under the land use planning process and the AML was modified after evaluation and analysis in 1993. Refer to EA# WY-036-EA3-010 mentioned above.

Conformance with Existing Land Use Plans

The proposed action conforms with the land use plan terms and conditions as required by 43 CFR 1610.5-3. Any action in the Lander Field Office is subject to the Lander Resource Management Plan, approved June 9, 1987.

The action would also be in conformance with the Lander Resource Area Wild Horse Herd Management Plan, Lander Herd Management Area Evaluation / Capture plan and the associated Environmental Analyses (EAs) WY-036-EA3-010 and WY-036-EA3-013. Recommendations from these evaluations and documents were the basis for establishing the AML. These

documents contain specific management prescriptions for the HMA, as well as information on the existing environment and environmental impacts of the management actions. The decisions were affirmed by the Interior Board of Land Appeals in *Animal Protection Institute of America et. al.* (IBLA 93-308, 94-14). Rangeland conditions have not changed significantly since 1993. Changes to HMA boundaries or AMLs are beyond the scope of this analysis and will not be discussed further. The proposed action is consistent with all other federal, state, and local plans. The proposed action has been reviewed for conformance with Wyoming's *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management*. The proposed action will assist in maintaining the health of the public lands within the HMAs. (See Appendix 3)

Relationship to Statutes, Regulations, or Other Plans

Gathering of excess wild horses is in conformance with Public Law 92-195 (Wild Free-Roaming Horse and Burro Act of 1971) as amended by Public Law 94-579 (Federal Land Policy and Management Act), and Public Law 95-514 (Public Rangelands Improvement Act). Public Law 92-195, as amended, mandates the BLM to protect, manage, and control wild free-roaming horses and burros on public lands and adjacent private lands. Section 3(b)(2) states when . . . "an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, the Secretary shall immediately remove excess animals from the range. . . . Gathering of stray wild horses is consistent with the mandate in Section 4 of the Act that states, "If wild free-roaming horses or burros stray from public lands onto privately owned land, the owners of such lands may inform . . . an agent of the Secretary, who shall arrange to have the animals removed."

The proposed action also complies with existing regulations. As provided in 43 CFR 4700.0-6, parts a-c, BLM's policy for management of wild horses is to: a) ...manage as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat; b) . . . considered comparably with other resource values; and c)...maintaining free-roaming behavior. Priority shall be given to removing wild horses from private lands According to 43 CFR 4720.2-1, . . . the authorized officer shall remove stray wild horses and burros from private lands as soon as practicable. . . .

The gathering of excess animals is also in conformance with the Whiskey Peak Allotment Management Plan and the Green Mountain Common Allotment Grazing Plan. These plans cover authorized grazing activities within the Green Mountain HMA.

PROPOSED ACTION AND ALTERNATIVES

Proposed Action

The proposed action is to remove excess wild horses from within the Green Mountain HMA . The population of the HMAs would be reduced to the AML of 170 wild horses.

Approximately 220 wild horses would be removed from the HMA.

Gathering operations would be conducted as described in the Wild Horse Capture Plan (Appendix 1), and would start around the middle of July, 2002, requiring approximately two weeks for completion. In the event that weather or other factors prevent a gather at this time, the operation would be conducted as scheduling permitted in the fall of 2002. If some unforeseen factors prevent a gather in the fall of 2002, the operation would be conducted in mid July in 2003.

No Action

Under the no action alternative, the proposed gather would not be conducted. No wild horses would be captured or removed. Wild Horse populations inside the HMA would continue to exceed AML by significant amounts. Wild horses would continue to use private lands within the HMA. Wild horse populations would be allowed to increase until they either reached levels where environmental factors, coupled with density-dependent adjustments in reproductive rates stabilized populations or social competition and space requirements dictated expansion outside of recognized HMA boundaries. This alternative would not be in conformance with the Lander RMP.

ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

General

EA# WY036-EA3-010 analyzed the full range of management alternatives within which individual population management actions (PMAs) might take place. That analysis remains valid and will not be repeated herein.

Adjustment of Appropriate Management Level

In consideration of many resource factors, including extensive public input, the appropriate management level for the Green Mountain HMA was determined in the Lander Herd Management Area Evaluation, environmental assessment (WY-036-EA3-010) and decision record. This AML was based upon rangeland monitoring data. Monitoring conducted since then, includes condition and trend, forage utilization and use pattern mapping. Subsequent monitoring of the HMA indicates that rangeland conditions have not changed significantly and the existing AML is still considered appropriate.

Closure of HMA to Livestock Grazing

Livestock permittees have allocations for grazing use on public land in the proposed gather area. Closure or reduction of permitted livestock use of this area to provide additional habitat for wild horses would be contrary to 43 CFR 4710.4. Much of the area includes significant amounts of private land whose owners have requested that wild horses be removed. This alternative would

not meet existing law, regulation, policy, nor would it be in conformance with previous land use plan decisions.

Fertility Control

Under this alternative, wild horses would be gathered in order to administer fertility control agents. Current, best available technology would be employed. Treated and untreated animals would be returned to the range and the suppression of reproduction would become the primary agent for maintaining the populations at prescribed levels. A suitable horse-handling facility for this operation would need to be constructed in or near the HMA. The effects of this suppression of the reproductive rate on genetic viability is not known. Further, while the effects of various methods of immunocontraception on individual animals can be predicted in terms of the specific physiological response to the agents administered, the subsequent effect of the presence of varying numbers of treated animals upon the interaction of groups of animal is not known. In addition to the logistical problems involved in employing this alternative, fertility control alone would not effectively maintain the wild horse population and its habitat in a healthy and stable state. Fertility Control would not be a viable alternative method of attaining AML in the HMA. In addition, the effective use of fertility control would require gathering and handling of large numbers of horses at a time of the year when weather and other factors often preclude the successful completion of planned actions. A program of fertility control may be employed in the future to maintain populations within prescribed levels. That decision will be made HMA by HMA based on the specific objectives for particular herds of horses.

Alternative Gathering Methods

Other known methods used to gather wild horses are inefficient and time-consuming compared with the proposed action. The proposed action could use some of these methods, particularly roping with helicopter support, together with helicopter trapping. But as primary gathering methods, these methods are ineffective. These alternatives pose greater potential for stress and danger to horses and personnel. It is possible that it would take years for these methods to remove the indicated numbers of excess and stray wild horses. Due to the time required, beneficial impacts of gathering would not accrue as quickly. Cost to gather wild horses would increase greatly as well. Explanations of these alternatives are below.

Hay and Water Trapping Methods

Hay and water trapping require that these resources be scarce. In this HMA, adequate forage, except during severe winters with substantial snow cover, makes hay trapping impractical. When conditions might allow some limited success, drifting snow and road conditions limit access. Water availability varies greatly from year to year and season to season. While water trapping may prove effective during extreme drought periods the possibility of occasional rain showers, which would provide abundant water supplies for short time-periods make water trapping impractical.

Helicopter/Roping Method

The helicopter/roping method of gathering entails moving wild horses to a roping site by helicopter and then capturing the horses by roping. This is feasible in limited circumstances where a few wild horses are difficult to trap. This method is a supplemental method used in the proposed gathering operations. As the primary or as the only method of gathering horses, it poses many problems. These problems include greatly increased safety hazards to wild horses and personnel and their saddle horses. This method would not be effective for this area, increasing costs associated with the gather.

Saddle Horse Method

This method of capturing wild horses involves constructing traps in locations where natural barriers and terrain play an extremely important role in helping to funnel the wild horses into the trap. Riders locate and drive wild horses into a trap. The success of this method depends on many factors including terrain, the nature of the wild horses, the distance herded, the number of riders on the drive, and the skill of the riders. This alternative differs from the proposed action as no helicopter would herd wild horses and there would likely be more trap sites and more saddle horses and riders would be required than would be necessary with helicopter support. The number of traps and lack of efficiency would increase costs. This alternative as a primary method of gathering wild horses, increases the risk of injury to the rider and saddle horse. Injuries could occur away from vehicles, delaying treatment. It could also increase the incidence of separation of mares and colts as the ability to observe and respond to incidents would be lessened due to the lack of the helicopter and associated radio communications. It is also not likely that many wild horses could be captured employing this method.

AFFECTED ENVIRONMENT

Introduction

The Lander Field Office area of jurisdiction is located in central Wyoming, covering Fremont county and portions of Sweetwater, Carbon, Hot Springs and Natrona Counties. The Green Mountain HMA is located in the southeastern portion of Fremont county, and the northwestern portion of Carbon county south and west of Muddy Gap, Wyoming (See map located at the end of this document). The HMA encompasses about 87,000 acres of land. About 13,000 acres within the HMA (about 15 percent) is privately or state owned. The HMA is characterized by gently rolling hills and slopes to the north and south of the Green Mountains. Topography within the Green Mountain portion of the herd area is quite steep and broken with mountainous terrain. Annual precipitation ranges from 10 to 14 inches per year at the lower elevations, with the upper elevations receiving upwards of 15-20 inches of precipitation per year. Approximately half of the precipitation falls during the growing season of April through June, with the remainder coming in high intensity summer thunderstorms or as early winter snows. This general discussion tiers to the affected environment that is discussed in the Lander Herd Management Area Evaluation /

Capture plan and the associated Environmental Analyses (EAs) WY-036-EA3-010, WY-036-EA3-013.

