United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Cody Field Office
P.O. Box 518
Cody, Wyoming 82414-0518

4700
(020)

August 6, 2004

Dear Reader:

The Bureau of Land Management's (BLM) Cody Field Office (CYFO) has completed the environmental assessment (EA) for the proposed McCullough Peaks Wild Horse Gather and Fertility Control Implementation located in Park County, Wyoming. The EA is available for your review on the website at http://www.wy.blm.gov/nepa/nepadocs.htm or copies may be obtained by contacting the CYFO. The EA will be posted on the website by Wednesday, August 11, 2004.

The purpose of this EA is to assess the impacts associated with the BLM's proposal to remove approximately 390 excess wild horses from the McCullough Peaks Herd Management Area (HMA) in October 2004 to restore the range to a thriving natural ecological balance and prevent further deterioration of the range. Also proposed is the implementation of a fertility control treatment on a select portion of mares to be released back to the range in order to slow reproductive growth rates of the herd.

Reviewers will have 30 (thirty) days to comment. Comments should be addressed to Tricia Hatle, BLM-Cody Field Office, P.O. Box 518, Cody, WY 82414 and postmarked no later than September 9, 2004. Comments will be fully considered and evaluated prior to the development and release of a decision record.

Submitted comments are part of the public record and will be available for public review at the Cody Field Office, 1002 Blackburn Avenue, Cody, Wyoming during regular business hours (7:30 a.m. to 4:30 p.m.) Monday through Friday, except holidays. If you wish to withhold your name from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your comments. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

Sincerely,

Michael J. Blymyer

Michael J. Blymyer
Field Manager, Cody

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
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McCULLOUGH PEAKS HERD MANAGEMENT AREA GATHER PLAN
and
FERTILITY CONTROL IMPLEMENTATION PLAN

ENVIRONMENTAL ASSESSMENT
EA#: WY-020-E04-039

MISSION STATEMENT

It is the mission of Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-04/025+160

WY-020-E04-039

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

I. Purpose and Need

The purpose of this environmental assessment (EA) is to assess the impacts associated with the Bureau of Land Management's (BLM) proposal to remove about 390 excess wild horses from the McCullough Peaks Herd Management Area (HMA) in October 2004 to restore the range to a thriving natural ecological balance and prevent further deterioration of the range. Also proposed is implementing fertility control treatment on a select portion of mares released back to the range following the gather.

A. Background Information

The McCullough Peaks Herd Management Area (HMA) is located 12 to 27 miles east of Cody, within Park County, Wyoming. The HMA encompasses 109,814 acres of land. Refer to Figure 1 (General Location Map) and Figure 2 (Grazing Allotments in the HMA).

The McCullough Peaks HMA was last gathered in 1999 to remove excess wild horses. At that time, it was estimated that 121 horses remained on the range (65 mares and 56 studs). The HMA was aerially censused in 2000 with the population estimated at 165 head and again in 2001 with 236 counted. In 2003, 410 horses (82 foals and 328 adults) were individually identified. Based on population census, the average annual population increase for the McCullough Peaks HMA is approximately 32%. At the time of the gather, it is estimated that the wild horse population (including foals) will be approximately 490 horses.

B. Objectives

The overall goals and objectives are:

1) reduce population size to level which would permit both a healthy and genetically viable herd, as well as, a thriving natural ecological balance to be maintained on the range.
2) conduct a safe and successful gather and removal effort while having minimal impact on the existing herd.
3) conduct a gather of approximately 490 wild horses, removing approximately 390 from the McCullough Peaks HMA and returning 100 to the HMA.
4) collect herd data pertaining to sex, age, color, blood samples for genetic and pregnancy analyses, herd health, and conducting fertility control research and monitor results as appropriate.
5) implement the use of a two-year fertility control treatment on a select portion of mares released back to the range . All animals selected for treatment would be at least one year old.
6) conduct safe and successful application of fertility control vaccine during the gather procedure (Appendix A).
7) support recommendations within the Wild Horse and Burro Strategic Research Plan and conduct monitoring under 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.

C. Need for Proposal

BLM has determined that the existing AML in appropriate and there are excess wild horses present. The Proposed Action is scheduled in October 2004 to remove about 390 horses to restore wild horse herd numbers to levels consistent with the Appropriate Management Level (AML) for the HMA. Applying fertility control measures as part of the proposed action would slow the reproduction rate of mares returned to the HMA following the gather, allowing vegetation resources time to recover; this would also reduce disturbance to the herd by decreasing the gather frequency and provide for a more stable wild horse age and social structure.

Fertility control provided during the gather is expected to impact the first year of pregnancies by 94%, second year by 82%, and the third year by 68%. The proposed management action and alternatives have also been evaluated (Appendix B) using WinEquus (Wild Horse Population Model Version 1.4; April 2, 2002) developed by Dr. Stephen Jenkins, Associate Professor, University of Nevada, Reno and available at http://unr.edu/homepage/jenkins .

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

By achieving and maintaining AML in the McCullough Peaks HMA, BLM meets it objectives in this HMA. A detailed list of objectives affecting the McCullough Peaks HMA can by found in Appendix C.

D. Conformance with Existing Land Use Plans

The Proposed Action is in conformance with the 1990 Cody Resource Area Resource Management Plan (RMP) and Environmental Impact Statement (EIS). Applicable management actions intended to reduce the wild horse population to AML and maintain it at this level would be in conformance with the approved RMP as found on page 38:

- *"**Management Objective** - The wild horse management objective in the McCullough Peaks WHHMA is to maintain a viable herd that will maintain the free-roaming nature of wild horses in a thriving ecological balance and to provide opportunity for the public to view wild horses."*

- ***"Management Actions** – The McCullough Peaks WHHMA will be managed to maintain a population of 100 wild horses until monitoring data shows that changes in the population level are necessary."*

The Proposed Action has been determined to be in conformance with this plan as required by regulation (43 CFR 1610.5-3(a)). The McCullough Peaks HMA has been designated as suitable

for long term sustained wild horse use in the Cody RMP/EIS and the proposed capture and removal is consistent with the land use decisions and resource management goal and objectives of the land use plan. The "No Action" alternative would not be in conformance with the Cody RMP/EIS.

This EA is tiered to, and incorporates by reference, the Cody RMP and EIS. The RMP specifies general management direction for the Cody Field Office administrative area, including the management of wild horses. The EIS contains background information on the existing environment and resources found in the area, and the environmental consequences of various management actions.

The proposed action is in conformance with the Cody RMP as amended on 7/21/1999. Page 18, paragraph two, of the RMP amendment states: *"The livestock grazing management objective is to improve forage production and ecological range condition for the benefit of livestock use, wildlife, and watershed resources consistent with the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming."*

The proposed action will assist in maintaining the health of the public lands within the HMA. The "*Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming"* is available at http://www.wy.blm.gov/range/sandgs.htm.

This EA is further tiered to, and incorporates by reference, the McCullough Peaks Herd Area Management Area Plan (1985), and the Evaluation and Update of the McCullough Peaks HMAP/Capture Plan (1991), EA No. WY-014-EA0-058. These documents contain specific management prescriptions for the HMA, as well as information on the existing environment and the environmental impacts of management actions. The proposed action is consistent with all other federal, state, and local plans. The McCullough Peak Wild Horse HMAP proposed the original Appropriate Management Level (AML) for the HMA of 100 head of wild horses with a minimum of 70 horses and maximum of 140 horses. The 1991 Evaluation and associated EA supported this AML based upon vegetation monitoring data. In 1992, this decision was appealed to the Interior Board of Land Appeals and was affirmed (122 IBLA 92-39). These documents were affirmed by the Interior Board of Land Appeals in *Animal Protection Institute of America et al.* (122 IBLA 290).

