



U.S. Department of the Interior
Bureau of Land Management



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3900 E. Idaho Street
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August 2004

Rock-Humboldt Complex Wild Horse Gather Environmental Assessment

4720/BLM/EK/PL/2004/24



Photo by Bruce Thompson, BLM Rangeland Management Specialist

Chapter 1 - Introduction

The Bureau of Land Management (BLM) is proposing to remove approximately 1,237 excess wild horses from the Rock Creek and Little Humboldt Herd Management Areas (HMA) in the late summer (August) of 2004 to restore the range to a thriving natural ecological balance and prevent deterioration of the range. Also proposed is implementing fertility control treatment on about 118 mares released back to the range following the gather. Past capture, census, and distribution data collected indicate some inter movement among the horses of these HMAs. For this document the two HMAs will be referred to as the Rock-Humboldt Complex.

This environmental assessment (EA) has been prepared for compliance with the National Environmental Policy Act. It tiers to an EA completed in July 2003 for the Proposed Elko Resource Management Plan Wild Horse Amendment (BLM/EK/PL-2003/024). EAs completed in 2002 for the Rock Creek and Little Humboldt Emergency Gathers (BLM/EK/PL-2002/032 and /036) are incorporated by reference. Copies are available from the Elko Field Office upon request.

Background

The Rock-Humboldt Complex is located approximately 60 miles northwest of Elko, Nevada, within Elko County. Refer to Map 1 for General Location and Map 2 for HMA/HAs. Table 1 shows the approximate acres of public and private lands in each HMA.

Table 1 Land Status

HMA	Acres Public	Acres Private	Total Acres
Rock Creek	102,638	24,115	126,753
Little Humboldt	15,734	1,417	17,151
Total	118,372	25,532	143,904

The Appropriate Management Level (AML) for the Rock Creek HMA has been established by a multiple use decision (MUD) for the Squaw Valley, and Spanish Ranch Allotments, dated June 30, 2004. The AML is a range of 150-250 wild horses.

The Little Humboldt Allotment Evaluation, dated March 2002, recommends an AML of 48-80 wild horses within the Little Humboldt HMA. In May 2002, a decision to close the North and South Basin Pastures to livestock grazing to improve habitat for Lahontan cutthroat trout (LCT) (*Onchorynchus clarki henshawi*), a threatened species, was appealed by the permittee (Oro Vaca). To address and resolve the matter, the BLM and permittee agreed to a Stipulation to Modify Decision and to Dismiss Appeals (Stipulated Agreement) on June 24, 2002. The BLM agreed to reduce wild horses to an interim AML of 48-80 head, as recommended by the Little Humboldt Allotment Evaluation, and to close the North and South Basin Pastures to livestock grazing until no sooner than February 28, 2004. These pastures have not yet been reopened for livestock grazing and the closure is still in place. A multiple use decision (MUD) is expected to be issued within two years of the Basin being re-opened to livestock use. The MUD would reestablish the AML based

on current monitoring data, and further outline actions necessary to meet objectives for livestock, wildlife, and wild horse management within the Little Humboldt Allotment.

The HMAs were last gathered in 2002 to remove excess wild horses due to severe drought conditions. At that time, 990 horses remained within the Complex. An aerial census of the HMAs in 2003 counted 1,195 wild horses. Based on past capture and census data, the average annual population increase is approximately 20% for both HMAs. The current estimated wild horse population of 1,435 head is 7.24 times higher than AML.

1.1 Purpose of and Need for Action

The purpose of this action is to maintain wild horse populations in the Rock-Humboldt Complex in a thriving natural ecological balance consistent with existing AMLs. The proposed action, as described in the next chapter, would allow for the continued collection of information on herd characteristics, determination of herd health, and the implementation of a fertility control research project. Achievement and maintenance of AMLs support BLM's management goals for the wild horses. These goals include:

- Manage HMAs to achieve and maintain a thriving natural ecological balance and multiple-use relationship;
- Manage wild horse populations to preserve and enhance the historic physical and biological characteristics of the herds;
- Maintain sex ratios and age structures, which allow for the continued physical, reproductive, and genetic health of the herds;
- Preserve and maintain healthy, viable wild horse populations at levels likely to survive years when habitat resources are limited due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences;
- Maintain the wild free-roaming characteristics of wild horses ;
- Acquire data on wild horse populations.

Vegetation monitoring in relation to use by wild horses in the HMAs has determined that current wild horse population levels are exceeding the capacity of the area to sustain wild horse use over the long term. Resource damage is occurring and is likely to continue to occur without immediate action. The proposed capture and removal is needed at this time in order to achieve a thriving natural ecological balance between wild horse populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses as authorized under Section 3(b) (2) of the 1971 Free-Roaming Wild Horses and Burros Act and section 302(b) of the Federal Land Policy and Management Act of 1976.

Applying fertility control measures as part of the proposed action would slow reproduction rates of mares returned to the HMA following the gather, allowing vegetation resources time to recover. It would also decrease gather frequency and disturbance to individual animals and the herd and provide for a more stable wild horse social structure.

1.2 Land Use Conformance

The Elko Resource Management Plan (RMP) was approved March 11, 1987. Issue: Wild Horses, management prescriptions 1 and 3 direct the management in the project area. An

amendment to the Elko RMP was approved October 14, 2003. This amendment further outlines the level of management for wild horses within the planning area including the Rock Creek and Little Humboldt HMAs. The proposed action and alternative, as described in the next chapter, are in conformance with the RMP and Amendment. They are further consistent with other federal, state, and local laws and regulations, policies and plans to the maximum extent possible. This includes applicable regulations at 43 CFR (Code of Federal Regulations) 4700 and policies, Public Law 92-195 (Wild Horse and Burro Act of 1971), Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines for Rangeland Health November 2003, and the 2001 BLM Strategic Plan for the Management of Wild Horses and Burros on Public Lands.

Conformance with Rangeland Health Standards

The Rock Creek and Little Humboldt HMAs have been assessed for conformance with Rangeland Health Standards and Guidelines as part of allotment evaluations. The Standards are identified below.