Summary of Critical and Other Elements of The Human Environment.

Critical elements of the human environment and their potential to be affected by the Proposed Action and alternatives must be considered. These critical elements are listed below.

Element	Present/ Not Present	Affected/ Not Affected	Element	Present/ Not Present	Affected/ Not Affected
Invasive Non-native Species	Present	Affected	Floodplains	Not Present	Not Affected
Environmental Justice	Not Present	Not Affected	Native American Religious Concerns	Present	Not Affected
Wilderness	Not Present	Not Affected	Threatened or Endangered Species	Present	Not Affected
Water Quality (surface or ground)	Present	Affected	Wastes, Hazardous and Solid	Not Present	Not Affected
Prime or Unique Farmlands	Not Present	Not Affected	Areas of Critical Environmental Concern	Present	Affected
Air Quality	Present	Not Affected	Wetlands and Riparian Areas (including upland)	Present	Affected
Cultural Resources	Present	Affected	Wild and Scenic Rivers	Not Present	Not Affected
Wild Horses	Present	Affected	Vegetation	Present	Affected
Soils	Present	Affected	Wildlife	Present	Affected

The proposed action could impact soils, water quality, vegetation, wildlife, domestic livestock, cultural resources, recreational activities, riparian areas, and wild horses.

The critical elements of the human environment that were considered but were determined to be either not present or not affected by the Proposed Action or alternatives will not be discussed further in this EA.

Wild Horses

Affected wild horses are currently inside the Green Mountain HMA.

Wild horse populations are estimated to be 390 wild horses by July, 2002. The AML for the HMA is 170 wild horses. During the spring, summer and fall of calendar year 2000 through 2002 the LFO experienced drought conditions. Adequate forage was available to sustain the wild horses; however, some concentrations of use and overutilization of forage occurred due to reduced forage production and scarcity of surface water supplies. No increased mortality was documented.

The normal breeding period runs from March through September each year but peaks around early June. For planning purposes, this office uses the June 1 date. To reduce stress to foaling wild horses and very young colts, no gathers occur from early April through mid July. The proposed gather period is outside this window.

Wild horses in this area likely have many domestic bloodlines in their background including American Quarter Horse, Thoroughbred, Standard bred, Paint, Pinto and Arabian. Nearly every color, pattern, and combinations thereof can be found within the herd. The diverse phenotypes of wild horses in this area indicate a varied genotype. Habitat conditions are such that the horses are typically in good condition throughout the year.

Wild horse bands typically include a stallion, lead mare, mares with colts, mares without colts, and subordinate males. Bachelor bands (bands of male wild horses without any females) are found in this area as are single wild horses that are typically male. Within an area, bands may develop lead and subordinate roles. Subordinate bands are also known as satellite bands. This relationship is observable by their behavior at water holes. The wild horses' competitive social structure, combined with their size and strength, allows them to compete favorably with wildlife and domestic livestock for water. Wild horses are often seen in close proximity to wildlife and domestic livestock. Horses tend to prefer their own company but do not seem to actively avoid contact with any other animals as long as forage and water are found in adequate supply.

Wild horses may travel up to 10 miles to water, although a two to five mile distance is more common. An adult wild horse normally consumes 10 to 12 gallons of water per day, depending primarily on ambient temperature and the animal's activity. Wild horses usually have adequate water from winter snows and spring runoff that fill reservoirs and intermittent streams. During late summer and early fall wild horses depend on the few perennial sources of water (streams, springs, some reservoirs and flowing wells) and on wells pumped for domestic livestock and wildlife. Wild horses may become possessive of available water, resulting in direct competition with livestock and wildlife.

Domestic Livestock

There are two livestock grazing allotments within the HMA. The entire Whiskey Peak Allotment

and a portion of the Green Mountain Common Allotment lie within the HMA.

Rangelands in the subject areas provide seasonal grazing for livestock (cattle and sheep). The seasons of greatest competition between cattle and wild horses are summer and early winter.

Livestock waters include springs, wells, intermittent and ephemeral streams, pipelines and reservoirs. Sheep also use snow in the winter as a water source. These allotments contain many developed water sources. Maintenance of these water sources is typically done by the livestock operators.

Wildlife

Wildlife are an integral part of the environment in the area. The LFO is home to several hundred species of wildlife, including big game, fur bearers, neotropical (migratory) birds, amphibians, rabbits, rodents and reptiles. Some species are not affected by this action since they occupy habitats that the action would not occur in or would avoid, such as cliff/steep slopes. Species in these types of habitats will not be addressed further in this document. Some species that are of special interest that could potentially be impacted by the proposed action or the no action alternative include big game (pronghorn antelope, mule deer, moose and elk), and neotropical birds (raptors, greater sage-grouse and song birds).

Mule deer, pronghorn antelope and elk all have some degree of dietary overlap with wild horses (Stephenson 1982 and Meeker 1982), with competition greatest with elk. Wild horses also compete with these big game species for water resources and space. The HMA consists of winter-yearlong, crucial winter-yearlong and spring-summer-fall ranges for both mule deer and pronghorn antelope. There is also some yearlong habitat for mule deer, spring-summer-fall, an Area of Critical Environmental Concern (ACEC) for winter and crucial winter-yearlong elk habitat, and spring-summer-fall and winter-yearlong moose habitat in the HMA.

Neotropical birds include species such as ferruginous hawks, mountain plover, sage thrasher, northern shrike, etc. Some of these species are on the BLM Wyoming Sensitive Species List (See Appendix, attachment 4). Habitat requirements vary by species. Neotropical birds migrate to warmer climates and are not present in this area in the winter.

Vegetation

Major vegetation types within the area include sagebrush-grasslands, grasslands, woodland and riparian types. Major vegetative species include thickspike wheatgrass, bluebunch wheatgrass, bottlebrush squirreltail, Indian ricegrass, needle and thread, prairie junegrass, threadleaf sedge, Sandberg bluegrass, aster, phlox, milkvetch, buckwheat, Indian paintbrush, big sagebrush, black sagebrush, winterfat, rubber rabbitbrush, green rabbitbrush, shadscale, and spiny hopsage. Wild horses generally prefer perennial grass species including Sandberg bluegrass, needle and thread, and Indian ricegrass, as forage. Shrubs, including black sagebrush, and winterfat are more

important during winter conditions. Invasive weeds seem to be increasing in variety. Diffuse and possibly spotted knapweed occur along Willow Creek and on the slopes of Green Mountain. Canada thistle can be found infrequently along stream riparian areas as well as in wet meadows. The State Highway 287 right-of-way contains all of the knapweed species. This highway carries quite a bit of tourist traffic in the summer months and is a likely path for new weed infestations.

Soils

The Green Mountain HMA contains diverse kinds of soil that range from cold, sub-humid mountain soils to semi-arid warm and semiarid cool soils and sand dunes. In the 10 - 14 inch precipitation zone, roughly at elevations below 8,000 feet north of Green Mountain and Whiskey Peak, the soils formed in the Split Rock formation's sandy, gravelly, and calcareous parent materials under a semi-arid cool desert climate on fan aprons, fan piedmonts and terraces. These soils can possess medium to coarse textures and possibly high percentages (>35%) of coarse fragments (gravel and cobble). These soils are well developed, usually deep, well drained, and typically have slopes of less than 15 percent. The coarse textures in many of these soils makes for low available water holding capacities. Surface water runoff is typically slow. Water erosion can pose a threat to some of these soils and most of them are very susceptible to wind erosion.

The Owl Hills are located adjacent to the northeast flank of Green Mountain. Soils here are typically moderately deep (20 to 40 inches) or shallow (<20 inches) and an significant percentage of the area is granitic rock outcrop. These soils formed in residuum and slope alluvium derived dominantly from granite, gneiss, and schist. The soils are well drained, medium textured and contain significant amounts of coarse fragments (channers) typically in excess of 50 percent throughout their profiles. Permeability rates of the soils here are moderate (0.6 to 2.0 inches/hour), runoff is medium and available water holding capacities are low. The hazard of erosion by wind is slight and the hazard of erosion by water is severe.

Green Mountain and Whiskey Peak are covered by a thick layer of giant boulder conglomerate. As a result, many of the soils here possess a large percentage of coarse fragments (i.e., gravels, cobbles, stones, and boulders). Elevations range from 7,500 feet to 9,000 feet. Slopes typically vary from nearly level to very steep (0 to 75 percent slope). Soils here are well drained, but can be poorly drained in the less sloping areas on top of Green Mountains where a perched water table is commonly found under the lodgepole pine trees. Poorly drained soils also can be found along the creeks that originate on the mountains. Textures vary from loamy and cobbly, loamy, or loamy and gravelly. Water erosion is the dominant form of erosion of Green Mountain.