In 1985, the McCullough Peak Wild Horse Herd Area Management Plan (HAMP) proposed the original Appropriate Management Level (AML) for the HMA of 100 head of wild horses with a minimum of 70 horses and maximum of 140 horses. The 1991, the Evaluation and Update of the McCullough Peaks HAMP/Capture Plan and associated Environmental Analysis (refer to EA No. WY-014-EA0-058) supported this AML based upon vegetation monitoring data. In 1992, this decision was appealed to the Interior Board of Land Appeals and was affirmed (122 IBLA 92-39). These documents were affirmed by the Interior Board of Land Appeals in *Animal Protection Institute of America et al.* (122 IBLA 290). The AML was established based on in-depth analysis and monitoring data including: precipitation data, livestock grazing preference and actual use, wild horse herd inventory and actual use, utilization, and vegetative condition and trend. As discussed in (EA No. WY-014-EA0-058), the AML is the optimum number which can graze

without damage to the range. Monitoring conducted since then has not indicated a need to adjust the AML.

Finally, this EA incorporates by reference the McCullough Peaks Wild Horse Gather Environmental Assessment (1999), EA No. WY-020-EA9-123. This gather was conducted in the fall of 1999. The EA contains specific information on and analysis of the impacts of conducting a gather in the HMA.

These documents are available for public review at the Cody Field Office.

E. Conformance with Rangeland Health Standards

Standards and Guidelines (S & G) conformance reviews, completed in 1999 and 2001 on three of the allotments (approximately 1/3 of HMA), found that standards were not met for healthy rangelands. In the spring of 1999 and 2000, improved livestock grazing strategies with built in plant recovery time were implemented in these allotments. The remaining two allotments (approximately 2/3 of the HMA) are scheduled for S & G reviews in 2007 or later depending on climatic conditions. It is expected that standards will not be met for these allotments as well.

Conformance evaluations have been completed on the Red Point (#03067) allotment in 1998 and it failed the upland vegetative health Standard #3. In 2001, the Reclamation (#00666) and Reclamation 15 (#03088) allotments were completed and each failed Standards #1 (soil stability), #2 (riparian health), and #3 (upland vegetative health). Yearlong wild horse use was determined to be a contributing factor especially considering horse numbers in excess of AML. Allotment evaluations have been completed in 2000 & 2001 on the Reclamation allotments. Maintaining wild horse numbers at AML was a recommended management action in both documents.

These documents are available for public review at the Cody Field Office.

F. Relationship to Statutes, Regulations, Policies, Plans, or Other Environmental Analyses

Gathering excess wild horses is in compliance with Public Law 92-125, the Wild Free-Roaming Horse and Burro Act of 1971, as amended by Federal Land Policy and Management Act (FLPMA); and Public Law 95-514, the Public Rangelands Improvement Act of 1978 (PRIA). P.L. 92-125, as amended, requires the protection, management, and control of wild horses on public lands.

The proposed action is in conformance with all applicable regulations at 43 Code of Federal Regulations (CFR) 4700 and policies.

