



DOLORES PUBLIC LANDS OFFICE

**ENVIRONMENTAL ASSESSMENT (EA) and GATHER PLAN
EA #CO-800-2007-077 - Spring Creek Basin Wild Horse Gather**



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**BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL ASSESSMENT**

PROJECT NUMBER: CO-800-2007-077EA

PROJECT NAME: Removal of excess Wild Horses from the Spring Creek Basin Herd Management Area, Colorado.

ECOREGION/PLANNING UNIT: South-Central Highlands/Dolores Public Lands Office.

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Cover photo: January 24, 2007; looking north down the west boundary fence of the Spring Creek Basin Herd Management Area (HMA). HMA is on the east (right) side of the fence.

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1.0 INTRODUCTION/PURPOSE and NEED/BACKGROUND INFORMATION

Summary Description of Proposed Action

The Bureau of Land Management (BLM) plans to gather approximately 90 horses (adults and foals) from the Spring Creek Basin Herd Management Area (HMA) sometime after August 18, 2007. Of the gathered horses, approximately 62 adults and 15 foals from the HMA, as well as all horses gathered outside the HMA, would be removed. The balance of the gathered horses would be returned to the HMA. In order to maintain the diversity of this herd, BLM's Proposed Action includes introducing three young mares from the Little Book Cliffs Wild Horse Range into the Spring Creek Basin HMA. This aspect of the Proposed Action was analyzed in environmental assessment CO-SJFO-01-053. Horses would be removed, and added, to maintain the horse population within the established appropriate management level (AML) of 35 to 65 adult horses, to minimize impacts to forage health and vigor, and maintain genetic diversity within the herd.

Horses removed from the Spring Creek Basin HMA would be adopted or sent to long term holding facilities. Under current law, horses in excess of 10 years old and those subsequently offered in at least three adoption events that are not adopted, would be eligible for sale.

Purpose and Need

The purpose of the Proposed Action is to maintain a thriving natural ecological balance by reducing the population of wild horses to within their AML. The Spring Creek Basin Herd Area Management Plan directs maintenance of the herd within a range of 35 and 65 adult horses. The Proposed Action is needed because forage is presently sparse within the HMA, as the horses are presently consuming the most palatable and digestible plant species at levels that prevent successful reproduction and cause the death of existing plants. Other less palatable, or often invasive species, are then able to increase. Predators do not substantially regulate this wild horse population. The consequent dominance of less desirable forage and browse species is resulting in a failure to provide the "thriving ecological balance" required by the Wild Free-Roaming Horses and Burro Act of 1971 (Public Law 92-195).

A February 2007 aerial horse census confirmed at least 94 adult horses in the HMA and five outside the HMA on private land. Environmental assessment #CO-800-2005-027, completed in May 2005, reevaluated the Spring Creek Basin AML horse population range, analyzing a large body of vegetation inventory, production and monitoring data. The subsequent decision, issued May 27, 2005, reaffirmed the present AML of 35 to 65 adult horses. Current rangeland monitoring studies, confirm the need to remove horses. These data, which include key forage plant utilization studies, and comparison photographs of grazing exclosures and cages are available upon request. BLM is mandated to gather horses outside designated HMAs.

Location and Land Status

The Spring Creek Basin Wild Horse Herd Management Area (HMA) is located about 17 miles northeast of Dove Creek, Colorado, and approximately 20 miles southwest of Norwood, Colorado; in both San Miguel and Dolores Counties. Spring Creek is tributary to Disappointment Creek, entering Disappointment Creek about eight miles above its confluence with the Dolores River. The HMA consists of about 21,800 total acres: approximately 800 acres are Colorado State Land Board land or private land, and the balance is public and acquired land administered by the BLM. See Figure 1, the Spring Creek Basin HMA Location Map, on the last page of this document for more information.

Introduction/Background

The 1985 San Juan/San Miguel Resource Management Plan (RMP) placed a management emphasis on wild horses, and erosion and salinity management for this area. A Wild Horse Herd Management Area Plan (HMAP) was approved in October, 1986; it was revised in 1994.

2.0 PROPOSED ACTION and ALTERNATIVES

2.1.1 Proposed Action: Helicopter drive trapping with no use of Immunocontraceptives

The established appropriate management level (AML) in the Herd Management Area Plan is a range of 35 to 65 adult horses. To achieve that objective, approximately 90 horses (adults and foals) of the estimated 94 adult horses and 20 foals in the HMA would be gathered. Of the adult horses gathered, approximately 17 would be returned to the HMA, which when combined with the horses not gathered and horses introduced from the Little Book Cliffs Wild Horse Range, would leave at least 35 adult horses on the HMA. Approximately 62 adult horses and 15 foals from the HMA would be removed. These horses, along with any gathered outside of the HMA would be made available for adoption or sent to long term holding facilities. A helicopter, as well as mounted and ground personnel, would be used to gather the horses sometime after August 18, 2007. Most horses would be herded into corral traps constructed of portable steel panels. A few horses might have to be roped if they cannot be herded into a trap. In 2005, of the 90 horses helicopter-herded towards the trap, three turned back and had to be roped.

Hair samples would be pulled, or blood samples drawn, for genetic analysis of horses released back into the HMA, as well as for horses introduced into Spring Creek Basin from the Little Book Cliffs Wild Horse Range. Horses transplanted from the Little Book Cliffs herd would have a current, negative EIA test. Genetic analysis samples have not been taken from the Spring Creek Basin herd since the 2000 gather. The horses returned to the range would be selected in a manner so as to maintain the viability, adaptability and character of the established horse herd, as explained in the HMAP and the aforementioned CO-SJFO-01-053.

After release of an adequate number of horses to insure the 35 adult horse minimum would be met, a portion of the remaining horses would be transported to Cortez and made available for adoption, with the balance taken to Canon City for placement in the national adoption program or long term holding facilities. See Appendix 5.1.1 for standard operating procedures for horse gathers using helicopters.

The principal portable trap site and temporary holding corral for gathering horses that are located within the HMA would likely be located in T.43N., R.16W., Section 33: NW¼. This primary trap location is illustrated on the map located on the last page of this document. With permission from the private land owner, trap sites for horses outside the HMA might be located on private lands within T.41N., R.15W., Section 6: E ½ NW ¼ and T.41N., R.16W., Section 1: E½.

It is possible, but less likely that portable trap sites would be located within the following public land locations:

T.42N., R.15W., Section 29: SW¼; Section 30: SE¼.

T.42N., R.16W., Section 4: N½N½; Section 5: N½ NE¼; Section 25: S½.

T.43N., R.16W., Section 28: S½SW¼; Section 32: E½; Section 33: NW¼; Section 34: NE¼NW¼.

Trap locations would be based on: 1.) where BLM employees and the gather contractor find horses when the project begins; 2.) past experience and knowledge gained from previous gather operations in this area; and 3.) changing resource conditions; like water and forage availability. The movements and current locations of horses located outside of the HMA are even less predicable. For the reasons indicated above, proposed trap locations must be somewhat tentative. Exact locations would be chosen during the roundup. The Proposed Action includes evaluating specific trap locations for impacts to T&E species, cultural resources and wilderness values, and not using any trap sites that would impact these critical resources.

Though unlikely, it is possible that temporary traps constructed of portable steel panels might be erected in the McKenna Peak Wilderness Study Area (WSA), at T.42N., R.15W., Section 29: SW $\frac{1}{4}$; or Section 30: SE $\frac{1}{4}$. These locations have been used in the past. If these trap locations are used, no motor vehicles would enter the WSA. The WSA boundary in this area is located north of a four-wire fence that parallels the north side of the Disappointment Valley county road. Trap panels and jute netting for trap wings would be hand carried and erected just inside the aforementioned fence.

All regulated medical waste (i.e. syringes, darts and needles) generated by preparing the captured horses for adoption would be placed in approved containers as specified in Colorado Administrative Code and disposed of in accordance with the code. If any horses die during capture operations, or need to be put down for humanitarian reasons, they would be buried at least three feet deep in an upland area. These above listed activities, as well as the standard operating procedures detailed in appendix section 5.1.1, are design criteria and have been incorporated into the Proposed Action, as well as the Alternative described at 2.1.2, immediately below.

2.1.2 Immunocontraceptive Alternative: Helicopter drive trapping with use of Immunocontraceptives

This alternative is identical to the Proposed Action, with the exception that captured mares scheduled for release back into the HMA would receive the 22-month time release PZP (Porcine Zona Pellucida) immunocontraceptive vaccine. This drug has been widely tested and used in horses, but is still classified as experimental. Consequently, if BLM were to select this alternative, approval for use of the drug would have to be received from the Humane Society of the United States (HSUS). If captured, mares identified as one of the three introduced into the Spring Creek Basin HMA from the Sand Wash Basin HMA in 2001 would not be removed or receive the vaccine. These three mares were introduced to improve genetic diversity.

2.1.3 No Action Alternative

Under this alternative a wild horse gather would not take place in the Spring Creek Basin HMA in either 2007 or 2008. Predators do not substantially regulate wild horses in this HMA. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95%. Present adult horse numbers far exceed the estimated carrying capacity for the HMA. The No Action Alternative would result in further, steady increases in wild horse numbers, which would eventually lead to the loss of horses because of starvation and/or dehydration. The long-term vegetative productivity and soil stability of the herd management area would be damaged by this alternative and could take decades to recover. There would be long-term impacts to the viability of this wild horse herd due to habitat destruction.

This alternative would not be acceptable to the BLM nor to most members of the public. A few individuals advocate “letting nature take its course”, however allowing horses to die of dehydration and starvation would be inhumane treatment and would lead to severe long-term degradation of their habitat. The Wild Free-Roaming Horse and Burro Act of 1971 mandates that the BLM “*prevent the range from deterioration associated with overpopulation*”, and “*remove excess horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area*”. Additionally, Promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state “*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*”.

Selection of an alternative other than the No Action Alternative is necessary to ensure compliance with the Wild Free Roaming Horse and Burro Act of 1971 and Federal Regulations.

2.1.4 Alternatives Considered But Not Carried Forward For Further Analysis

Other alternatives for capturing the horses such as bait and water trapping were considered, but eliminated from further consideration because they were impractical, and/or created cost and safety considerations for the horses and people working on the gather. All water sources on the HMA would have to be fenced from the horses so that they would have to come in to the sources where the fence traps were set up. Water typically rises up to the surface in the bottom of Spring Creek in shallow pools, disappears for some distance and then rises to the surface again. Fencing the length of Spring Creek where this occurs would be impractical. Many of the water sources and bait trapping locations in the HMA do not have vehicle access, so trapped horses would have to be led to holding corrals on the roads. This alternative would be dangerous, time consuming, and in most years impractical.

For the reasons given above, neither water or bait trapping alternatives were carried forward for further analysis.

2.2 CONFORMANCE with EXISTING LAND USE PLANS

The San Juan/San Miguel Resource Management Plan (RMP) directs land management in the project area; it was approved in September, 1985. It has been reviewed and BLM has concluded the Proposed Action is in conformance with this Plan. The No Action Alternative would not be in conformance with the RMP or the HMAP, since it would result in overpopulation of horses, which would lead to degradation of wild horse habitat and watershed conditions.

The RMP designated the wild horse emphasis area (now the Spring Creek Basin HMA), directed that an HMAP be prepared, and specifically directs management for an AML mid-point of 50 animals, which has been confirmed to be the AML based upon monitoring data. In addition to wild horses, the RMP also designates management emphasis on watershed values; and wilderness attributes in the portion of the HMA that overlaps the McKenna Peak Wilderness Study Area.

2.3 RELATIONSHIP to STATUTES, REGULATIONS, POLICIES PLANS or OTHER ENVIRONMENTAL ANALYSES

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR 1500-1508), chapter V. In addition, this EA has also been prepared in conformance with the following Acts and management plans.

Wild Free-Roaming Horse and Burro Act of 1971 (PL 92-195): Provides for the protection, management, and control of wild horses and burros on public lands administered by the Bureau of Land Management and the U.S. Forest Service.

Public Rangeland Improvement Act of 1978 (PL 95-514): Section 2(b)(2), instructs the Bureau of Land Management to “manage, maintain and improve the condition of the public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process established pursuant to section 202 of the Federal Land Policy and Management Act”.

Spring Creek Basin Wild Horse Herd Management Area Plan (HMAP): The herd management plan was approved on April 11, 1994 and states that the overall objective of the Spring Creek Basin HMA is to maintain a healthy, viable population of wild horses in a thriving natural ecological balance with other resources and users.

Spring Creek Basin/Disappointment Valley Erosion and Salinity Control Watershed Activity Plan: This plan was approved on November 19, 1986. The stated objectives in this activity plan are to 1) reduce the salt and sediment yields in the Upper Colorado River Basin; 2) decrease surface erosion; 3) increase vegetation production to improve watershed condition and provide forage for livestock, wild horses and wildlife; 4) improve habitat (cover) for wildlife; and 5) provide seasonal water for livestock, wild horses, and wildlife.

Environmental assessment CO-SJFO-01-053-EA analyzed the periodic introduction of wild horses with similar breeding from other herd areas, into the Spring Creek Basin HMA in order to maintain the genetic viability of the Spring Creek Herd. The Decision Record adopting the Proposed Action for the periodic introduction was signed on July 31, 2001, and was not appealed.