Standard 1. Upland Sites: Upland soils exhibit infiltration and permeability rates are appropriate to soil type, climate and land form

Standard 2. Riparian and Wetland Sites: Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

Standard 3. Habitat: Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet life cycle requirements of threatened and endangered species.

Standard 4. Cultural Resources: Land use plans will recognize cultural resources within the context of multiple use.

Standard 5. Wild horses and burros exhibit characteristics of healthy, productive, and diverse population. Age structure and sex ratios are appropriate to maintain the long term viability of the population as a distinct group. Herd management areas are able to provide suitable feed, water, cover and living space for wild horses and burros and maintain historic patterns of habitat use.

Only the standard for cultural resources is currently met in both HMAs. Excess wild horse use has been identified as a contributing factor to the standards not being met, as described in Table 2.

Table 2 Summary From Allotment Evaluations

Rangeland Health Standard	Rock Creek HMA	Little Humboldt HMA
Upland Sites	Not Met Some progress made	Not Met Some progress made
Riparian/Wetland Habitat	Not Met Not Met Some progress made	Not Met Partially Met More progress needed
Cultural	Met	Met
Wild Horses	Not Met Excess Wild Horses	Not Identified

Chapter 2 - The Proposed Action and Alternatives

2.1.1 Proposed Action

The Proposed Action is to gather approximately 1,435 wild horses, make available for adoption approximately 1,237 head, and return 118 mares and 80 studs to the HMAs. The gathers would be conducted separately for each herd, in August 2004. Table 3 shows the current estimated population and AMLs for the HMAs.

Table 3 Estimated Wild Horse Populations

HMA	Estimated 2004 Population	AML Range
Rock Creek	1,215	150-250
Little Humboldt	220	48-80
Total	1,435	198-330

During gather activities, the Elko Field Office Wild Horse Specialist would record data for the captured horses including: sex, age and color; and assess herd health (pregnancy/parasite loading/physical condition/etc), and sort horses by age and sex. Selected animals would be returned to the HMAs based on desired characteristics for each herd, and consistent with the following selection criteria of the BLM's *Gather Policy and Selective Removal Criteria for Wild Horses* (Washington Office IM 2002-095):

- a) *Age Class Five Years and Younger*: Wild horses five years of age and younger may be removed and placed into the national adoption program.
- b) *Age Class Ten Years and Older*: Wild horses ten years of age and older may be removed and placed into long-term holding.
- c) *Age Class Six to Nine Years*: Wild horses aged six to nine years old should be removed last and only if the HMA cannot achieve AML without their removal.

Also as part of the proposed action, BLM would conduct immunocontraceptive research and monitor results as required by Wild Horse and Burro Program policy (IM-2004-138). Approximately 198 wild horses (118 mares and 80 studs) would be released within the Rock-Humboldt Complex. The immunocontraceptive drug, porcine zona pellucidae (PZP) vaccine would be used on all of the release mares. For detailed description of fertility control Standard Operating Procedures for the use of PZP vaccine see Appendix I. The post gather population of 198 wild horses would represent the lower level of the AML for the Rock-Humboldt Complex.

The Proposed Action includes gathering and removing all wild horses from areas outside of the HMA, as designated and approved by the 2003 Elko RMP Wild Horse Amendment.

Multiple capture sites (traps) would be used to capture wild horses from the HMAs. Capture sites would be located at previously used sites, unless horses are found in areas that require development of a new site. In the case of the Little Humboldt HMA, no capture sites would be located within the Little Humboldt Wilderness Study Area. All

capture and handling activities (including capture site selections) will be conducted in accordance with Standard Operating Procedures (SOPs) Appendix IV.

2.1.2 Gather Without Fertility Treatment

This alternative is the same as the Proposed Action, except that the BLM would not conduct immunocontraception research with the drug, PZP.

2.1.3. No Action Alternative -- Delay Removal of Wild Horses

The No Action Alternative would be to defer gathering and removing animals. This Alternative postpones direct management of the wild horse populations in the Rock-Humboldt Complex. No progress toward meeting rangeland health standards for upland and riparian sites, and habitat for wildlife and wild horses, would be made until such time as excess wild horses are removed. Wild horse populations are estimated to increase at 15-25% per year. The wild horse populations may eventually reach equilibrium by regulating their numbers through periodic elevated mortality rates caused by drought, insufficient forage (starvation), water and/or space availability, disease, predation, or a combination of these environmental factors. Or, a management action to reduce herd numbers may be evaluated and implemented at another time. The Elko Field Office (EFO) would continue habitat and population monitoring on the wild horse populations within the Rock-Humboldt Complex

2.2 Alternatives Considered But Eliminated From Further Analysis

2.2.1 Wild Horse Numbers Controlled by Natural Controls

An alternative which was eliminated from consideration was to allow natural controls to regulate wild horse numbers. There would be no active management to control the size of this population. Under this alternative, wild horses in excess of the carrying capacity of the range would be reduced naturally through predation, disease, and lack of available forage, water and space.

This alternative was eliminated from further consideration due to several factors. The Wild Horse and Burro Act of 1971 mandates the Bureau to prevent the range from deterioration associated with overpopulation, and to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area. The 1987 Elko RMP and 2003 Wild Horse Amendment directs that BLM conduct gathers as necessary to achieve and maintain AML. Allowing natural controls to regulate wild horse numbers would conflict with the Act and RMP.

The option of the wild horses reaching a balance on their own has not been shown to be the case previously. Wild horses within the Complex have increased to over 1,400 head today with a small number of gathers, including the 1,500 head removed in 2002 due to severe drought conditions.

Wild horses in the complex are not substantially regulated by predators. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95%. This alternative would result in a steady increase in numbers which would continually exceed

the carrying capacity of the range and the AML as established to preserve and maintain a multiple-use relationship the area.

2.2.2 Bait Trapping Alternative

An alternative which was eliminated from consideration was to bait trap wild horses within the Rock Creek and Little Humboldt HMA. The likely success of bait trapping within these HMAs is extremely low. The number of animals that would need to be trapped and the likelihood of these animals to accustom and enter a trap would be minimal. Additionally, the availability of forage in the HMAs would decrease the animal's likelihood to be lured by feed. Due to the amount of time necessary to capture such large numbers and the doubtful success, bait trapping is not being considered.