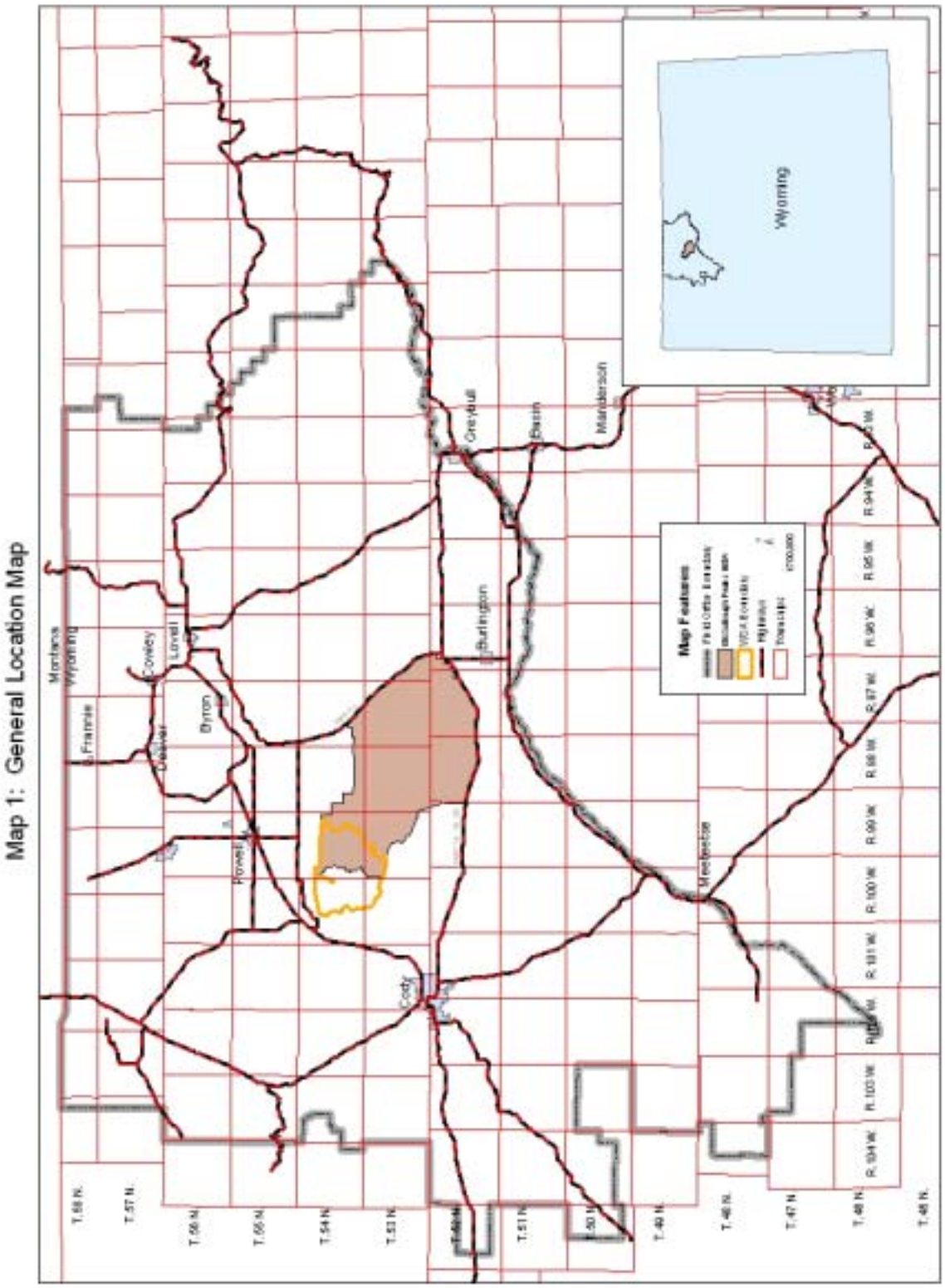

Figure 1 **General Location Map**

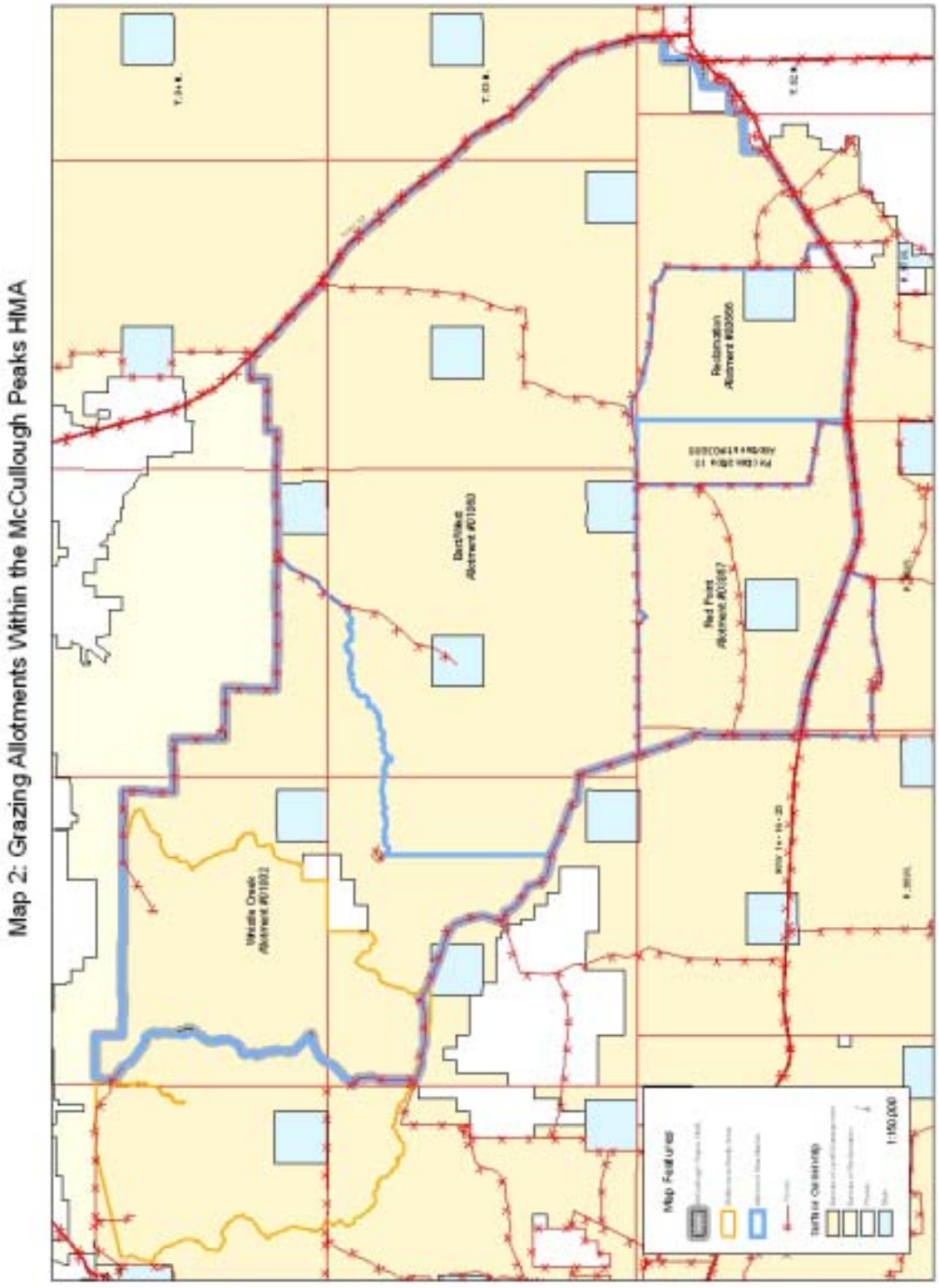

Figure 2 **Grazing Allotments Within the McCullough Peaks HMA**

G. Scoping and Issues Identification

Internal scoping for this EA was conducted in December 2002 and January 2003. A public meeting was held in Cody, WY to discuss the HMA and potential management actions on December 12, 2002. Eighteen people attended the meeting. Seventeen written comments were received, both at the meeting and by mail. The following issues and concerns have been identified:

- Range deterioration, caused by wild horse numbers in excess of the carrying capacity of the range, especially in times of extended drought.
- Concern for the well-being of the horses, and desire to see them managed in a wild and free-roaming state.
- Concern for the viability of the wild horse herd, including genetic diversity.
- Humane concerns regarding excess numbers of horses on deteriorating range, which could lead to starvation.
- Socioeconomic impacts resulting from non-use of authorized cattle grazing, both to the permittee and the local economy.

II. Alternatives Including the Proposed Action

Five alternatives including the Proposed Action and the No Action Alternative are analyzed within this document and impacts identified. Although the No Action is not consistent with the 1971 Act, nor meets the purpose and need, it is analyzed to provide a basis for comparison with the action alternatives. Alternatives are described below.

Actions common to all alternatives except the No Action Alternative

The proposed gather would begin after September 1, 2004. Regardless of which alternative is selected, the CYFO Wild Horse and Burro (WH&B) Specialist would determine sex, age and color, assess herd health (pregnancy/physical condition/etc), sort individuals as to age, size, sex, temperament and/or physical condition, and select animals to be returned the range. Data would be collected, including blood samples, for analysis and inclusion into future planning documents. Excess wild horses would be transported to a BLM adoption preparation/holding facility and/or sanctuary.

A. Selective Removal Criteria

Determination of which horses would be returned to the range would be based on an analysis of existing population characteristics and HMA objectives. Wild horses would be selected and released back into the HMA, based on the historic characteristics (color pattern, sex ratio) of the McCullough Peaks HMA. Objectives for the herd were detailed previously under the Purpose and Need section. Wild horses selected for release back into the HMA would adhere to the National Selective Removal Policy to the extent possible, in accordance with the Gather Policy and Selective Removal Criteria for Wild Horses, Washington Office IM 2002-095.

It is anticipated that additional animals from the younger and/or older categories would need to be released to meet the objective of the proposed action or alternatives. Animals older than 9 years of age would be preferred for several reasons that include decreased adoption demand for older animals, and horses older than 9 years old are currently placed in long-term holding facilities. Exceptional animals that represent historic colors, size and/or conformation may be chosen for release outside of the selective removal priorities. Weak, unhealthy and unthrifty animals would not be selected for release back onto the HMA.

To enhance the selection process, more animals than required by the proposed action or alternatives would initially be separated for release, and then a final sorting completed to select the exact animals for release, based on traits and ages of all of the animals initially selected for release. Additionally, in the case that a certain number of wild horses evade gather, and have been confirmed by the CYFO WH&B Specialist, the total number of animals released may be reduced by this number.

B. Gather Operations

The gather would be conducted through use of the National Wild Horse and Burro Gather Contract. Gather operations would be scheduled to start around October 1, 2004. Multiple gather sites (traps) may be used to gather wild horses from the HMA. To the maximum extent possible, gather sites would be located in previously disturbed areas. All gather and handling activities (including gather site selections) would be conducted in accordance with the Standard Operating Procedures (SOPs) described in Appendix D. The helicopter drive trap gather technique would be utilized for this gather. When animals are released, every effort would be made to release them back into the same general area from which they were gathered.

As needed, an APHIS veterinarian may be present and a licensed contract veterinarian will be on-call during gather operations to examine animals and make recommendations to the CYFO WH&B Specialist for care and treatment of the wild horses. Consultation with a veterinarian would take place prior to euthanasia in accordance with Washington Office Instruction Memorandum 2001-165.

C. Data Collection

The following data would be collected during the gather, to facilitate the preparation of a Population Management Plan (PMP), as a component of the Herd Management Area Plan (HMAP) document:

1) Blood Samples

Blood samples would be collected from release animals and analyzed to establish genetic baseline data (genetic diversity, historical origins of the herd, unique markers) for the HMA in accordance with the Gather Policy and Selective Removal Criteria for Wild Horses, Washington Office IM 2002-095. Blood

would be drawn from both mares and studs in a ratio similar to the sex ratio released.

2) Sex ratio/Age Structure

The sex, age, and disposition (remove or release) for each animal gathered would be recorded. This data would be used to develop a pre-gather and release sex ratio/age structure summary for the HMA.

3) Reproduction and Survival

Information on reproduction and survival would be collected to the extent possible, through documentation of the wild horses gathered, and the age of those released following the gather.

4) Characteristics

Color and size of the animals would be recorded. The type of horse would be noted if it can be determined, or a general impression of the type of horses gathered within the HMA. Incidence of albinism, parrot mouth, club feet, severely crooked legs or any other negative trait believed to be genetic, would be recorded along with the disposition of that animal.

5) Condition Class

Condition class would be recorded using the Henneke System for those animals that are exceptions to average, such as noticeably thin, or fat wild horses.