The 1994 HMAP set the appropriate management level (AML) for the Spring Creek Basin HMA at 35 to 65 horses, plus or minus 10%. Environmental assessment #EA-CO-800-2005-027 was completed in February of 2005, with a supplement issued in May 2005. These documents analyzed the appropriateness of livestock grazing permit renewal and the AML for wild horses in the Spring Creek Grazing Allotment/Spring Creek Basin HMA. They also clarified that juvenile (<1 year old) horses would not count towards the AML. EA-CO-800-2005-027 also contained more extensive affected environment and background information than this document. This analysis is tiered to that environmental analysis, and the entire document is hereby incorporated by reference.

BLM’s May 27, 2005 Final Decision reaffirming this AML, based on the analysis in CO-800-2005-027EA, was appealed to the Interior Board of Land Appeals (IBLA). On May 28, 2007 the IBLA issued Order IBLA 2005-212, affirming BLM’s decision on the AML. A verbatim quote from this Order is reproduced below:

“The goal of wild horse management is to maintain a thriving natural ecological balance among wild horse populations, wildlife, livestock, and vegetation, and to protect the range from the deterioration associated with overpopulation. 16 U.S.C. § 1333(a) (2000); 43CFR § 4700.0-6; *Thomas M. Berry*, 162 IBLA 221, 224 (2004); Don and *Martha P. Sims*, 141

IBLA 1, 8 (1997). The test to determine whether wild horse population levels are appropriate is whether such levels will achieve and maintain a thriving ecological balance on the public lands, *Don and Martha P. Sims*, 141 IBLA at 8. We have defined the AML as the “optimum number of wild horses and burros that ‘results in a thriving natural ecological balance and avoids deterioration of the range’.”

As is referenced above, the Wild Free-Roaming Horse and Burro Act and Title 43 Code of Federal Regulations (CFR) 4700 - Protection, Management, and Control of Wild and Free-Roaming Horses and Burros, direct that wild horses be managed in balance with other uses and the productivity of their habitat. The Bureau is also directed to remove the excess animals so as to restore a thriving natural ecological balance to the range and protect the range from the deterioration associated with overpopulation.

In accordance with the San Juan/San Miguel RMP, the aforementioned HMAP was developed in 1986 and revised in 1994 to direct the management of the Spring Creek Basin wild horse herd. The HMAP specifies that a gather will be scheduled when numbers exceed 65 animals, with 35 being maintained in the HMA. The Dolores Public Lands Office does not rely solely on this direction, and always conducts resource monitoring studies before proposing the removal of excess horses.

On February 22, 2007, an aerial census was conducted using a Bell 47 Soloy turbine helicopter. Ninety-four horses were located in the HMA, with an additional five horses outside of the HMA. The “outside” horses range across private, BLM and National Forest lands south of the HMA. A few horses may not have been counted, but no horses were double counted.

A May 11 and 12, 2007, count of horses, conducted from horseback and a vehicle, by the BLM in partnership with the Four Corners Chapter of the Back County Horseman, estimated 144 adult horses and 16 foals in the HMA. The horses were counted by band and individually categorized, as much as possible, by color. Every attempt was made to rule out duplicate counts of the same horses; though it appears that some horses were counted twice in this census. It is notable that one band of 14 adult horses counted on May 12, 2007, already had produced six foals. This is a 43% foal crop (from this one band), at only the approximate midpoint of the foaling season.

2.4 STANDARDS for PUBLIC LAND HEALTH in COLORADO

In 1996, in accordance with 43 CFR Subpart 4180, the Colorado BLM developed five Standards for Public Land Health. The standards were analyzed in a statewide environmental assessment that included extensive public involvement. The Record of Decision adopting these standards was signed by BLM’s Acting Colorado State Director in November 1996, the Secretary of the Interior approved them in February 1997. These five standards include 1) upland soils; 2) riparian systems; 3) healthy, productive plant and animal communities; 4) special status, threatened and endangered species; and 5) water quality. These standards are discussed in more detail in the appropriate Affected Environment/Environmental Consequences sections of this EA.

In 2003, a BLM interdisciplinary team was assembled to determine if the Spring Creek Allotment/Spring Creek Basin HMA was meeting these standards. Information including the 2003 rangeland health assessment, proper functioning condition assessments for riparian areas, rangeland

trends, vegetation production and water quality data were considered in determining if the five standards are being achieved or not achieved. Table 1 summarizes these determinations as to whether the Spring Creek Allotment/HMA are achieving the standards, as well as addressing causal factor(s). Copies of these determinations are available for review at the Dolores Public Lands Office, BLM.

Table 1. Summary of existing determinations and their causal factor(s) for standards.

Standards	Determinations	Causal Factors
Standard # 1: Upland Soils	Not Achieved	¹ Domestic livestock and wild horse grazing. ² Big game populations and historic grazing by livestock.
Standard # 2: Riparian Systems	Not Achieved	¹ Domestic livestock and wild horse grazing around reservoir in Wildcat Canyon. ² Historic private land grazing practices upstream outside of Allotment/HMA
Standard # 3: Healthy, Productive Plant and Animal Communities	Not Achieved	¹ Domestic livestock and wild horse grazing. ² Big game populations and historic grazing by livestock.
Standard # 4: Special Status, Threatened and Endangered Species	Achieved	Determination not required as a result of standard being achieved
Standard # 5: Water Quality	Achieved	Determination not required as a result of standard being achieved

¹Causal factors within control of the BLM. ²Causal factors outside control of the BLM.

3.0 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES/MITIGATION MEASURES

Except where otherwise indicated, the effects of the Immunocontraception Alternative are the same as the Proposed Action.

3.1 CRITICAL ELEMENTS

3.1.1 Air Quality

Air quality impacts from the Proposed Action include fumes from helicopter and truck engines, and dust that is stirred up in the gather and transport operations. These impacts would be low and short term. Impacts from the No Action Alternative would be moderate and long term, as the continued loss of vegetative cover would increase the amount of soil in the air.

3.1.2 Areas of Critical Environmental Concern

No ACECs would be affected by either the Proposed Action or the No Action Alternative.

3.1.3 Cultural Resources

An archaeological inventory was performed by BLM archaeologists on August 1, 2005. No sites were encountered at the proposed West HMA Trap/Corral Location, or along the road to access this location. The remnants of one historic homestead, 5SM5098, were located at the Custer Dam Area Trap Site. 5SM5098 was determined to be not eligible to the National Register of Historic Places (NRHP) and therefore does not require further protection. No NRHP eligible properties would be adversely affected

from the projects proposed activities or the alternatives. Additionally, no known traditional Native American use areas or sacred areas exist within the project area and no known Protected Paleontological resources would be affected by the Proposed Action or the alternatives.

3.1.4 Environmental Justice

On February 11, 1994, the President issued Executive Order No. 12898 on environmental justice as it affects minority and low income populations. The purpose of the order is to identify and address, as appropriate, disproportionately high and adverse human health and environmental effects of programs, policies, or activities on minority or low income populations. No disproportionate negative impact to minority or low income populations would occur from either the Proposed Action or the alternatives.

3.1.5 Prime and Unique Farmlands

No Prime and Unique Farmlands would be affected by the Proposed Action or the alternatives, as none are located within the project area.

3.1.6 Floodplains

Floodplains and flood prone areas exist along the Spring Creek mainstem and tributary drainages. See Section 3.1.14 Wetlands and Riparian Zones, for potential impacts to floodplains and flood prone areas.

3.1.7 Invasive/Non-Native Species

There are several relatively small and widely scattered patches of Russian knapweed located along roadsides in this allotment. These patches do not appear to be spreading aggressively, though they would likely persist and increase in size if not controlled with herbicides. Russian knapweed has no known native predators and thus has a competitive advantage over palatable native species. Invasive plant species lower the productivity and diversity in the native plant community and can lead to monotypic stands with little or no value to wildlife, wild horses or livestock. In addition, Russian knapweed is allelopathic, that is it releases a chemical into the soil that limits the germination and growth of other plant species.

Since the proposed project would utilize existing disturbed sites to gather and process the wild horses, these sites may easily be checked and pre-treated for weeds by the BLM. It is anticipated that noxious weed populations would not increase as a result of the Proposed Action. Only noxious-weed-free hay would be utilized on public lands during the proposed gather operation.

The No Action Alternative would likely result in an increase in the distribution and density of noxious weeds. Overgrazing of palatable native plants by excessive horse numbers would increase mortality and loss of vigor in native plants, providing less competition for the unpalatable weedy species.

3.1.8 Migratory Birds

The following Birds of Conservation Concern (2002) may occur or are known to occur in the area: golden eagle, northern harrier, western burrowing owl, gray vireo, sage sparrow, pinyon jay, Virginia's warbler. The gather is expected to occur in late summer/early fall, well after the nesting season for these species. There would be no impacts to migratory birds under the Proposed Action or the Immunocontraception Alternative. Under the No Action Alternative, continued degradation of the vegetation may impact these birds over the long-term through loss of habitat.

3.1.9 Native American Religious Concerns

Indian Tribes and their representatives are sent a copy of the quarterly Schedule of Proposed Actions (SOPA) mailings, and as with all members of the public, have access to the SOPA on the Internet (<http://www.co.blm.gov/nepa/sjplcnepa.htm>). Interested tribes are asked to contact the BLM if they would like to receive additional information concerning a project. This project has been listed in the SOPA database since the 4th Quarter of 2005. No responses have been received from Native Americans on this project and no known traditional cultural properties or sacred sites have been identified during tribal consultation or during the literature review undertaken for the proposed trap areas. Previous consultations for other projects in the Wild Horse Area have not identified any Native American concerns and there is no other known evidence that suggests that the project activity would affect any area that holds special meaning for Native Americans. There is no information to indicate that the No Action Alternative would have an effect on this element either.

3.1.10 Threatened, Endangered and Sensitive Species (includes a finding on Standard 4)

Portions of this Herd Management Area (HMA) provide habitat for wintering bald and golden eagles. The bald eagle is Federally listed as a Threatened species. Horse gathering activities are not planned during the time of year when bald eagles use the winter roost sites. Since BLM does not propose to gather these horses during the winter, there would be no conflicts between the Proposed Action and bald or golden eagles.

A suspected peregrine falcon aerie is located on the edge of the HMA. Use of this location as a nest site has not been confirmed. The peregrine falcon was removed from the list of Federally Threatened species on August 25, 1999. It is considered a sensitive species by the BLM–Colorado. Horse gathering activities would not impact peregrine falcons since nesting would be complete prior to the gather.

The only other sensitive species likely to be within the project area are the bats: spotted bat, Yuma myotis, big free-tailed bat, fringed myotis, and Allen’s big-eared bat. They would not be impacted by the activities since they would be in roost sites during the day.

Extensive plant surveys were completed during the rangeland health assessment field work and range inventory field work during the spring and summer of 2003. No sensitive species were seen during these surveys. Specific habitats such as seeps and springs were thoroughly searched. Although no sensitive species were seen, it is possible that several of these species could be present due to the extent of the area and amount of habitat present.

In 2006, a botanist with the Colorado Natural Heritage program surveyed the area through a grant with the BLM. The purpose of this survey was to look for a newly identified species of *Cryptantha*, which occupies habitat associated with gypsiferous soils. A small population of *Cryptantha gypsophila* was found within the herd area north of “Round Top”. Because this plant is so recently identified as a new species it has no official Federal designation. Surveys are being completed throughout San Miguel and Dolores Counties to determine how many populations of this species exist. None of the trap locations are in the vicinity of the *Cryptantha* therefore impacts to the species from the Proposed Action are unlikely.

It is expected that proposed removal of excess wild horses would improve public land health conditions in general, including habitat for most special status species, while the No Action Alternative would lead to degraded habitat conditions for most special status species.

3.1.11 Visual Resources

Because no new structures or new surface disturbance are proposed, there would be no conflicts with visual resources as a result of the proposed action or either alternative.

3.1.12 Wastes, Hazardous or Solid

Hazardous wastes are not expected to be an issue for this Proposed Action as hazardous materials or wastes would not be used, generated, or encountered. Solid wastes would be generated during the gathering activities at the camping area (trash and human wastes.)

Minimal impacts would be expected from solid waste generation. All trash would be collected and removed for proper disposal. Human waste disposal at the campsite/primary trap site would be via commercially-serviced portable vault toilets. If more remote trap sites are used (they were not in 2005) human waste would be buried in dispersed upland cat holes. The No Action Alternative would not produce any waste products in the project area

3.1.13 Surface and Ground Water Quality (includes a finding on Standard 5)

Spring Creek Basin drains into Disappointment Creek, the latter of which flows to the northwest and enters the Dolores River, approximately 8 miles upstream of the old townsite of Slick Rock, CO. The soils in the basin are largely derived from Mancos shale and exhibit fine surface textures, high in silts and clay, causing low infiltration capacities and high runoff rates. Multiple infiltrometer tests taken during the field season of 2003 yielded infiltration rates that were essentially zero. Watershed cover (vegetation) is commonly below potential which adds to the naturally high runoff and increases the rate of erosion within the watershed. The basin is drained by ephemeral and intermittent channels. Spring Creek, the major drainage within the basin, is mostly ephemeral except for short reaches of the main stem that flow perennially. Runoff occurs from snowmelt in the spring and from high intensity, short-duration thunderstorms during summer monsoons. Spring Creek and its tributaries are incised into the Mancos shale, with active headcuts in the headwaters and lateral erosion along its main stem. Consequently, during runoff events, erosion from both upland soil surfaces and channel incision and adjustment, produce high concentrations of suspended sediment. Salinity is also high in surface waters, being contributed from both erosional processes and saline groundwater discharge. In such highly saline soils, large sediment inputs result in elevated salt concentrations that are reflected in high conductivity and total dissolved solid (TDS) measurements.

