

**U.S. Department of the Interior  
Bureau of Land Management  
GRAND JUNCTION Field Office  
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GRAND JUNCTION, CO 81506**

**ENVIRONMENTAL ASSESSMENT RECORD  
AND GATHER PLAN**

**Grand Junction Field Office**

**CO-GJFO-04-94-EA**

**Little Book Cliffs Wild Horse Gather**

July 2004

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**Summary Description of Proposed Action:**

The Bureau of Land Management (BLM) plans to gather approximately 150 horses from the Little Book Cliffs Wild Horse Range (WHR) in October of 2004 if weather allows or during August or September of 2005. To maintain the horse population within the established appropriate management level (AML) of 90 to 150 and minimize impacts to forage conditions, approximately 80 horses that are gathered will be removed from the range with the remaining animals to be released back onto the range. The horses removed from the range will be adopted or sent to long term holding facilities.

**Location and Land Status:** The Little Book Cliffs Wild Horse Range is located approximately 20 miles west of Debeque, Colorado, atop the Book Cliffs escarpment. It is 13 miles in length and encompasses 36,014 acres of which 35,189 are public and 925 are private acres (See Figure 1, Location Map)

**Background/Introduction:**

This WHR was established in the fall of 1974 by a General Management Agreement. The agreement was made to settle wild horse conflicts and impacts associated with the Round Mountain grazing allotment and the permittee.

The entire wild horse area was enclosed by a 3 rail fence in combination with natural barriers (sheer canyon walls and escarpments) where possible. In 1975, the horses that were outside were moved into the horse area. All domestic livestock were limited to the rest of the original allotment and excluded from the wild horse area.

The Little Book Cliffs Wild Horse Management Plan was written and approved in 1979, and revised in 1984, 1992. In 2002, The Little Book Cliffs Population Management Plan (PMP) was prepared and is included as an amendment to this plan (appendix A).

On November 7, 1980, the area was dedicated as the third National Wild Horse Range in the country.

In 1997 part of the Round Mountain Allotment was added to the horse range through a cooperative agreement with the permittees. This added 4904 acres and 319 animal unit months to the horse range. As reflected in the PMP (appendix A), this changed the appropriate management range from 65 to 125 horses, to a range of 90 to 150 horses.

Current records kept by the BLM with assistance of the local volunteer group show a current population as of July 2004 of 178 horses including 2004 foals. These records are based on year-round ground surveys and have proven to be fairly accurate in the past. A total of 18 foals have been recorded thus far in 2004 which is much less than normal due to an approved fertility program initiated in 2002. Foal counts have ranged from 24 to 39 foals for the past 10 years resulting in population size increases in the 20 to 25% range. This years increase is 11%.

As per Washington Office Instruction Memorandum 2002-095 and 2004-138 all wild horse gather plans must consider the use of fertility control. BLM's experience has

grown, and the knowledge of the effects of current and past management on wild horses and burros has increased. Long-term research efforts have resulted in viable alternatives to removal-only procedures in controlling herd size. Program goals have expanded beyond simply establishing “thriving natural ecological balance” (setting appropriate management levels) for individual herds, to include achieving and maintaining genetically-viable and self-sustaining populations of healthy animals.

The BLM continues to pursue research in support of the Wild Horse and Burro Program. A final draft of Wild Horse and Burro Strategic Research Plan was reviewed and supported by the National Wild Horse and Burro Advisory Board in August 2002, and the BLM Director’s Science Advisory Board in January 2003. Within this strategy, continuing research on fertility control has been identified as a high priority.

In 2002 a fertility control research program in coordination with the Biological Research Division (BRD) of the United States Geological Service (USGS) was initiated in the Little Book Cliffs Wild Horse Range in an effort to reduce the growth rate of the population. Details of the research program are contained in the Environmental Assessment and Gather Plan Document CO-GJFO-32-EA and in Appendix E of this document. Efforts are under the national field trial research protocol. During the 2002 gather twenty three mares were treated with a primer dose of the immunocontraceptive Porcine Zona Pellucida (PZP) vaccine. In 2003 6 additional mares were primed in accordance with the 2002 Gather EA for a total of 29 mares. Twenty seven of these mares were treated with the booster vaccine no sooner than three weeks following the primer. The booster dose was administered in the field via a dart gun. As of the spring of 2004 24 mares remain in the treatment program. Three horses were dropped from the program due to the inability to get within the required distance for darting and two are unaccounted for. The vaccine will induce one year of infertility. Under the research protocol treated mares received or will receive additional boosters in 2003, 2004 and 2005 for a total of four years followed by two years of no booster. This will induce infertility through the 2007 foaling season. This would decrease the growth rate for the herd and still allow some reproduction. (See Appendix E for summary of immunocontraceptive methodology). The year 2004 is the first year that has shown results of the vaccine initiated in 2002. Thus far in 2004 only three of the 24 treated mares have foaled (one of these mares was treated late and was expected to foal). This has resulted in a 92% efficacy rate. Observations by the research team have been and will continue throughout the project. The basis for observations is to observe behavioral characteristics and determine if there are variations from what has been considered normal. Observations will also document foaling results of treated mares when no longer treated.

The use of contraceptives has long been recognized as a humane alternative to limit the growth of wild horse herds while providing less disruption to the herd gene pool. Individual contracepted mares have their genetic contributions delayed but not removed. The use of contraceptives would also increase the time frame between gathers, with associated cost benefits and reduction of resource impacts.

## Gather History

<u>YEAR</u>	<u>HORSES REMOVED</u>	<u>REASON FOR GATHER</u>
1977	40	Drought and over utilization
1983	45	Over utilization
1988	44	Over utilization
1989	40	Drought and over utilization
1992	39	Over utilization
1996	53	Over utilization
1997	10	Horses outside HMA
1999	57	Over Utilization
2002	79	Drought and over utilization

The western slope of Colorado has been experiencing drought conditions for approximately 7 years. Precipitation has not measured near or above average since 1998 according to the National Weather Service. Since the vegetation evaluation completed for the 2002 gather, drought conditions have continued resulting in reduced forage production. Many springs are showing reduced flow rates while others have dried up completely as a result of the prolonged drought.

**Public comments to the EA, must be submitted in writing, contain original signatures and be postmarked by September 10 which allows for a 30-day comment period.**

## **Proposed Action and Alternatives**

Proposed Action:

### A. Proposed Action: Helicopter drive trapping with no additional use of Immunocontraceptives

The existing AML as established in the PMP is a range of 90 to 150 horses. To achieve that objective, approximately 150 head of the estimated 180 horses on the WHR would be gathered. Of the horses gathered, approximately 70 would be returned to the WHR, which when combined with the horses not gathered would leave approximately 95 horses on the WHR. Approximately 80 horses would be adopted or sent to the long term holding facilities.. Under no circumstances would the number of horses remaining on the WHR be reduced below 90, the lower range of the AML. The fertility control research initiated in 2002 would continue as identified in CO-GJFO-02-EA and described above to regulate reproductive capacity of the herd. Helicopters would be used to gather the horses in early October of 2004 or August or September of 2005. (See Appendix B for standard operating procedures for horse gathers using helicopters)

Blood samples for genetic evaluation will not be drawn on horses released back onto the range since samples were taken and summarized just two years ago in the 2002 gather. The horses returned to the range will be selected in a manner so as to maintain the viability, adaptability and character of the established horse herd, as explained in the PMP (Appendix A). Horses involved in the fertility program both treated and control mares will remain on the range. This selection will be determined by the BLM with assistance from the Friends of the Mustangs. The horses will be selected to keep bands together as much as possible. The remaining horses will be hauled by trailers to Grand Junction and made available for adoption or taken to Canon City for placement in the national adoption program or long term holding facilities.

In cooperation with the fertility control research that will continue up through 2007 two actions will be taken. If possible bands having treated mares will not be gathered. If this can be accomplished and still meet removal numbers this is preferred by the research team based on the established research protocol. If not, these bands would be gathered but when released would contain at a minimum the dominant stud, the treated mare and a control mare. Control mares would only be required for the 10 bands that are being observed as part of the research effort. Bands not being observed would be released with a minimum of the dominant stud and treated mare.

In an attempt to forecast cumulative impacts to the herd over time on population dynamics, a computer simulation was run using the wild horse population model developed by Dr. Stephen Jenkins of the University of Nevada, Reno (Jenkins 1996)(Appendix C).

Trap Locations (SEE ATTACHED MAP Figure 1)

Trap Number 1 is located near Monument Rock in SE 1/4, Sec. 9, T. 10 S., R. 99 E., 6th P.M. and is in the wilderness study area.

Trap Number 2 is located in North Soda NWNE 1/4, Sec. 22, T. 9 S., R. 100 W., 6th P.M.

Trap Number 3 is located near Low Gap in the NWSE 1/4, Sec. 32, T. 9 S., R. 99 W., 6th P.M.

Trap Number 4 is located in Main Canyon across the saddle from Coal Canyon. This trap will only be used if the horses are in this area when we do the gather. The location is SWSW 1/4, Sec. 21, T. 10 S. R. 98 W., 6th P.M. and is in the wilderness study area.

The trap locations are based on current knowledge and habits of the horses and, as such, are tentative. Exact locations will be chosen during the actual roundup.

### B. Alternative 1: Helicopter Drive Trapping with the use of additional Immunocontraceptives

This alternative would remove the same number of horses as the proposed action, and only differs from the proposed action by incorporating the use of the two year vaccine as a fertility control measure on up to 10 additional mares. The additional mares would be of varied age classes to address a uniform impact to the age structure of the herd. The fertility control research initiated in 2002 would continue as identified in CO-GJFO-02-EA. to regulate reproductive capacity of the herd. Up to an additional ten mares of various ages could be treated under this alternative resulting in up to a total of 34 mares being subject to the fertility vaccine. The population growth under this alternative might be low enough to risk a “crash” of the population and threaten the genetic integrity of the herd’. It also has been recommended by the fertility research team not to utilize the two year vaccine at this time due to the possibility of damaging the integrity of the initial research project. Wild horse management under this alternative would utilize the various capture techniques and processing protocols identified in the proposed action to control the horse numbers. Selection of capture techniques would be based on several factors such as the season of removal, condition of animals, herd health, and environmental considerations. In an attempt to forecast cumulative impacts to the herd over time on population dynamics a computer simulation was run using the wild horse population model developed by Dr. Stephen Jenkins of the University of Nevada, Reno (Jenkins 1996) (Appendix C).