Chapter 3 - Affected Environment/Environmental Effects

General Setting

The Rock-Humboldt Complex is located in northwestern Elko County, approximately 80 air miles northwest of Elko, Nevada. The area is within the Columbia Plateau and Great Basin physiographic regions, characterized by a high, rolling plateau underlain by basalt flows covered with a thin loess and alluvial mantle. On many of the low hills and ridges that are scattered throughout the area, the soils are underlain by bedrock. Elevations within the Complex range from approximately 5,600 feet to 7,750 feet. Precipitation ranges from approximately 7 inches on the valley bottoms to 16 to 18 inches on the mountain peaks. Most of this precipitation comes during the winter months in the form of snow. Temperatures range from 90+ in the summer months to -15 in the winter. The area is also utilized by domestic livestock and numerous wildlife species. The Complex is bordered to the north by the Owyhee HMA, littler Owyhee, and the Snowstorm Mountains HMA on the west. The Owyhee HMA is managed by the Elko Field Office. The Little Owyhee and Snowstorm Mountains HMA is managed by the Winnemucca Field Office.

Wild horses of the Rock Creek HMA generally winter and move from the lower elevations in Burner Hills to summer at the higher elevations in Soldier and Red Cow fields. The Little Humboldt HMA wild horses traditionally have stayed in the HMA year round, which average elevation is 5,900'. This distribution would seem normal in the summer months, but not in the winter. Fence conditions (loose wire) and trails through open gates suggest movement occurs between the Little Humboldt HMA and Burner Hills Field of the Rock Creek HMA.

3.1 Critical Elements Not Affected

The following critical elements of the human environment are not present or are not affected by the proposed action or alternatives:

Air Quality
Areas of Critical Environmental Concerns
Environmental Justice
Farm Lands (prime or unique)

Floodplains
Native American Religious Concerns
Wild and Scenic Rivers
Wastes (hazardous or solid)
Water Quality (drinking/ground)

Bureau Specialists have further determined that the following critical element, although present in the project area, would not be affected for the following reasons:

Cultural Resources - Previously used capture sites would be used. If it is necessary to construct a trapping or holding facility at a new site, a cultural resources investigation by an archaeologist or an archaeological technician would be conducted. If cultural resources are found, an alternative site would be selected.

3.2 Affected Resources/Effects of Alternatives

3.2.1 Wild Horses

Wild horses are introduced species within North America and have few natural predators. Few natural controls act upon wild horse herds making them very competitive with native wildlife and other living resources managed by the BLM. In the Rock-Humboldt Complex, wild horse population growth rates average 18% in Little Humboldt and 19% in Rock Creek HMA. Census flights have been conducted in these HMAs regularly. These census flights have provided information pertaining to: population numbers, foaling rates, distribution, and herd health. The estimated herd population for the Rock-Humboldt Complex was determined from the 2002 gather and 2003 census data.

The 2002 capture data shows the animal colors and percent frequency from each HMA.(Table 4)

Table 4. Color of Animals by HMA

Color	Rock Creek	Little Humboldt
Bay	32%	26%
Sorrel	17%	28%
Brown	17%	5%
Chestnut	4%	10%
Paint	1%	1%
S. Roan	2%	7%
B. Roan	6%	2%
R. Roan	10%	12%
Buckskin	0	1%
Gray	0	1%
Palomino	1%	3%
Black	10%	4%

Post gather data from the HMAs was used to estimating the current age structure for the Complex. Approximately 80% of the herd is 0-13 years old and 20% is 14-20 or older. Sex ratios for wild horses within the Complex are representative of other HMAs managed by the Elko Field Office, and the West at large. At birth, sex ratios are roughly equal. This balance shifts to favor mares throughout the younger age classes. This pattern shifts again at around 15 years of age, favoring studs. The selection of animals to be released back into the HMAs would follow these same age and sex ratios.

The Rock-Humboldt Complex wild horses are the largest and most colorful animals within the eight HMAs administered by the Elko Field Office. Approximately ten percent of the wild horses captured during the 2002 gathers reached at least 16 hands in height. The wild horses within the Complex are believed to have originated from local ranching and specifically a late 19th century ranch which produced cavalry re-mounts.

The wild horses in the Complex are believed to mix. Suspected movement occurs between the Rock Creek and Little Humboldt HMAs and possibly the Snow Storm Mountains HMA, which borders the Complex to the west. The Rock Creek and Little Humboldt HMAs are separated by a fence, however it is documented that wild horses can be found regularly at the boundary, and can cross through open gates or by jumping.

Genetic Diversity and Viability

Blood samples were collected from 164 horses during the Rock Creek and Little Humboldt 2002 Emergency gathers to develop genetic baseline data (e.g. genetic diversity, historical origins of the herd, unique markers). The samples were analyzed by a geneticist to determine the degree of heterozygosity for the herd which showed good genetic diversity. This data would be incorporated into a Herd Management Area Plan. At this time, there is no evidence to indicate that the Rock-Humboldt Complex animals suffer from reduced genetic fitness.

The Rock Creek, Little Humboldt, Owyhee, Little Owyhee, and Snowstorm Mountains HMAs are all connected and separated by fencing. The fences provide obvious difficult barriers for major movement between HMAs. A small to large amount of known movement does occur between these HMAs through open gates and crossings, but no formal research has been completed to determine the amount of movement that does occur. Even slight movement helps to diversify these gene pools and contribute to heterozygosity for the herds.

Population Modeling

In an attempt to predict population dynamics for the Proposed Action and Alternatives (including No Action), a computer simulation was used. The numbers, age, and sex of animals proposed for removal were analyzed with The Wild Horse Population Model Version 1.35 WinEquus developed by Dr. Steven Jenkins, Associate Professor, University of Nevada Reno. This population model was designed to help wild horse and burro specialists evaluate various management strategies that might be considered for a particular HMA. The model uses data on average survival probabilities and foaling rates of horses to project population growth for up to 20 years. The model accounts for year-to-year variation in these demographic parameters by using a randomization process to select survival probabilities and foaling rates for each age class from a distribution of values based on these averages. The model was run from 2004 to 2009 to determine what the potential effects would be on population size for all Alternatives. These numbers are useful to make relative comparisons of the different Alternatives and of the potential outcomes under different management options. While gathering to the lower limit of the AML range with fertility control would slow the annual rate of population growth (from 18% currently to an estimated 10% over a four year period), populations would be expected to increase to

about 373 animals by 2009. Without fertility control, populations would be expected to increase to about 513 animals by 2009. With no management (no action) the population would continue to grow with a projected population of 3,100 animals in 2009. Results of the model are available by request.