Of the five land health standards evaluated, water quality is discussed under this section. As presented in Table 1, this standard is being achieved for the Spring Creek Allotment/HMA. State of Colorado, Water Quality Standards information was used by the BLM interdisciplinary team to come to these determinations, and is discussed below.

The State of Colorado establishes classifications and numeric standards for surface waters in compliance with the Colorado Water Quality Control Act. The classifications identify beneficial uses of the water. Beneficial uses may include public water supply, domestic, agricultural, industrial and recreational uses, and the protection and propagation of terrestrial and aquatic life. Beneficial use

classifications are to be maintained and protected in accordance with anti-degradation regulations as set forth by the State, unless given a use-protected designation. A use-protected designation allows for some water quality degradation as long as use classifications, such as public water supply, continue to meet State standards. Classifications and numeric standards for tributaries to the Dolores River within the Spring Creek Allotment/HMA are listed in Table 2.

Table 2. Classifications and numeric standards for tributaries to the Dolores within Spring Creek Basin.

Segment Description	Designation	Beneficial Use Classification	Numeric Standards	
			Physical and Biological Parameters	Inorganic Parameters ³
3. All tributaries to the Dolores River, including all lakes, reservoirs and wetlands, from the bridge at Bradfield Ranch (Forest Route 505, near Montezuma/Dolores County Line) to the Colorado/Utah border, except for specific listings in Segments 4 ¹ and 5 ² .	Use Protected	Aquatic Life Warm 2 Recreation 1a Agriculture	D. O. = 5.0 mg/L pH = 6.5-9.0 F. Coli. = 200/100mL E. Coli. = 126/100mL	NO2 (ac) = 10 mg/L

1 Mainstem of West Paradox Creek

2 Mainstem of West Creek; La Sal Creek and Mesa Creek from their sources to the Dolores River

3 Parameters listed include only those affected by livestock management

Numeric standards exist for physical, biological, inorganic and metal parameters. Only those inorganic parameters listed in Table 2 would be affected by changes in livestock and/or wild horse management. Metal parameters would not be affected by such changes and were therefore not listed. Also not listed in Table 2 is the salinity standard that exists for the Colorado River and its tributaries. The salinity standard requires that water characteristics in the headwaters of the Colorado River are such that a total dissolved solid (TDS) value of 723 mg/L can be maintained below Hoover Dam. The temperature standard for the stream segments within the analysis area is maximum 30° C, with a minimum 3° C increase over a four to twelve hour period. To meet State water quality standards, temperatures should maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes. In addition to the numeric standards, the salinity standard and the temperature standard, the Colorado Water Quality Control Commission has included a narrative standard for all surface waters that states that all water (except in wetlands and/or except where authorized by approved permits, certificates, or plans of operation) shall be free from substances attributable to human caused point or nonpoint source discharges in amounts, concentrations, or combinations that:

- can settle to form bottom deposits detrimental to the beneficial uses,
- are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life, and
- produce a predominance of aquatic life.

The State of Colorado has identified the tributaries to the Dolores River between the bridge at Bradfield Ranch and the Colorado/Utah border as fully supporting all of its designated beneficial uses according to Status of Water Quality in Colorado-2004 report. Samples measuring temperature, pH, salinity and conductivity were collected by the BLM in 2003 at multiple seeps within the basin. Samples measuring conductivity were collected by the BLM in 1983 (Table 4). Both data sets indicate that the

basin is likely to be a substantial source of salt within the larger San Juan Basin. The highest conductivity value measured in Spring Creek basin was 13890 $\mu\text{S}/\text{cm}$ (13.89 mS/cm) in the spring of 2003. In comparison, water from snowmelt ranges from 2-42 $\mu\text{S}/\text{cm}$ and potable water ranges from 30-1500 $\mu\text{S}/\text{cm}$ (MacDonald, et. al. 1991). Total dissolved solids were not measured but can be estimated from conductivity measurements. The concentration of total dissolved solids is high but it cannot be ascertained from this data alone whether or not this leads to a violation of the State standard for salinity. Lastly, the 2003 grab sample data indicates that the pH standard is being met within the basin.

Table 3. Water quality grab sample data for seeps within the Spring Creek analysis area.

Location			Date	Temperature (°C)	pH	Salinity (ppt)	Conductivity (mS/cm)
Description	Northing	Easting					
Seep in tributary to Spring Creek (gully)	183925	4203262	5/7/2003	18.7	7.94	9.2	13.89
Seep in Spring Creek	181736	4206340	5/7/2003	15.2	7.68	4.8	7
Wildcat Canyon below Wildcat Spring	182975	4207891	5/8/2003	13.7	8.45	2.9	3.95
Bassnet Point Spring	185344	4208058	10/21/2003	20.1	8.83	3.2	5.28
			11/16/1983				4.4
Pee Spring	185526	4203833	10/21/2003	18.3	7.71	2	3.26
			11/17/1983				6.8

The primary parameters that are affected by livestock/wild horse management include the numeric physical and biological standards of dissolved oxygen, pH, and bacteria; the inorganic standards of ammonia and nitrite; the salinity/TDS standard; the temperature standard and the “free from” narrative standard applicable to the accumulation of fine sediments. In relation to livestock/wild horse management, dissolved oxygen, pH, nitrite, salinity/TDS and the presence of fine sediments are or can be influenced by the amount of erosion occurring on the watershed. Bacteria and ammonia are influenced by the presence of livestock/wild horses in the stream channel or riparian zone and to a much lesser degree their presence and concentration on the uplands. Temperature is influenced by the amount of stream shading and by physical characteristics of the stream, such as width/depth ratio.

Of the parameters listed above as affected by wild horse management, salinity/TDS, sediment and bacteria would be affected by the alternatives proposed in this analysis. The parameters of dissolved oxygen, pH, ammonia, nitrite and temperature are not expected to change under any alternative due to limited livestock/wild horse access into the areas where surface water is present in any substantial amount.

Livestock and wild horse use generates nonpoint source pollution. The level of nonpoint source pollution varies considerably with site specific conditions and is highly dependent on the frequency, magnitude and timing of runoff events, watershed condition, number and proximity of livestock and/or horses to surface water systems, duration of grazing and season of use.

Under the Proposed Action, upland vegetative cover would increase, soil stability would increase, erosion would decrease and water quality would improve. Sediment inputs into the stream would decrease, salinity/TDS levels would decline and bacteria concentrations would be reduced. This would be in conformance with the objectives of the erosion control/water quality emphasis area under the San Juan/San Miguel RMP.

Under the No Action Alternative, upland vegetative cover would decrease and soil stability levels would remain the same or decrease, resulting in less infiltration and increases in overland flow. Any increase in overland flow would further exacerbate erosion of the uplands and headward erosion of Spring Creek and its tributaries. Sediment and salinity/TDS would increase during runoff events. Bacteria concentrations would increase. The No Action Alternative would move conditions away from meeting the land health standard for water quality and would not be in conformance with the objectives of the erosion control/water quality emphasis area under the San Juan/San Miguel RMP.

3.1.14 Wetlands, Riparian Areas, and Floodplains

Spring Creek is the major drainage for the analysis area. Wildcat Canyon is an intermittent tributary to Spring Creek near the west end of the herd area. Spring Creek is mostly ephemeral except for short reaches of the main stem that flow perennially. Ephemeral reaches of Spring Creek do not support riparian vegetation. Those sections with year-round water may support species such as rubber rabbitbrush, greasewood and tamarisk. Tributaries to Spring Creek, with the exception of Wildcat Canyon, are dominated by sagebrush and/or greasewood and are extensive, active and continuous gully systems. Knickpoints and headcuts progressively increase in these tributaries upstream from the main channel. Wildcat Canyon is an intermittent stream that supports riparian vegetation such as cottonwoods, willow, serviceberry and tamarisk. In March 2007, the BLM, in partnership with the National Mustang Association, the San Juan Mountains Association and students from the University of Missouri Alternative Spring Break Program, cut tamarisk and sprayed the cut stumps with herbicide, along the most heavily infested reach of Wildcat Canyon.

Wildcat Canyon was assessed in 2003 using Proper Functioning Condition protocol. This is a qualitative survey used to assess stream hydrology, vegetation and erosional/depositional processes. Streams are rated Proper Functioning Condition (PFC), Functional-At Risk (FAR) or Nonfunctional (NF). Functional-At Risk ratings include an assessment of trend (BLM TR 1737-9 1993). Spring Creek was not assessed due to its lack of riparian vegetation. Wildcat Canyon rated FAR, trend not apparent, above BLM road 410 and PFC below BLM road 410. The FAR rating was due to upstream land activities outside of the herd management area and due to compacted conditions around Wildcat Reservoir.

In addition to streams, there are a few springs scattered throughout the herd area. Most of the springs have little riparian vegetation associated with them. An exception is Bassnet Point Spring. Bassnet

Point Spring was assessed using PFC protocol for lentic riparian systems (TR 1737-11 1994) on September 3, 2003, and rated in Proper Functioning Condition.

Of the five standards evaluated for public land health, riparian systems are discussed under this section. This standard is not being achieved for the Spring Creek allotment. A causal factor for this determination was identified as livestock grazing and wild horse use around Wildcat Reservoir. Information used by the BLM interdisciplinary team to come to this determination is the proper functioning condition assessments for lotic (flowing water) riparian areas.

Riparian functionality would not be expected to improve with a reduction in wild horse numbers. Wildcat Canyon above BLM Road 410 would be expected to remain FAR with no change in trend. The FAR rating is due to activities upstream and conditions around Wildcat Reservoir which would not be expected to change as a result of the Proposed Action. Below BLM Road 410, riparian functionality would remain in PFC. Bassnet Point Spring would remain in PFC. These conclusions are consistent with the conclusions drawn in the Spring Creek Basin Wild Horse Herd Management Area Plan written in 1994 by the Montrose BLM District where changes in upland conditions were expected to have little effect on the trend and condition of riparian areas.

The No Action Alternative would eventually lead to large numbers of horses within the herd area that could potentially have a direct affect on riparian functionality of Wildcat Canyon below BLM Road 410. Large numbers of horses combined with existing livestock use of this section of Wildcat Canyon could lead to a downward trend and a functional-at risk rating due to concentrated use of the stream channel.

3.1.15 Wild and Scenic Rivers

No Wild and Scenic Rivers would be affected by either the Proposed Action or the alternatives.

3.1.16 Wilderness/Wilderness Study Areas

Approximately 3,564 acres of the western portion of the McKenna Peak Wilderness Study Area (WSA), is contained in the HMA. The 1985 RMP and the 1990 San Juan/San Miguel Wilderness Environmental Impact Statement recommended this WSA as nonsuitable for wilderness designation.

Wilderness characteristics for the McKenna Peak WSA, as documented in the intensive inventory report, are as follows:

NATURALNESS

The geomorphology of the area is dominated by shale/adobe badlands topography, and includes sandstone cliffs, canyons, and rolling hills. Vegetation varies from desert forbs and grasses to dense coniferous forests.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE

The outstanding opportunities for solitude are a function of the topographic and vegetative screening. The badlands near McKenna Peak and Brumley Point contain deep, narrow, twisting arroyos. From high points in the unit, there are expansive vistas which give a feeling of vastness to the area. Dense pinyon/juniper woodland and rock outcrops provide screening in the northern part of Spring Creek Basin.

OPPORTUNITIES FOR PRIMITIVE AND UNCONFINED RECREATION

The diverse topography, including badlands, steep sandstone cliffs, and gently rolling mesas in combination with varied vegetation, provides for outstanding primitive and unconfined recreation opportunities.

SUPPLEMENTAL VALUES

The area possesses several supplemental values which enhance its wilderness quality. Much of the area consists of highly eroded, exposed sedimentary strata which illustrates the geologic processes and history of the area. Numerous fossil marine invertebrates can be found in portions of the area. The area provides a portion of the habitat for a wild horse herd, contains scenic values due to the unusual geomorphology and the surrounding unspoiled scenic vistas.

VISITOR USE AREAS

Most visitors to the WSA are hunters during the deer and elk hunting seasons. Other recreational use into the WSA consists of occasional horseback riding via access points along County Road 19Q.

Over the long-term the Proposed Action would improve ecological condition, thereby protecting the range in a more natural condition.

The helicopter may occasionally land during the gather operation to prevent over-exertion of the horses. These landings may be inside the boundary of the McKenna Peak WSA, although it has not been necessary in any of the previous gathers. It is possible that temporary traps constructed of portable steel panels might be erected in the WSA (located at T.42.N., R.15W., S29 SW1/4; S30 SE1/4). These actions are permissible under the "*Interim Management Policy and Guidelines for Lands Under Wilderness Review*", as stated in Chapter I-B-2, Nonimpairment, Chapter I-B-11, Motor Vehicles, Aircraft, and Mechanical Transport, and, Chapter III-E, Wild Horse and Burro Management. No permanent traps or other facilities would be established in the WSA for this project.