### C. Alternative 2: No Action

Under this alternative a wild horse gather would not take place in the WHR. The ongoing fertility program would continue through the course of the project. This alternative would result in a lower growth rate than historically has occurred due to the fertility control project. Following the influences of the fertility control vaccine the population would progress back to the growth rate of 15-25% annually. Predators do not substantially regulate wild horses in the WHR. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95%. The no action alternative would result in a steady increase in wild horse numbers, which would exceed the carrying capacity of the range and eventually lead to the loss of horses because of starvation or dehydration.

This alternative would not be acceptable to the BLM nor most members of the public. The BLM realizes that some members of the public advocate “letting nature take its course”, however allowing horses to die of dehydration and starvation would be inhumane treatment and clearly indicates that an overpopulation of horses exists in the HMA. The Wild Free-Roaming Horse and Burro Act of 1971 mandates the Bureau to “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 Regulation.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:

Other alternatives for capturing the horses such as bait and water trapping were discussed, but eliminated from consideration because of cost and safety considerations for the horses and people working on the gather. The majority of the water sources on the WHR do not have vehicle access, so the horses would have to be baited to holding corrals on the roads. This is very dangerous and time consuming

NEED FOR THE ACTION: The WHR was dedicated to maintain a viable horse herd and maintain 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. The Population Management Plan (PMP) ( see Appendix A) for this area has an objective to maintain a herd of from 90 to 150 head. The 2004 horse count is approximately 178.

The studies conducted on the horse range indicate that we are over our maximum point of the established AML for horse numbers. The following is a summary of the studies we have completed in the horse area. (For additional information please see the study files in the GJFO.)

Utilization: The wild horse plan calls for utilization levels of no more than 30 percent in the fall and 60 percent in the spring on the key plant species (western wheat grass, Indian rice grass and wildrye). The Key Forage Plant method is used to determine utilization. A Utilization map is made for each fall and spring use period. Spring utilization is taken in March before spring growth begins and fall use is taken after the growing season. Our utilization studies for last fall and this spring are above these planned levels. Utilization levels in July 2004 are already above the specified levels as drought conditions continue in the area.

Trend: The trend studies were established in 1986 and read again in 1991, 1996 and 2000, 2001. They show the range trend was upward until 1996 but were on a downward trend in 2001 when the studies were completed. The main reason for this is the drought, but the high horse numbers are also a contributing factor.

Precipitation: The precipitation in the area has been below average since 1998. (For more information see records at the GJFO)

Horse Counts: The wild horse numbers increase from 15% to 25% each year. We have had foal counts of over 30 head prior to 2004. In 2004 the number of foals has



been reduced to 18 due to the fertility control treatment. Our current total horse count is approximately 180, including this year's foals.

#### B. Objectives

1. Capture 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 the utilization levels in the wild horse area below 30 percent in the fall and 60 percent in the spring.
4. Maintain the health of the rangeland in order to maintain a healthy and viable wild horse herd.
5. BLM will continue the ongoing fertility control research program monitoring using research protocol within the BLM national wild horse fertility control field trial program, including impacts on herd foaling rates; foaling seasonality; herd genetic viability; and individual mare body condition, fitness and behavior.

#### PLAN CONFORMANCE REVIEW:

The proposed action is subject to the following plans:

1. Grand Junction Resource Management Plan. The Bureau of Land Management completed its Resource Management Plan for the Grand Junction Resource Area in January 1987. The emphasis for this area was wild horses. The specific directives were to manage the WHR to accommodate a viable herd the size of which would be based on forage utilization. This removal conforms with the resource management plan.
2. Grand Junction Final Wilderness Environmental Impact Statement. A final wilderness environmental impact statement was completed in November 1989, which includes part of the Little Book Cliffs Wild Horse Area. This removal plan conforms with the EIS.
3. Little Book Cliffs Wild Horse Management Plan
4. The Little Book Cliffs Population Management Plan, an amendment to the Little Book Cliffs Wild Horse Management Plan through the Environmental Assessment and Gather Plan Document CO-GJFO-32-EA.
5. The Wild Horse and Burro Strategic Research Plan and the Fertility Control Field Trial Plan.

Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover (No. 1)upland soils, (No.2)riparian systems, (No.3)plant and animal communities, (No.4)threatened and endangered species, and (No.5)water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES:

CRITICAL ELEMENTS

AIR QUALITY

Affected Environment: The proposed action will have no air quality impacts.

Environmental Consequences/Mitigation: There will be no major impacts to the Air Quality of the Grand Valley with this project or any of the alternatives.

DPS 8-4-04  
Initial and Date

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: There will be no ACECs affected by this proposal.

Environmental Consequences/Mitigation: None

DPS 8-4-04  
Initial and Date

CULTURAL RESOURCES

Affected Environment: Previous inventories for projects in the Wild Horse Area indicate moderate prehistoric use that is represented by open and sheltered camps and scattered lithic concentrations. Most of these sites are associated with subsistence hunting activity. During the late protohistoric period some brush drive and drift fences may have been constructed by the Utes that traditionally used the area, but some of these structures may have been associated with early Euro-American use in the area. The Ute Trail, 5ME0807, is in the general project area but most traces in the vicinity of trap area 2, at Low Gap, are implied and not extant. A mile to the west the trail is visible in the slick rock sandstone, and further west the trail is connected between sandstone ledges with cut hand and toe holds. Historic use in the project area includes temporary camps and corrals associated with grazing, herding and hunting. A literature search of the trap and holding facility locations indicates that all four locations have had previous survey with negative findings, (Area 1: CRIR GJFO 1083-21, Area 2: CRIR 2082-12 and 1103-03, Area 3: 1480-03 and 782-6, and Area 4 1077-32 and 781-07).

Environmental Consequences/Mitigation: No further cultural inventory surveys are required. The proposed action and alternative 1 are in compliance with the National Historic Preservation Act, the Colorado State Protocol Agreement, and other federal law, regulation, policy, and guidelines regarding cultural resources. If newly discovered cultural resources are identified during the project, work in that area should stop and the BLM Authorized Officer should be notified immediately (36 CFR 800.13). The no action alternative would not affect cultural resources.

AIL July 28, 2004  
Initial and Date

## ENVIRONMENTAL JUSTICE

Affected Environment: There are no disproportionately high and/or adverse human health or environmental effects proposed with this project on minority populations and low-income populations.

Environmental Consequences/Mitigation: None

DPS 8-4-04  
Initial and Date

## FARMLANDS, PRIME AND UNIQUE

Affected Environment: There are no Prime and Unique Farmlands affected by this proposal.

Environmental Consequences/Mitigation: None

DPS 8-4-04  
Initial and Date

## FLOODPLAINS

Affected Environment: There are no floodplains that would be impacted by the proposed action or alternatives.

Environmental Consequences/Mitigation: No impacts

LR 8-4-04  
Initial and Date

## INVASIVE, NON-NATIVE SPECIES

Affected Environment: The entire horse area has been intensively inventoried for noxious weeds, and the few infestations found have been treated (Russian knapweed and hoary cress).

Environmental Consequences/Mitigation: The gather should have no impact from a weed perspective. The trap locations are the most likely area for weeds to occur due to the amount of traffic and disturbance. There are no known infestations of noxious weeds at these locations and this potential is considered

minimal. Participants in the gather who stay at Low Gap and feed hay would be required to feed weed-free hay to their horses.

MT 8/4/04  
Initial and Date

## MIGRATORY BIRDS

**Affected Environment:** It is only possible that red crossbills and mourning doves would be nesting at the time of a September or October gather. Lesser goldfinch may be nesting in August in PJ woodlands.

**Environmental Consequences/Mitigation:** No birds are likely to be “taken” by the activities associated with a wild horse gather as proposed. The alternatives are equally compatible with the Migratory Bird Treaty Act.

REL 9-9-04  
Initial and Date

## NATIVE AMERICAN RELIGIOUS CONCERNS

**Affected Environment:** No traditional cultural properties were identified during the cultural resources literature review of the APE for the proposed trap areas. 5ME0807 is not extant in trap area 3. 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 significance for Native Americans.

**Environmental Consequences/Mitigation:** None. No additional Native American Consultation was conducted.

AIL July 28, 2004  
Initial and Date

## THREATENED, ENDANGERED, AND SENSITIVE SPECIES (includes a finding on Standard 4)

**Affected Environment:** The special status species of non-game wildlife and plants that occur in the WHR are Peregrine Falcon (federal, endangered-recently delisted), Kit Fox (state, endangered), Bald Eagle (federal-threatened), and a BLM sensitive plant *Gilia stenothyrsa* (*Narrow Stem Gilia*). Two possibly three pairs of Peregrine Falcons hunt and exercise in and over the Little Book Cliffs Wild Horse Area. Kit Foxes occur mainly along the non-vertical faces of the Book Cliffs. Bald Eagles occasionally hunt and roost within the project area. A few, about ten, *Gilia* plants occur at the edge of Jerry Creek in lower Main Canyon. Other species that likely occur include the Spotted Bat, Fringed Myotis (bat), Yuma Myotis (bat), Townsend’s Big-eared Bat, Northern Goshawk, Ferruginous Hawk, and Midget Faded Rattlesnake (7 BLM sensitive species). The sagebrush parks are too small in the WHR to support Greater sage-grouse and there is no record of their occurrence here.

### Environmental Consequences/Mitigation:

Proposed Action & Alternative 1: The continued maintenance of the horse herd at sustainable numbers is desirable for these species and represents no change, which nets a “no affect” determination. The disturbance of occasional gathering events is negligible. The Main Canyon trap site is close to the *Gilia* plant site. By keeping the trap out of the stream bottom and banks this plant is avoided.

Alternative 2: The no action alternative, over time, may have an adverse impact on the rare plants in the area, due the large numbers of horses projected to be using the area. If current drought conditions persist, this potential impact would become increasingly important.

Finding on the Public Land Health Standard 4 for Threatened & Endangered species: This standard is met in the Little Book Cliffs WHA. Selection of the Proposed Action Alternative or Alternative 1 would not affect Public Land Health Standard 4 for Threatened & Endangered species. Selection of the No Action Alternative 2 may have an adverse impact on the rare plants in the area, due the large numbers of horses projected to be using the area.

DLS 20 July 2004; REL 9 September 2004

Initial and Date

### WASTES, HAZARDOUS OR SOLID

#### Affected Environment:

Environmental Consequences/Mitigation: Hazardous wastes are not expected to be an issue for this proposed action as hazardous materials or wastes would not be expected to be used, generated, or encountered. Solid wastes would be generated during the gathering activities at the camping area (trash and human wastes.)