Effects of the Proposed Action and Alternatives

The Proposed Action and Alternative would reduce wild horse numbers within the Complex and would improve overall herd health. Less competition for forage and water resources would reduce stress and promote healthier animals. The proposed action would use a fertility drug to reduce population growth for two years. This would delay any reproduction in mares and allow for longer duration between gathers and lessen impacts to resources. The alternative of gathering the wild horses without use of a fertility drug, would not delay reproduction and require a gather to maintain AML two years sooner.

Population wide impacts can occur during or immediately following implementation of the Proposed Action or Alternative. These include the displacement of bands during capture and the associated re-dispersal, modification of herd demographics (age and sex ratios), temporary separation of members of individual bands of horses, reestablishment of bands following releases, and the removal of animals from the population. With the exception of changes to herd demographics, direct population wide impacts over the last 20 years have proven to be temporary in nature with most if not all impacts disappearing within hours to several days of release

The effect of removing wild horses from the population is not expected to have a negative impact on herd dynamics or population variables; as long as the selection criteria for removal ensures a “typical” population structure is maintained.

The Proposed Action includes using established procedures for determining what selective removal criteria is warranted for the herd. This flexible procedure allows for correction of any existing discrepancies in herd demographics which could predispose a population to increased chances for catastrophic impacts. The standard for selection also minimizes the possibility for developing negative age or sex based selection effects to the population in the future.

Population wide indirect impacts that would not appear immediately are difficult to quantify. Concerns to be addressed with the proposed participation in research for PZP are associated primarily with the use of fertility control drugs and involve reductions in short term fecundity of initially a large percentage of mares in a population and potential genetic issues regarding the control of contributions of mares to the gene pool. Again, as AML's are achieved with increasing herd health, the potential for these impacts would be expected to lessen as the need to gather excess horses and impose fertility control treatments on a high proportion of the mare population would be less frequent and all mares would be expected to successfully recruit some percentage of their offspring into the population. Decreased competition coupled with reduced reproduction as a result of fertility control should result in improved health and condition of mares and foals and in maintaining healthy range conditions over the longer-term. Additionally, reduced reproduction rates

would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as herd social structure over the foreseeable future

If No Action is taken, excess wild horses would not be removed from the Rock Creek Complex and surrounding areas at this time. The animals would not be subject to the individual direct or indirect impacts as a result of a gather operation. However, individuals in the herd would be subject to more stress and possible death as a result of increased competition for water and forage as the herd population grows. This alternative would not achieve the stated objectives for wild horse herd management areas, to “prevent the range from deterioration associated with overpopulation”, and “preserve and maintain a thriving natural ecological balance and multiple use relationship in that area”.

Modeling

The results of the model stated the proposed action with implementation of fertility control reflected the lowest overall population growth rate. The no fertility control and no action alternatives showed constant growth following the gather or no gather. Neither, the proposed action or alternatives indicate significant impact to the population would likely occur. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely. Results of the model are available from the Elko Field Office.

3.2.2 Vegetation

Major plant communities are characterized as big sagebrush-grass and low sagebrush-grass, montane shrub, and montane riparian. The big sagebrush-grass and low sagebrush-grass types are dominated by big sagebrush, low sagebrush, shadscale, bud sage, and rabbit brush, respectively. Major grass species include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, needlegrass, and bottlebrush squirreltail. Forbs include arrowleaf balsamroot, lupine, phlox, and aster. The higher elevations support mountain browse species that include serviceberry, snowberry, and antelope bitterbrush. Riparian areas at high elevations support quaking aspen, and wild rose.

Effects of the Proposed Action and Alternatives

Short-term impacts to vegetation that would occur during the proposed gather include disturbance of native vegetation immediately in and around temporary trap sites, and holding and processing facilities. Impacts created by vehicle traffic, and hoof action of penned horses, can be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than 1/4 acre) in size. In addition, most trap sites or holding facilities are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots which were previously disturbed. These common practices would minimize negative effects.

The Proposed Action and No Fertility Control Alternative - would reduce the wild horse population to 198 animals in the Complex which would promote, in the long-term, attainment of a thriving natural ecological balance. The proposed gather would result in

improved forage availability, vegetation density, vigor, plant reproduction, desired plant community, productivity, and meeting stated resource objectives.

Under the No Action alternative, the wild horse population would continue to increase in size, demand for forage would continue to grow, and impacts to vegetation resources would expand. Utilization levels would continue to be in excess of objectives and obtainment of desired plant communities would be impossible. Competition with livestock and wildlife populations for available forage would continue to accelerate.

3.2.3 Wildlife

There are approximately 350 species of vertebrate wildlife that potentially occur in northeastern Nevada (BLM Elko District 1992 Mammal, Bird, and Reptile and Amphibian Lists). The Complex provides habitat for many of these species on a seasonal or yearlong basis in association with aspen, sagebrush, intermittent ponds, cliffs and talus, mountain brush, and riparian habitat types. Although riparian areas comprise a relatively small portion of the available habitat, they provide a disproportionately higher habitat value for wildlife. Present riparian conditions on many areas are poor. Upland sites where utilization by livestock and wild horses is light show a good mix of native shrub, forbs, and grass species, and are in good condition. Upland areas more heavily used by livestock and wild horses are in poor condition. Sagebrush communities generally have heavy shrub cover with a lack of native grass and forb understory.

The Rock Creek HMA provides habitat for mule deer and pronghorn on a seasonal or yearlong basis. The Little Humboldt HMA provides crucial habitat for mule deer in the winter and summer, crucial habitat for California bighorn sheep year-round, and summer range for pronghorn. Range and wildlife habitat conditions are generally better (diversity and production of vegetation) at lower elevations of the Little Humboldt HMA compared to the upper elevations.