The Proposed Action would cause no long-term impacts to the wilderness resource. Over the long-term the Proposed Action would improve ecological conditions, thereby enhancing wilderness values. Should it be necessary to temporarily land the helicopter in the WSA impacts would be short term and would not impair the area's wilderness suitability.

Implementation of the No Action Alternative would lead to a degradation of wilderness values as herd populations would continue to grow and affect ecological and land health conditions.

3.2 NON-CRITICAL ELEMENTS

The following elements must be addressed due to the involvement of Standards for Public Land Health:

3.2.1 Soils

Spring Creek Basin lies within the Disappointment Valley syncline, with the Mancos shale formation exposed on the lower elevations, including the valley floor. The Dakota and Burro Canyon formations outcrop on the fringes of the syncline which comprise the higher elevations of the northeast portion of the basin. The dominant soil types derived from these geologic units are listed and characterized in Table 4, below.

Erosion and salinity yields from the area are high. This is in part due to sparse vegetation cover, steep slopes, and erodible soil textures. Target basal vegetation cover values (Table 4) were set as objectives for the Spring Creek area to slow the accelerated rates of erosion and salinity. Basal vegetation cover is inversely correlated with soil erosion because of the protection it provides to the soil surface from the erosive forces of both rain drop impact and overland flow. The most recent monitoring data for the area shows the basal cover to range from 2-7%, well below the target objectives. Available data is insufficient to determine the basal cover trend. Staff specialists have attributed the low cover densities to the combination of a year-round wild horse grazing, seasonal livestock use and seasonal big game herds of deer and elk, and believe that a reduction in wild horses would contribute to an improvement in vegetative cover. Seasonal shifts in precipitation distribution and drought conditions over the last few decades may have influenced vegetation cover in the area.

The No Action Alternative would lead to increasingly lower levels of vegetative cover.

Table 4. Dominant Soils in Spring Creek Basin HMA

<i>Soil</i>	<i>Location</i>	<i>Runoff</i>	<i>Erosion</i>	<i>Range Site</i>	<i>Target Basal Cover²</i>
Billings ¹	1-4% slopes, alluvial terraces and floors	Slow-Medium	Slight-moderate	Basin Shale	15%
Persayo ¹	2-20% slopes, hills and terraces	Rapid	High	Silty Salt Desert	10%
Chipeta ¹	2-20% slopes, hills and terraces	Rapid	High	Clayey Salt Desert	10%
Killpack ¹	2-15% slopes, hills and terraces	Medium	High	Silty Salt Desert	10%
Deaver ¹	2-15% slopes, hills and terraces	Medium	High	Silty Salt Desert	10%
Fruitland	1-8% slopes, alluvial terraces and floors	Slow	Slight	Alkaline Slopes	10%
Badlands ¹	Steep shale	Rapid	High	NA	NA

1 - Soils derived from Mancos shale, exhibiting elevated levels of salinity

2 - Target basal cover density objectives to be achieved through livestock management, as described in the Spring Creek Basin/Disappointment Valley, Erosion and Salinity Control, Watershed Activity Plan, page 15, EA-CO-030SJ86-87, 1986.

3.2.2 Vegetation (includes a finding on Standard 3)

A rangeland health assessment was completed on the Spring Creek Grazing Allotment in 2003. The grazing allotment encompasses the entire Herd Management Area (HMA), as well as about 1,100 acres that are outside of the HMA. All land health assessment areas in the allotment were also within the

HMA. This assessment evaluated ecological sites on the allotment comparing existing site conditions to those expected for the site at potential condition. Ecological sites are areas with uniform soils and topography that produce a distinct natural (reference) plant community. The Spring Creek allotment has the following ecological sites (Table 5).

Table 5. Ecological sites in the Spring Creek Allotment.

Ecological Site	Dominant Vegetation type	Acres	% Of Allotment
Clayey salt desert	Saltbush/galleta	6,430	28%
Pinyon Juniper	Pinyon-juniper	4,722	20%
Basin Shale	Black sage/grass	2,208	10%
Silty salt desert	Shadscale/galleta	1,691	7%
Salt Flat	Big sage/greasewood/alkali sacaton	1,071	5%
Semidesert Loam	Big sage/galleta	165	1%
Other - badland, steep slopes, rock	Barren	6,742	29%
Total		23,029	100%

The rangeland health assessment evaluated eighteen site indicators with a qualitative, descriptive rating system, following BLM Technical Reference 1734-6, 2000, Interpreting Indicators of Rangeland Health. The indicators were used to evaluate three rangeland health attributes, soil and site stability, hydrologic function and biotic integrity. These attributes are used, in part, to help make a determination as to whether the allotment is meeting the rangeland health standards for public land health (H-4180-1 Rangeland Health Standards, 1/19/01). Overall the Spring Creek allotment had the following ratings applied:

Table 6. Rangeland Health Assessment – attribute ratings.

Percent of acres in each rating	Degree of Departure from Reference Site Condition				
	Extreme	Mod to Extreme	Moderate	Slight to Moderate	None to Slight
Soil and Site Stability	7%	34%	43%	14%	3%
Hydrologic Function	7%	47%	30%	13%	3%
Biotic Integrity	7%	52%	12%	27%	3%

The health attributes soil and site stability and hydrologic function dominantly reflect a moderate to extreme or extreme degree of departure from the ecological site descriptions, for up to 54% of the rated area within the allotment. These ratings indicate these sites are beyond “at risk”; meaning these rangelands may have an irreversible loss in productive capability and may have suffered irreversible degradation. Up to 43% rated a moderate degree of departure, an “at risk” category. “At risk” indicates that these rangelands have a reversible loss in productive capability and increased vulnerability to irreversible degradation (NRC, 1994). Only 17% of the acres rated in the slight to moderate or none to slight categories for degree of departure from the ecological site descriptions.

The health attribute for biotic integrity dominantly reflected a moderate to extreme, or extreme, degree of departure from the ecological site descriptions, for 59% of the rated area within the allotment. These ratings indicate these sites are beyond “at risk”; meaning these rangelands may have an irreversible loss in productive capability and may have suffered irreversible degradation. Twelve percent rated a

moderate degree of departure, an “at risk” category. “At risk” indicates that these rangelands have a reversible loss in productive capability and increased vulnerability to irreversible degradation (NRC, 1994). Thirty percent of the acres rated in the slight to moderate or none to slight categories for degree of departure from the ecological site descriptions.

Additional data was collected during the rangeland health assessment to assist in making decisions regarding management of the allotment. Vegetation cover, ground cover and production were measured on all of the ecological sites in the allotment. Using this data, the vegetation for each sample point was rated based on the existing species composition as compared to a desired condition. The desired condition was determined from the appropriate ecological site description, reference sites within the allotment if available, and a consideration of the general conditions for each ecological site. Overall 6% of the rated acres were in excellent condition, with 76% to 100% of the desired plant community represented, 15% in good condition, or 51% to 75% of the desired community, 48% in fair condition, or 26% to 50% of the desired plant community, and 31% in poor condition, or 0 to 25% of the desired plant community. Table 7 summarizes the vegetation condition ratings.

Table 7. Vegetation Condition Ratings

Condition rating	Percent of desired plant community	Acres	Proportion of allotment
Excellent	76 – 100%	977	6%
Good	51 – 75%	2,443	15%
Fair	26 – 50%	7,818	48%
Poor	0 – 25%	5,049	31%

There are five long-term vegetation trend studies on the allotment. These were originally established in the early 1980’s and all were re-measured in 2003. Standard protocol is to read these transects every five years. One study had an apparent upward trend in condition, one was stable and the remaining three showed a downward trend. The studies occur on three of the dominant ecological sites on the allotment, representing about 44% of the allotments suitable acres. Of these acres, 83% have a downward trend, 11% have stable trend and 6% an upward trend.

Traditionally, range in poor condition, or fair condition with a stable or downward trend, is not acceptable. On the Spring Creek allotment, 31% of the allotment is in poor condition, 19% is in fair condition with a stable or downward trend (included acres with associated trend studies only). An additional 10% are acres in good or excellent condition but with a downward trend (included acres with associated trend studies only). Fifty percent of the allotment is not in an acceptable condition or trend with an additional 10% in an acceptable condition however the trend is downward.

Site productivity for most ecological sites (95% of the allotment) was below site potential, even considering “unfavorable year” production as described by the NRCS in the ecological site descriptions. On a large proportion of these sites production is very low, less than 200 pounds per acre, which is minimal for livestock production. Once per-acre forage productivity falls below a certain level, livestock expend more energy walking and searching for forage than they can obtain from the vegetation.

The amount of bare soil has a direct effect on soil and site stability and hydrologic function (Pellant et

al., 2000). Bare soil is a soil surface without living vegetative cover, vegetative litter, rock, or biological crust cover. The amount of bare ground is a direct indication of site susceptibility to accelerated wind or water erosion (Pellant et al., 2000; Branson et al., 1981, page 112 - 117). When a soil does not have aerial cover, such as a vegetative canopy or surface cover such as biological crust, litter, rock or plant base, the site is more susceptible to raindrop splash erosion, decreasing infiltration, and increasing sediment suspension. Overland flow increases as a direct result, and if unimpeded by surface cover, would collect and cause erosion and sedimentation.

Ground cover values were low on the Spring Creek allotment with high amounts of bare soil. The highest amount of bare soils measured was 80% and the lowest 16%, with an average of 56%. Many of the soils in this area have a high hazard of water erosion with rapid rates of runoff and slow permeability.

Biological crusts are a living soil surface cover consisting of cyanobacteria, green algae, lichens, mosses and fungi. These crusts reduce wind and water erosion of soil surfaces. In cool deserts of the Colorado Plateau, biological crusts generally increase water infiltration (Belnap et al.2001, pg 35 - 40). The cyanobacteria and cyanolichens that are a common component of biological crusts in this area are an important source of fixed nitrogen for plants (Belnap et al.2001, pg 31).

Biological crusts are easily disturbed by hoof or foot impacts. Recovery rates after disturbance vary greatly depending on the intensity of the disturbance, local climate and soil texture. Cyanobacteria, the most common component of biological crusts, begins to recover from disturbance relatively quickly, 14 to 34 years on the Colorado Plateau. The cyanolichen component would take more than 50 years to recover. Later successional lichens and mosses would take several hundred years to recover (Belnap et al. 2001, pg 46).

Within the Spring Creek Allotment, the highest biological crust cover value sampled was 9% and the lowest 0%. The potential for biological crust cover is high, particularly on gypsiferous soils. Protected areas were observed with well-developed crusts, comprised of all lifeforms, with very high cover values. These areas were primarily on small islands and peninsulas protected by gullies. The soils in the Spring Creek area are fine textured, high in silt and very susceptible to disturbance. If biological crust cover was higher on some of these soils it is likely that infiltration would improve and the level of erosion and sedimentation would be lower.

Upland vegetation has shown a decline in cool season native grass species. Trend studies on the allotment indicate primarily a downward to static trend in range condition (ecological seral stage). Elements of the standards for public land health which were not met in the 2003 Land Health Evaluation were cover, density, composition, and frequency of species in relation to potential; and photosynthetic activity throughout the growing season. Maintenance of herd levels combined with dormant season use by livestock should move plant community toward a more desirable mix of species. The Proposed Action and Immunocontraception Alternative would lead to improvements in the plant community aspect of rangeland health; the No Action Alternative would not.

3.2.3 Wildlife, Aquatic (includes a finding on Standard 3)

There is a minimal amount of aquatic wildlife habitat at the proposed project site.

Environmental Consequences/Mitigation: The Proposed Action and Immunocontraception Alternative

would have a positive impact on the riparian areas, and thus the aquatic wildlife because it would reduce the number of horses grazing on them. The effect would be somewhat limited since riparian areas are natural congregation areas and they will continue to be used year round.

The No Action Alternative would have a negative impact because more horses would utilize the riparian areas, and thereby affect aquatic wildlife and their habitat. See also the preceding riparian section.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): Selection of the Proposed Action or the Immunocontraception Alternative would have a positive effect on the Health Standard. Selection of the No Action Alternative would have a negative effect on the Land Health Standard.

3.2.4 Wildlife, Terrestrial (includes a finding on Standard 3)

Although the San Juan/San Miguel RMP (1985) does not designate Spring Creek as deer and elk winter range, it is considered winter range by the Colorado Division of Wildlife. Abundant deer and elk sign was noted during the Land Health Assessment. The Proposed Action and Immunocontraception Alternative would help reduce competition between horses and big game for forage. The No Action Alternative would likely result in severe competition for forage in Spring Creek.

The long-term benefits to the range are positive to virtually all desirable wildlife species that occupy the area. The No Action Alternative has no benefit and would be an adverse impact on terrestrial wildlife.

3.3 OTHER NON-CRITICAL ELEMENTS

3.3.1 Access

The Proposed Action and Immunocontraceptive Alternative would both restrict, but not exclude, public access to the HMA. Members of the public would be allowed to view gather operations from designated vantage points, so long as their behavior and dress did not interfere with gather operations or place additional stress on the horses. For safety and horse-stress reasons the public would not be free to drive or walk unescorted through the HMA when gather operations were under way. The No Action Alternative would not impact public access.