Syringes, darts, needles, vaccine containers, etc. used in the administration of the immunocontraceptive vaccine are considered regulated medical waste. Regulated medical waste must be placed in leak proof containers that are contained in a red plastic bag labeled medical waste. Medical waste must be handled and transported separately from other waste to an approved disposal facility. The amount of regulated medical waste that would be generated by this project would be minimal and not result in any threat to the environment.

Alternative 1, the helicopter gather without the use of Immunocontraceptives would not generate the regulated medical wastes. Solid wastes would still be generated during the gathering activities and at the camping area.

Minimal impacts would be expected from solid waste generation, assuming all trash is removed for proper disposal. Human waste disposal will be via vault

toilets located at the campsite. The only mitigating measure would be that all trash be collected and removed for proper disposal.

Of course, the no action alternative would not have any wastes.

AEK 26 July 2004  
Initials and Date

#### WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

**Affected Environment:** The roundup would occur principally in the Jerry Creek watershed, with a small portion within the Coal Creek watershed. Primary tributaries to Jerry Creek include Cottonwood Canyon and Spring Creek. These are ephemeral systems with water flowing primarily in response to intense thunderstorm activity. No water quality data are available for these streams because they are generally dry. High sediment concentrations have been observed in these canyons, however.

**Environmental Consequences/Mitigation:** During the gather, the concentration of personnel and horses in the traps locations could increase soil compaction and reduce vegetative cover. Consequently, sediment production could be increased in these localized areas. Impact would not be significant because of the small impact area and the generally dry nature of these watersheds. In the longer term, reducing herd size could have a beneficial impact on surface water quality. The quantity of sediment production from these watersheds is related to vegetative cover. Reducing the number of horses would reduce the utilization on the vegetation. This in turn may increase vegetative cover. Increased vegetation would stabilize the soils, reducing sediment production. Use of the immunocontraceptive vaccine would stabilize the herd size for a couple of years which should reduce vegetative utilization that was associated with herd growth of 15% or more each year. This would offer additional vegetative cover and thereby offer additional watershed protection. Sediment levels should stabilize.

**Alternative 1:** Not using the vaccine (alternative 1) would increase vegetative utilization with a corresponding increase in sediment production.

**Alternative 2:** No gather would result in utilization levels much above the objectives established for the area and would not comply with the bureau's land health standards. Sediment production would be excessive.

No other impact to surface or ground water quality is anticipated from this action.

**Finding on the Public Land Health Standard 5 for water quality:** With the proposed action, no violation of water quality standards would occur, therefore standard 5 would be met.

JS 7/20/04

Initial and Date

## WETLANDS & RIPARIAN ZONES (includes a finding on Standard 2)

**Affected Environment:** Several of the canyons including Main, Coal, Cottonwood, Lane and Spring Creek support areas of riparian vegetation.

**Environmental Consequences/Mitigation:** Proposed Action & Alternative 1:  
The trapping and holding facilities will not be constructed where riparian areas will be disturbed. Driving the horses will avoid or minimize the disturbance to riparian areas. The daily briefings will include staying out of riparian areas. Reducing the horse herd in this area will help maintain the riparian areas.

**Alternative 2:** The no action alternative will, over time, have adverse impact to the riparian areas due to the large number of horses in the area. If current drought conditions persist, this potential impact would become increasingly important.

**Finding on the Public Land Health Standard 2 for riparian systems:** LR 7/28/04

Initial and Date

## WILD AND SCENIC RIVERS

**Affected Environment:** There are no wild and scenic rivers identified within the project area.

**Environmental Consequences/Mitigation:**

WJ 7-26-04  
Initial and Date

## WILDERNESS

**Affected Environment:** Some of the proposed action will take place within the Little Book Cliffs Wilderness Study Area. Two of the traps are located adjacent to and within the WSA. Trap number 1 is located at the end of the cherry stem close to Monument Rocks. Trap Number 4 is located in the bottom of Main Canyon east of the saddle between Main and Coal Canyons. Access to trap number 4 would be via the two-track route in Main Canyon. Horse roundups have been an integral part of the management of this WSA.

**Environmental Consequences/Mitigation:** None of the proposed actions would cause a major impact on wilderness characteristics. The helicopter noise and

associated round-up noises would all be of short duration. All surface disturbance associated with the traps within the WSA would be temporary with immediate minor impacts and no long term impacts. Vehicle use would be limited to existing ways.

The gather provides a major benefit to the wilderness resources by reducing the number of horses to be in balance with the range capacity. The proposed action would keep the number of horses under the higher level of the AML for a longer period of time which would provide the balance with the range capacity for a longer period. Alternative 1 would get the horse numbers to the appropriate level, but would require the next gather to occur quicker than the proposed action. The no action alternative would decrease the natural character of the wilderness resource by decreasing the vegetative cover.

WJ 7-26-04  
Initial and Date

### NON-CRITICAL ELEMENTS

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

**SOILS:** Horse traps, the associated activities around them, and concentrations of personnel conducting the gather, increase surface disturbance of the soils and the potential for compaction, accelerated erosion and sediment production. This may not be significant depending on the occurrence and duration of precipitation and runoff-producing events in the area. Long-term response of the vegetation/soils resource to maintaining a stable, limited horse herd should be positive. In the No Action alternative, the horses in excess of the carrying capacity would have an additional impact to soils through overgrazing and the impact that has on the soils resource. In Alternative 1, changing the method of treatment of captured animals would not effect the soil resource to any major extent.

Finding on the Public Land Health Standard 1 for upland soils: The proposed action would not prevent the standard from being met.

TBargsten 7-30-04  
Initial and Date

### VEGETATION (includes a finding on Standard 3)

**Affected Environment:** The Little Book Cliffs Wild Horse Area consists primarily of three vegetative communities. Canyon bottoms in the lower elevation are desert shrub type surrounded by steep rocky pinon-juniper canyon walls. Higher elevations consist of scattered sagebrush parks surrounded by pinon-juniper hillsides and canyon walls. Prescribed burning and mechanical treatments have



been used to convert sagebrush dominant areas to a herbaceous community of grasses and forbs. Cheatgrass does provide forage in many areas.

Environmental Consequences/Mitigation: The proposed action and Alternative 1 will keep the horse population in balance with the carrying capacity of the range. Current vegetative studies are showing a static to downward trend in the perennial grass community. This is a combination of the prolonged drought and high horse numbers. Utilization levels have been higher than identified in the management plan thus reducing the vigor and reproductive capability of perennial plants primarily the desirable grasses. This plus the stress from prolonged drought is reducing the perennial grass component.

The No Action alternative will not relieve the grass species of the over utilization and associated impacts. Expected results would be a continuation of the downward trend and loss of perennial grasses thus a reduction in the forage base. If drought continues this trend could worsen and occur more rapidly than normal.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The proposed action and Alternative 1 would provide for healthier plant communities thus would be in compliance with this Standard.

JD 8-3-04

Initial and Date

#### WILDLIFE, AQUATIC (includes a finding on Standard 3)

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

Environmental Consequences/Mitigation: The proposed action, and alternative 1 would have a positive impact on the riparian areas, and thus the aquatic wildlife because they would reduce the number of horses grazing on them.

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. If current drought conditions persist, this potential impact would become increasingly important.

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 Alternative or Alternative 1 would have a positive effect on the Health Standard. Selection of Alternative 2, the No Action Alternative would have a negative effect on the Land Health Standard.

DLS 20 July 2004

Initial and Date

**WILDLIFE, TERRESTRIAL** (includes a finding on Standard 3)

**Affected Environment:** Round Mountain (Low Gap area) is critical winter range for deer. Deer make appreciable use of much of the rest of the project area.

**Environmental Consequences/Mitigation:** Keeping the horse herd within the range capacity is very good for deer. The effect on wildlife of a gather in August, September or October would be negligible. The long-term benefits to the range are positive to virtually all native wildlife species that occupy the area. The proposed action and especially Alternative 1 are the preferred options for wildlife. The no action alternative has no recognized wildlife benefit and would allow an adverse impact to develop on terrestrial wildlife habitat through over-grazing by horses.

**Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic):** This standard is generally being met in the WHR. The proposed and alternative gathering plans would help to permit this to continue.

REL 9-9-04  
Initial and Date

**OTHER NON-CRITICAL ELEMENTS:** For the following elements, those brought forward for analysis will be formatted as shown above. **(Please put your initials in the appropriate box)**

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Access		DT	
Cadastral Survey	na		
Fire	na		
Forest Management	DPS		
Geology and Minerals		BF	
Hydrology/Water Rights			JS
Law Enforcement		PM	
Paleontology		BF	
Noise	na		
Range Management		JD	
Realty Authorizations		RB	
Recreation		WJ	
Socio-Economics		DS	
Transportation		DT	
Visual Resources		WJ	

**NON-CRITICAL ELEMENTS ANALYSIS:**

## HYDROLOGY AND WATER RIGHTS

The roundup would occur principally in the Jerry Creek watershed, with a small portion within the Coal Creek watershed. Primary tributaries to Jerry Creek include Cottonwood Canyon and Spring Creek. These are ephemeral systems with water flowing primarily in response to intense thunderstorm activity. There may be short reaches below springs with intermittent flow.

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 change in soil compaction would need to occur. While there could be a slight reduction in bare ground and soil compaction from reduced herd size, it is not projected to at a level that would modify the runoff characteristics of this area. Vegetative type would not change. The exception would be if no gather occurs. Vegetative cover would be reduced, soil compaction increased, with a corresponding effect on the runoff characteristics within the watersheds. The runoff would occur quicker, duration shorter and water yield increased.

Water rights are not an issue with this proposal.

RECREATION: The sites where the traps are proposed to be located are in areas that receive light recreational use. Due to potential limitations on access in the gather areas, the public may be temporarily inconvenienced on certain days due to activities associated with the gather. In general, the proposed action will have no long term adverse impacts on the recreational opportunities present in the area. The proposed action would decrease the number of foals present in 2004 and 2005 but the decrease in viewing opportunities for the young horses would not be noticeable to the general public. Alternative 1 would have the same number of foals in 2004 and 2005 as in the past few years dependant on the precipitation. Numerous private citizens participate in the wild horse gathers and view the activity as a form of recreation. Both the proposed action and alternative 1 would provide this recreational experience for gather participants.

Friends of the Mustangs help with the gather and adoption and involve 40 to 50 members.

The no action alternative would decrease opportunities to view wild horses as the number of horses declined due to poor range conditions.