Effects of the Proposed Action and Alternatives

The Proposed Action and Alternative would result in reduced competition with wildlife species which would increase the quantity and quality of available forage and cover on sagebrush steppe, mountain brush and riparian habitat types.

Under the No Action Alternative, wild horse numbers would continued to grow and competition with wildlife for water and forage resources would intensify. The continued competition for resources may lead to increased stress and possible displacement or death of native wildlife species

3.2.4 Migratory Birds

On January 11, 2001 President Clinton signed the Migratory Bird Executive Order . This executive order outlines the responsibilities of Federal agencies to protect migratory birds.

The Complex contains aspen, montane shrub, montane riparian and sagebrush habitat types. The Nevada Partners in Flight Bird Conservation Plan identifies the bird species associated with each of these ecotypes, as listed in Appendix III.

Effects of the Proposed Action and Alternatives

The proposed action would allow for the improvement of meadows and riparian vegetation on springs, seeps and streams within the Complex. Improved riparian habitat at these areas would provide nesting and feeding habitat for many species of birds. Birds species associated with uplands would also benefit from the continued improvement of native upland grasses, forbs and shrubs within various vegetation types and reduction of impacts to soils. Increases in vegetative cover and diversity on riparian areas contribute to better habitat conditions for migratory birds.

Predation of migratory birds that are prey species could be reduced as improvement of cover on upland and riparian/meadow habitat occurs as a result of the proposed action.

Yearlong grazing by excessive numbers of wild horses has impacted ecological sites that provide migratory bird habitat within the Complex. This has been compounded by periods of severe to extreme drought experienced since 1999. Perennial plants need periods when they can complete annual life cycle needs including, but not limited to, the growth and dissemination of seed, and storage of root reserves. The proposed action would help to reduce negative effects to migratory bird habitat caused by excessive numbers of wild horses on the Complex in combination with drought.

Under the No Action Alternative, wild horse numbers would continue to grow and competition with migratory birds for water and forage resources would intensify. The continued competition for resources may lead to increased stress and possible displacement or death of these birds.

3.2.5 Terrestrial Habitat and Special Status Species

Special Status Species are those listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA), species that are candidates for listing under the ESA, species that are listed by the State of Nevada, and species that are on BLM's list of Sensitive Species. See Appendix IV for a list of these species that may occur in the action area, in suitable habitat of upland and riparian/meadow areas.

The Complex provides habitat for bald eagles (*Haliaeetus leucocephalus*), a Federally listed threatened species, during the late fall and winter period. Upland and open water foraging areas are widely dispersed. This includes areas that provide roost sites, and intact habitat with shrub cover for prey species such as black-tailed jackrabbits, and adjoining areas with open water.

Pygmy rabbits – This species is usually found in habitat with deep, friable soils that are suitable for creating their burrow system. These sites generally support basin big sagebrush and may be associated with meadows or former meadows. This habitat is found within the Complex, but it is unknown if pygmy rabbits inhabit the HMAs without survey work.

Sage grouse are a BLM Sensitive Species that has recently been petitioned for listing under the ESA and is currently under status review by the U.S. Fish and Wildlife Service. Sage

grouse use the majority of the area for all seasonal habitat needs. This includes breeding (lek areas/strutting grounds) and attendant (resting, foraging, and roosting areas) habitat, nesting, early (upland) brood-rearing, and winter habitat.

No Special Status Species plant species are known to occur in the project area.

Effects of the Proposed Action and Alternatives

Reduced competition for forage and water and anticipated improvement in upland and riparian habitat conditions with the proposed removal of excess horses under the Proposed Action and Alternative would benefit each of the Special Status Species. In the case of the threatened bald eagle and other raptors that are listed as BLM-Sensitive Species, the proposed action would help to provide improved habitat for prey species. Reduced utilization of forage and water in uplands, springs and riparian areas by the appropriate number of wild horses would also improve habitat conditions to benefit sage grouse and other sensitive wildlife species of concern that may occur in the HMAs and surrounding areas. Habitat conditions may improve more slowly within the Rock-Humboldt Complex if the PZP fertility treatment is not given as part of the gather.

Under the No Action Alternative, wild horse numbers would continue to grow and competition with special status species for limited water and forage resources would intensify. Degradation of habitat conditions would accelerate.

3.2.6 Fisheries/Aquatic Habitats and Special Status Species

The Rock Creek HMA supports fisheries habitat for native interior redband trout (*Onchorynchus mykiss*) in streams associated with the Snake/Columbia River Basin watershed. Redband trout are a BLM sensitive species.

The LCT is a federally listed threatened species protected under the authority of the Endangered Species Act of 1973. The LCT Recovery Plan (1995) identifies the Rock Creek and Little Humboldt Subbasins within the Humboldt River Basin as important sites for recovery of the subspecies within the Humboldt Distinct Population Segment. Most habitat for LCT in the headwaters of the South Fork Little Humboldt River Basin and the Rock Creek Basin are excluded from the designated HMAs, but some horses remain within these areas and would be subject to removal by the proposed gather. Detailed information is available in the Proposed Elko RMP Wild Horse Amendment EA (BLM, 2003).

Effects of the Proposed Action and Alternatives

The proposed gathering of excess wild horses under the Proposed Action and Alternative would help to improve habitat for a sustained period of time in riparian and spring areas throughout the Rock-Humboldt Complex, which would also lead to improved conditions on existing and potential red band trout streams and other aquatic habitat where special status species may occur. . There would be less of a disturbance from wild horses along streambank riparian habitat; seeps and springs including those within, or adjoining, aspen stands; and adjacent upland habitat. This would help to make significant progress towards conserving habitat to benefit special status species, and achieving Proper Functioning Condition standards and meeting specific desired plant community objectives for streams

and riparian areas to meet the Standards and Guides of the Northeastern Great Basin Resource Advisory Council.

Drainage areas on Castle Ridge that are part of the Little Humboldt HMA and are within the South Fork Humboldt River Basin have been identified as being in non-functional condition, in part as a result of wild horse impacts. These streams, springs, and seeps are not occupied by LCT, but do impact occupied LCT habitat downstream because of sediment movement and other impacts associated with unstable riparian habitat conditions. These areas would improve as a result of the proposed action, to benefit LCT and help to avoid the need to list other special status species in the Complex.