To the south of the Green Mountains the Battle Spring formation gives rise to well drained loamy, gravelly, and sandy textured soils that range in depth from shallow (<20 inches) to very deep. They occur on nearly level to steep and very steep slopes. These soils formed on terraces, toe slopes, fan aprons, hills, ridges, and sand dunes. Wind erosion is the dominant form of erosion in the dune areas. West of the dunes both wind and water are important agents of erosion. Elevations in this area generally range from 5,700 to 8,000 feet. The annual precipitation for this

part of the allotment is about 10 to 14 inches. A portion of this area lies in the 7 to 9 inch precipitation zone of the Great Divide Basin.

Water

There are numerous ephemeral and intermittent creeks in the Green Mountain HMA and less than a couple of dozen perennial streams. These streams are tributaries to the Sweetwater River and the North Platte River system, though some of the ephemeral drainages are part of the hydrologically closed Great Divide Basin. Crooks Creek is listed by WDEQ as a stream with impaired water quality; the cause is oil and grease from oilfield operations. The water quality of West Fork of Middle Cottonwood Creek and the West Fork of Cottonwood Creek has been monitored by WDEQ, but the data from this monitoring has not yet been used to assess the water quality of these streams.

Riparian Areas

Riparian vegetation is limited within the HMA, however, it is a highly important resource for wildlife, wild horses, and livestock. Grazing management considerations often emphasize these areas as the most productive sites in the region. It is estimated that there are 2000 acres of riparian area and roughly 40 - 50 miles of stream side vegetation within the HMA.

Endangered, Threatened, Proposed, Candidate and BLM Wyoming Sensitive Species

The following table shows the U.S. Fish and Wildlife Service (FWS) designated endangered, threatened, proposed, and candidate species occurring in the project area.

T&E Section 7 Consultation

Project Name: Wild Horse Gathering
 Reviewed by: Connie Breckenridge

Case/Project Number: WY-050-EA2-031

Date: 06 Feb. 2002

Listed Species	Present or habitat in project	Affect?	May affect, not likely to adversely affect	May affect, likely to adversely affect	Rationale
	Y/N/UNK	NO/MAY	Y/N	Y/N	
<i>Grus americana</i> Whooping crane (E)	N				No suitable habitat present.
<i>Haliaeetus leucophalas</i> Bald eagle (E)	N				No suitable habitat present.
<i>Lynx canadensis</i> Canada lynx	N				No suitable forested habitat present.
<i>Mustela nigripes</i> Black-footed ferret (E)	Y	NO			Prairie dog towns will be avoided. No habitat conversions or prairie dog control measures are authorized by this action.
<i>Penstemon haydenii</i> Blowout penstemon (E)	N				No suitable sand dune habitat present.

<i>Spiranthes diluvialis</i> Ute ladies' tresses (T)	N				Not in known distribution area. Riparian habitat will be avoided.
<i>Ursus arctos</i> Grizzly bear (T)	N				No suitable habitat present.
Platte River water depletion species (T&E)	Y	NO			No water depletions are authorized by this action.
Proposed Species					
<i>Charadrius montanus</i> Mountain plover	Y	NO			Actions will not occur during the nesting season of April 10 - July 10.
<i>Yermo xanthocephalus</i> Desert yellowhead	N				No suitable habitat present.
Candidate Species					
<i>Coccyzus americanus</i> Yellow-billed cuckoo	Y	NO			Riparian habitat will be avoided during the roundup operations.
Listed, Non-essential, Experimental Population	Present in project?	Affect?	Likely to jeopardize population		Rationale
	Y/N/UNK	NO/MAY	Y/N		
<i>Canis lupus irremotus</i> Gray wolf	N				No suitable habitat present.

The BLM Wyoming Sensitive Species List for LFO (Appendix 4), shows the species that are likely to be present in the project area. No further discussion will occur for those species or their habitats not present in the project area.

Naturally occurring and functioning wetland habitat communities in the Platte River Basin are believed to be important to a number of the federally listed threatened, endangered and candidate species which are known to occur within this region. Likewise, many other fish and wildlife species also are dependent upon these same wetland habitat communities for some or all of their life cycles. Historical reductions in the number of and area of wetland habitat communities within and outside of the Platte River Basin have contributed to declines in the diversity and abundance of wetland dependent fish and wildlife species. The US Fish and Wildlife Service (FWS) has determined that water depletions from anywhere in the Platte River Basin have direct and indirect effects on whooping crane, least tern, piping plover, pallid sturgeon and sturgeon chub in Nebraska.

The black-footed ferret is considered one of the rarest and most endangered mammals in North America and receives full protection under the Endangered Species Act (ESA) of 1973 (P.L. 93-205). The close association of black-footed ferrets and prairie dogs is well documented. The ferrets rely on prairie dogs for both food and shelter. The original range of the black-footed ferret corresponded closely with the prairie dog, extending over the Great Plains area from southern Canada to west Texas plains, and from east of the 100th. Meridian to Utah and Arizona. Prairie dogs may be found within the area of the proposed action.

The FWS proposed listing the mountain plover in February of 1999 as a threatened species, without critical habitat, under the authority of the ESA. The mountain plover is a bird of short-

grass prairie and shrub-steppe landscapes at both breeding and wintering locales. Breeding bird survey trends analyzed for the period 1966 through 1996 documented a continuous decline of 2.7% annually for the species. Mountain plover nesting habitat is found within the proposed project area.

The western population of the yellow-billed cuckoo breeds in large blocks of riparian habitats (particularly woodlands with cottonwoods and willows). Nesting west of the Continental Divide occurs almost exclusively close to water. Nesting peaks later (mid-June through August) than in most co-occurring bird species. The western population of the yellow-billed cuckoo's status changed to Candidate on July 25, 2001. The eastern population of the yellow-billed cuckoo currently has no status under the Endangered Species Act. This HMA is east of the Continental Divide, so the yellow-billed cuckoo is considered a BLM sensitive species.

Cultural Resources

Only a small fraction of the land surface within the HMAs has been inventoried for cultural resources. Prehistoric sites known to exist within the HMA include open camps and lithic scatter. Many more of these are expected to be found as inventories continue to be done. Historic sites known to exist include trash dumps, trails, roads, and structures associated with early settlement and commerce, or with the local ranching industry. Many more historic sites are also expected to be found as inventories continue to be done. Cultural Resource Program support for the wild horse capture would consist of field (class III) inventories, and, if necessary, mitigation of impacts, at the locations of the horse trap prior to horse capture. Support includes consultation with the Wyoming State Historic Preservation Office according to the Wyoming State Protocol agreement of the BLM's National Cultural Resources Programmatic Agreement.

ENVIRONMENTAL CONSEQUENCES

Proposed Action

Resources that may be impacted by the proposed action and the no action alternative include wild horses, domestic livestock, wildlife, vegetation and soils, and cultural resources. The direct, indirect and cumulative impacts are addressed for each resource.

Wild Horses

Impacts to wild horses under the Proposed Action take the form of direct and indirect impacts and may occur on either the individual or the population as a whole. Direct individual impacts are those impacts which occur to individual horses and are immediately associated with implementation of the Proposed Action. These impacts include: handling stress associated with the roundup, capture, sorting, animal handling, and transportation of the animals.

Indirect individual impacts are those impacts which occur to individual horses after the initial

stress event. Indirect individual impacts may include spontaneous abortions in mares, and increased social displacement and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs with most older studs following sorting and release into the stud pen which lasts less than two minutes and ends when one stud retreats. Traumatic injuries do not occur in most cases, however, they do occur. These injuries typically involve a bite and/or kicking with bruises which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortion events among mares following captures is very rare.

Population wide direct impacts are immediate effects which would occur during or immediately following implementation of the Proposed Action. They include the displacement of bands during capture and the associated re-dispersal which occurs following release, the modification of herd demographics (age and sex ratios), the temporary separation of members of individual bands of horses, the reestablishment of bands following releases, and the removal of animals from the population. With exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened awareness of human presence.

The effect of band displacement on a population as a result of gather operations has been observed in several HMA's following releases. Observations have been made of individual and population wide horse response following releases from both the trap site where particular animals were captured and from the central holding facility where all captured animals were held. Most horses relocated themselves from the release site back to their home ranges within 12 to 24 hours and at times much faster. This redistribution occurred following a brief "reorientation swing" involving horses ranging out from the release site in a curving arc until their bearings were apparently restored. Following this initial random travel, most horses lined out and headed off in a particular direction often without deviating from that line until they disappeared into the mountain or over the horizon. Assertions that horses are simply taking the most direct route away from humans are not accurate, as instances where horses reverse their original direction crossing back in front of the release trailer or holding area are fairly common following the re-orientation swing.