WJ 7-26-04

VISUAL RESOURCES: The proposed action would occur within a natural landscape managed as a VRM Class III whose objective is to partially retain the existing character of the landscape. The proposed action is consistent with this objective.

WJ 7-26-04

L. WILD HORSES Impacts to wild horses under the proposed action or alternative 1 may 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. The intensity of these impacts vary by individual, and are indicated by behaviors ranging from nervous agitation to physical distress. Mortality of wild horses captured during a gather does occur, however it is infrequent.

Impacts which can occur after the initial stress of gathering may include spontaneous abortion in mares, and increased social displacement and conflict in studs. Although, spontaneous abortion following capture is very rare it does occur. Traumatic injuries that may occur typically involve biting and/or kicking that results in bruises and minor swelling which normally does not break the skin. These impacts are known to occur intermittently during wild horse gather operations. The frequency of occurrence of these impacts among a population varies with the individual.

Population wide impacts can occur during or immediately following implementation of the proposed action or alternative 1. They include the displacement of bands during capture and the associated re-dispersal, modification of herd demographics (age and sex ratios), temporary separation of members of individual bands of horses, reestablishment of bands following releases, and the removal of animals from the population. With the exception of changes to herd demographics, direct population wide impacts over the last 20 years have proven to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened shyness toward human contact. Observations of animals following release have shown horses relocate themselves back to their home ranges within 12 to 24 hours of release.

Alternative 1 would allow for achievement of the program objectives but at a higher risk of a "crash" in the population due the additional decrease in population growth.

Alternative 2 No Action- The horses would not be removed from the WHR. The animals would not be subject to the individual direct or indirect impacts as described above as a result of a gather operation. However, there would individual direct and indirect impacts as a result of the increased demand for water and forage as the herd population grows. This alternative would not achieve the stated objectives, because the requirements of the Wild Horse and Burro Act of 1971 mandates the Bureau to "prevent

the range from deterioration associated with overpopulation and preserve and maintain a thriving natural ecological balance and multiple use relationship in that area.

The current population exceeds AML in the WHR. Range conditions are being depleted, and monitoring studies indicate that there is insufficient winter habitat to support the current wild horse population for another winter.

Signature of specialist: /s/ J Dollerschell 7/19/04

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 or alternative 1, would reduce the wild horse population to the lower range of the AML in the WHR which would help to promote a thriving natural ecological balance. This would result in increased vegetation density, vigor, reproduction, productivity, and forage availability.

Adverse impacts to vegetation with implementation of the proposed action or alternative 1, would include disturbance of native vegetation immediately in and around temporary trap sites. Generally, these activity sites would be small (less than one half acre) in size and temporary in nature. These trap sites are used every three to four years and the areas are revegetated naturally. The areas look natural within two years of the gather. In addition, most trap sites are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be adjacent to or on roads or access routes. These common practices would minimize the cumulative effects of these impacts.

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.

These impacts would be expected to be marked by changes occurring slowly over time. The GJFO would continue to identify these impacts as they occur, and mitigate them as needed on a project specific basis to maintain habitat and herd quality. At the same time, horses would be expected to continue to adapt to these small changes to availability and distribution of critical habitat components (food, water, shelter, space). The proposed action would contribute to the cumulative impacts of future actions by initially achieving AML, and establishing a process whereby biological and/or genetic

issues associated with herd or habitat fragmentation would become apparent sooner and mitigating measures implemented quicker.

PERSONS / AGENCIES CONSULTED:

The local wild horse group (Friends of the Mustangs) has worked closely with BLM in counting the horses and working on the roundup.

Marty Felix, a local volunteer, has completed extensive inventory work for the BLM on the wild horses in the areas.

A notice of the proposed wild horse removal will be sent to the wild horse groups, people who have expressed an interest in the Little Book Cliffs wild horse program and the WSA activity reviewers. They will be informed an environmental assessment is being prepared and with their request, would be provided a preliminary copy prior to approving the decision. All individuals requesting a copy will be provided a copy of a preliminary document. All comments received will be considered during preparation of the Environmental Assessment, the Finding of No Significant Impact and the Decision Document.

A public meeting was held on September 9, 2004 to discuss the gather and the use of helicopters at the BLM office.

Jason Ransom, Francis Singer- U.S. Geological Survey, Biological Research Division  
Fran Ackley – Colorado State Wildhorse Lead  
Linda Coates-Markle- Wild Horse Specialist with Pryor Mountain Wild Horse Range

INTERDISCIPLINARY REVIEW:

<u>Name</u>	<u>Title</u>	<u>Area of Responsibility</u>
Tom Bargsten	Surface Reclamation Specialist	Soils
Aline LaForge	Archaeologist	Cultural Resources, Native American Religious Concerns
Jim Cooper	Travel Management Specialist	Access & Transportation
Britta Laub/ Gene Arnesen Wade Johnson	Outdoor Rec. Planner	Recreation, VRM, Wilderness, ACECs, Wild & Scenic Rivers, NCA
Jim Dollerschell	Range Management Specialist	Range, Wild Horse & Burro Act
Bruce Fowler	Geologist	Geology, Paleontology
Alan Kraus	Hazard Materials Specialist	Hazardous Materials
Robin Lacy	Reality Specialist	Land Status/Reality Authorizations
Ron Lambeth	Wildlife Biologist	Migratory Bird Treaty Act, T&E Species, Wildlife-Terrestrial
Harley Metz	Ecologist	Range, Land Health Assessment
Lynae Rogers	Range Management Specialist	Range, Riparian, Flood Plains
Jim Scheidt	Hydrologist	Water Quality, Hydrology, Water Rights
David L. Smith	Fisheries Biologist	T&E Species, Wildlife-Aquatic
David P. Stevens	Natural Resource Specialist	Forestry, Air Quality, Environmental Justice, Prime & Unique Farmlands, Environmental Coordinator
Mark Taber	Range Management Specialist	Invasive, Non-Native Species (Weeds)
Tim Foley	Fire Management Officer	Fire

## FONSI

### CO-130-2004-094-EA

The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

### DECISION RECORD

#### DECISION:

It is my decision to implement the proposed action described in the Little Book Cliff Wild Horse Gathering Plan and Environmental Assessment. This decision is placed in full force and effect in order to restore and maintain a thriving ecological balance as of the date of this decision in accordance with 43 CFR 4770.3(c).

A wild horse gathering in the Little Book Cliffs Wild Horse Range will be conducted during October of 2004 if weather permits or August or September of 2005 if not conducted in 2004. This gathering may be delayed due to weather or other unavoidable reasons. A helicopter will be used to herd horses into a temporary trap(s).

This decision provides for removal of approximately 80 horses from the Little Book Cliffs Wild Horse Range (WHR) as identified in the environmental assessment. In order to remove 80 to 90 horses, we will capture approximately 150 head. This will allow us to return some of the horses back to the range to maintain the viability, adaptability and character of the herd. The existing fertility program that was initiated in 2002 will continue. Animals removed from the range will be transported to Grand Junction, Colorado and will be available for adoption after preparation.

Range conditions require that we gather to the lower end of the 90 to 150 Appropriate Management Level (AML) currently established.

In order to insure expedient completion of the gather, this action is being issued as a “full force and effect decision”. This means the decision can be appealed, but the action will be stopped only if the Interior Board of Land Appeals grants a “stay” of the decision.

RATIONALE: Removal of excess wild horses is necessary to maintain a thriving natural ecological balance. Removal of wild horses in excess of AML is scheduled October of 2004 or August or September of 2005 because:

- 1) Utilization of key forage species has exceeded levels consistent with maintaining healthy and viable vegetative communities consistent with management objectives. Utilization levels have exceeded utilization standards identified in the management plan.



2) The wild horse population has increased to approximately 180 horses. Our monitoring data indicate that there are more horses in the area than it can support. The proposed herd objective for the wild horse area is to maintain an AML of 90 to 150 head.

3) Range trend studies show a static to downward trend in vegetative conditions including a decrease in key perennial grasses as determined by frequency transects. Removing the horses will allow the range to maintain or improve and sustain its ecological condition by reducing grazing by the horses. This will allow the perennial vegetation to increase in vigor and density and thus improve the habitat for both horses and wildlife. The horse range in the sixth year of a prolonged drought.

Alternative I was not selected because the population growth under this alternative would be low enough to risk a “crash” of the population and threaten the genetic integrity of the herd. It also has been recommended by the fertility control research team not to utilize the two year vaccine at this time due to the possibility of damaging the integrity of the initial research project.

Removing the horses with a helicopter and ground crew is the most cost effective and safest alternative.

Rationale for Full Force and Effect Decision: The rationale for placing the planned action into full force and effect is based on the following:

Protection of key forage species from the overuse of wild horses. The three year delay in action resulting from an appeal to the Interior Board of Land Appeals (IBLA) would allow increasing negative impacts by wild horses to the forage plant species relied upon by wild horses and wildlife in the area. The natural values within the Little Book Cliffs Wilderness Study area would also be degraded. These negative impacts would increase in proportion to the herd recruitment rate, estimated to be 15 to 25 percent annually.

An appeal under routine administrative procedures would likely delay the gather by three years. Failure to gather the horses as soon as practical will result in deaths from starvation or thirst this winter and subsequent years. This violates BLM’s mandate under the Wild & Free Roaming Horse and Burro Act.

Wild horse distribution should be limited to inside designated wild horse herd management area boundaries, in compliance with 43 CFR 4710.4. The number of wild horses which would relocate outside management area boundaries would steadily increase as forage conditions inside the management area declined and more horses leave the area in search of better forage.

In order to insure expedient completion of the gather, this action is being issued as a “full force and effect decision”. This means the decision can be appealed, but the action will be stopped only if the Interior Board of Land Appeals grants a “stay” of the decision.

You have the right to appeal this decision to the Interior Board of Land Appeals in accordance with 43 CFR § 4770.3 (a) and 43 CFR § 4.411, by filing your notice of appeal in writing with the

Bureau of Land Management, Grand Junction Field Office, 2815 H Road, Grand Junction, Colorado 81506. The appeal should state clearly and concisely why you think the decision is in error, and must be filed within 30 days from the date of this decision. A copy of your appeal shall also be served on the Office of the Regional Solicitor, U.S. Department of the Interior, 757 Parfet Street, Suite 151, Denver, Colorado 80215 in accordance with 43 § CFR 4.413.

Any request for a stay of this decision in accordance with 43 CFR 4770.3 (c) and 43 CFR § 4.21 must be filed with the appeal.