Under the No Action Alternative, wild horse numbers would continue to grow and degradation of fisheries/riparian habitats would intensify. Streams and riparian areas would continue to be in non-functional condition, in part, as a result of wild horse impacts.

3.2.7 Visual Resources

Public lands within the Complex are located within Visual Resource Management (VRM) Classes I, III, and IV. Class I designation is due to the Little Humboldt HMA overlapping the Little Humboldt Wilderness Study Area.

For descriptions of these class definitions, see BLM Manual Handbook 8410-1 for Visual Resource Inventory, section V. part B.

The landscape consists of a gently rolling high desert plateau with low hills and ridges scattered throughout the area. Several streams with riparian habitat run through the area. Landscape colors include vegetative seasonal color variations of green, gray-green and light yellowish tan to brown; bands and small spots of green from the riparian vegetation; and blackened vegetation from fires in 2001. Soil colors are light browns and tan. Vegetative texture is a fairly uniform composite of shrubs and grasses.

Man-made features in the area are mostly linear. These include bladed dirt roads, two-track roads/jeep trails, power lines and livestock fences. Other man-made features include water developments (guzzlers and cattle stockpounds) and corrals.

Effects of the Proposed Action and Alternatives

The Proposed Action, Alternative and No Action would have no long term impact to VRM. The short term effects to VRM could include presence of vehicles, helicopter, traps, and corrals. After the completion of the gather, all facilities associated with the gather would be removed and there would be little evidence of such. There would be no permanent changes to the landscape

3.2.8 Invasive Non-Native Species

Noxious weed and invasive non-native species introduction and proliferation are a growing concern among local and regional interests. Noxious weeds are known to exist on public lands within the administrative boundaries of the Elko Field Office. Noxious weeds are aggressive, typically nonnative, ecologically damaging, undesirable plants, which severely

threaten biodiversity, habitat quality and ecosystems. Because of their aggressive nature, noxious weeds can eventually spread into established plant communities. The following noxious or invasive weed species are known to exist within the Rock-Humboldt Complex.

<u>Scientific Name</u>	<u>Common Name</u>
<i>Hyoscyamus niger</i> L.	Black henbane
<i>Cirsium vulgare</i>	Bull thistle
<i>Cardaria draba</i>	Hoary cress
<i>Onopordum acanthium</i>	Scotch thistle
<i>Cirsium arvense</i>	Canada thistle

These weeds occur in a variety of habitats including road side areas, rights-of-way, wetland meadows, as well as undisturbed upland rangelands.

Effects of the Proposed Action and Alternatives

The Proposed Action and Alternative could reduce the impact of noxious/invasive weed expansion due to grazing by the numbers of wild horses in the Complex. The reduction in invasive/noxious weed seed movement would promote the movement to obtainment of a thriving natural ecological balance. Invasive/noxious weed impacts associated with the Proposed Action include potential importation or transportation of new species of weeds to the Complex, spread of existing noxious weed seeds and plant parts to new areas in the complex, and increases in the size of existing weed infestation sites. These impacts would potentially be accomplished by contractor vehicles and livestock entering the complex area and potentially through feeding of hay to captured horses.

Under the No Action alternative, the wild horse gather would be postponed and any potential impacts would be delayed. However, grazing of the present plant communities by excessive numbers of wild horses could lead to an increase in the rate of expansion of invasive/noxious weeds.

3.2.9 Livestock Grazing

Oro Vaca, Inc., a.k.a. Hammond Ranches, Inc., is the holder of the grazing permit for the Little Humboldt Allotment, which includes the Castle Ridge Pasture of the Little Humboldt HMA. Authorized use within the Little Humboldt Allotment is 8,279 AUMs. In 2002, a decision was issued closing portions of the allotment which are in the South Fork of the Little Humboldt River Basin (Basin) to livestock grazing due to LCT concerns.

Monitoring data will be analyzed at the end of each growing season to determine whether or not the criteria to resume grazing in the Basin have been met.

Also, as part of the Proposed Action and Alternative approximately 15 wild horses would be removed from outside the Little Humboldt HMA boundary within the Little Humboldt and Jakes Creek Allotments. Wildland fires that occurred in 2000 and 2001 caused the temporary closure of pastures within the allotments to allow recovery of the burned area. These areas are due to re-open to livestock grazing in the fall of 2004.

The Rock Creek HMA includes portions of two grazing allotments. Ellison Ranching Co. is the holder of the grazing permit for the Spanish Ranch Allotment. Barrick Goldstrike

Mines, Inc. and Ellison Ranching Co. are the holder of the grazing permit for the Squaw Valley Allotment. Cattle, sheep, and domestic horses are authorized to be grazed within Squaw Valley Allotment, while cattle and sheep are authorized to graze in Spanish Ranch Allotment. Domestic horses are not authorized to graze within or adjacent to the Rock Creek HMA boundary. Authorized use within the Squaw Valley and Spanish Ranch Allotments is 22,620 AUMs and 21,491, of which no more than 4,826 AUMs and 208 AUMs can be sheep use, respectively. Due to wildland fires from 2001, 4,176 AUMs and 710 AUMs have been temporarily suspended from Squaw Valley and Spanish Ranch Allotments respectfully.

Also, as part of the Proposed Action and Alternative approximately 50 wild horses would be removed from outside the Rock Creek HMA boundary within the Andrae, Mori, and Cornucopia Allotments.

Effects of the Proposed Action and Alternatives

The Proposed Action and Alternative would lessen competition between cattle and wild horses for water and forage resources. Wild horses can be very aggressive around limited water resources and often drive livestock away from water sources. This has led to livestock not utilizing the Castle Ridge Pasture effectively, with areas receiving little to no use and other areas receiving heavy use. Monitoring utilization levels after wild horses are at AML would facilitate the determination of the proper carrying capacity of the Castle Ridge pasture for livestock and wild horses.

The proposed gather has been scheduled and would be coordinated with livestock operators to avoid conflicts with grazing. During the gather activities, gates may be opened and fences cut to facilitate the movement of wild horses. Gates would be closed and fences repaired as soon as possible to alleviate any unwanted livestock movements.