Specialists have also observed horse behavior, following releases, as it relates to bands which are separated at capture. While the affinity of individual animals to their band would be expected to vary, it was a very common observation that mares or studs broke from the group they were released with (unexpected behavior for a social animal exercising the flight response) and headed toward a particular animal or group of animals. Following this activity, the pair or trio of horses continue the re-orientation swing and then lined out together in a common direction. In some cases, individual groups were observed later together in a new area presumed to be the site of

their original home range. Some specialists have noted individual mares re-associated with specific studs or mare groups following capture.

The effect of removal of horses from the population would not be expected to have significant impact on herd dynamics or population variables, as long as the selection criteria for the removal ensured a “typical” population structure was maintained. Obvious potential impacts on horse herds and populations from exercising poor selection criteria not based on herd dynamics includes modification of age or sex ratios to favor a particular class of animal.

Effects resulting from successive removals causing shifts in sex ratios away from normal ranges are fairly self evident. If selection criteria leaves more studs than mares, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. On the other hand, a selection criteria which leaves more mares than studs would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, lengthening of the time after birth when individual mares begin actively reproducing, and larger band sizes.

Effects resulting from successive removals causing shifts in age dynamics away from normal ranges are likewise, fairly obvious. Herd shifts favoring older age horses have been observed resulting in a favoring of studs over mares in some herds. Explanations include sex based differences in reproductive stress (relative demand for individual contributions to reproduction) and biological stress (timing the most physically demanding period of the annual cycle).

For studs, reproductive stress is based on dominance in the herd and by definition is confined to a fairly narrow period in their life span when they are capable of defending a mare group. For mares, recurrent reproductive stress starts as early as age 2 and continues until as late as age 15 or 16, and sometimes as late as 20. Biological stress in wild horses tends to indicate a selection against mares. Biological stress is based on the degree, duration, and timing of biologically demanding activities during the annual reproductive cycle.

For mares, the greatest biological stress is during pregnancy and lactation. In wild horse populations, this occurs in late winter or early spring when forage availability is at its lowest level, and body condition is at its poorest. For studs, biological stress is at its peak during the breeding season. This peak biological demand is in the late spring and early summer and is more suited to a rapid recovery and a lower energy deficit than for mares.

The susceptibility of the older herd to extreme climatic events would depend on the age of the dominant class in the group. Generally, survival rates of horses are very high (exceeding 98%) for mature animals and lower for very young. This survivability declines again at some older age. Similarly, reproductive success also declines at some age. The threshold age at which susceptibility to extreme events and reproductive senescence has not been established. It is reasonable to conclude that the older the population, the more prone it would be to a catastrophic

die-off as a result of reduced resistance to disease, lowered body condition, and/or reduced reproductive capacity.

The effects of successive removals on populations causing shifts in herd demographics favoring younger horses would also have direct consequences on the population. These impacts are not thought of typically as adverse to a population. They include development of a population which is expected to be more biologically fit, more reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

The Proposed Action would mitigate the potential adverse impacts on wild horse populations by establishing a procedure for determining what removal criteria is warranted for the herd. The cumulative effects of gathering horses over time were analyzed through wild horse population modeling, which was developed by Dr. Steven Jenkins at the University of Nevada at Reno. This model has been used to predict the outcome of removal activities on the wild horse population. In the population model, an initial population size of 390 horses was used which is the projected population size for the population of the HMA after the 2002 foaling period. Gathering since 1993 was conducted in accordance with the selective removal criteria, the national policy in effect at the time. Approximately 190 older males (6 and over) were placed back into the population during this time. The current population is skewed toward older males, with an estimated male: female ratio of 60 : 40. In the model, removals were initiated when the population size reached 300 horses, with a target of 170 horses remaining after the removal. Removals would be conducted a minimum of 4 years apart. Several removal scenarios were analyzed, based on the current selective removal priority. Wild horses five years and younger, random removal of all age classes, removal of horses age 10 and over, and removal of horses age six to nine years old. Wild horses 10 years or older would be sent to a long-term pasturing facility. Wild Horses aged six to nine would either be placed in long term pasturing or made available for adoption. Each scenario was run for a period of 10 years, with 30 trials per year. The results of each scenario are displayed as the mean of all trials, with a 95 percent confidence interval. In the random removal scenario, the population model indicates that the population of the herd could be maintained at or above the AML of 170 horses, with removals conducted every 4 years. All horses that are captured would be removed in this scenario, until the population was reduced to 170 horses. This would leave a more natural age structure within the herd instead of the population favoring older horses as under a selective removal policy. The projected annual growth rate of the herd in this scenario would be approximately 20 percent. This would allow for the correction of any existing discrepancies in herd dynamics which could predispose a population to increased chances for catastrophic impacts. The random selection process would minimize the possibility for developing negative age or sex based selection effects in the population in the future.

Maintaining wild horse populations within AML would result in no cumulative impacts to the long term viability of the wild horse herds within the herd area. The remaining horses would benefit from the decrease in competition for forage, water, and other important habitat components.

Domestic Livestock

It is expected that an improvement in the quality and quantity of forage available for use by domestic livestock would occur when wild horse populations are maintained within the AML for the area. This would provide greater opportunity for improved range conditions within the related areas. A complete analysis of livestock grazing and grazing impacts in this area is found in the Green Mountain Grazing EIS. Grazing in this area is also addressed in the Lander RMP.

Standard operating procedures for wild horse removals include notifying livestock operators to give them opportunity to move their livestock and avoid conflict. The possibility still exists that domestic livestock would become spooked by the running wild horses and/or the helicopter. In this situation livestock would be subject to short-term stress and possible injury.

Wildlife

The removal of wild horses would have minor short term impacts to wildlife in general, and the relationship a particular species has with wild horses and their shared habitats would determine whether the impacts were negative or positive. Fewer wild horses would mean less competition with some species for food, water and space, at least until the wild horse population again exceeds the AML. Wild horses would be gathered in mid summer or fall when big game young-of-the-year would be old enough to withstand and escape any pressures put on them by round-up activities.

Neotropical birds could be impacted either positively or negatively by the removal of wild horses. Some species, like mountain plover, prefer a short grass habitat for nesting that might be produced by heavy grazing of an area. Others, like greater sage-grouse, require forbs and other herbaceous/woody cover for nesting, brood rearing, foraging and wintering needs, and do not compete well with heavy use by wild horses and other grazer/browsers. Ground nesters, like ferruginous hawks, sage-grouse and mountain plover, also risk having nests, eggs and young trampled by large hooved feet. The gathering of wild horses would take place in mid summer or fall after most species have fledged to minimize the impacts of the gather itself.

Vegetation

The removal of excess wild horses from the herd area would reduce the potential over-utilization of forage and reduction in vegetative ground cover. Vegetation composition, cover, and vigor would improve or be maintained, especially near water sources. Potential for competition for forage and water between wild horses, wildlife and livestock would decrease. Physical surface disturbance would occur at the trap sites due to the construction of the traps, trampling by horses, and vehicle traffic. Some vegetation would be disturbed during the herding of the horses. There would be substantial surface disturbance in the interior area of the trap due to the milling about by the horses; however, the total impacted area would be less than one quarter acre per trap site. The vegetation in these areas should recover quickly. Vehicles associated with trap construction

and loading of horses would damage vegetation, but staying on existing roads and trails would minimize the impact. Maintaining the wild horse population at AML would produce no adverse cumulative impacts to vegetation. The expected benefits accruing to the native vegetation will make native plant communities better able to withstand invasion noxious weeds.

Soils

Minor soil displacement would occur at traps sites during construction and gathering operations. Noticeable displacement of soil would be limited to areas within pens. The hooves of horses, both wild and domestic, running through the site would impact areas of the trap within the wings. Impacts of gathering would be short-term. Though brush species, like Wyoming big sagebrush, will receive severe mechanical damage in pens the native herbaceous vegetation can be expected to recover. The trampling of existing vegetation into the topsoil can be expected to yield a temporary increase in nitrogen the next spring and herbaceous species should benefit and increase. If the site is not overgrazing during recovery the increased herbaceous vegetation will replenish topsoil organic matter in time. Native shrub species, like sage brush, will re-establish themselves in the next several years and achieve pre-disturbance conditions in the next ten to twenty years depending on site and environmental variables. Site conditions should be dry to prevent soil compaction.

Water

The vegetative cover, composition, and vigor near water sources is expected to benefit from the proposed action. Water resources should also benefit to some degree. Healthier riparian vegetation would be better able to act as a buffer holding bank soil and trapping sediment. This should translate to improved water quality and possibly improved flows later into the year.

Riparian Areas

The maintenance of wild horse populations within AML would benefit the limited riparian areas. Competition for water, space and forage between grazing animals is often intense in riparian areas. The proposed action would reduce this competition. Trap sites would not be constructed in riparian zones and no disturbance should occur to these zones as a result of gathering wild horses.