If you request a stay, you have the burden of proof to demonstrate that a stay should be granted. A petition for a stay of a decision pending appeals shall show sufficient justification based on the following rules:

- (1) The relative harm to the parties if the stay is granted or denied,
- (2) The likelihood of the appellant's success of the merits,
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and
- (4) Whether the public interest favors granting the stay.

Please refer to the enclosed Form 1842-1 for additional information concerning an appeal.

MITIGATION MEASURES: All regulated medical waste (i.e. syringes, darts and needles) generated by the project would be placed in approved containers as specified in Colorado Administrative Code and disposed of in accordance with the code.

This plan conforms with and is tiered with the Grand Junction Resource Management Plan-EIS (January 1987), Little Book Cliffs Wild Horse Management Plan (1979 updated 1984 and 2002) and Grand Junction Wilderness -EIS (November 1989) and the Population Management Plan for the WHR.

#### FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the environmental assessment prepared to analyze the environmental impacts of the proposed action and alternatives and have determined that the proposed action would not have a significant impact on the environment. Therefore, an environmental impact statement is not required.

COMPLIANCE/MONITORING: Specific monitoring data is available at the Grand Junction Field Office.

NAME OF PREPARER: Jim Dollerschell 9/7/04

NAME OF ENVIRONMENTAL COORDINATOR: /s/ David P. Stevens

DATE: 9/7/04

SIGNATURE OF AUTHORIZED OFFICIAL: \_\_\_\_\_//s//\_\_\_\_\_  
GRAND JUNCTION, Field Manager

DATE SIGNED: (9/26/04)

APPENDICES: Appendix A- Little Book Cliffs Wild Horse Range Population  
Management Plan  
Appendix B – Standard Operating Procedures  
Appendix C – Population Modeling Parameters  
Appendix D – Animal Characteristics and Behavior

ATTACHMENTS: Little Book Cliffs Wild Horse Range Map  
Form 1842-1

**Appendix A**

**LITTLE BOOK CLIFFS  
WILD HORSE RANGE  
POPULATION  
MANAGEMENT PLAN**

Bureau of Land Management  
Grand Junction Field Office  
Grand Junction, Colorado

June 2002

## **LITTLE BOOK CLIFFS WILD HORSE RANGE POPULATION MANAGEMENT PLAN**

The purpose of a population management plan is to provide guidance for the management of wild horses within Herd Management Areas. As a basis for determining the appropriate management actions in the future, a review of historical events, background information, past management, local population data and studies, current research and as well as current policy is necessary. Following is a discussion of each of these elements followed by management actions for the Little Book Cliffs wild horse herd identified to meet management objectives in the Herd Management Plan and provisions of the Wild Free-Roaming Horse and Burro Act.

### HISTORY AND BACKGROUND

The Little Book Cliffs Wild Horse Range was established through a General Management agreement in 1974 and officially dedicated as a wild horse range on November 7, 1980. Wild horses had inhabited the area many years prior to 1974, dating back to the first part of the 20<sup>th</sup> century. Throughout the first half of this century horses were introduced and removed by local ranchers. In 1971, the Wild Free-Roaming Horse and Burro Act was enacted to protect, manage and control wild horses and burros on BLM land. The population count for the Little Book Cliffs Horse Area at this time was 42 head. Once protected the population expanded annually. The annual increase in population size ranges from 15 to 25 %.

The Little Book Cliffs Wild Horse Management Plan (WHMP) was implemented in 1979 and updated in 1984, 1990 and 1992. Specific population objectives were:

- Provide for the protection of wild horses from capture, branding, harassment and death.
- Maintain a healthy , viable breeding population of 65 to 125 wild horses, with an Appropriate Management Level (AML) of 80 head.

This Population Management Plan (PMP) is an amendment to the WHMP. It will provide guidance for the management of the Little Book Cliffs Wild Horse Range and the horses on the range, and establish the appropriate management level (AML) for the horse population.

Several gathers have occurred since 1979 to meet the population objectives stated above. Gathers have occurred in 1975, 1977(40), 1983(45), 1988(44), 1989(40), 1992(39), 1996 (53), 1997(10), and 1999(56). Numbers in parentheses represent the number of horses removed from the range. The gathers in 1975 and 1997 were to gather horses outside the area. In 1975 the horses were gathered from the adjoining livestock allotment, particularly the Red Rock, Round Mountain and Bronco Flats area, and moved into the Horse Area. Gathers in 1989 and 1977 were unscheduled but necessary due to drought conditions.

The WHMP called for periodic introduction of wild horses from other BLM horse herds into the area to avoid the undesirable effects of inbreeding, to maintain vigor as well as

good conformation and to keep a diversity of color in the herd. The history of released animals is as follows:

Year	Number Released	Sex of Horses	Color of Horses	Previous Location	Location Released
1983	6	4 studs, 1 mare, 1 filly	Gray Pinto, Buckskin, Palomino, Sorrel (2)	Colorado- Piceance Herd	Indian Park
1985	2	studs	Buckskin. Red roan	Wyoming	North Soda
1986	2	studs	Palomino, Brown Paint	Wyoming	Coal Canyon
1987	4	3 studs, 1 mare	Gray, Pinto, Red roan, Blue roan	Wyoming	Indian Park
1993	2	mares	Buckskin, Dun	Nevada	Coal Canyon
1994	3	2 mares, 1 colt	Paint, Bay Paint	Utah-Vernal	Low Gap North Soda
1998	1	stud	Gray	Colorado- Spring Creek	Indian Park

Past introductions have been very successful. Observations have shown that young studs released take several years before they obtain a mare or harem. Whereas mares generally are picked up by a stud soon after release, but will wander from stud to stud before sticking with a particular stallion.

#### Genetic Studies

Genetic variation and diversity is a concern in the Little Book Cliffs herd due to the relatively small population size. In 1993 a report was written by E. Gus Cothran, PhD. from the University of Kentucky summarizing an analysis of genetic data from the Little Book Cliffs horses including recommendations for management. Results were obtained from the analysis of blood samples taken from adopted horses gathered from the area and animals rounded up in 1992.

In terms of genetic similarity Dr. Cothran states that the genetic origin of the herd is not clear, however data suggests a fairly strong Spanish component including the Morgan Horse and the American Saddlebred. He also states, genetically the herd does not fit in well with any grouping of domestic breeds and is placed in a position between the saddle horses and the cold blood breeds. Genetic tests revealed that the Little Book Cliffs herd is most similar to the Spring Creek Basin and Piceance herds.

The level of genetic variation in the Little Book Cliffs herd is low, but not immediately threatening. Mr. Cothran concluded that overall genetic variability is low but when compared to other feral horses is higher. He states that inbreeding is not yet a

problem, however if population size is kept at a low level and there is no introduction of outside animals, inbreeding is inevitable.

Management actions suggested by Dr. Cothran based on his analysis were:

- Keep the population near the carrying capacity of the range to build up the genetic reserve of the herd.
- On an irregular basis introduce one or two horses to the herd to increase genetic variability reducing the risk of inbreeding. Females are preferred as introductions as they are less likely to cause drastic changes in the makeup of the population with unpredictable results. Select horses from within the same geographic region.
- To improve/maintain the effective population size remove mainly young animals. By culling young horses, the genetic variation that currently exists in the herd remains in the animals that are reproducing.
- Continue to monitor genetic components within the herd.

Population Studies: The majority of information obtained on the Little Book Cliffs herd has been from field observations. A local volunteer, Marty Felix, along with the Friends of the Mustang, under a cooperative agreement, have spent endless hours gathering information. Information gathered includes population size, annual foal crop, mortality, number of bands, distribution, age structure, sex ratio and intra-herd movement. Because of these efforts information gathered for this herd is of greater detail than that afforded of most other wild horse herds. A computer program known as Wild Horse Identification Management System has been developed in cooperation with the U.S. Geological Survey to store data on individual animals and provide a means of summarizing population data. Aerial counts were used in the past but became unfeasible due to expense and difficulty in finding horses due to the terrain and pinon-juniper vegetation type.

Population Size and Foal Count data since 1994 is shown below.

Year	Total Population Estimate*	Foal Count
1994	?	24
1995	151	24
1996	166	29
1997	142	33
1998	162	30
1999	183	39
2000	153	30
2001	169	33

\*Estimates include Adults and the current years foals.

### Selective Criteria for Removal in Past

Prior to 1988, selective criteria for removal was primarily to remove most of the animals captured except for a few select animals. Prime breeding animals and a few older animals were released. Capture efforts occurred in one or two sites each gather.

Beginning in 1988 selective criteria focused on: removing younger animals (5 years and less), reducing bachelor bands, improving color balance on range (reduce dominant colors), improving conformation, retaining older animals(15 years and older), and retaining successful breeding animals on range to maintain genetic variation and diversity. Capture efforts occurred in three or more areas of the range to even out distribution and balance numbers within each area.

### The Herd as of 2001

As of October 2001 the Little Book Cliffs herd consisted of approximately 169 horses including 2001 foals. Census data was obtained from observations and data collection by the local volunteer organization. Based on the 169 horse count, 74 were females, 87 were males and 8 unknown resulting in a sex ratio of females to males of 46% to 54%.

The current age structure is representative of a typical age structure for a wild ungulate herd being pyramidal in shape with the majority of animals in the youngest age categories. Age structure is summarized below based on information compiled in October 2001 :

Age	Number of Animals	Percent of Population
< 1	29	18
1	29	18
2	15	9
3	10	7
4	12	8
5	10	7
6	7	5
7	9	6
8	6	4
9	4	3
10	4	3
11	3	2
12	4	3
13	2	1
14	2	1



15	1	1
16	0	0
17	1	1
18	1	1
19	1	1
20+	2	1
Total	152	100

\* The age for 17 horses was unknown.

It is evident that a typical pattern shows relatively limited mortality across most ages classes, with more deaths occurring by foals and yearlings as well as animals over 15 years of age. The greatest cause of mortality is injury and old age.

Color Variation in the Little Book Cliffs Herd: The color variation has increased in the herd since designation of the herd area. For the most part this is due to the introduction of horses to the area with coloration less prominent to the area and through the selection process during gathers.