6) Other data

Pregnancy status and genetic information must be collected from blood samples on treated and any untreated mares that are released back into the population at the time of the contraceptive treatment.

ALTERNATIVE I: PROPOSED ACTION
Removal to the Mid-Point (100 Animals) of the Management Range with Fertility Control

The Proposed Action (Alternative I) is to gather approximately 490 wild horses, removing approximately 390 from the McCullough Peaks HMA and returning 100 to the HMA after the gather. Also proposed is determining sex, age and color, acquiring blood samples, assessing herd health, conducting immunocontraceptive research and monitoring results as appropriate. Determination of which horses would be returned to the range would be based the historic characteristics that are typical of the herd demographics and the objectives as stated under the Purpose and Need section.

A Wild Horse and Burro Strategic Research Plan has been prepared and attendant to this

document is a Fertility Control Field Trial Plan. These documents guide and direct fertility control applications in wild horses as well as other research activities. The fertility control vaccine, PZP (Porcine Zonae Pullicida) is available to BLM under a research protocol only and administered under a use permit (INAD) held by the Humane Society of the US (HSUS).

BLM applications of fertility control are divided into Individual-based and Population-based trials. These trials are designed to evaluate the 1 and 2 year vaccines. Individual-based trials involve intensive field monitoring efforts both pre and post treatment of mares.

A select number of mares are planned for treatment on to the McCullough Peaks HMA in Wyoming using the Individual-based criteria this calendar year. This treatment will utilize the 2-year time release PZP vaccine administered during a scheduled gather (Appendix A). This will result in a 4-5 year study on the McCullough Peaks HMA.

The following contraception parameters were utilized in the population model:

Figure 3 Contraception Parameters

Age Class **(Mares)**	**Percentages for Fertility Treatment**
1– 4 yrs	100%
5 – 9	75%
10+	100%

Figure 4 Class Structure

The following age class structure will try to be achieved:

Age Class	**Percent of Population**
<5yrs	25%
5 – 9	55%
10+	20%

Sex ratio of horses to be released would be approximately:
Male = 50%
Female = 50%

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ALTERNATIVE II
Removal to the Mid-Point (100 Animals) of the Management Range without Fertility Control

Alternative II is to gather approximately 490 wild horses and remove approximately 390 wild horses from the McCullough Peaks HMA. Approximately 100 wild horses (50 mares and 50 studs) would be returned to the HMA, which represents a mid-point of the management range (AML). A fertility control research project would not be implemented.

ALTERNATIVE III
Removal to the Lower Limit (70 Animals) of the Management Range with Fertility Control

This alternative is the same as Alternative I except that 30 additional horses would be removed and only 70 horses would be returned to the HMA. Approximately 70 wild horses (35 mares and 35 studs) would be returned to the HMA, which represents the lower limit of the management range. There would also be 30 more horses in either long term holding facilities or in the adoption pipeline. Delivery of the immunocontraceptive vaccine would be as described under the Proposed Action.

ALTERNATIVE IV
Removal to the Lower Limit (70 Animals) of the Management Range without Fertility Control

Alternative IV is to gather approximately 490 wild horses and remove approximately 420 wild horses from the McCullough Peaks HMA. Approximately 70 wild horses (35 mares and 35 studs) would be returned to the HMA, which represents the lower limit of the management range. A fertility control research project would not be implemented.

ALTERNATIVE V
No action

This alternative identifies no direct (i.e. passive) management activities would be used to control the wild horse population in the McCullough Peaks HMA. The wild horse population would be allowed to reach equilibrium by regulating their numbers through periodic elevated mortality rates caused by drought, disease, and insufficient forage, water and/or space availability or a combination of these factors.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

Fertility Control Only

An alternative calling for the implementation of an immunocontraception program without gathering and subsequent removal of excess animals will not be considered in detail in the EA. Treated mares must be positively recorded and marked, thus making it necessary to gather them. There are logistical reasons that remote vaccination (darting) of the horses is not practical in the McCullough Peaks HMA. The open nature of the terrain and inability to get near the animals

reduces the effective use of a dart gun. Also fertility control will not reduce herd size to help achieve the goal of establishing and maintaining a thriving natural ecological balance. For these reasons, a stand-alone gather for fertility control purposes will not be considered any further.

Alternative Gathering Methods

Hay and water trapping methods require that these resources be scarce. In the McCullough Peaks HMA, adequate forage, except during severe winters with substantial snow cover, makes hay trapping impractical. When conditions might allow some limited success, drifting snow and road conditions limit access. Abundant water supplies and occasional rain showers make water trapping impractical. Also, rounding up wild horses with saddle horses alone has proven to be inefficient and impractical.

The helicopter/roping method of gathering entails moving wild horses to a roping site by helicopter and then capturing the horses by roping. While feasible, this technique has been used only in limited circumstances where a small number of wild horses were difficult to trap. It poses safety hazards to wild horses, personnel, and their saddle horses. For these reasons, the three alternative gathering methods were dropped from further consideration.

III. Affected Environment

The following critical elements of the human environment and other potential concerns were considered but were determined not to be affected nor impacted by the Proposed Action or alternatives and will not be discussed further in this EA.

- Air Quality
- Areas of Critical Environmental Concern (ACEC)
- Water Quality or Sole Source Aquifers
- Environmental Justice
- Prime and Unique Farmlands
- Wild and Scenic Rivers
- Hazardous Wastes
- Social and Economic Resources

A. Wild Horses

1) HMA Description

The Cody Field Office area is located in northwestern Wyoming and contains the McCullough Peaks Wild Horse Herd Management Area, which is located 12 to 27 miles east of Cody (see Figure 1). The herd management area encompasses 109,814 acres of land (see Figure 2). Topography is highly variable, ranging from mostly flat to slightly rolling foothills carved by drainages, colorful badlands, and desert mountains featuring steep slopes, cliffs, and canyons. The HMA is bordered on the south by State Highway 14-16-20, on the east by State Highway 32, on the north by

Bureau of Reclamation lands, and on the west partially by allotment boundary fences and natural terrain features (division between the Deer Creek and Whistle Creek drainages)

2) Gather History and Population Characteristics

Since 1973, annual inventory aerial counts have been made (until recently due to budget cut/no funding). Gathers have occurred in 1983 (215 removed), 1987 (152 removed), 1992 (225 removed), 1995 (170 removed), and 1999 (188 removed).

The sex ratio of the total horses gathered in 1999 was 48% females and 52% males. At the completion of the 1999 gather there were 107 wild horses released, with a sex ratio of 55% females and 45% males.

Past gather data (1999) was used to determine animal colors and the approximate frequency of the color within the herd. The frequencies of colors found during the 1999 gather were: bay (27%), black (19%), pinto/paint (18%), sorrel/chestnut (12%), brown (9%), buckskin (5%), grey (5%), palomino (2%), roan (2%), and white (1%).

3) Genetic Diversity and Viability

Blood samples were collected from removed animals during the 1992 and 1999 gathers to develop genetic baseline data (e.g. genetic diversity, historical origins of the herd, unique markers). The samples were analyzed by Dr. Gus Cothran, a University of Kentucky geneticist, to develop a genetic frequency for the herd, however there were no other interpretations made from the data. Additional blood samples would be drawn from released animals during the proposed gather to establish the current level of genetic diversity for the McCullough Peaks HMA, as well as, to determine the pregnancy status of the mares in the herd. At this time, there is no evidence to indicate that the McCullough Peaks HMA suffers from reduced genetic fitness. There are, however, several alternative management strategies, which can be used to promote genetic conservation within the herd (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999).

The following summarizes what is known about the McCullough Peaks HMA as it pertains to genetic diversity:

- The McCullough Peaks HMA is isolated from other herds.
- Ne (genetic effective population size) for McCullough Peaks HMA has not been established.
- At this time there is no evidence to indicate that the McCullough Peaks HMA suffers from reduced genetic fitness.
- Available research suggests that maintaining 100 adult animals should allow for sustainability of existing genetic diversity within most wild horse herds.
- As more research is completed, and knowledge becomes available specific to the McCullough Peaks HMA, it will be applied to the HMA managed by the CYFO.