3.3.2 Hydrology and Water Rights

Reducing the herd size would not measurably change the hydrology of these watersheds. To modify the quantity and timing of runoff to a measurable degree, a change in vegetative type and/or bare ground or biological crust cover would need to occur. While there could be a slight reduction in bare ground from reduced herd size, it is not projected to occur at a level that would modify the runoff characteristics of this area. Vegetative cover could improve slightly. If no gather occurs, vegetative cover would be reduced, with a corresponding effect on the runoff characteristics within the watersheds. The runoff would occur more quickly with a shorter duration and consequently water yield and soil loss would both increase.

Water rights are not an issue with this proposal to remove horses, or the No Action Alternative.

3.3.3 Law Enforcement

BLM law enforcement personnel might be used to enforce the temporary closure that is a part of the Proposed Action and Immunocontraceptive Alternatives. This has not been necessary in previous gathers in the Spring Creek Basin HMA. There would be no law enforcement involvement under the No Action Alternative.

3.3.4 Livestock Grazing/Range Management

The Spring Creek Grazing Allotment #17056 is the only grazing allotment that encompasses the Herd Management Area (HMA). The grazing allotment is slightly larger than the HMA, as it includes a section of State land, and a lesser amount of public land, in the Klondike Basin area that is not within the HMA. The present BLM grazing permittee has been permitted in the Spring Creek Allotment since 1972 and leases the aforementioned section from the Colorado State Land Board, as well as an additional State section that is within the HMA. Based on the aforementioned land health assessment and environmental assessment #EA-CO-800-2005-027, on May 27, 2005, the BLM issued a grazing decision reducing the permitted livestock use level from:

<u>Livestock</u>		<u>Grazing Period</u>		<u>PercentPublic</u>	<u>BLM</u>
<u>Numbers</u>	<u>Kind</u>	<u>Begin</u>	<u>End</u>	<u>Land</u>	<u>AUMs</u>
180	cattle	12/01	02/28	94%	501*;

to the currently permitted level of livestock use:

<u>Livestock</u>		<u>Grazing Period</u>		<u>PercentPublic</u>	<u>BLM</u>
<u>Numbers</u>	<u>Kind</u>	<u>Begin</u>	<u>End</u>	<u>Land</u>	<u>AUMs</u>
125	cattle	12/01	02/28	88%	326*.

* AUM refers to animal unit month, defined as the amount of forage required to sustain one cow, or its equivalent for one month.

This same decision cancelled 1,679 previously permitted public land livestock AUMs, most of which had been held in suspension since 1987. The current grazing permittee was originally permitted for 2,005 public land livestock AUMs in this allotment. A second grazing permit for another 400 public land livestock AUMs in the HMA was acquired by the National Mustang Association in 1999, and relinquished by NMA 2002. As a result, a total of 2,079 BLM livestock grazing AUMs have been cancelled or retired from the HMA in the last 20 years, with 326 remaining active. This 86% reduction in BLM livestock AUMs has increased plant production and availability for use by the horses, wildlife species and soil protection. The proposed removal of excess horses would lead to increased production and availability of desirable plants, for use by wildlife, livestock and for soil production.

The No Action Alternative would result in less forage available for livestock use by the grazing permittee.

3.3.5 Recreation

The primary recreation use within the project area occurs during big game hunting season (primarily October/November). Other recreational uses include driving for pleasure to view the wild horse herd and occasional use of all-terrain-vehicles on roads.

Due to limitations on access in the gather areas, the general public may be inconvenienced due to activities associated with the project. A temporary closure within the Herd Management Area is a part of the Proposed Action and the Immunocontraception Alternative. Emergency vehicles, vehicles associated with the gather operation, and escorted public observers would be exempt from the closure. See Appendix C for a copy of the proposed Closure Order. In general, the Proposed Action would have no long-term adverse impacts on the recreational opportunities present in the area.

Immediately after the proposed gather, the short term impacts would be reduced viewing opportunities since there would be fewer horses present in the HMA and the remaining horses would more fearful of humans. Over the long term, viewing opportunities would increase, as this action would help provide a healthy and productive habitat for the horses.

The No Action Alternative would decrease the long term opportunities to view wild horses as the number of horses that could be supported in the Spring Creek Basin HMA would decline due to degraded range conditions.

3.3.6 Wild Horses

Affected environment/Background Information.

The first BLM gather of wild horses in southwestern Colorado was completed in 1985, when 155 horses were gathered from the Spring Creek Basin and Naturita Ridge areas. Of these, 16 stallions and 16 mares were released back into the Spring Creek Basin. It was believed some wild horses may have eluded capture within Spring Creek; the base numbers in 1985 may have been slightly above the 32 released horses. Naturita Ridge was not designated as a Herd Management Area and no horses were returned to that area.

In 1991 the second gather of the Spring Creek Basin wild horses was completed resulting in 76 horses being gathered (all of which went into the adoption program) and an estimated 39 horses being left within the HMA, total estimated population was 115 horses pre-gather. Since the horses left on the range were not brought into the trap, age distribution or sex ratio is not known. Of the horses removed 40 were male and 32 female, 4 not documented. Ten were yearlings, 42 were in the 2-5 year age category, and 20 were 6-15 years old. Of the 76 horses that were removed in 1991 it is important to note that after transport to the Canon City holding facility several of the horses perished with a cause of death shown as liver failure. It is believed this was caused by unsatisfactory forage conditions, which led to consumption of poisonous plants, coupled with drought and gather stress.

In 1995, 72 horses were gathered, 12 horses observed but not gathered, for a total of 84 horses within HMA pre-gather. 24 horses were released back into the HMA for a total of 36 known horses post-gather within the HMA. Of the 24 horses released 12 were males and 12 were females. Because of National BLM Policy, age selective removal criteria was followed which resulted in a release of one yearling, one 2-year old, two 7-8 year olds, and twenty 10 to 20+ years old. Most of the 12 horses that were observed, but not gathered appeared to be in the 10 - 20+ age category.

In 1998 a small gather was completed in an attempt to capture horses outside the HMA. This resulted in the gather of 14 horses, one of which was euthanized for an old leg injury that had not healed properly; three were adopted into private care. Nine of these horses were returned to the HMA. At least two horses located along the BLM-National Forest boundary, outside the HMA, eluded capture.

In 2000, 49 horses were removed from the Spring Creek Basin HMA. BLM notes indicate 32 horses remained in the HMA, 17 female and 15 male.

In August 2005, 91 horses were gathered and 51 of these horses were removed. Thirty adult horses and 10 foals were released. After gathering 91 horses the contractor’s gather pilot was confident that no more than “5 or 6” single horses (no bands) remained. A May 2005 census using volunteers on horseback indicated there were approximately 15 more adults present than the gather pilot could locate. If the gather pilot was correct, 35 adults and 10 foals were left in the HMA after the gather. If the horseback ground-count was accurate, approximately 50 adults and 10 foals were left in the HMA after the 2005 gather.

Table 8. Gather History Overview

Year	Horses Removed	Reason for Gather
1985	~123	Health of Vegetation & Soil Resources
1991	76	Health of Vegetation & Soil Resources
1995	48	Health of Vegetation & Soil Resources
1998	4	Outside HMA
2000	49	Health of Vegetation & Soil Resources
2005	51	Health of Vegetation & Soil Resources
Total	351	Total removed to date

There are currently about five wild horses south of the HMA, located primarily on National Forest and private land. These horses occasionally range onto BLM administered lands outside of the HMA, as well as State land. In 1995, in conjunction with the regular gather, BLM tried to remove horses from the Forest Service, State, and private lands to the south. Insufficient time and money was available to complete this task. In 1998 a gather took place with the sole intent to remove horses that were outside the HMA boundaries, as required by the Wild Horse and Burro Act. Nine horses were gathered from Colorado Division of Wildlife lands north of the HMA (seven of these were returned to the HMA). This zeroed out wild horses from this area and to date they have not returned. Also in 1998, five horses were removed from the Forest Service and private lands to the south of the HMA, with two of these returned to the HMA. Two or three horses to the south escaped capture in 1998 and were observed during a May 2000 aerial census of the herd. In 2005, three of the six known outside horses were gathered and removed, leaving three horses, all sorrels in a single band, known to be outside the HMA. The February 2007 aerial census located 5 outside sorrel horses in a single band, apparently a result of reproduction and not additional escapes. More foals may be born in 2007 before the proposed gather. The Proposed Action and the Immunocontraception Alternative both include removing all horses located outside of the HMA.

Records indicate that the BLM has removed 351 horses from the Naturita Ridge/Spring Creek areas since the Wild Free Roaming Horse and Burro Act passed in 1971.

The majority of the foals are born from mid April to mid June. The peak breeding period is apparently from mid May to mid July, allowing for the 11 month horse gestation period.

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 herd to mortality during extreme climatic events depends 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 rate declines again with older age classes. Similarly, reproductive success also declines at older age classes. The threshold age for horses, at which susceptibility to mortality during extreme climatic events, and reproductive senescence increases, 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.

General observations and use patterns have shown that most of the horses spend the majority of the winter and spring (thru foaling season) in the more open country in the HMA, located primarily between Flattop, Roundtop, Brumley, Knife Ridge, and Filly Point. Once foaling season nears an end many horses move to the northern portion of the HMA along the timbered ridge. It is hypothesized that mountain lions frequent this ridge which encourages the horses to foal in the open country. When population levels increase to upper end of the AML the horses appear less selective and are more evenly distributed throughout the HMA.

The relatively small size of this herd brings up serious concerns for genetic viability and variability, which is addressed in the HMAP as well as in environmental assessments EA CO-SJFO-01-053 and #EA-800-2005-027. As a solution, the HMAP encourages introduction of outside genetic material in the form of wild horses from other HA's or HMA's as a mitigation measure. In 1992 three stallions were obtained from a herd near Cody, Wyoming and released into Spring Creek Basin. In 2001, three young mares from the Sand Wash HMA in northwest Colorado were released into the Spring Creek Basin HMA. A 2001 environmental assessment, EA CO-SJFO-01-053, addressed the introduction of mares on a 4 to 8 year cycle to increase genetic diversity within the herd. The analysis found that there would be positive impacts on genetic diversity by periodically introducing a few mares from other HMAs, where the horses have similar physical attributes to the Spring Creek Basin herd. BLM intends to continue this practice, and the Proposed Action includes the September 2007 release of three young mares from the Little Book Cliff Wild Horse Range.

The Spring Creek Basin HMA was established to maintain a viable horse herd and improve the ecological condition of the area. In order to accomplish this, the horse herd must be maintained at a level to insure that over utilization and range degradation does not occur. Towards that end, an objective of the Spring Creek Basin Herd Area Management Plan is maintenance of a herd of between 35 and 65 adult horses. The 2007 aerial horse count located 94 adults in the HMA. Utilization studies conducted this winter and spring found excessive utilization of Salina wildrye, Indian ricegrass, winterfat and alkali sacaton. An examination of grazing exclosures within the HMA showed little or no standing dead material outside of the exclosures, while previous years standing growth of galleta and blue grama was common within the areas excluded from grazing. The reproductive capability of the more desirable species had been impacted, with vigorous seed production obvious from plants

protected by thorny shrubs and portable utilization cages. Outside the cages seed production was substantially lower on the desirable forage and browse plants.

Wild horse numbers generally increase about 15% to 25% each year. In very dry years with low forage production and low water availability, reproduction can be lower. Some years the increase exceeds 25%. If the 2005 gather pilot's count was accurate (45 total horses left in HMA), since 2005 reproduction in the Spring Creek Basin HMA has averaged 54% annually. This is unlikely, though not impossible. Using the 2005 volunteer horseback census numbers (60 total horses left in HMA), reproduction has averaged 28% since 2005. On May 12, 2007, one band of 14 total adult horses in the HMA was observed with 6 foals (43%). Recent above average reproduction rates might be explained by the low age structure of the current herd and a sex ratio skewed towards females. Of the 91 horses captured in 2005, only one female was older than 10, and 57% of the captured horses were female. In accordance with BLM policy, younger horses are generally selected for removal because they are more likely to be adopted. This policy was followed in selecting the horse to be released in 2005; even so, of the 40 horses released in 2005: 10 were foals; 14 were 0-5 years old; 15 were 6-12 years old; and one was about 20. This is a young age structure for a population where the younger horses are generally selected for removal every 3-4 years.

Jenkins Wild Horse Population Model

Appendix E is a wild horse population modeling exercise, using a model developed by Dr. Stephen H. Jenkins of the University of Nevada Reno. Dr. Jenkins describes his WinEquus model as "...a computer program that simulates the population dynamics of feral horses. It...is designed for use in comparing various management strategies for feral horses." In analyzing the Proposed Action and two alternatives, BLM used current age selection management directives and the Spring Creek Basin AML range of 35 to 65 horses. BLM assumed that the gather data collected in 2005 would be representative of current herd demographics and we proportioned the expected age and sex structure of the 2007 pre-gather herd using the 2005 information. The population model was then used to simulate decreasing the herd to 35 horses every four years using current age selective removal management directives (the Proposed Action), age selective removal every four years with use of a 22 month immunocontraceptive (Immunocontraceptive Alternative), and what the model terms no management (No Action Alternative).

The best use of the model is to answer specific questions, for example: under different alternatives, what is the likelihood that herd will crash; would fertility control impact herd growth rates; is one alternative strategy most likely to provide more desirable outcomes?. The model is not designed to be use in reverse fashion, for example to predict a specific herd size as a result of certain management decisions. The model is thought to be less useful when applied to very small herd sizes, like the Spring Creek Basin herd.