Under the No Action Alternative, there would continue to be competition with wild horses for water and forage resources. Livestock operations would continue to be impacted as wild horse numbers continue to climb and the range becomes unable to be managed to meet multiple use objectives tied to desired plant communities. In addition, with the No Action Alternative and high wild horse numbers, it is difficult to impossible to maintain fences to manage livestock to implement the grazing systems outlined for the Rock Creek Allotments. Therefore, standards for rangeland health could not be met or significant changes to permitted livestock use or season of use would be necessary to meet these standards. In addition the BLM Elko Field Office would not be in compliance with the Little Humboldt Allotment Stipulated Agreement.

3.2.10 Wilderness Study Area

The NE arm of the Little Humboldt HMA overlaps the SE arm of the Little Humboldt River Wilderness Study Area (Map 3). No gathering activities would be conducted within the WSA. In addition, no gathering activities are expected to occur along the boundary of the WSA, although such activities may be permissible. Vegetation monitoring in relation to use by wild horses in the HMAs has determined that current wild horse population levels are exceeding the capacity of the area to sustain wild horse use over the long term.

Effects of the Proposed Action and Alternatives

No surface disturbing impacts to wilderness values would occur since all trap sites and holding facilities would be located outside wilderness study areas. Wilderness values would be positively affected by implementation of the proposed action. Resource damage is occurring and is likely to continue to occur without immediate action. The proposed capture and removal is needed at this time in order to achieve a thriving natural ecological balance between wild horse populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses. According to the Interim Management Policy for Lands Under Wilderness Review (H-8550-1), Chapter III, Policies for Specific Activities; Section E, Wild Horse and Burro Management, "The Bureau must endeavor to make every effort **not** to allow populations within WSAs to degrade wilderness values, or vegetative cover as it existed on the date of the passage of FLPMA. Wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological balance." The proposed action would bring wild horse populations back down to the appropriate management level of 198 horses for the Rock-Humboldt Complex. Wild horses would still be present in the WSA but at a lower concentration with implementation of the proposed action.

3.3 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 regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively major or problematic actions taking place over a period of time.

Past, present, and reasonably foreseeable activities that to contribute to the analysis of cumulative impacts of the alternatives include: recent and future gathers; and construction of proposed range improvements and grazing systems to achieve multiple use objectives in the allotments. Future maintenance of appropriate numbers of wild horses is expected to reduce competition for water and forage and improve rangeland conditions. These activities are expected to improve habitat quality, abundance, and continuity for the Rock-Humboldt Complex wild horses.

Past and future gathers have similar effects to the wild horse population as the currently proposed gather. Five gathers have been completed in the past on part or both of the HMAs, and future gathers would be scheduled on a 4- or 5- year gather cycle. Approximately 2,000 wild horses have been removed from the Rock-Humboldt Complex in the last 25 years and populations are thriving and have not been negatively impacted.

The proposed participation in research on the use of fertility control (PZP), as a means to reduce the frequency of gathers, should help to answer questions as to its effects on genetic health and long-term viability and reproductive success of mares. Over the longer-term, management without fertility(alternative) control would increase the frequency of gathers and result in greater disturbance to individual animals and the herd's social structure than with fertility control

Adverse impacts to vegetation from gathers include disturbance of native vegetation immediately in and around temporary trap sites, and holding and processing facilities. Impacts created by vehicle traffic, and hoof action of penned horses, can be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than 1/4 acre) in size. Since most trap sites and holding facilities are re-used during recurring wild horse gather operations, any impacts would remain site specific and isolated in nature.

No other negative impacts to resources analyzed in this EA are expected as a result of implementing the Proposed Action or Alternative. Adverse impacts on natural resources associated with the No Action alternative include continued over-utilization of vegetative resources by excessive numbers of wild horses. This in turn, results in decreased vegetative density, a potential increase of non-native and noxious weed species, increased erosion and degradation of stream banks and riparian habitat condition. Wildlife, livestock, and wild horses would all be negatively affected by these adverse impacts. The No Action alternative has more potential for cumulative adverse effects, depending on how long a gather is deferred.

Achieving and maintaining the appropriate number of wild horses in the Rock–Humboldt Complex, in conjunction with proposed range improvements and grazing systems, is expected to help to promote a thriving natural ecological balance. This would result from increased vegetation density, vigor, reproduction, productivity, and forage availability. As wild horse population levels are maintained, cumulative beneficial effects include continued maintenance and improvement of range and riparian/wetland conditions.

The reduced wild horse population growth rates that would occur with the implementation of fertility control during gathers is expected to reduce competition for and utilization of forage and water resources. Reduced growth rates would increase the time interval between gathers, having overall beneficial impacts to wild horse populations, wildlife, and domestic livestock.

Cumulative beneficial effects to the wild horse population, wildlife (including species of special concern) and domestic livestock would occur as forage availability and quality would be maintained and improved. Water quality and riparian habitat would also continually improve.

The opportunity for beneficial effects decreases over time, as each successive gather occurs, the proposed range improvements and grazing systems are implemented, and balance is achieved.

3.5 Monitoring

The monitoring described in the Proposed Action and Alternative is sufficient for this action.

Chapter 4 – Consultation and Coordination

4.1 Public Scoping

A notice of this proposed action was issued on May 28, 2004 to interested wilderness parties, to inform them of a pending wild horse gather within the Little Humboldt River Wilderness Study Area. On June 25, 2004, an invitation to participate in scoping was also mailed to everyone on the Elko Field Office wild horse mailing list. Interested parties were asked to provide comments within 30 days. Written comments were received from the following person, organizations and agency, and are available upon request from the Elko Field Office.

The Fund for Animals; Jackson WY
Barbra Warner, Lexington KY
Wild Horse Observers Association, Placitas, NM
Friends of Nevada Wilderness, Reno, NV
Nevada Division of Water Resources, Reno NV

The input received that is addressed in this EA is summarized as follows:

Proposed Action (2.1.1)

- BLM should evaluate herd health during the gathering process.
- A discussion of proposed trap locations, both temporary and permanent, and the environmental impacts of both construction and operation of traps.
- A discussion of how wild horses are transported and treated in holding facilities and the impacts of such treatment on all horses (SOPs).
- Include the method and season of round-up.
- An analysis of various selection criteria for removing horses.
- What ages do you plan to put into long term holding, short term, adoption. How long will horses remain in short term holding before being transferred into long term holding.