B. Domestic Livestock and Wildlife

Rangelands in the McCullough Peaks HMA provide seasonal grazing for cattle. Rotational grazing management strategies have been implemented on the majority of the herd area. The livestock grazing permittees in the herd area have taken a substantial amount of voluntary non-use in recent years. The average actual livestock use was 41% of the total active grazing preference during the 2000 thru 2003 grazing seasons. During the 2004 grazing season non-use has been taken by all livestock grazing permittees in the HMA.

The herd area provides yearlong habitat for antelope, mule deer, sage grouse, Hungarian partridge, chukar, and various raptors, furbearers, songbirds and small mammals. Other game species that have been seen in the herd area are elk, whitetail deer, mountain lion, and black bear. Mountain plovers (Wyoming BLM sensitive species) are likely to inhabit the area.

C. Cultural Resources

A variety of inventories to determine the presence or absence of cultural resource have been conducted in the project area over the last 20 years. Mostly these inventories have been in response to energy, highway, range, wild horse, and realty related activities requiring compliance with Section 106 of the National Historic Preservation Act. Inventories have identified over 100 known sites of both prehistoric and historic ages. Approximately 40 percent of the known sites have been determined eligible for the National Register of Historic Places and approximately 40 per cent of the known sites have been determined not eligible for the National Register. The remaining sites have their eligibility for the National Register listed as unknown.

D. Invasive, Non-Native Species

Noxious weed surveys, including invasive and non-native species, have been completed along roadways in and adjacent to the HMA. These surveys indicate that the following state listed noxious weeds occur:

Scientific Name	**Common Name**	**Plant Symbol**
Cardaria draba	White Top	CARDRA
Acroptilon repens	Russian Knapweed	ACRREP
Centaurea maculosa	Spotted Knapweed	CENMAC
Cirsium arvense	Canada Thistle	CIRARV
Cirsium vulgare	Bull Thistle	CIRVUL
Tamarix ramosissima	Salt Cedar	TAMRAM
Hyoscyamus niger	Black Henbane	HYONIG
Cynoglossum official	Houndstongue	CYNOFF
Convolvulus arvensis	Field Bindweed	CONARV

These weeds occur in a variety of habitats including road side areas, rights-of-way, wetland meadows, riparian areas, as well as disturbed upland range sites.

E. Special Status Species

Threatened & Endangered or candidate species of concern that may or could occur in the McCullough Peaks Wild Horse HMA are listed below:

Threatened Species (Federally-listed)

	Common Name	Scientific Name
Birds:	Bald eagle	*Haliaeetus leucocephalus*

Candidate Species (Federally-listed)

	Common Name	Scientific Name
Mammals:	Black-tailed prairie dog	*Cynomys ludovicianus*

Complete field investigations have not been conducted for all sensitive/protected plant and animal species. Population inventories and important habitat features have not been identified for these species throughout the horse herd area. Specific locations for helicopter operations, gathering corrals, or other associated disturbing activities would be field checked prior to use to insure that sensitive wildlife habitat would not be affected by these activities. Locations could be moved or modified to avoid or mitigate impacts as needed.

F. Vegetation

Approximately two-thirds of the herd area is badland-type vegetation of saltbush-grass. The remaining one-third is a sagebrush-grass type. Wyoming big sagebrush (*Artemisia tridentate wyomingensis*), Nuttall's saltbush (*Atriplex nuttalli*), greasewood (*Sarcobatus spp.),* bluebunch wheatgrass (*Agropyron spicatum),* western wheatgrass (*Agropyron smithii),* Indian rice grass (*Orezopsis hymenoide*s), blue grama (*Bouteloua gracilis*), Sandberg's bluegrass (*Poa secunda*), and saltgrass (*Distichlis stricta*) are the major plant species.

Whistle Creek and Coon Creek are two ephemeral streams that originate in and flow from the project area. There are scattered cottonwood and willow trees along these two drainages. Dry Creek is a perennial stream, which also supports riparian/wetland vegetation, that flows through the southeast part of the herd area. There are numerous reservoirs of various sizes scattered throughout the herd area. In addition to these, pools of water collect in the dry washes/draws (drainages) following snow melt and precipitation events throughout the entire HMA.

Because of the use demands on riparian areas, management considerations have focused on protecting these areas from depletion. Fencing and utilization levels and rotations of domestic livestock have been effective tools in maintaining and improving the qualities of riparian ecosystems. Achieving and maintaining wild horse numbers at AML is an

important factor in enhancing riparian function.

G. Wilderness Study Area (WSA)

The gather would occur near the McCullough Peaks WSA. The WSA is not congressionally designated as a Wilderness area and therefore is not subject to the restrictions provided under the Wilderness Act of 1964. The WSA is subject to Handbook 8550-1 entitled "Interim Management Policy for Lands under Wilderness Review and the "Federal Land Policy and Management Act."

The Proposed Action includes the use of a helicopter over the WSA to herd the wild horses out of the WSA and into the traps. This use of helicopters is consistent with BLM policy. The traps and any vehicle use would occur outside the WSA, so as not to impair the suitability of the area for preservation as wilderness.

H. Recreation and Visual Resources

The public enjoys seeing wild horses roaming free in the McCullough Peaks area. Visitor use has not been documented due to its random nature and the fact that anyone is free to drive out and view wild horses. However, visitation to the area appears to be on the increase. There are five (5) BLM approved and permitted operators who hold recreational guiding permits to take people on tours to view the wild horses. Other

recreational uses of the general area include hunting, mountain biking, horseback riding, ATV use, sightseeing, rock hounding, and photography.

The lands within the project area lie within Visual Resource Management Class II, III, and IV areas. Management classes determine the amount of modification allowed to the basic elements of the landscape. In a Class II area, changes in any of the basic elements caused by management activity should not be evident in the characteristic landscape. Contrasts are seen but must not attract attention. In a Class III area, contrasts to the basic elements caused by a management activity are evident but should remain subordinate to the existing landscape. In a Class IV area, any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but should repeat the form, line, color, and texture of the characteristic landscape.

IV. Environmental Consequences

Resources that may be impacted by the Proposed Action and the alternatives include wild horses, domestic livestock and wildlife, cultural, invasive species, special status species, vegetation, wilderness study area, recreation and visual resources. The direct, indirect, and cumulative impacts are addressed for each resource.

A. Wild Horses

Actions common to all alternatives except the No Action Alternative

1) HMA Objectives

a. Maintain an Average of 100 Wild Horses in the McCullough Peaks HMA

The Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195 as amended) states that, all management activities shall be at the minimum feasible level. The minimum feasible level of management would require that removals and other management actions that directly impact the population, such as helicopter census, occur as infrequently as possible (3 to 5 years). To the extent practical, the removal to the mid-point of the management range with fertility control should allow maintenance of a self sustaining population, as well as, maintaining a thriving natural ecological balance. Population modeling (Appendix B.) conducted for Proposed Action and Alternative II (Removal to the mid-point of the management range, with and without fertility control) indicate that the mid-point of the management range should allow for maintenance of a self sustaining population.