Endangered, Threatened, Proposed, Candidate and BLM Wyoming Sensitive Species

The use of saddle horses and helicopters for round-up practices would not impact either prairie dogs or black-footed ferrets. Riders would avoid prairie dog towns to avoid injury to their horses, themselves and to the wild horses. The presence of prairie dog towns at a potential trap site would make that site unsuitable for a trap location and a different site would be chosen. No habitat conversions, prairie dog control measures or water developments are being authorized by this action. Wild horse gathering would have no affect on black-footed ferrets or their habitat.

Wild horse gathering would have no effect on endangered, threatened or candidate species in the Platte River Basin. No water depletions or developments are being authorized by this action.

Wild horse gathering would not occur during the mountain plover reproductive period of April 10 through July 10, and would have no effect on mountain plover or its habitat.

Round-ups of wild horses will avoid riparian areas, eliminating any negative impacts to yellow-billed cuckoos.

Cultural Resources

Class III inventories will be required for all ground disturbing activities associated with horse trapping, unless the local archeologist determines them to be exempt, in accordance with the Wyoming State Protocol Agreement. Should cultural resources be discovered in a proposed trap location, the BLM archaeologist will make a determination of effect and will implement any necessary mitigation measures. Cultural clearance will be given after receiving concurrence on these matters from the SHPO.

NO ACTION

Wild Horses

Under the no action alternative, horses would not be gathered. Wild horses would continue to exceed the AML in the HMA and would continue to use private lands within and adjacent to the HMA. Wild horse populations would continue to increase at approximately 15 to 21% per year. The latter figure is derived from the 1993 evaluation of HMAs. The no action alternative would not meet existing law, regulation, or policy.

Impacts to the described environment, both positive and negative, would not change over the short-term. Resources possibly impacted by the no action alternative include soils, vegetation, wildlife, wild horses, domestic livestock, and threatened or endangered species. Cultural Resources and wilderness values, would not be affected by the no action alternative over the short term. The long term effects of continuing the No Action Alternative are discussed in detail as Alternative #2 in EA WY-036-EA3-010.

Current BLM regulations require that all public lands be evaluated to determine if they meet rangeland health standards. There are six standards for Wyoming public lands involving water, air, wildlife, riparian, soils, and uplands. These standards are included as appendix 3. The no action alternative would likely contribute to some areas not meeting rangeland health standards as addressed in 43 CFR 4180.2. Specifically, standards 1, 2, and 3, dealing with soils, watershed, riparian areas, wetlands, and upland vegetation would be affected negatively due to the ever increasing number of horses competing for forage and space. Standard 6, Air Quality would not be affected by the no action alternative. Eventually standard 4, concerning wildlife habitat would

be affected negatively.

Domestic Livestock

The no action alternative would allow wild horse populations to increase. This would gradually displace livestock in the HMA, and then over time in adjacent areas, as space and demand for forage increased. Displacement would be slow and indirect. As competition for forage and water increased, it would become less economically favorable to utilize the areas with domestic livestock. Authorized livestock grazing would be reduced or eliminated. This would have a negative economic impact on livestock producers. Range conditions in and around the HMA would deteriorate significantly. These impacts would be cumulative over time.

Wildlife

Impacts would vary species by species. Long term beneficial impacts of the presence of wild horses might be seen by some species such as predators or carrion feeders that could take advantage of sick and dying animals as food sources. Other species, such as prairie dogs and some birds, prefer over-grazed situations and shortened vegetation for their habitat needs. Other species that have similar forage, water and spacial needs, such as big game, would have to compete with wild horses, possibly negatively impacting them if population levels increased beyond carrying capacity of the range.

Vegetation

Current impacts by horses would continue over the short term. These impacts include localized detrimental effects to vegetative resources. Over the long term, impacts would increase to the point where detrimental effects to vegetative resources would become widespread. This would be amplified by the increased competition for forage between wildlife, domestic livestock and wild horses. Deteriorated vegetative health would especially be evident around water sources. As native plant health deteriorates and plants are lost, shifts in range condition and early seral state vegetation can be expected to become widespread. These shifts would be detrimental to all competing grazing animals. These impacts would be cumulative over time. There would also be increased impacts to areas outside the HMA as horses moved out in search of better forage, water and demands for social space.

Soils

Increased use throughout the HMA would adversely impact soil resources. As native plant resources deteriorated and plants moved out of the community, soil erosion would increase. The shallow desert topsoils can not tolerate much loss without losing productivity and thus the ability to revegetate with native plants. In the long term, an irreplaceable loss of topsoil and productivity could occur due to erosion. These impacts would be cumulative over time. These impacts could be expected to occur in areas outside the HMA as horses moved out of the HMA

in search of available forage, water and social space.

Water

Water quality degradation would continue where it is presently occurring and is expected to spread as increased competition forces grazing animals to use currently less preferred/accessible sites. With the expected declines in soil and vegetative health, water yields would be expected to decrease on some water sources and others could be lost altogether by soil compaction and erosion.

Riparian Areas

Current impacts by horses would continue over the short term. These impacts include localized detrimental effects to riparian vegetative resources. Over the long term, impacts would increase to the point where detrimental effects to vegetative resources would become widespread. This would be amplified by increased competition for forage between wildlife, domestic livestock, and wild horses at riparian sites. Loss of highly desirable habitat and precious water resources could be expected to be cumulative over time.

Endangered, Threatened, Proposed, Candidate and BLM Wyoming Sensitive Species

The short term effects of not rounding up wild horses would be negligible or non-existent on the endangered, threatened, proposed, candidate and sensitive species and their habitats that are found within the project area. If, in the long term, wild horse numbers continued to increase to the point of over-grazing of rangeland, this could lead to impacts to some species. Black-footed ferrets and mountain plover might benefit because they thrive in short grass habitats with some bare ground. Negative impacts caused by trampling of avian ground nests could result if numbers of wild horses became excessive.

Cultural Resources

The no action alternative would not adversely affect cultural resources in the short term. However, a substantial increase in the number of horses over time may adversely affect cultural resources by trampling.

MITIGATION, RESIDUAL AND CUMULATIVE IMPACTS

Mitigation

Mitigative measures for each resource that may be impacted by the Proposed Action were discussed previously in the Environmental Consequences section. Additional mitigation is listed in the Wild Horse Capture Plan (Appendix 1) under “BLM Committed Measures”. Standard operating procedures include mitigation of adverse impacts.

Residual Impacts

Residual impacts are those that would be left over at the conclusion of a particular course of action and that could not be avoided or further mitigated. Except for a temporary visual impact in the trap and wing area until vegetation is reestablished (most likely the next growing season), the proposed action would cause no residual impacts.

The residual impacts of the no action alternative would include all the impacts described in the environmental consequences section for livestock grazing, wildlife, soils, vegetation and riparian areas. These impacts would be long lasting or permanent.

Cumulative Impacts

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The HMA contains a variety of resources and supports a variety of uses. There are a number of other BLM conducted and authorized activities ongoing in and adjacent to the HMA. Any alternative course of wild horse management has the opportunity to affect and be affected by those activities. Most of those activities depend one way or another on the maintenance of a healthy landscape.

Past, present and future activities which would be expected to contribute to the cumulative impacts of implementing the proposed action include: Past and future wild horse gathers, continuing livestock grazing in grazing allotments within the HMA, continued development of mineral extraction infrastructure, and continued native wildlife populations and the dispersed recreation that has historically been associated with them. These past, present and future activities would be expected to generate cumulative impacts with the proposed action by influencing the habitat quality, abundance and continuity for the wild horses.

The past events in these areas have created the current wild horse population with its associated

structure and composition, and have shaped the patterns of use found today in the herd. Continuation of this historical pattern would be expected to result in small annual changes in herd structure and behavior with small changes in habitat use over time.

Horse populations would be expected to continue to adapt to these small changes in availability and distribution of critical habitat components (food, water, shelter, space). The proposed action would contribute to the cumulative impacts of these past and foreseeable future actions by maintaining the herd at AML. It would also insure that biological and/or genetic issues associated with herd or habitat fragmentation would soon become apparent and mitigating measures could be implemented quickly.

There are no known cumulative effects to wildlife or sensitive, candidate, proposed, threatened or endangered species from the gathering of wild horses in this area under the time frames and conditions proposed in this environmental assessment and the attached site specific gather plan.

The no action alternative would produce cumulative impacts that would be expected to be quite different than for the proposed action. This is due to the fact that the horse population would be much different over a period of time than under the proposed action. While all of the other elements contributing to cumulative impacts would likely continue, they would be affected and in turn would affect the environment. An example of something that would continue unaffected would be energy development while the interrelationship with wildlife and the dispersed recreation associated with wildlife would be significantly different under the no action alternative than the proposed action. Decreased wildlife populations would decrease the opportunity for sport hunting and non-consumptive uses of wildlife such as viewing, photography, etc. The increased wild horse populations would be less desirable for some members of the public to view due to the decline in their physical condition and the decline in habitat quality that would occur. It would be difficult to maintain a thriving natural ecological balance, and the multiple use relationships within the HMA would not be preserved. If no horses were removed from the HMA, the population would increase at an annual rate of approximately 20 percent. The population size would approach 1000 horses within the next 5 years. As the populations

increased, competition for space would increase with all the associated stress. Social interactions would change and horses would move into areas not designated as HMAs. These impacts would be cumulative over time.