Color Variation in Little Book Cliffs Herd as of 2001		
Color	Number of Animals	Percent
Bay	43	24
Black	33	19
Sorrel	14	8
Buckskin	13	8
Dun	8	5
Chestnut	10	6
Paint	16	9
Palomino	6	4
Brown	6	4
Grey	5	3
Red Roan	5	3
Grulla	3	2
Blue Roan	5	3
White	2	1
TOTAL	169	100%

## FUTURE MANAGEMENT

### Population Objectives:

- 1) Provide for the protection of wild horses from capture, branding, harassment and death.
- 2) Maintain a healthy, viable breeding population at a level which will achieve and maintain a thriving, ecological balance on the public lands and does not result in deterioration of the range.
- 3) Establish an Appropriate Management Range of from 90 to 150 horses.

### **Management Actions:**

-Appropriate Management Level(AML): The original Horse Management Plan for the Little Book Cliffs Wild Horse Range stated that a healthy, viable breeding population of from 65 to 125 wild horses with an AML of 80 head would be maintained.

In 1997 the Round Mountain Area consisting of 4,904 acres was added to the horse range through a cooperative management agreement. There were 319 animal unit months associated with this acreage in terms of available forage for livestock use which equates to 26 Animals Year Long.

An Ecological Site Inventory (ESI) was completed for the horse range in 1997. Analysis of the Ecological Site Inventory data in relation to available forage for wild horses using the proper use factor confirmed that the horse range could support a maximum herd of 150 horses. Management of a population larger than this would have a negative influence on the thriving natural ecological balance.

When considering the original carrying capacity, the estimate from the ESI and the vegetative studies completed in the area, and the necessity for a minimum four year gather cycle, it was determined that the new AML will be a range between 90 to 150 horses.

-Selective Criteria for Removals : Overall the main objective for selective removal is to maintain the viability, adaptability, and character of the established herd which includes keeping breeding bands together as much as possible. The appropriate philosophy involves retention of the natural working integrity of the population, allowing the majority of the decisions to be driven by the horses themselves. Priority is given, therefore to retaining dominant stallions, established lead and/or partner mares and reproductively successful mares within each established family group. This approach also recognizes the importance of maintaining reproductively fit horses to assist with long-term perpetuation of the population as recommended by Dr. Cothran. As such, removals are concentrated on young animals which have not as yet entered the breeding ranks of the population and have the greatest ability to adapt to adoption and domestication.

Age structure: Retain the pyramidal age structure discussed earlier. As directed by current policy, wild horses five years and younger and horses ten years and older will be targeted for removal during gathers. The majority of horses between six and nine years of age will be returned to the range. Select animals in removable age groups will be returned to the HMA when it is determined it is in the best interest of the animal, or to encourage maintenance of a viable, self-sustaining herd. Horses greater than 20 years of age will be returned to the range or euthanized if they cannot maintain a Henneke condition score of two.

Sex Ratio: Removals should result in a female to male sex ratio ranging from 60:40 to 40:60 with an ideal ratio of 50:50. Preference would be to have a higher number of females than males based on studies suggesting desired sex ratios in wild ungulates. At the same time it has been suggested that removals which increase the sex ratio slightly in favor of males tends to support a social structure of many smaller harems over that of fewer larger harems, which results in a positive impact on the effective genetic herd size.

Color: Color balance should continue to be a consideration during removals but not the major factor in determining selection of animals to be removed. Maintaining the diversity of color in the herd is important but overall health of the herd including genetic make-up, herd demographics and herd social structure should override color in the selection process. The introduction of animals to the herd with color variations should continue but again color alone should not be the only factor considered when selecting horses for introduction as discussed above. Horses with color associated with health problems should be avoided.

Conformation: Horses with undesirable physical disabilities which are hereditary in nature should be removed to prevent passage on to future generations. Manage for horses which are 14 to 15 hands in size at maturity.

-Introduction of Horses: Due to the relative small population of wild horses within the Little Book Cliffs herd, inbreeding is an inevitable consequence which over the long term results in the loss of genetic variability. As discussed above in order to counteract the loss of genetic variation within the Little Book Cliffs herd it is necessary to periodically introduce new horses from other wild horse herds.

The following criteria would be used for selecting individual horses for introduction:

- Wild horses selected for introduction would be from those herds which closely resemble (per DNA analysis) and exhibit the same characteristics and conformation of this herd.
- Wild horses from the same geographic area containing habitat characteristics similar to the Little Book Cliffs Wild Horse Range.
- Various colors of individual horses could be selected for introduction.

- Younger mares (2-5 years old) would be the preferred sex, but stallions meeting the other criteria is also acceptable. Mares tend to be more readily acceptable by other horses into established existing bands.

-Only individual horses that exhibit good health, strength, vigor and good conformation would be selected for introduction. Individual horses with severe injuries, gross deformities or disease would not be selected for introduction.

-Transplants: Continue to transplant horses from one portion of the range to another during gather operations. This action will reduce inbreeding activity.

-Trap Site Locations: Continue to gather and remove horses from several locations within the range to even the distribution. Dr. Cotheran recommended that removal of horses from the range should not concentrate on one geographic area over another to promote genetic health of the herd.

-Fertility Control: The use of fertility control measures need to be considered in the future for population management of the Little Book Cliffs Herd. Long term research efforts have resulted in viable alternatives to removal-only procedures in controlling herd size. The use of contraceptives has long been recognized as a humane alternative to limit the growth of wild horse herds while providing less disruption to the herd gene pool. Based on a four year gather cycle, the current AML and an expected population increase of 15 to 25% annually, gathers would have to reduce the population size to 80 animals given a 5% mortality rate. From a herd stand point, this reduces the population size to an undesirable level and could potentially effect the health of the herd in terms of genetics and maintaining an effective population size. Fertility Control will provide a means of reducing the annual growth rate of the herd which would increase the time frame between gathers while maintaining the herd at an effective population size. In addition, Fertility Control use on younger mares allows these mares to advance in maturity prior to foaling thus reducing stress and physical demands on these young animals. Currently the immunocontraceptive vaccine has not been approved by the Food and Drug Administration for management based applications, but can be used for approved research needs.

-Blood-Draws for Genetic and Health Studies: Blood Samples should be drawn from horses removed during gather efforts when appropriate or as needed. At a minimum, this will be done every other gather. If conditions and facilities allow, all horses gathered should be tested with priority given to animals turned back onto the range. These samples will be used to supplement genetic data which as been gathered periodically in the past, in an effort to further monitor genetic variability and genetic effective population size for the Little Book Cliffs herd. The information will also aid in minimizing the occurrence of inbreeding and genetic defects.

Population Studies: Continue with the current level of data gathering including, herd size, foal counts, mortality, demographic data such as age structure, sex ratio and color as well as overall population data contained in the Wild Horse Identification Management System computer program. Continue to take advantage of the efforts of

Marty Felix and the local Friends of the Mustangs group in gathering and compiling information.

## APPENDIX B

### 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 this capture operation requires that horses be herded to a trap of portable panels. Gathering would be conducted by using agency personnel or 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 will 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 will involve 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 long 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 will start moving one band of horses at a time toward the trap and into the wings.

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

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

Domestic saddle horses may 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 may 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 became 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 Grand Junction 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 would be obtained before capture would proceed.

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

The Authorized Officer 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 would 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 for horses and 60 inches for burros, 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.

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

All runways shall be of sufficient length and height to ensure animal and wrangler safety. and may be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses.

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 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses.

When holding facilities are used, and alternate pens are necessary to separate mares or jennies with small foals, animals which will be released, sick and injured animals, and estrays from the other animals or 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 by the Government. 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 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. Water troughs shall be constructed of such material (e.g. rubber, rubber over metal) so as to avoid injury to animals.

When dust conditions occur within or adjacent to the trap or holding facility, the contractor/BLM shall be required to 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. 98-141.

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

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

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

## **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)
- 8 square feet/adult burro (1.0 linear foot in an 8 foot wide trailer)
- 6 square feet/horse foal (0.75 linear foot in an 8 foot trailer)
- 4 square feet/burro foal (0.50 linear foot in a 8 foot wide 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) would be contacted and authorization obtained prior to setting up traps on any lands which are not administered by BLM. Wherever possible, traps would be constructed in such a manner as to not block vehicular access on existing roads.

If possible, traps would 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) would be mitigated by removing horses from the trap immediately upon capture. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

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

Gathers would not be conducted 6 weeks on either side of peak foaling season which for this gather is (*April 15 to May 15*) to reduce the chance of injury or stress to pregnant mares or mares with young foals.

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

Standard operating procedures in the siting and construction of traps will avoid adverse impacts from trap siting, 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 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.

### **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 (or burros) 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, (*Name*), and Project Inspectors, (*Names*), from (*Name*) Field Office, have the direct responsibility to ensure the contractor's compliance with the contract stipulations.

The Assistant Field Manager for Renewable Resources and the Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, 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 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 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 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. Appoints 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 - Coordinates with the COR assigned to a contract to support his/her responsibility for review, approval, and acceptance of services.

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 would 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.



## APPENDIX C

### POPULATION MODELING PARAMETERS

#### *Population Model Overview*

WinEquus is a program to simulate the population dynamics and management of wild horses created by Stephen H. Jenkins of the Department of Biology, University of Nevada at Reno. For further information about this model, you may contact Stephen H. Jenkins at the Department of Biology/314, University of Nevada, Reno, NV 89557.

Detailed information is provided within the WinEquus program available at <http://unr.edu/homepage/jenkins>, and will provide background about the use of the model, the management options that may be used, and the types of output that may be generated.

The population model for wild horses was designed to help wild horse and burro specialists evaluate various management strategies that might be considered for a particular area. The model uses data on average survival probabilities and foaling rates of horses to project population growth for up to 20 years and forecasting cumulative impacts over time. 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 wild horse population's demographics can't be established 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 model incorporates both selective removal and fertility treatment as management strategies. A simulation may include no management, selective removal, fertility treatment, or both removal and fertility treatment. Wild horse and burro specialists can specify many different options for these management strategies such as the schedule of gathers for removal or fertility treatment, the threshold population size which triggers a gather, the target population size following a removal, the ages and sexes of horses to be removed, and the effectiveness of fertility treatment.

To run the program, one must supply an initial age distribution (or have the program calculate one), annual survival probabilities for each age-sex class of horses, foaling rates for each age class of females, and the sex ratio at birth. Sample data are available for all of these parameters. Basic management options must also be specified.

## ***Population Modeling – Little Book Cliffs Wild Horse Range***

To complete the population modeling for the Little Book Cliffs Wild Horse Range, version 1.40 of the WinEquus program, created April 2, 2002, was utilized.

### **Objectives of Population Modeling**

Review of the data output for each of the simulations provided many useful comparisons of the possible outcomes for each alternative. Some of the questions that need to be answered through the modeling include:

- Do any of the Alternatives “crash” the population?
- What effect does fertility control have on population growth rate?
- What effects do the different alternatives have on the average population size?