Maintaining an average of 100 wild horses in the McCullough Peaks HMA would meet the intent of the Wild Free Roaming Horse and Burro Act that all management actions shall be at the minimum feasible level. The following positive impacts for wild horses and their habitat are likely:

- A thriving natural ecological balance would be achieved and maintained by reducing the population to the mid-point of the management range with fertility control, following a standardized gather cycle.
- Ensure a viable population of wild horses that will survive, and be successful during poor years when elements of the habitat are limiting due to severe winter conditions, drought or other uncontrollable and unforeseeable environmental influences to the herd.
- Frequent gathers would not be required which would allow for a greater level of herd stability and band integrity.
- Gathers would only occur when the population approaches or exceeds the upper limit of the management range and/or a 4 year gather cycle.
- The wild horse population would be subjected to the stresses associated with gathering and handling as infrequently as possible.

b. Selective Removal Criteria

Direct impacts associated with the Proposed Action (Alternative I) and Alternatives II, III, or IV would consist of selecting wild horses for release that possess the historic characteristics (color pattern, sex ratio) that are typical of the herd demographics of the McCullough Peaks HMA. Animals selected for release would be the most capable of surviving environmental extremes, thus ensuring a viable population is present in the HMA. Utilizing the selective removal criteria would result in a positive impact for the long term health and stability of the population.

The removal of approximately 390 horses from the population would have an impact on herd population dynamics. But these impacts would be mitigated through the selective removal strategy for the McCullough Peaks HMA. The effect of removal of horses from the population is not expected to have significant impact on age structure or sex ratio, as long as the selection criteria for the removal maintains the social structure and breeding integrity of the herd. The selective removal strategy for the McCullough Peaks HMA would maintain the age structure (of critical breeding age animals), the sex ratio and the historic range of characteristics currently within the herd.

Potential negative impacts to the long term health and stability of the population could occur from exercising poor selection criteria not based on herd demographics and age structure. These negative impacts would include modification of age or sex ratios to favor a particular class of animal. Effects resulting from successive removals causing shifts in sex ratios away from normal ranges are fairly self evident. If the selective removal criteria favors studs over mares, it would be expected to result in band size to decrease, competition for mares to increase, and the size and number of bachelor bands to increase. As well as, potential reduced reproduction and enhanced genetics. On the other hand, if the selective removal criteria favors mares over studs, it would be expected to result in fewer and smaller bachelor bands, competition for mares may decrease, and there is a likelihood for larger band sizes.

The effects of successive removals on populations causing shifts in herd demographics favoring younger horses (under 15 years) would also have direct consequences on the population. These impacts are not thought of typically as adverse to a population. They include development of a population, which is expected to be more biologically fit, more reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

c. Gather Operations

These direct impacts include: handling stress associated with the gathering, processing, and transportation of animals from gather sites to temporary holding facilities, and from the temporary holding facilities to an adoption preparation facility. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality does occur

during a gather however it is infrequent and typically is no more than one half to one percent of the total animals gathered.

Impacts which may occur after the initial stress of herding and capture include: spontaneous abortion in mares, increased social displacement, and conflict in studs and mares. Spontaneous abortion following capture is rare, depending on the time of year gathered. Traumatic injuries that may occur typically involve biting and/or kicking which results in bruises and minor swelling but normally does not break the skin. These impacts occur intermittently and the frequency of occurrence varies with the individual.

Population wide impacts can occur during or immediately following the implementation of the Alternatives I, II, III, or IV. They include the displacement of bands during capture and the associated re-dispersal, temporary separation of members from individual bands of horses, re-establishment of bands following release, and the removal of animals from the population. With the exception of the changes to herd demographics, direct wide population impacts 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 for 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.

All activities would be carried out in accordance with current BLM policy, with the intent of conducting as safe and humane a gather as possible. Recommended actions incorporate proven Standard Operation Procedures (SOPs, Appendix D) which have been developed over time. These SOPs represent the best methods for reducing impacts associated with gathering, handling, transporting and collecting herd data.

d. Data Collection

Direct impacts associated with data collection involve increased stress levels to the animals as they are restrained in the portable aging chute. Those animals selected for blood sampling may become very agitated as the samples are drawn. Once the animal is released from the chute, stress levels decrease rapidly. The collection of data is a positive impact to the long term management of the population. This data will be used to develop population specific objectives that will help to ensure the long term viability of the population. This procedure is within the intent of Public Law 92-195, as amended, as it relates to managing populations at the minimum feasible level.

PROPOSED ACTION AND ALTERNATIVES

Population modeling was completed for the Proposed Action and all the Alternatives. One of the objectives of the modeling was to identify if any of the alternatives "crash" the population or cause extremely low population numbers or growth rates. Population modeling does not indicate that a crash is likely to occur to the population under the Proposed Action or Alternatives. Minimum population levels and growth rates were found to be within reasonable levels, and cumulative adverse impacts to the population are not likely.

It is expected that implementation of the Proposed Action or Alternatives would not significantly impact the long-term genetic viability or genetic health of the McCullough Peaks HMA. At this time there is no evidence to indicate that the McCullough Peaks HMA suffers from reduced genetic fitness. Available research suggests that maintaining 100 adult animals should allow for sustainability of existing genetic diversity within most wild horse herds.

Comparison of Alternatives:

Figure 5 displays the basic differences between the Alternative I (Proposed Action) and Alternatives II, III, IV, and V (No Action) as projected through population modeling (Jenkins Model). Refer to Appendix B, Population Modeling, for a complete summary of data and accompanying tables obtained from the population modeling.

Figure 5. **Comparison of Alternatives**

Alternative	2004 Est. # of Horses	Target # of Horses	Est. # of Horses Gathered	Est. # of Horses Removed	Initial # of Mares Treated	Initial # of Horses Returned to HMA
Alternative I - Proposed Action (Middle Limit of the management range with fertility control)	490	100	490	390	43	100
Alternative II (Middle limit of the management range without fertility control)	490	100	490	390	0	100
Alternative III (Lower Limit of the management range with fertility control)	490	70	490	420	31	70
Alternative IV (Lower limit of the management range without fertility control)	490	70	490	420	0	70
Alternative V – No Action	490	70-140	0	0	0	0

ALTERNATIVE I: PROPOSED ACTION

Removal to the Mid-Point (100 Animals) of the Management Range with Fertility Control

Direct impacts associated with the proposed action include potential changes to herd demographics, stress associated with gathering, and the effects from implementing an immunocontraceptive fertility control research project. The effect on herd demographics was discussed in the Selective Removal Criteria section and the stress associated with gathering would be the same as those discussed under Gather Operations.

Each selected target mare to be released would receive a single-dose of the time-release, 22 month PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies that bind to her eggs, effectively blocking sperm penetration and fertilization (ZooMontana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and can easily be administered in the field. Also, among mares, PZP contraception appears to be temporary and to have no ill effects on ovarian function if the mare is not contracepted for more than 4 consecutive years. PZP will not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). Turner (1997) also found that the vaccine has proven to have no apparent affects on pregnancies in progress, the health of offspring, or the behavior of treated mares.

To date, one herd area has been studied using the 2-year PZP vaccine. The Clan Alpine study, in Nevada, was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% year one, 18% year two, 32% year three and 43% year four. This data must be compared to normal fertility rates in untreated mares of 50 to 60% in most populations. The Clan Alpine fertility rate in untreated mares collected in September of each year by direct observation averaged 51% over the course of the study.

Mares receiving the vaccine would experience slightly increased stress levels from additional handling while being inoculated and freeze marked. There may be some swelling at the injection site following the administration of the fertility control vaccine, but this would be a temporary, short term impact. Injection site injury associated with fertility control treatments is extremely rare in treated mares, and may be related to experience of the person administering the vaccine. Injection of the vaccine would be controlled, handled and administered by a trained BLM employee, researcher or veterinarian. Any undesirable direct impacts associated with fertility control are expected to be minor in nature and of short duration. The mares would quickly recover once released back to the HMA.

The 2003 USGS/BRD Annual Report on Wild Horse Research and Field Activities reported that treated mares were monitored for any potential swelling, stiffness, muscle tremors, nodules, granulomas, abscesses, and/or behavioral depression, which might

develop subsequent to darting. A 'nodule' is defined as a lump that appeared less than 2 weeks after an injection. The physiological proof of granulomas would require clinical diagnosis, which has not been performed.