CONSULTATION AND COORDINATION

Introduction

The Bureau of Land Management is responsible for obtaining public input on proposed actions within the wild horse program. Public input has been solicited for several actions proposed since the establishment of the Green Mountain HMA.

In accordance with 43 CFR 4740.1(b), a formal statewide hearing regarding the use of helicopters for the roundup of wild horses in Wyoming is held each year. This hearing was held on February 12, 2002. The public is provided an opportunity to discuss concerns and questions with BLM staff.

Notice of this action and the availability of the plan and this analysis will be published in the Federal Register during the spring of 2002. The plan and this NEPA analysis are available for review on request.

Extensive public scoping was conducted prior to and during the preparation of the Evaluation of Wild Horse Herd Areas, Green Mountain Grazing EIS and the Lander RMP, which established the current decisions regarding the management of this HMA. Several public meetings were held in the Lander area. Numerous comments were received regarding this HMA, and were incorporated in the Evaluation, RMP and EIS.

Preparers and Reviewers

Following is a list of preparers and reviewers for the Environmental Assessment:

Roy C. Packer	-	Team Leader, Rangeland Management Specialist
Connie Breckenridge	-	Wildlife Biologist
Greg Bautz	-	Soil Scientist
Ray Hanson	-	Outdoor Recreation Planner
Carol Anne Murray	-	Archaeologist
Mike Stewart	-	Assistant Field Manager, Lander
Jack Kelly	-	Lander Field Manager
Don Glenn	-	Rangeland Management Specialist, Wild Horse Specialist, State Office
Vicki Metzger	-	Resource Assistant

Distribution

This environmental assessment will be provided to all wild horse interest groups on the Lander Field Office mailing list, livestock interest groups, individual livestock owners who operate in or near the HMA, the Wyoming Game and Fish Department, wildlife interest groups, any identified interested publics, the State of Wyoming, and individuals who have requested it. Additional copies are available at the Lander Field Office, P.O. Box 589, 1335 Main Street, Lander, Wyoming 82520.

APPENDIX 1

**WILD HORSE GATHERING PLAN 2002
FOR THE
GREEN MOUNTAIN WILD HORSE HERD MANAGEMENT
AREA
LANDER FIELD OFFICE**

Introduction

The purpose of this plan is to outline the methods and approaches for gathering and removing approximately 220 wild horses from private, state and BLM administered public lands in the Lander Field Office area. These wild horses would be gathered from the Green Mountain Wild Horse Herd Management Area (HMA).

BLM Commitments

- All trap sites will be surveyed and cleared for cultural resources by the LFO archaeologist. If any cultural resources are discovered during survey, appropriate action will be taken to avoid or mitigate any effects. If cultural resources are discovered during gathering operations, the standard cultural stipulation will apply.

- Trap sites will be surveyed and cleared for threatened, endangered, candidate, and sensitive plant and animal species prior to construction.

- Existing roads and trails will be used.

- Trap sites will not be constructed in riparian or wetland areas.

- Operations will not be conducted when it is so wet that resource damage would occur. If resource damage occurs during gathering operations, it will be reclaimed in accordance with BLM reclamation standards and procedures.

- If needed, only certified weed-seed-free hay will be used during gathering operations.

- Blood or hair samples will be collected for genetic marker analysis or testing for diseases common to horses. As resources allow, horses will be sampled. This data will be compared over time and provide background information concerning the genetic viability of the herd. The following information will be collected from each animal captured: age, sex, color, overall health, pregnancy or nursing status.

Gathering Area

The Green Mountain HMA covers approximately 87,000 acres of public, state and private lands.

Capture Methods

Helicopter drive trapping will be the primary capture method. Throughout the years this has proven to be a safe, effective, and humane method of gathering wild horses. This technique has been in use in Wyoming since June of 1977. Prada or Judas horses will also be employed where determined desirable by the head wrangler. Use of helicopters is in conformance with Section 9 of Public Law 92-195, which states,

“...the Secretary may use or contract for the use of helicopters or, for the purpose of transporting captured animals, motor vehicles... such use shall be undertaken only after a public hearing...”

A public hearing for the use of helicopters during gathering operations for 2002 was held on February 12, 2002 in Rock Springs, Wyoming.

It has been the policy of the BLM since 1992 not to remove horses from the public lands for which no adoption demand exists. Horses captured for which no adoption demand exists have historically been returned to the HMA where they were captured. That policy is being temporarily modified in order to facilitate the BLM goal of reaching AML in all HMAs by 2005. During this action, horses will be removed regardless of age. Horses aged five and under will be placed in the adoption program. Horses six and older will be placed in one of the BLM maintained sanctuaries. A number of special placement options will be available to BLM managers once horses have been removed from the range. These include halter training and saddle training programs.

This action is scheduled to start on or about July 15, 2002 and end on or about September 1, 2002. Should weather or other conditions make this period of time unavailable, this action would have to be rescheduled for some other time. The removal action may be extended into another time period if necessary to complete it.

BLM vs Contract

The horses will either be gathered by a BLM crew, a contract crew, or a combination of the two. Techniques and methods are essentially the same. Two contractors could potentially be used in Wyoming for gathering of wild horses. Normally, a contract crew is composed of a lead wrangler, up to six wranglers, a supervisor, and a helicopter pilot and fuel truck driver.

Herding and Stress Reduction Procedures

Wild horses will not be herded for distances greater than 10 miles. The Authorized Officer may reduce this distance after consideration of temperature, topography, soil conditions, horse condition, or other pertinent factors. When trap locations are selected, they will be placed in as close proximity to the horses as is practical. For this reason, it is imperative that actual trap site locations remain flexible to accommodate horse distribution. Horses will be allowed to choose their own rate of travel, and the helicopter pilot will stay well away from the animals while maintaining visual contact. As the trap is approached, pressure from the helicopter will increase. Concurrent with this action, wranglers will follow the horses and encourage them into the trap and close the gate. Several herding runs may be made in a day.

A visual barrier of plastic snow fence or jute mesh will be placed on all gates and pens. This helps reduce the possibility of injury, and the visual barrier tends to settle the horses down in the pens. When horses are sorted in the field, the field sorting/holding facility may be one of the traps. The horses will be sorted by sex and age. If the horses can not be sorted in the field, they will be transported to a holding/preparation facility for sorting. Foals under 6 weeks old will be sorted and hauled separately, then reunited with their mothers at the holding facility. When herding bands containing small foals, extra care will be exercised and operations monitored. At any time a mare and foal start to fall behind the band, the mare and foal will be dropped. If the mare refuses to leave the band to stay with her foal, then the band will be left. If a foal becomes separated from the mother, every effort will be made to assure either capture or otherwise rejoining of the mare and foal.

Roping

The primary method for gathering wild horses in Wyoming is helicopter drive tapping. Roping may be used occasionally as a supplemental gathering technique under certain circumstances such as when a mare is captured but the foal is left behind, when a young horse refuses to enter the trap, or when there are escaped horses in an area of total removal (outside the HMA). In cases where more than occasional roping is anticipated, permission must be obtained from the Authorized officer.

Trap Sites

Established trap sites will normally be used. New trap sites will be established as deemed appropriate and surveyed for cultural and other values. Traps will not be constructed when soils are so saturated that resource damage would occur. In the event that resource damage does occur, the area will be reclaimed. Vehicle traffic would be restricted to existing roads and trails. Wild horse trap locations which may be used depending upon the location of the horses at the time of the removal include the Rotten Creek, Willow Creek, and Muddy Gap trap sites. Other trap sites may be used, if necessary.

Trap Construction

Traps will be constructed using 6-foot steel panels in 10 to 12 foot lengths. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:

Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high, the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.

All loading chute sides shall be fully covered with plywood (without holes) or like material. The loading chute shall also be a minimum of 6 feet high.

All runways shall be of sufficient length and height to ensure animal and wrangler safety, and may be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 6 feet for horses. Main catch/holding pens (usually three) are also constructed. A small pen, separate from the main holding pens, would be constructed to hold the small foals or any other animal that requires special handling. Variation in trap design may be necessary based on site specific requirements. Sliding wooden gates will be used in the loading alley to prevent injury and a portable loading chute will be used to load horses onto the trucks. To load trailers, panels will be attached to the existing loading alley.

Handling at the trap site is carefully monitored to insure that aggression and injury are kept to a minimum. The decision on when and how to load is determined by the behavior of the captured animals. Individuals or bands may be separated, if necessary. The long years of experience in trap construction have resulted in the use of materials and methods which minimize the horses' exposure to injury. When members of the public view the gather operation, they are required to occupy specific areas and conduct themselves so as to avoid additional stress to captured horses.