Modeling studies with 100 trials per simulation supported the premise that the Spring Creek Basin herd can be expected to continue to rebound in size and desirable sex ratio following the 2007 selective removal proposed action, or the selective removal and fertility control alternative.

In each of the trials run, lowering the herd to 35 animals, while taking into consideration environmental variables programmed into the simulations, did not result in the population falling below its capacity to rebound. The model runs resulted in an average population growth 9-24% under the proposed selective

removal only, with a 5-20% growth rate projected for selective removal paired with immunocontraception. The population model suggests that the herd would exceed the 65 adults upper management range when gathered every 4th year, under both the proposed action and the removal with immunocontraception alternative. Because of the conservative nature of the model, the BLM assumes that any gather proposal that appears sound in the model will also be appropriate in the HMA.

Proposed Action : Helicopter drive trapping with No additional use of Immunocontraceptives.

Impacts to wild horses under the Proposed Action could occur to either individual animals or the population as a whole. These impacts include handling stress associated with the herding, capture, processing, and transportation of animals from temporary trap sites to temporary holding facilities, and from the temporary holding facilities to an adoption preparation facility. Mortality of wild horses captured during a gather does occur, however it is infrequent. No horses were seriously injured during the 2005 gather activities, though one had to be destroyed after being injured during a training demonstration at the subsequent adoption event in Cortez.

Impacts which can occur after the initial stress of gathering include spontaneous abortion in mares, and increased social displacement and conflict in studs. Spontaneous abortion following capture is rare. Traumatic injuries typically involve biting and/or kicking that result in bruises and minor swelling. These impacts are not uncommon during wild horse gather operations. The frequency of occurrence of these impacts among a population varies with the individual.

Commenters have suggested that biting and kicking injuries could be minimized by gathering and penning the captured horses by band, to minimize fighting. When gathering, or even counting horses from a helicopter, the bands often merge together, as bands move through or towards other bands. On February 22, 2007, BLM employees counted 15 bands in the HMA. Even though the helicopter made no attempt to approach or move these horses, three bands of three, nine and ten horses each, merged into one band of 22 horses. In another area, two bands of four and 13, respectively, merged into one band of 17. Penning horses by family or band units would require that they somehow be prevented from merging during gather operations, something that experience has shown is generally not possible. Once bands merge, separating them is not feasible. In 2007 the observed average band size was <7 adult horses. If bands could somehow be kept apart during the gather, this option would require that numerous small pens be erected. In a "typical" gather corral setup, when selective removal is planned, and the horses are kept at the trap site and not relocated after capture, there are four large pens located just beyond the capture pen. Under these circumstances, immediately after they are captured the horses are moved through a squeeze chute where they are sexed and aged. An initial sort, based on sex, age, physical abnormalities, body condition and other factors is made and horses are moved to one of the four temporary holding pens: 1.) females to be kept; 2.) females to be released; 3.) males to be kept; 4.) males to be released. Once the gather operations are completed only minor adjustments need to be made by moving a few horses between the keep and release pens, and then the horses to be released are released. If horses were penned by band, the entire band would have to be run back through the chute in order to sort off the ages and sexes to be kept and released.

Breaking/mixing established band units in the temporary holding facility and sorting them by sex does lead to biting and kicking that result in bruises and swelling. Serious injuries are rare. When it becomes obvious that one or two horses are causing a serious problem, for themselves or other horses, BLM generally moves the problem horse(s) to a small separate pen. This occurred with one stallion

during the 2005 gather, and is always an option. Though handling wild horses this way can lead to conflicts in the temporary holding pens, it can reduce inbreeding and improve genetic diversity within the overall population by periodically mixing the bands and lessening the chance that a dominant stallion will breed his daughters, grand daughters, great grand daughters, etc.

Population-wide impacts could occur during or immediately following implementation of the Proposed Action. They include the displacement of bands during capture and the associated re-dispersal, modification of herd demographics (age and sex ratios), 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 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 shyness toward human contact, vehicles, helicopters, etc. There would likely be a temporary increase in the frequency of stallions fighting to reestablish their dominance and gather a band of mares. Observations of animals following release have shown that horses typically relocate themselves back to their home ranges within 12 to 24 hours of release.

The objectives of the Proposed Action are to:

1. Gather and remove wild horses in a safe, humane and cost effective manner.
2. Provide for the safety of the wild horses and the personnel involved.
3. Maintain healthy, productive rangelands to provide quality habitat for the wild horse herd.
4. Maintain and improve the health of stable native plant communities to maximize vegetative ground cover: protect water quality by protecting the watershed.

The Proposed Action would meet the objectives listed above.

Immunocontraceptives Alternative: Helicopter drive trapping with use of Immunocontraceptives

BLM Washington Office Instruction Memoranda direct that wild horse gather plans consider the use of fertility control. The projected population after foal crop in 2007 would be about 114 total horses in the HMA. Typically, 60 - 70% of the herd would be reproductively active. Assuming that half would be mares, then 30-35% of the total herd would be suitable for immunocontraception. This equates to a total of about 37 mares in the HMA that would be suitable for immunocontraception. Most of these mares either would not be gathered or would not be returned to the HMA after being gathered. The Proposed Action is to remove approximately 62 adults and 15 foals (77 total horses) from the HMA. If BLM were to gather 90 horses and return 13 of those to the HMA, fewer than 5 of those horses (35% of 13) would be expected to be reproductively active females suitable for immunocontraception. At \$200 per dose, and approximately \$2,000 in salary, mileage, travel costs and per diem for the BLM employee qualified to administer the drug, the total cost per dose would likely exceed \$500. It would cost upwards of \$440 per horse to gather additional animals for the sake of administering fertility control to a larger number of mares.

There is also a slight risk that a catastrophic event, such as wildfire, drought, or disease, could reduce the herd to a large extent, when it is at the lowest end of the AML, enough that there would be a substantial loss of genetic material from the herd due to unexpected deaths. It appears theoretically possible that immunocontraception could further reduce the gene pool in an already small herd, when the herd would have a difficult time rebounding if some of the mares did not reproduce following a

catastrophic event. The aforementioned population model, with 100 trials, never predicted this as an outcome of the Immunocontraceptive Alternative. Fertility control in yearlings and 2-year old females would allow these horses an opportunity to fully mature before becoming pregnant, as well as allow the older mares to achieve improved individual body condition until their next foaling.

No Action Alternative.

Under the No Action Alternative horses would not be removed from the HMA. The animals would not be subject to the individual direct or indirect impacts as described above as a result of a gather operation. However, they would experience individual direct and indirect impacts as a result of the increased demand for water and forage as the herd population grows. Habitat quality would continue to degrade and the long term ability of the HMA to support a viable horse population would decline. This would be a long term impact since it would take many decades to restore some semblance of rangeland health in this arid environment, after the land was denuded enough to cause a die off of wild horses. The loss of additional topsoil would result in changes to the areas potential and its current potential for vegetative communities could be altered for centuries. This alternative would not achieve legal mandates or planning objectives. The Wild Horse and Burro Act of 1971 mandates that the BLM “prevent the range from deterioration associated with overpopulation and preserve and maintain a thriving natural ecological balance and multiple use relationship in that area.” This alternative is in conflict with the RMP emphasis on water quality: erosion and salinity management for lands in the HMA.

Under the aforementioned modeling exercise, running 100 trials, the average population size in 11 years under the No Action Alternative was from 222 to 446 horses. In the Spring Creek Basin HMA this number of horses would severely degrade the habitat and lead either to widespread starvation or escape of the horses, or both.

3.4 NON-CRITICAL ELEMENTS, PRESENT but not AFFECTED

Table 9. The following non-critical elements were not brought forward for analysis.

Non-Critical Element	N/A or Not Present	Present, No Impact
Cadastral Survey		X
Geology and Minerals		X
Paleontology		X
Noise		X
Realty Authorizations		X
Transportation		X

3.5 CUMULATIVE IMPACTS SUMMARY

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 significant actions taking place over a period of time.

Implementation of the Proposed Action would reduce the wild horse population to the lower range of the AML (35 adult horses) in the HMA, which would help to promote a thriving natural ecological balance. This would result in increased vegetation density, vigor, reproduction, productivity, plant cover and forage availability.

Adverse impacts to vegetation with implementation of the Proposed Action would include disturbance of native vegetation immediately in and around temporary trap sites. The disturbed area for the 2007 Spring Creek temporary corral and primary trap site would be about two acres in size. This trap site has been used numerous times; it was bladed just prior to the 2005 gather, and would not be bladed prior to a 2007 gather. This trap site would likely be heavily impacted by horse trampling and vehicle traffic related to gather activities. The trade-off for these localized gather site impacts would be proper grazing use and improved rangeland health on approximately 21,000 acres of public land in the HMA. If they would be needed, the alternate trap sites proposed were selected to enable access by transportation vehicles and logistical support equipment, they are generally adjacent to or on roads or access routes.

Past, present, and reasonably foreseeable activities which would be expected to contribute to the cumulative impacts of implementing the Proposed Action include: past selective removal gathers which may have altered the age structure, composition, and sex ratios of the wild horse populations, and increasing recreational uses. These past, present, and reasonably foreseeable activities would be expected to generate cumulative impacts to the Proposed Action by influencing the habitat quality, abundance, and continuity for the wild horses.

Proposed Action

The cumulative impacts of keeping wild horses within their AML, combined with the other changes to the area that were identified previously, would be fewer, healthier horses, improvements to the vegetative community, reduced erosion rates and healthier native plant and animal communities.

Immunocontraception Alternative

The cumulative impacts of this alternative, with two exceptions, would be similar as for the Proposed Action. The two exceptions are the increased cost, estimated at \$400 \$600 per horse; and the potential for loss of genetic material from the herd due to unexpected deaths from a catastrophic event (fire, disease, drought, etc.) when the number of reproductive females are at their lowest level (immediately after a gather). The Jenkins Model simulations predict the likelihood of this to be very, very low.

No Action Alternative

Not keeping wild horses within their AML would result in overpopulation causing detrimental effects to the horses, overgrazing of the rangelands, increased erosion rates, and a decline in the use of the area by other animal species. Because of the fragile nature of this area, the overgrazing that would occur would take decades to heal. Taken to an extreme, a sustained overpopulation by horses could lead to ecological circumstances where the present HMA would not be able to support a herd of horses for many decades, while vegetative and soil resources slowly recovered. The loss of additional topsoil would result in changes to the areas potential and its current potential for vegetative communities could be altered for centuries.

4.0 CONSULTATION and COORDINATION

4.1 Persons/Agencies Consulted

A local wild horse advocacy group, the Colorado Chapter of the National Mustang Association (NMA), has worked closely with BLM on several projects and have been consulted regarding both the proposed gather and the adoption planned immediately afterward at the Montezuma County Fairgrounds. In 2005 the NMA voiced concerns that the gather would stress the horses because: 1. the weather would be too hot; 2. the quantity and quality of water available in the HMA would be inadequate and; 3. foals would be too young. These are all valid concerns that the BLM and gather contractors are cognizant of. No horses were adversely affected from these factors during the 2005 gather; a gather that was conducted on essentially the same dates proposed for 2007. BLM contractors often gather horses from public lands in lower elevation areas as early as July 1. Weather conditions in these areas are generally much hotter and most foals much younger, than would be the case when the 2007 Spring Creek gather would begin. Water quality and quantity are often limited in the Spring Creek Basin HMA. The horses have apparently adapted to the poor water quality, routinely using water much higher in total dissolved solids (TDS) than is recommended for domestic livestock. The Dolores Public Land Office believes that the key to mitigating all three concerns is using an experienced contractor that would not push the horses harder than is appropriate given the temperature, age of the horses, condition of the horses, etc. An experienced pilot and crew would be contracted for this gather.

The NMA has volunteered to arrange for a wild horse trainer to give demonstrations in advance of the local adoption and to provide a round pen for the training demonstration. They have also offered to fund the majority of the contraception costs, should this alternative be selected and the necessary approval received from the Humane Society of the United States. NMA's primary interest in the immunocontraceptive alternative is to decrease the frequency of gather operations in the HMA.

The Four Corners Chapter of the Back Country Horsemen have helped obtain horse counts in the Spring Creek Basin HMA for several consecutive years. They also have been consulted regarding the proposed gather and subsequent local adoption. Some members have expressed an interest in observing the gather but none have expressed any specific concerns relative to the gather or adoption.

On July 13, 2007 a notice regarding this proposed wild horse removal was sent to a list of more than 35 individuals and groups, including wild horse advocacy groups, people who have expressed an interest in the Spring Creek Basin wild horse herd, the BLM livestock grazing permittee, the Colorado State Land Board, the Colorado Division of Wildlife, San Miguel County, Dolores County and the Colorado BLM mailing list for activities in wilderness Study Areas (WSA's). This notice informed the recipients that this environmental assessment would be available beginning on July 13, 2007. A copy of this EA will be provided to all parties that request one. All comments received by 4 pm August 2, 2007 will be considered before a decision is made.

As required by 43 CFR 4740.1(b), a public hearing is planned for 1 p.m. on August 2, 2007, to take comments regarding the use of helicopters and other motor vehicles in gathering the Spring Creek horses. The hearing will be held at the Dolores Public Lands Office located at 29211 Highway 184, Dolores, Colorado; and will be immediately followed by a less formal public meeting where a question and answer forum will be provided. Though there was no formal scoping process for the Proposed Action, all "pre-EA" comments were accepted, and where applicable incorporated into this analysis.