Population wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify. Impacts involve reductions in short term fecundity of initially a large percentage of mares in a population, increasing herd health as AMLs are achieved, and potential genetic issues regarding controlling contributions of mares to the gene pool, especially in small populations. The implementation of fertility control would result in an opportunity to allow increased fitness and condition of the mares released following the gather. The potential reprieve from foaling would greatly increase the overall health and fitness of mares.

The use of fertility control would not be expected to have any long term significant impacts (direct or indirect) to the McCullough Peaks HMA genetic health, long term viability or future reproductive success of mares within the herd. Implementation of fertility control is expected to improve the health of the mares within the HMA, and indirectly improved health of the foals born to those mares in the future. Improved condition of the mares and foals would aid in the long-term health and viability of the McCullough Peaks HMA wild horse population. Reduced growth rates that would occur with the implementation of fertility control would influence herd size over a 2 to 3 year period, reducing competition for resources and utilization levels of those resources. Reduced growth rates would increase the interval between gathers, having overall beneficial impacts to the entire wild horse population, wildlife, and domestic livestock, while contributing to the achievement and maintenance of a thriving natural ecological balance.

The wild horse population would only increase at an average rate of 15-16% annually with the use of fertility control.

ALTERNATIVE II

Removal to the Mid-Point (100 animals) of the Management Range without Fertility Control

Direct impacts associated with Alternative II include potential changes to herd demographics, and stress associated with gathering. The effect on herd demographics was discussed in the Selective Removal Criteria section and the stress associated with gathering would be the same as those discussed under Gather Operations.

The population will increase each year until the next gather is scheduled in approximately 2007. A thriving natural ecological balance would not be maintained. Resource degradation would first be in the form of over utilization of the forage resources – both upland and riparian. Wild horses would also contribute to degradation of upland mule deer, pronghorn antelope, and sage grouse forage species. Degradation to resources would increase as wild horse numbers increase. This degradation would be

worsened during years affected by drought or other environmental extremes that cause additional stress to resources or shortages of resources to rangeland uses.

The wild horse population would increase at an average rate of 21-22% annually.

ALTERNATIVE III

Removal to the Lower Limit (70 Animals) of the Management Range with Fertility Control

Alternative III has the highest projected potential for a catastrophic event that could eliminate the herd and potentially putting the long-term health of the herd at risk based upon Jenkin's population modeling (Appendix B).

Direct impacts associated with Alternative III include potential changes to herd demographics, stress associated with gathering, and the effects from implementing an immunocontraceptive fertility control research project. The effect on herd demographics was discussed in the Selective Removal Criteria section and the stress associated with gathering would be the same as those discussed under Gather Operations. The impacts associated with implementing an immunocontraceptive fertility control research project were discussed in the Proposed Action.

Because Alternative III involves gathering to the lower limit of the management range (70 head) and implementing a fertility control research program, the upper limit of the management range (140) would not be exceeded and resource degradation would not be expected to resume until after 2009. Inoculated mares would foal normally in 2005, and the contraceptive would limit foal production in 2006 and 2007. Near normal foaling rates would be expected to resume in 2008. Gathering to the lower limit of the management range (70 head) would allow the wild horse population to increase over a longer period of time to the upper limit of the management range (140 head). When this level is exceeded, a gather would be scheduled. Because the HMA would be gathered again to the lower limit of the management range, resource degradation associated with wild horses would be minimized. A thriving natural ecological balance would be expected to be maintained until 2008 and the potential for resource degradation would increase starting in 2009. Resource degradation would first be in the form of over utilization of the forage resources – both upland and riparian. Wild horses would also contribute to degradation of upland mule deer, pronghorn antelope, and sage grouse forage species. Degradation to resources would increase as wild horse numbers increase. This potential degradation would be worsened during years affected by drought or other environmental extremes that cause additional stress to resources or shortages of resources to rangeland users.

The use of fertility control would not be expected to have any long term significant impacts (direct or indirect) to the McCullough Peaks HMA genetic health, long term viability or future reproductive success of mares within the herd. Implementation of fertility control is expected to improve the health of the mares within the HMA, and improved health of the foals born to those mares in the future. Improved condition of the mares and foals would aid in the long-term health and viability of the McCullough Peaks HMA wild horse population. Reduced growth rates that would occur with the implementation of fertility control would influence herd size over a 2 to 3 year period, reducing competition for resources and utilization levels of those resources. Reduced growth rates would increase the interval between gathers, having overall beneficial impacts to the entire wild horse population, wildlife, and domestic livestock, while contributing to the achievement and maintenance of a thriving natural ecological balance.

Due to the reduced population size, Alternative III would not ensure the McCullough Peaks HMA would be a successful self-sustaining population of healthy animals in balance with other uses and the productive capacity of the habitat. The herd would be at a higher risk of ill fitness and disease should elements of the habitat become limiting due to drought or winter extremes (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999).

The wild horse population would increase at an average rate of 16-17% annually with the use of fertility control.

ALTERNATIVE IV

Removal to the Lower Limit (70 Animals) of the Management Range without Fertility Control

Alternative IV, based upon Jenkin's population modeling, is projected to have the second lowest population size for any of the modeling runs at 70 animals, which is at the lower level of the management range of 70 horses (Appendix B). The drop in population numbers below this level could potentially have a detrimental /adverse impact to the genetic viability of the herd.

Direct impacts associated with Alternative IV include potential changes to herd demographics, and stress associated with gathering. The effect on herd demographics was discussed in the Selective Removal Criteria section and the stress associated with gathering would be the same as those discussed under Gather Operations.

The population will increase each year until the next gather is scheduled in approximately 2009. Gathering to the lower limit of the management range (70 head) would allow the wild horse population to increase over a longer period of time to the upper limit of the management range (140 head). When this level is exceeded, a gather would be scheduled. Because the HMA would be gathered again when the upper limit of the management range is exceeded, resource degradation associated with wild horses would be minimized. A thriving natural ecological balance would be maintained until

2008 and the potential for resource degradation would increase starting in 2009. Resource degradation would first be in the form of over utilization of the forage resources – both upland and riparian. Wild horses would also contribute to degradation of upland mule deer, pronghorn antelope, and sage grouse forage species. The potential degradation to these resources would increase as wild horse numbers increase. This potential degradation would be worsened during years affected by drought or other environmental extremes that cause additional stress to resources or shortages of resources to rangeland users.

Based upon low population levels over a period of time, the outcome of Alternative IV would not ensure the McCullough Peaks HMA would be a successful, self-sustaining population of healthy animals in balance with other uses and the productive capacity of the habitat. Due to the low population, the herd would be at a higher risk of ill fitness and disease should elements of the habitat become limiting due to drought or winter extremes (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999).

Mares would continue to foal at normal rates and the population would increase at an average rate of 21-22% annually.

ALTERNATIVE V

No action

The current population of 409 wild horses would continue to increase (32%), and exceed the carrying capacity of the range. Though it may require many years for the population to reach catastrophic levels, by exceeding the upper limit of the management range (140), Alternative V poses the greatest risk to the long-term health and viability of the McCullough Peaks HMA wild horse population, wildlife populations, and the vegetative resource.

The population of wild horses would compete for the available water and forage resources. The areas closest to water would experience severe utilization and degradation of the range resource. Over the course of time, the animals would deteriorate in condition as a result of declining forage availability and the increasing distance traveled between forage and water sources. The mares and foals would be affected most severely. The continued increase in population would eventually lead to catastrophic losses to the herd, which would be a function of the available forage and water and the degradation of the habitat. A point would be reached where the herd reaches the ecological carrying capacity and both the habitat and the wild horse population would be critically unhealthy.