Immunocontraception

- We support the use of immunocontraception of released mares. This will allow longer periods between gathers.
- What are the common procedures and protocols involved with the use of PZP.
- An analysis of available fertility control methods such as PZP, a description of the administration of the vaccine, and a discussion of how various applications of PZP may impact herd growth.

No Action Alternative (2.1.3)

- You must include a No Action Alternative in your analysis.

Alternatives Considered but Eliminated from Further Analysis (2.2.1)

- Please discuss the use of bait round-ups.

Wild Horses (3.2.1)

- Discuss the type of terrain to be covered, the distance wild horses will be forced to travel to trap sites and weather conditions during the time period scheduled for removals.
- Are horses within the different HMAs allowed to interact?

- Provide the historical numbers of horses in the area and an explanation for any changes.
- Fencing and it's impact on the horses.
- Age /sex ratios - What do you currently have and what are you looking for following the gather?
- Discuss the actual rate of increase for these two herds since 1971. The scoping notice indicates that animals have been shown to be capable of a 15-22 % population increase annually.
- An analysis of previous wild horse removals and the impacts of such removals on the horses and on habitat.
- An analysis of whether removals trigger reproduction in herds.

Genetic Diversity and Viability

- BLM should establish a realistic management goal of maintenance of genetic diversity within all managed populations.

Population Modeling

- A discussion of the Jenkins population model and its degree of accuracy in application.

Census

- BLM should inventory and monitor for population size, animals distribution, herd health, animal condition, and habitat characteristics at least every 4 years.

Livestock Grazing (3.2.9)

- What is the number of permittees and permits.

Endangered Species (3.2.5 & 3.2.6)

- Include analysis of endanger and special status species.

Wilderness (3.2.10)

- All gather activities should be outside the WSA.
- Horses should continue to be allowed to roam within the WSA

Invasive Non-Native Species (3.2.8)

- What efforts are you making to ensure that invasive plant species do not proliferate because of your actions?

Finding of No Significant Impact

- An EIS should be prepared verses this EA.

The following comments that were received are not addressed in this EA. They are however answered by the Little Humboldt Allotment Evaluation and the Rock Creek Evaluation and FMUD. Copies of the evaluations and the FMUD are available on request.

- An analysis of rangeland and resources inventoried and all monitoring including data used in setting AML for wild horses.
- A breakdown of numbers of livestock, wildlife, and wild horses. This should include AUMs for each group.
- Historical numbers of cattle within the HMAs and their seasons of use.

- What criteria were used in setting AML?

Other issues raised that are outside the scope of this EA and will not be addressed include:

- Predator Control – An analysis of effects of predator control activities within the HMAs.
- Removed Animals and Long Term Holding – An analysis of cost and benefit of removing wild horses and placement into long term holding. Any questions regarding long term holding should be directed to: National Program Office, 1340 Financial Blvd., Reno, NV 89502.
- Unadoptable Animals Returned to the Range – An analysis of returning unadoptable wild horse back to the range verses long term holding. Any questions regarding long term holding should be directed to: National Program Office, 1340 Financial Blvd., Reno, NV 89502.
- The use of Helicopters for Roundups – An analysis of helicopter use in capturing wild horses. A public meeting is held yearly in Reno, NV to discuss this issue.
- Cattle vs. Wild Horses - An analysis of benefits of removal of livestock vs. wild horses.
- Adoption Fees and Adoption Program – An analysis of the fees and adopters who are adopting this removed animals. Any questions regarding adoption should be directed to: National Program Office, 1340 Financial Blvd., Reno, NV 89502.
- Vaccinations of released wild horses - An analysis of the benefits or non-benefits of vaccinating returned animals to the range (ie. West Nile Virus). Any questions regarding vaccinations should be directed to: National Program Office, 1340 Financial Blvd., Reno, NV 89502.
- Alternative Energy Use – An analysis of land use for alternative energy purposes verses oil and gas.

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4.2 Persons, Groups, and Agencies Consulted

Agri Beef Co
 Air Force Regional Environmental Office
 American Bashkir Curley Register
 American Horse Protection Association
 American Humane Society
 American Mustang & Burro Association
 Barrick Goldstrike Mines
 Battle Mountain Band of the Te-Moak Tribe of Western Shoshone
 Colorado WH&B Coalition
 Committee for Idaho High Desert
 Craig Downer
 Doris Day Animal League
 Duck Valley Tribal Council
 Elko Band of the Te-Moak Tribe of Western Shoshone
 Elko County Commissioners
 Ellison Ranch Co
 Friends of Wilderness
 Hawkwatch International Inc
 ISPMB

National Mustang Association
Natural Resources Defense Council
NDOW – Elko
NE NV Trout Unlimited
Nevada Cattlemen’s Association
Nevada Division of Livestock Identification
Nevada High Country Tours
Nevada Outdoors Recreation Assn
Nevada State Clearing House
Nevada State Clearinghouse
Nevada Woolgrowers Association
NV Comm. Preservation of Wild Horses
Oro Vaca, Inc
Red Rock Audubon Society
Robert McGinty
Roger Scholl
Rutgers Law School
Sierra Club
South Fork Band Te-Moak Tribe of Western Shoshone
Te-Moak Tribe of Western Shoshone
The Fund for Animals, INC
The Wilderness Society
U.S. Fish and Wildlife Service – Robert D Williams
Wells Band of the Te-Moak Tribe of Western Shoshone
Western Watershed Project
Wild Horse Organized Assistance
Wild Horse Sanctuary
Wild Horse Spirit
Wilderness Impact Research Foundation

4.2 List of BLM Preparers

Bryan Fuell, Wild Horse Specialist
Carol Marchio, Soil/Water/Air
Donna Nyrehn, Range Management Specialist
Gerald Dixon, Native American Religious Concerns
Kathy McKinstry, Natural Resource Specialist
Ken Wilkinson, Wildlife Biologist
Lorrie West, Environmental Coordinator
Mark Coca, Invasive Non-Native Species
Pat Coffin, Fisheries Biologist
Tamara Hawthorne, Wilderness and VRM