Fences Or Other Hazards To Wild Horses

Although fences are not a major problem, they may be encountered during gathering operations. The pilot will be briefed and provided a map, in accordance with the aviation safety plan, showing all fences or other hazards that could pose problems. If it should become necessary to move horses through fences to a trap, at least 30 feet of fence (or fence gate, if available) will be laid back and jute, black plastic, or other material that provides a visual barrier will be placed on each side where the wire is laid back. A small wing of jute will be place out from the fence as is necessary to guide the horses through the fence.

Sorting/Holding Facility

The Riverton, Wyoming Honor Farm may be used as a sorting/holding facility. It may be used to sort

horses or hold adoptable horses pending shipment to a preparation facility. Horses will be sorted by age and sex. Feed and water will be provided for all horses while in the sorting/holding facility. Horses may be transported to other approved facilities for sorting and temporary holding, if the need arises. Horses selected for adoption will be transported to either the Riverton Honor Farm or the BLM Rock Springs Corrals where they will be prepared for adoption. This will be done as soon as possible after capture.

BLM Personnel

There will be one wrangler foreman and up to five wranglers, as a general rule. The wranglers will also serve as truck drivers for BLM equipment. Contract trucks and drivers will be hired if necessary. There will also be a contract helicopter pilot, a fuel truck driver, and a BLM helicopter manager. Usually a public contact representative is on site to help in handling the public. The Lander field office Wild Horse Specialist will usually be on site to help coordinate the gathers. Operations can be conducted seven days a week, weather permitting. Additional personnel may be needed to sort, water, feed and care for the horses, or to provide security.

Equipment

A semi-tractor and straight deck stock trailer with a capacity of 30 to 33 horses will be used. A stock truck, with a maximum load of 14 head, can also be used. A one-ton flatbed truck and two compartment 28 foot horse trailer can haul for saddle horses and up to six separated wild horses. Other equipment may be used as needed. All equipment will be inspected prior to use and will be in good condition. Floors of vehicles, trailers, and the loading chute shall be covered and maintained with materials sufficient to prevent the animals from slipping.

Transportation

Straight deck stock trailers, stock trucks, and horse trailers will be used to transport the horses from the trap sites to the Riverton Honor Farm or the BLM Rock Springs corrals to be prepared for adoption. Contract trucks/trailers that are routinely used to haul wild horses may be used. All trailers and stock trucks will be loaded loose enough to insure that if a horse should fall it will have enough room to regain its footing. Floors of vehicles, trailers, and the loading chute shall be covered and maintained with materials sufficient to prevent the animals from slipping. In order to minimize stress, captured animals are loaded and transported within a short time of capture. Captured animals are not ordinarily held over night at the trap site. The capture operation is tailored to insure that no more animals than can be transported the same day are ever captured. The transport vehicles are continuously inspected for safety and adequacy and provide for separation in groups of twelve or less. When warranted, colts may be separated and transported separately.

Humane Destruction And Disposal

Wild Horses requiring destruction, as determined by the Authorized Officer, will be destroyed and disposed of in accordance with Instruction Memorandum 2001-165. Humane destruction of wild horses is provided for in the Wild and Free Roaming Horse and Burro Act, amended, Section 3(b) 2(A), 43 CFR 4730.1, and BLM manual 4730 (Destruction of Wild Horses and Burros and Disposal of their Remains). Any captured horses that are found to have the following conditions may be humanely destroyed:

- a. The animal shows a hopeless prognosis for life.
- b. Suffers from a chronic disease.
- c. Requires continuous care for acute pain and suffering.
- d. Not capable of maintaining a body condition rating of one or two.
- e. The animal is a danger to itself or others.

The Authorized Officer will determine if injured animals must be destroyed and provide for destruction of such animals. The contractor/BLM may be required to dispose of the carcasses as directed by the Authorized Officer.

The carcasses of the animals that die or must be destroyed as a result of any infectious, contagious, or parasitic disease will be disposed of by burial to a depth of at least 3 feet.

The carcasses of the animals that must be destroyed as a result of age, injury, lameness, or noncontagious disease or illness will be disposed of by removing them from the capture site or holding corral and placing them in an inconspicuous location to minimize visual impacts. Carcasses will not be placed in drainages regardless of drainage size or downstream destination.

Branded And Claimed Horses

Branded and/or claimed horses will be transported to the preparation/holding facility. Ownership will be determined under the estray laws of the State of Wyoming by a Wyoming Brand Inspector. Collection of gather fees and any appropriate trespass charges will be collected at the time of change of possession.

Veterinarian Services

A veterinarian will not normally be at the trap sites or field sorting facilities. Several veterinarians are available in Lander and Riverton, and will be on call should the need arise. Under the terms of the current Memorandum of Understanding with the United States Department of Agriculture, a USDA veterinarian may also be used. A veterinarian inspects the horses that are transported to the preparation facility for sorting or adoption within 24 hours of arrival. Should the need for a veterinarian arise before this time, they are locally available and will be called to assist or provide advice.

Public Interest

There may be viewing and photographing opportunities at one or more of the trap sites. The Wild Horse Specialist, or other BLM employees, will assist in the control of these groups to insure that they do not add unnecessary stress to the horses or interfere with the gathering operations. Other requests will be considered as they are received. All media and other visitors will be expected to comply with the directions of a BLM employee assigned to this task.

Safety

Safety of BLM employees, contractors, members of the public, and the wild horses will be given primary consideration. The following safety measures will be used by the Authorized Officer and all others involved in the operation as the basis for evaluating safety performance and for safety discussions during the daily briefings:

A briefing between all parties involved in the gather will be conducted each morning.

All BLM personnel, contractors and volunteers will wear protective clothing suitable for work of this nature. BLM will alert observers of the requirement to dress properly. BLM will assure that members of the public are in safe observation areas. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

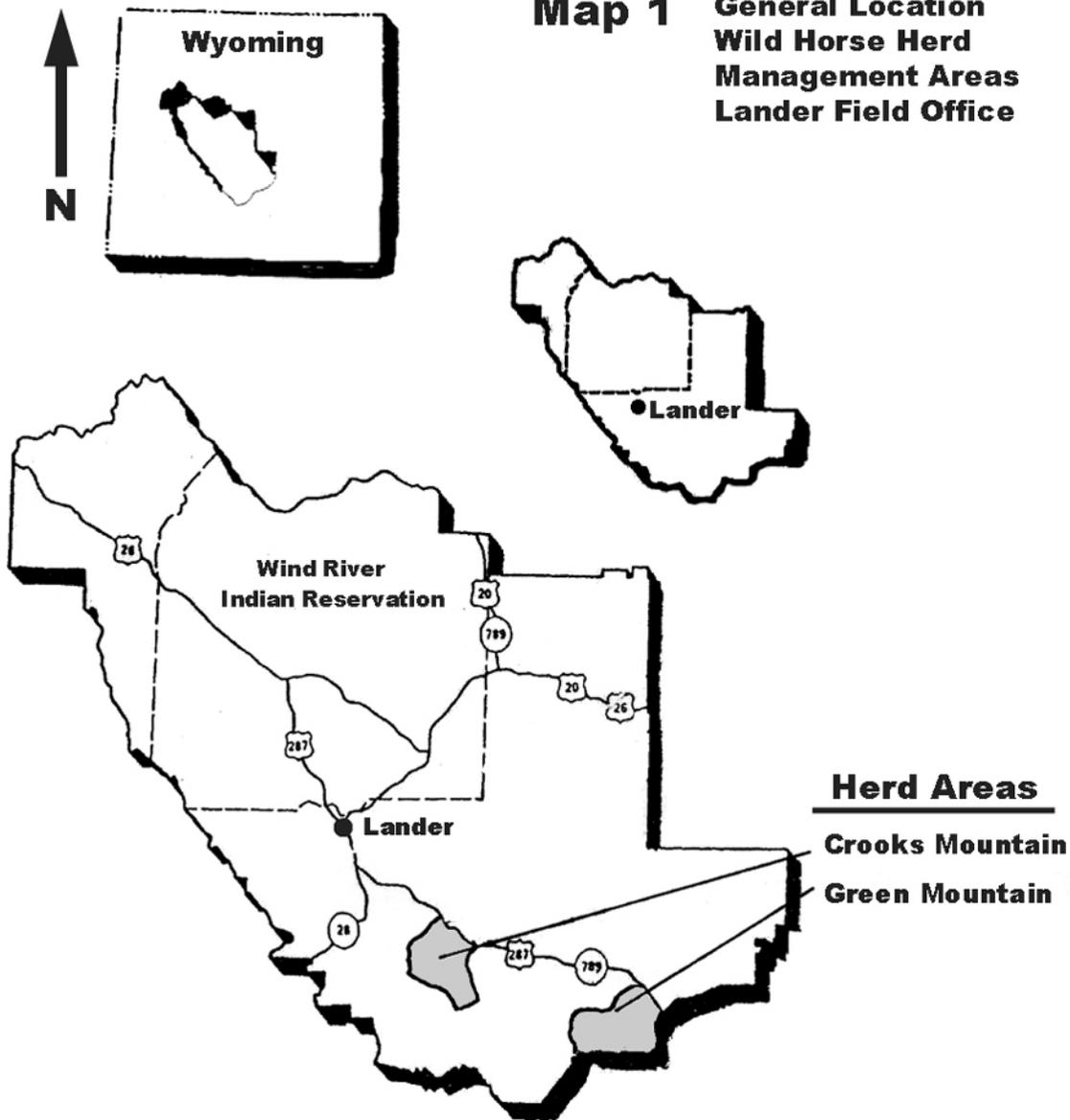
13. Responsibility and Lines of Communication

If a contract gather crew is utilized, the Contracting Officer's Representative and Project Inspectors from the Lander Field Office, have the direct responsibility to ensure the contractor's compliance with the contract stipulations. The Lander Wild Horse Specialist also has the direct responsibility to ensure that the BLM gather crew conducts the gather in compliance with EA # WY050-EA2-031 and this gather plan.