### **Population Data, Criteria, and Parameters utilized for Population Modeling**

Population data including Initial Age Structure, Survival Probabilities, Foaling Rates, Sex Ratio at Birth, Removal Criteria and contraception Criteria for the Little Book Cliff Wild Horse Range used in the population model are available at the Grand Junction Field Office.

### **Population Modeling Criteria**

The following summarizes the population modeling criteria that are common to the Alternative I (Proposed Action), and Alternatives II and the (No Action):

- Starting Year: 2004
- Initial gather year: 2004
- Gather interval: Minimum interval of four years
- Gather for fertility treatment regardless of population size: No
- Continue to gather after reduction to treat females: Yes
- Sex ratio at birth: 50% males, 50% females
- Percent of the population that can be gathered: 80%
- Minimum age for long term holding facility horses: 10 years old
- Foals are included in the AML
- Simulations were run for ten years with 100 trials each.
- The AML will have a range of 90 to 150 animals
- The efficacy rate will be 90% for years 1-4 post gather

## ***Population Modeling Summary– Little Book Cliffs Wild Horse Range***

Out of 100 trials in each simulation, the model tabulated minimum, average, and maximum population sizes. The model was run from 2004 to 2013 to forecast cumulative impacts overtime and determine what the potential effects would be on population size for the proposed action and alternatives. These numbers are useful to make relative comparisons of the different alternatives, and potential outcomes under different management options. The data displayed within the tables is broken down into different levels. The lowest trial, highest trial, and several in between are displayed for each simulation completed. According to the creator of the modeling program, this output is probably the most important representation of the results of the program in terms of assessing the effects of proposed management, because it shows not only expected average results but also extreme results that might be possible

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

### **Population Sizes in 11 Years\***

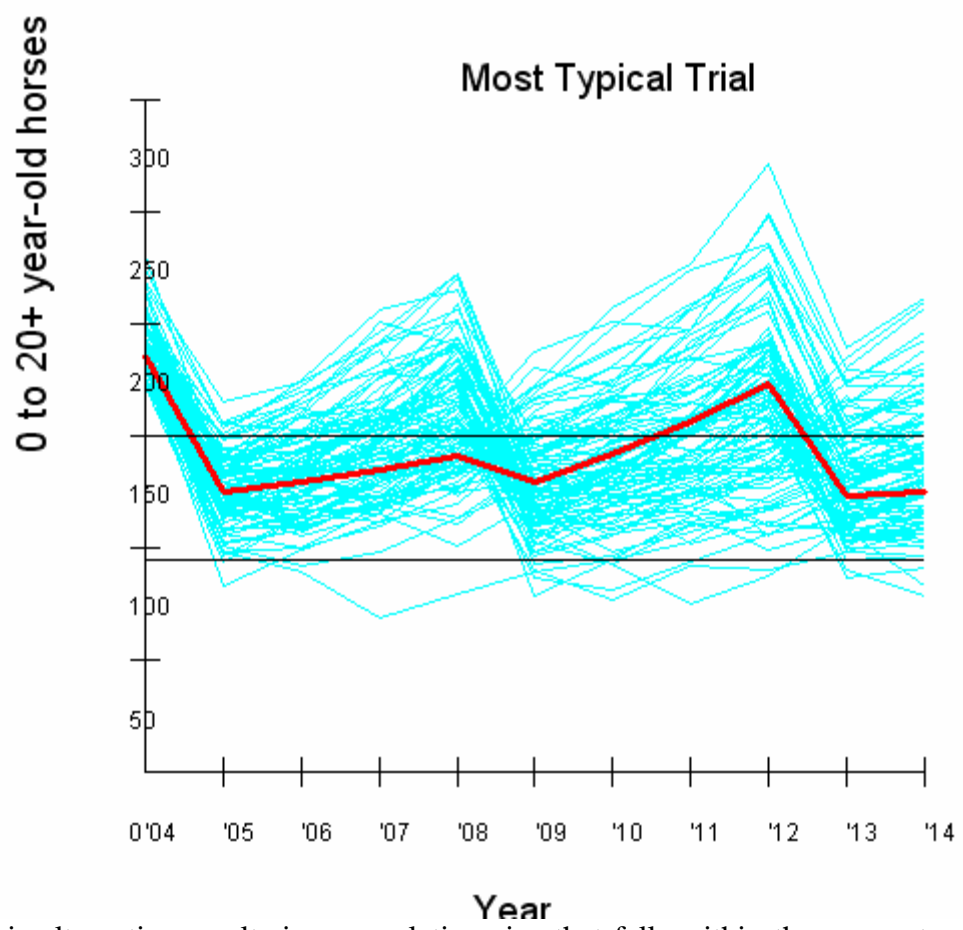
	Minimum	Average	Maximum
Lowest Trial	69	109	172
10th Percentile	<b>93</b>	132	178
25th Percentile	102	138	183
Median Trial	110	143	193
75th Percentile	116	<b>154</b>	206
90th Percentile	123	164	224
Highest Trial	142	176	271

\* 0 to 20+ year-old horses

Given this alternative the herd is likely to range in size from 130 to 160 horses over an 11 year period with gathers every four years and PZP treatment efficacy of 90% for years 1-4 post gather. There is less than a 10% chance the herd will drop below 93 horses in size. There is a 25% chance that the herd may increase above 150 horses at some point.

### **Average Growth Rate in 10 Years (%)**

Lowest Trial	2.3
10th Percentile	5.1
25th Percentile	6.9
<b>Median Trial</b>	<b>8.6.</b>
75th Percentile	11.2
90th Percentile	13.0
Highest Trial	14.6



This alternative results in a population size that falls within the parameters of the Appropriate Management Level (AML) identified for this herd and also complies with a minimum 4 year gather cycle identified in current policy. The resulting median growth rate of 8.6% ensures a healthy population size and a lower risk of a population growth that could threaten the survival and genetic integrity of the population.

Alternative I. Helicopter Drive Trapping with the use of additional Immunocontraceptives

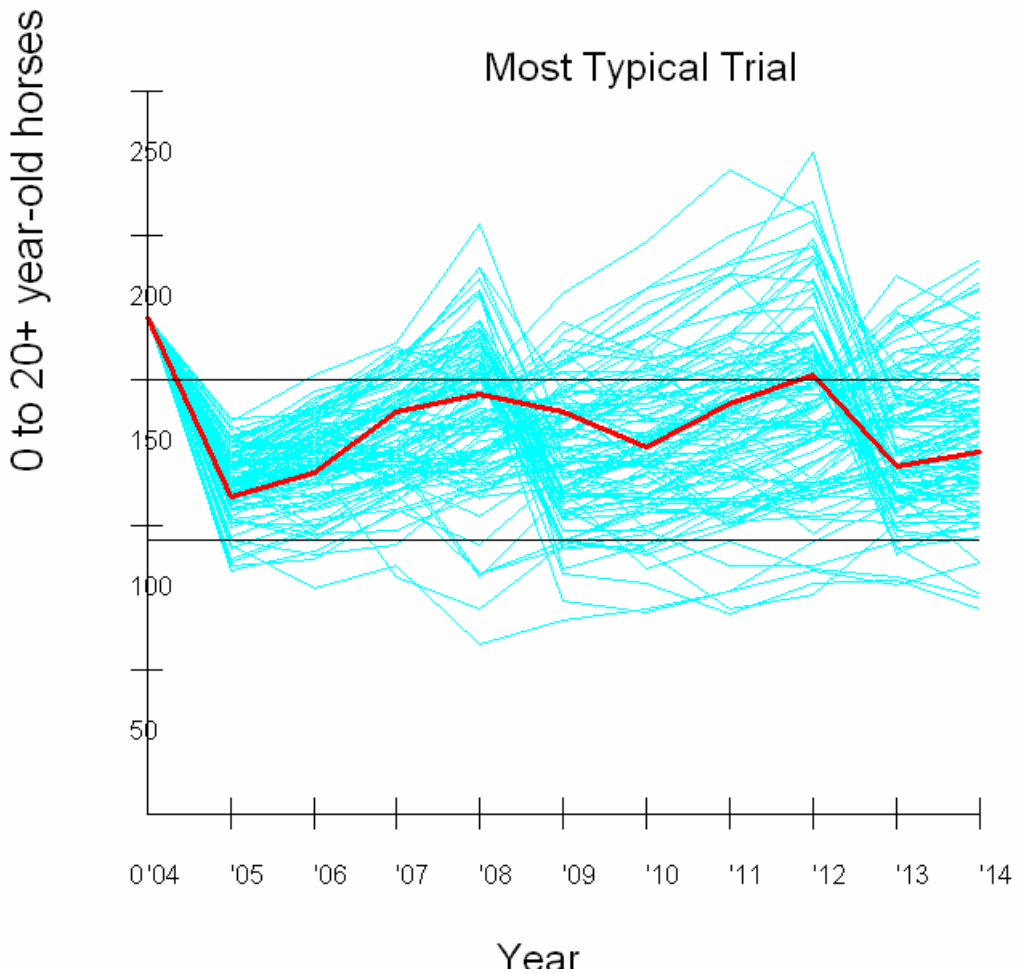
**Population Sizes in 11 Years\***

	Minimum	Average	Maximum
Lowest Trial	59	87	172
10th Percentile	<b>84</b>	116	172
25th Percentile	95	127	172
Median Trial	105	135	172
75th Percentile	112	<b>141</b>	180
90th Percentile	118	148	192
Highest Trial	131	170	229

\* 0 to 20+ year-old horses

**Average Growth Rate in 10 Years (%)**

Lowest Trial	-0.9
10th Percentile	2.8
25th Percentile	4.9
<b>Median Trial</b>	<b>7.0.</b>
75th Percentile	8.8
90th Percentile	10.9
Highest Trial	15.0



This alternative meets the minimum 4 year gather cycle but has the potential to reduce the population size to a level that is below the Appropriate Management Level and risk the possibility of crashing the population. The population growth has the potential of being low enough that would threaten the genetic variation and viability of the herd.