4.2 Interdisciplinary Review

Name	BLM/Forest Service Title	Area of Responsibility
Roger Baker	Rangeland Management Specialist	Weeds
Bob Ball	Natural Resource Specialist	Wild horses, Rangeland Management
Shauna Jensen	Hydrologist	Surface & Ground Water, Riparian
Kathy Nickell	Wildlife Biologist	Terrestrial & Aquatic Wildlife, TES Animals
Vincent MacMillan	Archeologist	Cultural Resources, Native American Religious Concerns, Paleontology
Leslie Stewart	Ecologist	Soils, Plant Communities, TES Plants
Penny Wu	Outdoor Recreation Planner	Wilderness, WSA, Recreation, VRM
Eric LaPrice	NEPA Coordinator	Document Review
Jamie Sellar-Baker	Associate Manager, Dolores Public Land Office	BLM Authorized Officer/Decision Maker
Steven K. Beverlin	Manager, Dolores Public Land Office	BLM Authorized Officer/Decision Maker

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Wild buckskin stallion, standing just outside of the west boundary fence of the Spring Creek Basin HMA. Beyond the fence, the photograph looks east into the HMA. Note vigorous grasses in the foreground. A fenced water catchment apron and water storage tank, funded by the National Mustang Association, are visible in the HMA at center right. June 15, 2007.

5.1.1

STANDARD OPERATING PROCEDURES

A. Methods for Humane Capture Wild Horses or Burros

Helicopter Removals with or without a Contract

The Helicopter Drive Trapping method employed for capture operations requires that horses be herded to a trap of portable panels. Gathering would be conducted by using contractors experienced in the humane capture and handling of wild horses. The same rules apply whether a contractor or BLM personnel are used. The following stipulations and procedures would be followed during the contract period to ensure the welfare, safety and humane treatment of the wild horses in accordance with the provisions of 43 CFR 4700.

1. Helicopter Drive Trapping

This capture method involves driving horses into a pre-constructed trap using a helicopter. The trap is constructed of portable steel panels consisting of round pipe. Wings are constructed off the ends of the panel trap to aid in funneling horses into the trap. The wings are constructed of natural jute, (or similar netting which will not injure a horse), which is hung on either trees or steel posts. This sort of wing forms a very effective visual barrier to the horses that they typically will not run through. When the trap is ready for use, a helicopter starts moving one band of horses at a time toward the trap and into the wings.

In heavily wooded areas, it might be necessary to use wranglers in support of the helicopter to move the horses. The helicopter would act more as a spotter for the ground crew in this situation.

The contractor would attempt to keep bands intact except where animal health and safety become considerations which will prevent such procedures. The contractor/BLM shall ensure that foals shall not be left behind.

Domestic saddle horses might also be used to assist the helicopter pilot (on the ground) during the gather operation, by having the domestic horse act as a pilot (or "Judas") horse on the ground, leading the wild horses into the trap site. Individual ground hazers and individuals on horseback might also be used to assist in the gather.

2. Stipulations for Portable Corral Traps/Exclosures

Capture traps would be constructed in a fashion to minimize the potential for injury to wild horses or burros and BLM personnel. Gates would be wired open at all unmanned trap sites, and would be left closed only when needed to hold horses or burros inside. Trapped horses or burros would not be held inside the traps for a period exceeding 10 hours, unless provided with feed (weed free hay) and water.

The Colorado Division of Wildlife Resources would be notified as soon as possible if any wildlife are injured during capture operations.

3. Contract Helicopter, Pilot and Communications

The contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

When refueling, the helicopter shall remain a distance of at least 1,000 feet or more from animals, vehicles (other than fuel truck), and personnel not involved in refueling.

The COR/PI shall have the means to communicate with the contractor's pilot at all times. If communications cannot be established, the Government will take steps as necessary to protect the welfare of the animals. The frequency(ies) used for this contract will be assigned by the COR/PI when the radio is used. The contractor shall obtain the necessary FCC licenses for the radio system.

The proper operation, service and maintenance of all contractor furnished helicopters is the responsibility of the contractor. The BLM reserves the right to remove from service pilots and helicopters which, in the opinion of the Contracting Officer or COR/PI, violate contract and FAA rules, are unsafe or otherwise unsatisfactory. In this event, the contractor will be notified in writing to furnish replacement pilots or helicopters within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

All incidents/accidents occurring during the performance of any delivery order shall be immediately reported to the COR.

4. Non-Contract Helicopter Operations

An Aircraft Safety Plan and flight hazard analysis will be appropriately approved and filed and copies distributed to the necessary individuals prior to commencing the removal operation. Daily flight plans will also be filed. If a BLM contract helicopter is used, all BLM, Aircraft Safety and Operations standards will be adhered to.

There will be daily briefings with the helicopter pilot, Authorized Officer and all personnel involved in the day's operation. The purpose of this meeting is to discuss in detail all information gathered during the familiarization flight such as hazards, location of horses, potential problems, etc. Discuss any safety hazards anticipated for the coming day's operation or any safety problems observed by the Authorized Officer or anyone else, outline the plan of action, delineate course of actions, specifically position the hazers and their responsibilities, logistics, and timing. After each flight, removal personnel will discuss any problems and suggest solutions. This may be accomplished over the radio or on the ground as the need dictates.

A flight operations plan will be filed with the Montrose Dispatch Center. This plan will describe the area to be flown and the expected time frames of flight operations. A weather forecast will be acquired from the dispatcher. There will be no flights on days of high or gusty, erratic winds or days with poor visibility.

Two-way radio communication between the helicopter and the ground crew will be maintained at all

times during the operation.

An operation or contractor's log will be maintained for all phases of the operation. The log will be as detailed as possible and will include names, dates, places and other pertinent information, as well as, observations of personnel involved.

5. Animal Handling and Care

Prior to any gathering operations, the COR/PI will provide for a pre-capture evaluation of existing conditions in the gather areas. The evaluation will include animal condition, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that capture efforts necessitate the services of a veterinarian, one will be obtained before capture efforts proceed.

The contractor will be apprised of the conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

The Authorized Officer's representative and pilot may take a familiarization flight identifying all natural hazards (rims, canyons, winds) and man-made hazards in the area so that helicopter flight crew, ground personnel, and wild horse safety will be maximized. Aerial hazards will be recorded on the project map.

No fence modifications will be made without authorization from the Authorized Officer. The contractor/BLM shall be responsible for restoration of any fence modification which has been made.

Wings shall not be constructed out of materials injurious to animals and must be approved by the Authorized Officer.

It is the responsibility of the contractor/BLM to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR.

Branded or privately owned animals captured during gather operations will be handled in accordance with state estray laws and existing BLM policy.

Capture methods will be identified prior to issuance of delivery orders. Regardless of which methods are selected, all capture activities shall incorporate the following:

a. Trap Site Selection

The Authorized Officer will make a careful determination of a boundary line to serve as an outer limit

within which horses will be herded to a selected trap site. The Authorized Officer will insure that the pilot is fully aware of all natural and man made barriers which might restrict free movement of horses. Topography, distance, and current condition of the horses are factors that will be considered to set limits to minimize stress on horses .

Gather operations will be monitored and restricted (if necessary) to assure the body condition of the horses are compatible with the distances and the terrain over which they must travel. Pregnant mares, mares with small colts, and other horses will be allowed to drop out of bands which are being gathered if required to protect the safety and health of the animals.

All trap and holding facility locations must be approved by the Authorized Officer prior to construction. The situation may require moving of the trap.

Trap sites will be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites will be located on or near existing roads. Additional trap sites may be required, as determined by the Authorized Officer, to relieve stress to the animals caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.).

b. Trap/Facility Requirements

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, and 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, with no 90° corners.

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, from 1 foot above ground level to 6 feet above ground level.

If a government furnished portable chute is used to restrain, age, or to provide additional care for animals, it shall be placed in the runway in a manner as instructed by or in concurrence with the Authorized Officer.

All crowding pens including the gates leading to the runways may, if necessary to prevent injuries from escape attempts, be covered with a material which prevents the animals from seeing out (plywood, burlap, snow fence etc.) and should be covered a minimum of 2 feet to 6 feet above ground level.

Alternate pens are necessary to separate mares with small foals, animals which will be released, sick and injured animals, and estrays from the other animals and to facilitate sorting as to age, number, size, temperament, sex, and condition. They will be constructed to minimize injury due to fighting and trampling. In some cases, the Government will require that animals be restrained for determining an

animal's age or for other purposes. In these instances, a portable restraining chute will be provided. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

If animals are held in the traps and/or holding facilities, a continuous supply of fresh clean water, at a minimum rate of 10 gallons per animal per day will be supplied. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality grass hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. Separate water troughs shall be provided at each pen where animals are being held. When dust conditions occur within or adjacent to the trap or holding facility, the contractor or BLM shall wet down the ground with water.

6. Treatment of Injured or Sick; Disposition of Terminal Animals

The contractor/BLM shall restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction shall be done by the most humane method available. Authority for humane destruction of wild horses (or burros) is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed in Instructional Memorandum No. 2006-023.

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 Henneke body condition score greater than two.

The Authorized Officer or their acting representative will determine if injured animals must be destroyed and provide for destruction of such animals. The contractor or BLM will dispose of any 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 three feet.

The carcasses of the animals that must be destroyed as a result of age, injury, lameness, or non-contagious 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.

7. Motorized Equipment

All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The contractor shall provide the Authorized Officer with a current safety inspection (less than one year old) of all tractor/stock trailers used to transport animals to final destination.

Vehicles shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured

animals are transported without undue risk or injury.

Only stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities. Only stock trailers, or single deck trucks shall be used to haul animals from temporary holding facilities to final destination(s). Sides or stock racks of transporting vehicles shall be a minimum height of 6 feet 6 inches from the vehicle floor. Single deck trucks with trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have at the minimum a 5 foot wide swinging gate. The use of double deck trailers is unacceptable and will not be allowed.

All vehicles used to transport animals to the final destination(s) shall be equipped with at least one (1) door at the rear end of the vehicle, which is capable of sliding either horizontally or vertically. The rear door must be capable of opening the full width of the trailer. All panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of the trailer must be strong enough, so that the animals cannot push their hooves through the sides. Final approval of vehicles to transport animals shall be held by the Authorized Officer.

Floors of vehicles, trailers, and the loading chute shall be covered and maintained with materials sufficient to prevent the animals from slipping.

Animals to be loaded and transported in any vehicle or trailer shall be as directed by the Authorized Officer and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The minimum square footage per animal is as follows:

11 square feet/adult horse (1.4 linear foot in an 8 foot wide trailer)
6 square feet/horse foal (0.75 linear foot in an 8 foot trailer)

The Authorized Officer shall consider the condition of the animals, weather conditions, type of vehicles, distance to be transported, or other factors when planning for the movement of captured animals. The Authorized Officer shall provide for any brand and/or inspection services required for the captured animals.

Communication lines will be established with personnel involved in off-loading the animals to receive feedback on how the animals arrive (condition/injury etc.). Should problems arise, gathering methods, shipping methods and/or separation of the animals will be changed in an attempt to alleviate the problems.

If the Authorized Officer determines that dust conditions are such that animals could be endangered during transportation, the contractor/BLM will be instructed to adjust speed and/or use alternate routes.

Periodic checks by the Authorized Officer will be made as animals are transported along dirt roads. If speed restrictions are in effect the Authorized Officer will at times follow and/or time trips to ensure compliance.

8. Special Stipulations.

Private landowners or the proper administering agency(s) will be contacted and authorization obtained prior to setting up traps on any lands which are not administered by BLM. Wherever possible, traps will be constructed in such a manner as to not block vehicular access on existing roads.

If possible, traps will be constructed so that no riparian vegetation is contained within them. Impacts to riparian vegetation and/or running water is located within a trap (and available to horses) will be mitigated by removing horses from the trap immediately upon capture. No vehicles will be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

Gathering will be conducted when soils are dry or frozen and conditions are optimal for safety and protection of the horses and wranglers. Whenever possible gathering activities will be scheduled to minimize conflicts with big game hunting seasons.

Gathers will not be conducted 6 weeks on either side of peak foaling season, which for this Herd Management Area is April 15 to June 15, to reduce the chance of injury or stress to pregnant mares or mares with young foals.

The helicopter will avoid eagles and other raptors, and will not be flown repeatedly over any identified active Raptors nests. No unnecessary flying will occur over big game on their winter ranges or active fawning/calving grounds during the period of use.

Standard operating procedures in locating and constructing traps will avoid adverse impacts from trap location, construction, or operation to wildlife species, including threatened, endangered, or sensitive species.

9. Herd Health and Viability Data Collection

The following information will be collected from each animal captured: age, sex, color, overall health, pregnancy or nursing status.

In addition, blood or hair samples may be collected from individuals within the herd. Certain other activities including immunocontraceptive, and freeze marking may be conducted.

a. Population Management Plan/Selective Addition or Removal

Blood or hair samples may be taken for the purposes of furthering genetic ancestry studies and incorporation into the Population Management Plans which will be developed for each HMA/complex.