The Lander Field Manager will take an active role to ensure the appropriate lines of communication are established between the Field Office, State Office, and Rock Springs Corral offices.

All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

Map 1 General Location
Wild Horse Herd
Management Areas
Lander Field Office



APPENDIX 3

STANDARDS FOR RANGELAND HEALTH

The following section identifies the Wyoming Standards for Rangeland Health. The six standards are listed with a description of each standard.

Standard 1 - Upland soils exhibit infiltration and permeability rates that are appropriate for soil type, climate, land form, and geologic processes.

Standard 2 - Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance.

Standard 3 - Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitats potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous and able to reproduce and sustain natural fluctuations and ecological processes.

Standard 4 - Special status, threatened and endangered species and other plants and animals officially designated by the BLM and their habitats are maintained or enhanced by sustainable, healthy native plant and animal communities.

Standard 5- The water quality of all water bodies, including ground water where applicable, located or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Wyoming. Water Quality Standards for surface and ground waters include the designated requirements set forth under state law as required by section 303(c) of the Clean Water Act.

APPENDIX 4

**BLM WYOMING STATE DIRECTOR'S SENSITIVE SPECIES LIST
(ANIMALS AND PLANTS) FOR LANDER FIELD OFFICE**

April 9, 2001

Species Common Name	Scientific Name	Habitat	May be present in project (Y/N)	Rationale
MAMMALS				
Shrew, Dwarf	<i>Sorex nanus</i>	Mountain foothill shrub, grasslands	Y	No habitat conversions are expected to occur.
Myotis, Long-eared	<i>Myotis evotis</i>	Conifer and deciduous forests, caves and mines	Y	No habitat conversions are expected to occur.
Bat, Spotted	<i>Euderma maculatum</i>	Cliffs over perennial water, basin-prairie shrub	Y	No habitat conversions are expected to occur.
Bat, Townsend's Big-eared	<i>Corynorhinus townsendii</i>	Forests, basin-prairie shrub, caves and mines	Y	No habitat conversions are expected to occur.
Prairie Dog, White-tailed	<i>Cynomys leucurus</i>	Basin-prairie shrub, grasslands	Y	No habitat conversions are expected to occur.
Fox, Swift	<i>Vulpes velox</i>	Grasslands	Y	No habitat conversions are expected to occur.
BIRDS				
Ibis, White-faced	<i>Plegadis chihi</i>	Marshes, wet meadows	Y	Pens and other capture facilities will not be placed in riparian areas.
Swan, Trumpeter	<i>Cygnus buccinator</i>	Lakes, ponds, rivers	N	No suitable habitat present.
Goshawk, Northern	<i>Accipter gentilis</i>	Conifer and deciduous forests	Y	Round-up will occur after most species have fledged young.
Hawk, Ferruginous	<i>Buteo regalis</i>	Basin-prairie shrub, grassland, rock outcrops	Y	Round-up will occur after most species have fledged young.
Falcon, Peregrine	<i>Falco peregrinus</i>	Tall cliffs	Y	Round-up will occur after most species have fledged young.
Sage-grouse, Greater	<i>Centrocercus urophasianus</i>	Basin-prairie shrub, mountain-foothill shrub	Y	Round-up will occur after most species have fledged young.
Curlew, Long-billed	<i>Numenius americanus</i>	Grasslands, plains, foothills, wet meadows	Y	Round-up will occur after most species have fledged young.
Cuckoo, Yellow-billed	<i>Coccyzus americanus</i>	Open woodlands, streamside willow and alder groves	Y	Pens and other capture facilities will not be placed in riparian areas.
Owl, Burrowing	<i>Athene cunicularia</i>	Grasslands, basin-prairie shrub	Y	Round-up will occur after most species have fledged young.
Thrasher, Sage	<i>Oreoscoptes montanus</i>	Basin-prairie shrub, mountain-foothill shrub	Y	Round-up will occur after most species have fledged young.
Shrike, Loggerhead	<i>Lanius ludovicianus</i>	Basin-prairie shrub, mountain-foothill shrub	Y	Round-up will occur after most species have fledged young.

Species Common Name	Scientific Name	Habitat	May be present in project (Y/N)	Rationale
Sparrow, Brewer's	<i>Spizella breweri</i>	Basin-prairie shrub	Y	Round-up will occur after most species have fledged young.
Sparrow, Sage	<i>Amphispiza billineata</i>	Basin-prairie shrub, mountain-foothill shrub	Y	Round-up will occur after most species have fledged young.
Sparrow, Baird's	<i>Ammodramus bairdii</i>	Grasslands, weedy fields	Y	Round-up will occur after most species have fledged young.
FISH				
Trout, Yellowstone Cutthroat	<i>Oncorhynchus clarki bouvieri</i>	Yellowstone drainage, small mountain streams and large rivers	N	No suitable habitat present.
REPTILES				
AMPHIBIANS				
Frog, Northern Leopard	<i>Rana pipiens</i>	Beaver ponds, permanent water in plains and foothills	Y	Pens and other capture facilities will not be placed in riparian areas.
Spadefoot, Great Basin	<i>Spea intermontana</i>	Spring seeps, permanent and temporary waters	Y	Pens and other capture facilities will not be placed in riparian areas.
Toad, Boreal (Northern Rocky Mountain population)	<i>Bufo boreas boreas</i>	Pond margins, wet meadows, riparian areas	N	No suitable habitat present.
Frog, Spotted	<i>Rana pretiosa (lutiventris)</i>	Ponds, sloughs, small streams	Y	Pens and other capture facilities will not be placed in riparian areas.
PLANTS				
Meadow Pussytoes	<i>Antennaria arcuata</i>	Moist, hummocky meadows, seeps or springs surrounded by sage/grasslands 4,950-7,900'	Y	Pens and other capture facilities will not be placed in riparian areas.
Porter's Sagebrush	<i>Artemisia porteri</i>	Sparsely vegetated badlands of ashy or tufaceous mudstone & clay slopes 5,300-6,500'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Dubois Milkvetch	<i>Astragalus gilviflorus var. purpureus</i>	Barren shale, badlands, limestone, & redbed slopes & ridges 6,900-8,800'	N	No suitable habitat present.
Nelson's Milkvetch	<i>Astragalus nelsonianus</i> -or- <i>Astragalus pectinatus var. platyphyllus</i>	Alkaline clay flats, shale bluffs and gullies, pebbly slopes, and volcanic cinders in sparsely vegetated sagebrush, juniper, & cushion plant communities at 5200-7600'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Cedar Rim Thistle	<i>Cirsium aridum</i>	Barren, chalky hills, gravelly slopes, & fine textured, sandy-shaley draws 6,700-7,200'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Owl Creek Miner's Candle	<i>Cryptantha subcapitata</i>	Sandy-gravelly slopes & desert ridges on sandstones of the Winds River Formation 4,700-6,000'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.

Species Common Name	Scientific Name	Habitat	May be present in project (Y/N)	Rationale
Fremont Bladderpod	<i>Lesquerella fremontii</i>	Rocky limestone slopes & ridges 7,000-9,000'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Beaver Rim Phlox	<i>Phlox pungens</i>	Sparsely vegetated slopes on sandstone, siltstone, or limestone substrates 6,000-7,400'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Rocky Mountain Twinpod	<i>Physaria saximontana var. saximontana</i>	Sparsely vegetated rocky slopes of limestone, sandstone or clay 5,600- 8,300'	Y	A survey for sensitive plants will be completed prior to construction of pens and other capture facilities.
Persistent Sepal Yellowcress	<i>Rorippa calycina</i>	Riverbanks & shorelines, usually on sandy soils near high-H ² O line	N	No suitable habitat present.
Shoshonea	<i>Shoshonea pulvinata</i>	Shallow, stony calcareous soils of exposed limestone outcrops, ridgetops, & talus slopes 5,900- 9,200'	N	No suitable habitat present.
Barneby's Clover	<i>Trifolium barnebyi</i>	Ledges, crevices, & seams on reddish -cream Nugget Sandstone outcrops 5,600-6,700'	N	No suitable habitat present.