No Action Alternative:

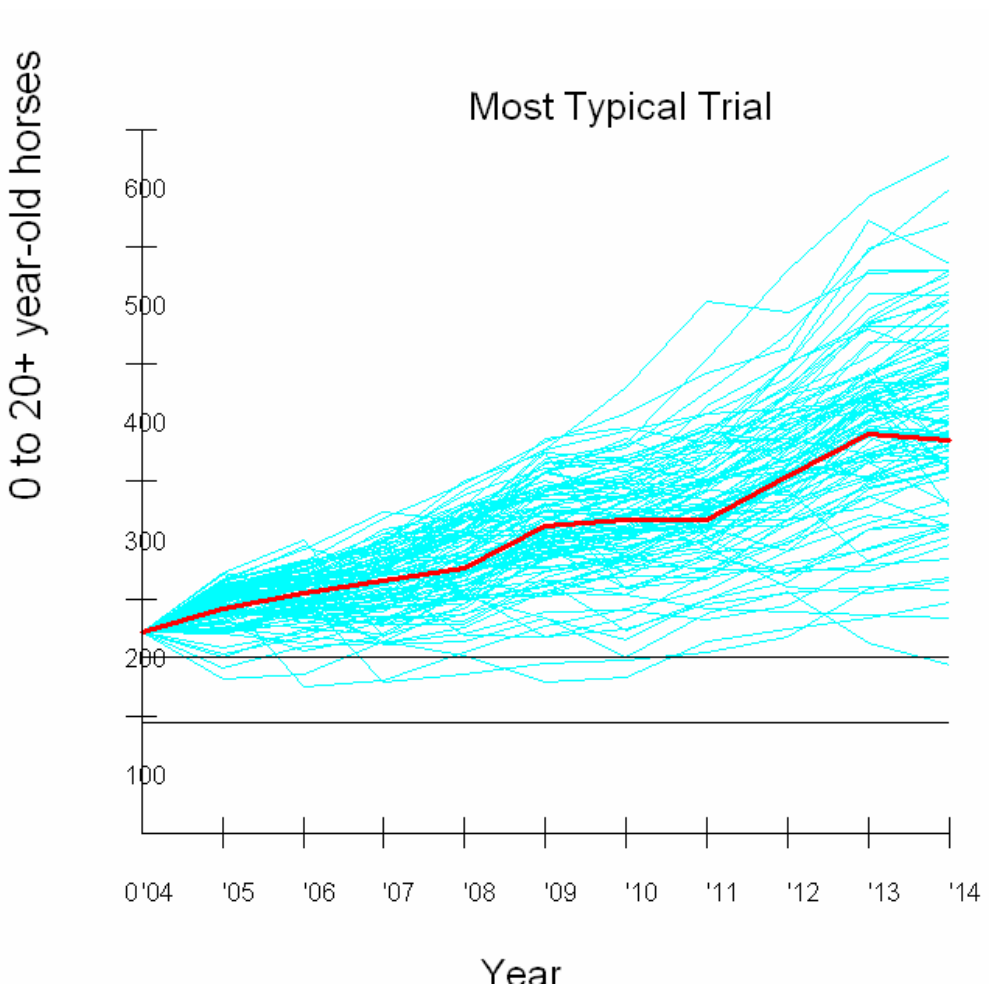
**Population Sizes in 11 Years\***

	Minimum	Average	Maximum
Lowest Trial	125	168	197
10th Percentile	158	207	264
25th Percentile	172	240	322
Median Trial	172	257	369
75th Percentile	172	278	406
90th Percentile	172	299	462
Highest Trial	172	338	577

- 0 to 20+ year-old horses

**Average Growth Rate in 10 Years (%)**

Lowest Trial	3.7
10th Percentile	5.3
25th Percentile	8.4
<b>Median Trial</b>	<b>12.3.</b>
75th Percentile	15.1
90th Percentile	17.2
Highest Trial	19.3



This alternative would result in population numbers that are above the established AML range thus threaten land health of the area and the balance between available forage and a thriving horse population. In some trials the population would more than double the identified sustainable carry capacity of the area. The growth rate would be lower than normal for the first several years due to the current fertility program but would increase to the pre-fertility rate of 20-25% thereafter.

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## **APPENDIX D**

### **ANIMAL CHARACTERISTICS AND BEHAVIOR**

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

Wild horse bands typically include a stallion, lead mare, mares with colts, mares without colts, and subordinate males. Bachelor bands (bands of wild horses without any females) are found in this area as are single wild horses that are typically male. Within an area, bands may develop lead and subordinate roles. Subordinate bands are also known as satellite bands.

This relationship is observable by their behavior at water holes. The wild horses' competitive social structure, combined with their size and strength, allows them to compete favorably with wildlife and domestic livestock for water.

Wild horses 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 (some reservoirs, streams, springs, and flowing wells) and on wells pumped for domestic livestock and wildlife. The concentration of wild horses around available water becomes a problem when water is scarce. Wild horses may become possessive of available water, resulting in direct competition with livestock and wildlife. Mountain lions may prey on wild horses.

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. For this gather the removal criteria would be to reset



normal sex and age ratio possibly skewed by previous removals. The specific numbers returned to the HMA/complex by sex and age are displayed on *Table (Population Model Output)*.

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.

## APPENDIX E

### SUMMARY OF IMMUNOCONTRACEPTIVE METHODOLOGY

#### 1. PROPOSED FERTILITY CONTROL AGENT:

At this time, all published research indicates that the Immunocontraceptive Porcine Zona Pellucida (PZP) vaccine meets BLM requirements for an ideal contraceptive agent including criteria for safety and efficacy. When injected, PZP vaccine acts as an antigen and causes the mare's immune system to produce antibodies. These antibodies then bind to eggs in the mare's ovaries and effectively block sperm binding and fertilization. The vaccine is relatively inexpensive (\$20 per dose), can be remotely administered in the field, and requires a single dose to confer infertility for two breeding seasons. Research has shown that contracepted mares clearly show improvements in body condition and may actually live longer. From a mare physiological standpoint, PZP contraception appears to be completely reversible, does not appear to cause out-of-season births, and has no ill effects on ovarian function if contraception is not repeated for more than 5 consecutive years on a given mare.

If mares are already pregnant, research has shown that PZP vaccine will not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions. Recent behavioral studies with the Assateague Island and Shackleford Banks wild horses, have shown that contracepted and uncontracepted mares had virtually identical activity budgets, associated in a similar manner with the harem stallion and showed no increase in harem exchange behavior or change in their social status during the study. All mares affected by the proposed action would continue to be monitored for body condition and aspects of social behavior. The latter would be compared to existing baseline data and control studies.

#### 2. VACCINE QUALITY and REMOTE-DELIVERY PROTOCOL:

All PZP vaccine used on mares within the LBCWHA would be provided by the Science and Conservation Lab (SCC), ZooMontana and subjected to quality control testing. All documented aspects of PZP vaccine provision, mare selection, vaccine remote-delivery, dart recovery, record keeping, veterinary emergencies, and media relations would be strictly adhered to by all participants in the proposed action. These protocol shall serve as the Standard Operating Procedures (SOPs) for the proposed management action. Implementation of the SOPs would take into consideration all safety concerns, individual animal health and condition, seasonal distribution of the horses, as well as local weather and environmental considerations.

#### 3. PERMISSION and CRITERIA for VACCINE USE:

The Humane Society of the United States (HSUS) has made the PZP vaccine available to the BLM under the Investigational New Animal Drug exemption (INAD #8857) filed with the

federal Food and Drug Administration (FDA). As a condition of using the PZP vaccine, the HSUS expects the BLM to follow the Draft Criteria for Immunocontraceptive Use in Wild Horse Herds recommended by the Wild Horse and Burro National Advisory Board in August 1999.

#### **4. AUTHORITY for PROPOSED ACTION:**

The Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195) as amended, Section 3(b)(1), states that the Secretaries of the Interior and Agriculture shall “determine appropriate management levels of wild free-roaming horses and burros on areas of public lands; and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals, or other options (such as sterilization or natural controls on population levels).” The authority may also be found at Title 43 of the Code of Federal Regulations (CFR-4700, Protection, Management and Control of Wild and Free-Roaming Horses and Burros).

With implementation of the proposed action, selected wild horse mares would be contracepted under a humane approach for a one-year period in accord with 43 CFR 4700.0-6 which identifies that [...wild horses]" shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.", and with Public Law (PL) 92-195 Sec 3 (b) (2) which identifies the need to maintain appropriate management levels of wild horses within their herd management area (HMA).

The BLM is currently developing a long-term research strategy for the Wild Horse and Burro program. Within this strategy, continuation of research on fertility control has been identified as a high priority. The implementation of additional fertility control field trials, under a research protocol, has been recommended to commence in summer 2002. The field trial plan will address the application of fertility control to select mares within 6-7 specific BLM herd management areas (HMAs) in the western states. A draft of this plan is expected to be ready for approval by the National Wild Horse and Burro Advisory Board by June 2002.

#### **5. PROCEDURES**

**A. Vaccine preparation and shipment:** Vaccine would be prepared under the supervision of Robin Lyda, Science and Conservation Center (SCC), Billings, MT and transported to the field site in Colorado on dry ice, under Food and Drug Administration authority (Investigational New Animal Drug exemption No.8857 (G0002 & 0003). FDA form “Notice of Drug Shipment” would be completed for each shipment of the PZP vaccine and filed in the offices of the Science and Conservation Center at ZooMontana, Billings, MT.

**B. Selection of subject animal:** Animals to be treated will be identified by BLM and FOM personnel. The number and identity of animals would be selected on the basis of predetermined animal welfare goals. All animals selected for treatment would be female and at least one year old.

**C. Delivery of contraceptive vaccine:****- At Trap Site**

The inoculation of mares at the trap site would consist of a dose of the two year PZP. This would be delivered as an intramuscular injection by a jabstick syringe into the mares in the working chute. Upon impact a liquid in the chamber would be propelled into the muscle. Such a primer would permit a single injection before foaling to cause two years of contraception at approximately 90% efficiency.

Delivery of the vaccine would be by means of a syringe with a 12 gauge needle. 0.5 cc of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The syringe needle will be dipped in Furazone to prevent bacterial infection at injection site. Only trained personnel would mix and/or administer the vaccine.

**D. Monitoring:**

Data would be collected on the herd and individual behavior, reproduction, survival, and any health abnormalities recorded. The intent of the monitoring would be to assess vaccine effects on mare estrus, foaling, body condition, behavior, fitness and survival. The use of the immunocontraceptive would adhere to well-developed research protocol, and is responsible to restrictions and requirements placed on continuing research efforts with the PZP vaccine as set by the Humane Society of the United States (HSUS), the Food and Drug Administration (FDA), Animal and Plant Health Inspection Service (APHIS) and the National Wild Horse and Burro Advisory Board.