On occasion, it may be necessary to enhance and maintain genetic diversity a few animals with compatible characteristics may be introduced from other HMAs. Introduced animals will be taken from areas with similar habitat types.

b. Immunocontraceptive Research

When the immunocontraceptive vaccine is used, delivery of the vaccine will be conducted by trained individuals, using approved delivery methods. When the vaccine is administered at the trap site, it will be injected into the large muscle on the hip.

10. Public Participation

Prior to conducting a gather, a communications plan or similar document summarizing the procedures to follow when media or interested public request information or viewing opportunities during the gather should be prepared.

The public must adhere to guidance from the agency representative and viewing must be prearranged.

11. 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.

The handling of hazardous, or potentially hazardous materials such as liquid nitrogen and vaccination needles will be accomplished in a safe and conscientious manner by BLM personnel or the contract veterinarian.

12. Responsibility and Lines of Communication

The Contracting Officer's Representative, Melissa Kindall, (also the Project Inspector), from the BLM White River Field Office, has direct responsibility to ensure the contractor's compliance with the contract stipulations.

Either the Associate Manager, or the Manager, Dolores Public Land Office will take an active role to ensure the appropriate lines of communication are established between the Dolores Public Lands Office, San Juan Public Lands Center and the Colorado State Office.

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

13. Glossary

Appropriate Management Level - The number of adult wild horses and burro which can be sustained within a designated herd management area which achieves and maintains a thriving natural ecological balance keeping with the multiple-use management concept for the area.

Authorized Officer - An employee of the BLM, or their acting representative, to whom has been delegated the authority to perform the duties described in these Standard Operating Procedures. See BLM Manual 1203 for explanation of delegation of authority.

Census - The primary monitoring technique used to maintain a current inventory of wild horses and burros on given areas of the public lands. Census data are generally derived through direct visual counts of animals using a helicopter.

Contracting Officer (CO) - Is the individual responsible for an awarded contract who deals with claims, disputes, negotiations, modifications and payments. This position is represented by CORs and PIs.

Contacting Officers Representative (COR) - Acts as the technical representative for the CO on a contract. Ensures that all specifications and stipulations are met. Reviews the contractor's progress, advises the CO on progress, problems, costs, etc. Is responsible for review, approval, and acceptance of services.

Evaluation - A determination based on studies and other data that are available as to if habitat and population objectives are or are not being met and where an overpopulation of wild horses and burros exists and whether actions should be taken to remove excess animals.

Excess Wild Horses or Burros - Wild free-roaming horses or burros which have been removed from public lands or which must be removed to preserve and maintain a thriving ecological balance and multiple-use relationship.

Genetically Viable - Fitness of a population as represented by its ability to maintain the long-term reproductive capacity of healthy, genetically diverse members.

Health Assessment - Evaluation process based on best available studies data to determine the current condition of resources in relation to potential or desired conditions.

Healthy Resources - Resources that meet potential or desired conditions or are improving toward meeting those potential or desired conditions.

Herd Area - The geographical area identified as having been used by wild horse and burro populations in 1971, at the time of passage of the Wild Free-roaming Horse and Burro Act.

Herd Management Area - The geographical area as identified through the land use planning process established for the long-term management of wild horse and burro populations. The boundaries of the herd management area may not be greater than the area identified as having been used by wild horse

and burro populations in 1971, at the time of passage of the Wild Free-roaming Horse and Burro Act.

Invasive Weeds - Introduced or noxious vegetative species which negatively impact the ecological balance of a geographical area and limit the areas potential to be utilized by authorized uses.

Metapopulation (complex) - A population of wild horses and burros comprised of two or more smaller, interrelated populations that are linked by movement or distribution within a defined geographical area.

Monitoring - Inventory of habitat and population data for wild horses and burros and associated resources and other authorized rangeland uses. The purpose of such inventories is to be used during evaluations to make determinations as to if habitat and population objectives are or are not being met and where an overpopulation of wild horses and burros exists and whether actions should be taken to remove excess animals.

Multiple Use Management - A combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals watershed, domestic livestock, wild horses, wild burros, wildlife, and fish, along with natural, scenic, scientific, and historical values.

Project Inspector (PI) - Coordinates with the COR assigned to a contract to support his/her responsibility for review, approval, and acceptance of services. In this instance one individual will serve as both the COR and the PI.

Research - Science based inquiry, investigation or experimentation aimed at increasing knowledge about wild horses and burros conducted by accredited universities or federal government research organizations with the active participation of BLM wild horse and burro professionals.

Science Based Decision Making - Issuance of decisions affecting wild horses and burros, associated resources and other authorized rangeland uses incorporating best available habitat and population data and in consultation with the public.

Studies - Science based investigation of specific aspects of wild horse and burro habitat or populations in supplement to established monitoring. These investigations will not be established following rigid experimental protocols and could include drawing blood on animals to study genetics, disease and general health issues and population dynamics such as reproduction and mortality rates and general behavior.

Thriving Natural Ecological Balance - An ecological balance requires that wild horses and burros and other associated animals be in good health and reproducing at a rate that sustains the population, the key vegetative species are able to maintain their composition, production and reproduction, the soil resources are being protected, maintained or improved, and a sufficient amount of good quality water is available to the animals.

5.1.2

WILD HORSE CHARACTERISTICS AND BEHAVIOR

Wild horses in southwest Colorado likely have many domestic bloodlines in their background. Genetic analysis conducted from blood samples collected in 2000 showed primarily Thoroughbred, Morgan and Quarter Horse influence in the Spring Creek Basin Herd. Nearly every coat, color, pattern, and combinations thereof can be found within the herd. Habitat conditions are such that the horses are usually 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 wild horses without any females) are found 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 travel up to 10 miles to water, although two to five mile distances 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, including some reservoirs, streams, and springs. The concentration of wild horses around available water can become a problem when water is scarce. Wild horses may become possessive of available water, in other areas this can result in direct competition with livestock and wildlife. Livestock are only authorized in the Spring Creek Basin HMA from December through February, when water is generally not limited. Mountain lions occasionally prey on wild horses, though they do not appear to have a measurable impact on the horse population in this HMA.

Releases of wild horses would be near available water. Usually, wild horses gathered together would be released together. If the area is new to them, a short term adjustment period would be required while the wild horses become familiar with the new area. We anticipate no long-term adverse impacts to returned wild horses. Released wild horses would increase inter-band encounters and confrontations. These encounters should not be detrimental over the short-term, however if horse populations exceed AMLs for an indefinite period, impacts would become consequential. These consequences would be born both by the horses and nearby landowners as wild horses would again move outside HMA boundaries.

Returns could change the sex ratio within the HMAs. This should have no effect on the viability of the remaining population in the near term. Long-term effects would not be anticipated unless the practice were repeated in future actions. Returns would increase the average age in the HMAs slightly. Recent winters have been comparatively mild, which may have prolonged the life of some older horses. A small-scale increase in mortality of older horses would likely occur in the next normal or severe winter. The loss of these individuals to the population would be short-term as it is unlikely that many of these animals are still reproductively active.

5.1.3

Closure Order Bureau of Land Management Dolores Public Land Office

Pursuant to Title 43 of the Code of Federal Regulations (CFR) 9268.3 (d), the following closure order is in effect throughout all Bureau of Land Management lands in the Spring Creek Basin Wild Horse Herd Management Area, from Monday August 20, 2007 through Friday August 24, 2007.

During this five day period public use or travel across any part of the Spring Creek Basin Herd Management Area is prohibited. The closure is necessary to prevent interference with wild horse gather operations scheduled during the aforementioned dates.

The following are exempt from the provisions of this order:

1. Any Federal, State, or local law enforcement officer, or member of an organized rescue or firefighting force in the performance of an official duty. Bureau of Land Management (BLM) employees, volunteers or contractors in the performance of their official duties.
2. Persons with a permit specifically authorizing entrance into the closure area or those accompanied by a BLM representative and following their instructions.

The Spring Creek Basin Herd Management Area is located in San Miguel and Dolores Counties, Colorado. The Legal description includes BLM administered lands in T.42 & 43N., R.14 & 15W., N.M.P.M. A map of the Herd Management Area is reproduced on the back of this Closure Order.

Done at Dolores, Colorado, this 15th day of August, 2007.

Jamie Sellar-Baker
Associate Field Office Manager
Dolores Public Land Office

Violations of Title 43 CFR 9268.3 prohibitions are punishable as a Class A misdemeanor by a fine of not more than \$100,000 for an individual or \$200,000 for an organization and /or up to 12 months imprisonment.

5.1.4 WinEquus (Stephen Jenkins) Population Modeling for Spring Creek Basin HMA

Population Model Overview

Population modeling is a tool designed to help evaluate various management alternatives and possible outcomes for management different species. The WinEquus modeling program was developed by Dr. Stephen H. Jenkins at the University of Nevada at Reno to assist wild horse and burro specialists in evaluating various management alternatives that might be considered for a particular area.

The model uses data on average survival probabilities and foaling rates of horses to simulate population growth over a period of 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. This aspect of population dynamics is called environmental stochasticity, and reflects the fact that future environmental conditions that may affect horse populations cannot be known in advance. Therefore, each trial with the model will give a different pattern of population growth. Some trials may include mostly “good years”, when the population grows rapidly; other trials may include a series of several “bad” years in succession. The stochastic approach to population modeling uses repeated trials to project a range of possible population trajectories over a period of years, which is more realistic than predicting a single specific trajectory.

The Dolores Public Land Office of the BLM used the model to simulate selective removal (Proposed Action), no removal (No Action), and selective removal with fertility control treatment (Immunocontraception Alternative) as management strategies. Initial population age structures were developed for the HMA based on the 2005 gather/release demographics. All simulations used the survival probabilities and foaling rates supplied with the WinEquus population model for the Garfield Flat HMA. Survival data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999. Marked individuals were followed for a total of 708 animal-years to generate these survival probabilities.

Foaling rate data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999. Marked females were followed for a total of 351 animal-years to generate these data on foaling rates.

These initial populations for the Spring Creek Basin HMA were entered into the model and put through simulations that included selective removal only (the Proposed Action), selective removal with fertility control (the immunocontraception alternative) or no removal or contraception (No Action Alternative). The simulations were run for 100 trials over the next eleven years. For each simulation, a series of graphs and tables were provided which included the “most typical” trial, population sizes, growth rates, and gather numbers.

Results of Population Modeling

Out of the 100 trials in each simulation run, the model tabulated minimum, average, and maximum population sizes. The model was run for a period of eleven years from 2007 to 2017, and gives output through 2017. These numbers are useful to make relative comparisons of the different alternatives, and potential outcomes under different management options. The lowest, median and highest trials are displayed for each simulation completed. This output shows not only expected average results but also

extreme results that might be possible. The minimum population size in general reflects the numbers that would remain following management or random environmental impacts. The maximum population size generally reflects the population that existed prior to the gather, and in many cases that figure would not be exceeded during the ten years of the simulations. Half of the trials were greater than the median and half of them less than the median.

Table 1. Population Size – Selective Removal - Proposed Action

Estimated Population Sizes in 11 Years			
Trial	Minimum	Average	Maximum
Lowest	39	80	117
Median	62	98	137
Highest	97	129	177

Table 2. Population Size – Selective Removal and Fertility Control Alternative

Estimated Population Sizes in 11 Years			
Trial	Minimum	Average	Maximum
Lowest	44	79	114
Median	69	101	147
Highest	95	127	209

Table 3. Population Size – No Action Alternative

Estimated Population Sizes in 11 Years			
Trial	Minimum	Average	Maximum
Lowest	96	222	439
Median	122	346	730
Highest	155	446	1,036

Growth Rates

Through the model, average population growth rates were obtained for the Proposed Action (selective removal), the Fertility Control Alternative (fertility control and selective removal) and the No Action Alternative. Growth rates are displayed for the lowest, median and highest trial, under each alternative.

Spring Creek Basin HMA - Percent Average Growth Rates in 10 years, 2007 Gather

Trial	Proposed Action: Selective Removal	Immunocontraception Alternative: Selective Removal & Fertility Control	No Action Alternative
Lowest	8.9%	4.5%	14.8%
Median	17.8%	12.7%	20.0%
Highest	24.4%	19.7%	23.9%

Population modeling reflects that the implementation of fertility control and selective removal would result in slightly reduced growth rates of the wild horse population in the Spring Creek Basin HMA, when compared to selective removal alone. The model indicates that growth rates would not be so low as to cause risk to the population should fertility control be implemented. The No Action Alternative shows the continued increase in population size if a gather was not completed.

Population Modeling Summary

To summarize the results obtained by simulating the range of alternatives for the Spring Creek Basin HMA wild horse gather, the following questions can be addressed.

- *Do any of the Alternatives “crash” the population?*
None of the alternatives indicate that a crash is likely to occur to the population. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely.
- *What effect does fertility control have on population growth rate?*
The alternative implementing fertility control reflects slightly lower overall growth rates. The difference in the growth rates for selective removal alone, compared to selective removal with fertility control are relatively small.
- *What effect do the different alternatives have on the average population size?*
The population sizes obtained through the model indicate that fertility control implementation would not result in average population sizes substantially lower than if fertility control is not implemented. Growth rates simulated for the fertility control alternative were 4-5% lower than the proposed action.

The No Action Alternative is clearly unacceptable, but it was analyzed for comparison with the other alternatives. Without a wild horse gather, the population would quickly exceed the carrying capacity of the HMA, with attendant long term habitat damage, substantially reducing the ability of the HMA to support horses.