Ecological carrying capacity of a population is a scientific term, which refers to the level at which density-dependant population regulatory mechanisms would take effect within the herd. At this level, the herd would show obvious signs of ill fitness, including poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation (Coates-Markle, 2000). In addition, irreparable damage would occur to the habitat through overgrazing, which is

not only depended upon by wild horses but by wildlife (which include sensitive species), and permitted livestock. All multiple uses of the area would be impacted. Significant loss of wild horses in the McCullough Peaks HMA due to starvation and disease would have obvious consequences to the long-term viability of the herd. Irreparable damage to the resources, which would include primarily vegetative, soil and riparian resources, would have obvious impacts to the future of the McCullough Peaks HMA and all other uses of the resources, which depend upon them for survival.

Predators do not substantially regulate wild horses in the McCullough Peaks HMA. 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 (32%) in wild horse numbers, which would greatly 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 would clearly indicate that an overpopulation of wild horses existed in the HMA. The Wild Free-Roaming Horse and Burro Act of 1971, as amended, 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*".

B. Domestic Livestock and Wildlife

Wildlife populations in areas where wild horses are gathered could be disrupted for a short time during the gathering operations, due to human presence and the noise of the helicopter, which may cause wildlife to seek cover in areas away from gathering routes. Once gathering operations cease, these effects would stop. Capture activities would not cause abandonment of normal habitat areas. There would be no long-term adverse effect on wildlife. Gathering of horses would not have any effect on mountain plovers.

Reaching the AML and maintaining the populations at this level would assure that the quality and quantity of forage for domestic livestock, wildlife, and wild horses would be available. Improved quality and increased quantity of forage allows the continuation of authorized livestock use and helps to obtain or maintain objective wildlife populations as defined by the Wyoming Game and Fish Department.

BLM data and past experience show that removal of excess horses from areas of wild horse concentration would improve habitat conditions for wildlife. This effect is most pronounced around water sources and would benefit both game and non-game wildlife. Maintaining wild horse populations at AML through the removal of excess wild horses enables wildlife populations to utilize the forage that would otherwise be used by the

excess wild horses. No adverse cumulative impacts to domestic livestock and wildlife are anticipated.

C. Cultural Resources

Tribal representatives on the Northern Wyoming Native American Consultation mailing list have been notified of the McCullough Peaks HMA Gather Plan and Fertility Control Implementation Plan process and have been invited to identify any concerns about sites significant to the history, culture, or religion of Native Americans within the project area pursuant to the National Historic Preservation Act of 1966 as amended (P.L. 89-665; 80 Stat. 915; 16 U.S.C. 470) or any sacred sites pursuant to Executive Order 13007 signed May 24, 1996.

The McCullough Peaks HMA Gather Plan and Fertility Control Implementation Plan and this Environmental Assessment would be provided to those who have requested additional information and to the State Historic Preservation Office. Any information provided in response will be taken into consideration during development of the Final Plans and Decision Record.

Gathering horses and implementing the fertility control is not expected to impact cultural resources. Rehabilitation of trap sites has the potential to impact cultural resources. Any rehabilitation work would be done within the existing surface disturbance, and would be subject to the following stipulations for the protection of cultural resources:

Cultural Resources, Standard Stipulations. The BLM is responsible for informing all persons associated with this project that they may be subject to prosecution for knowingly damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, Native American, or vertebrate fossil materials are discovered, the BLM is to suspend all operations that further disturb such materials and immediately contact the Authorized Officer. Operations are not to resume until written authorization to proceed is issued by the Authorized Officer (AO).

The authorized officer will evaluate, or will have evaluated, such discoveries not later than five working days after being notified, and will determine what action shall be taken with respect to such discoveries. The decision as to the appropriate measures to mitigate adverse effects to significant cultural or paleontological resources will be made by the authorized officer after consulting with the BLM.

The BLM is responsible for the cost of any investigations necessary for the evaluation, and any mitigative measures required by the Authorized Officer. The AO will provide technical and procedural guidelines for the conduct of evaluation and mitigation. Upon verification from the AO that the required evaluation and/or mitigation has been completed, the BLM will be allowed to resume operations.

Native American Resources. The area under consideration may contain areas or

locations of religious or cultural concern to Native Americans, but these areas have not yet been identified. If such areas are subsequently identified or become known through the Native American notification or consultation process they would be considered during the implementation phase. The BLM would take no action that would adversely affect these areas or locations without consultation with the appropriate Native Americans.

Human Remains. If human remains are discovered or suspected the operator shall suspend operations immediately, physically guard the area, and notify BLM immediately. Direct or indirect impacts to cultural resources are not anticipated to occur from implementation of the Proposed Action or Alternatives. All gather sites and temporary holding facilities would be inventoried for cultural resources prior to construction. The CYFO archeologist would review all proposed and previously used gather sites and temporary holding facility locations to determine if these have had a cultural resources inventory, and/or if a new inventory is required. If cultural resources are encountered at proposed gather sites or temporary holding facilities, those locations would not be utilized unless they could be modified to avoid impacts.

D. Invasive Non-Native Species

Direct impacts associated with the Proposed Action and Alternatives II, III, or IV include potential importation or transportation of new non-native species (noxious weeds), spread of existing noxious weed seeds and plant parts to new areas in the HMA, and increases in the size of existing noxious weed infestations. These impacts would potentially occur if contractor vehicles are carrying noxious weed seeds and plant parts when they arrive on site, or drive through existing infestations and spread seed into previously weed free areas, or if their livestock had been fed contaminated hay before arriving on site and the seeds pass through their digestive system. Only certified weed-free hay may be fed on public lands in Wyoming. The contractor together with the on site BLM representative would examine vehicles and hay for noxious weed seeds or plant parts, prior to initiating the gather. If noxious weed seeds or plant parts are found in hay or on vehicles, the hay would be removed from the area and the vehicles cleaned. Proposed trap sites and holding sites would be examined for the presence of noxious weeds prior to construction. If noxious weeds were found, the location of the facilities would be moved. Potential indirect impacts would be related to population size. The average population size for the median trial as projected by the population model (Appendix B) shows that Alternative III results in the lowest number of wild horses in 10 years. The model also shows that the projected population size in 10 years is increasingly higher for Proposed Action and Alternatives II, IV, and V (No Action). The action that results in the lowest population size would have the lowest potential for increasing the incidence of noxious weeds, while the largest population size would have the highest potential for increasing the incidence of noxious weeds. The potential increase in noxious weeds would be from increasing utilization levels and ground disturbance, from the Proposed Action thru Alternative V (No Action). Noxious weeds can increase with overuse of the range by grazing animals, or surface disturbance. Maintenance of healthy populations of native perennial plant species minimizes the

establishment of invasive, non-native weeds.

Implementation of Alternative V (No Action) would allow impacts to vegetation and soils to increase each year that a gather is postponed, and utilization levels would continue to be in excess of objectives. Noxious weeds can increase with overuse of the range by grazing animals or surface disturbance, which would be a negative impact to the environment.

E. Special Status Species

Direct impacts associated with the Alternatives I, II, III, or IV would consist primarily of disturbance by the low-flying helicopter. The Proposed Action or Alternatives II, III, or IV would not occur during the strutting, nesting or brooding period for sage grouse. Sage grouse may be displaced in their winter use area as wild horses are herded to temporary traps located outside of identified sage grouse habitat. These impacts would be temporary, with a short duration, and minimal. Temporary gather site(s) and temporary holding facilities will be located appropriate distances from key sage grouse habitat, to avoid adverse impacts to habitat, in conformance with the Draft Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Wyoming (2001). Such temporary facilities sites would also be field checked to insure that any special habitat features for Special Status species would be avoided and any potential affects from gathering activities would be avoided or minimized**.** Based on the timing of the horse round up for the McCullough Peaks Wild Horse Herd Management Area, it is unlikely that any of the indicated species would be affected by horse herd management activities.

Indirect impacts would be related to wild horse population size. Reduction of the current wild horse population provides the opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. Implementation of Alternatives I (Proposed Action), II, III, or IV would result in a positive impact to special status species by creating a diverse vegetative structure through improvement and maintenance of healthy populations of native perennial plants. Implementation of the Proposed Action would provide the greatest opportunity for the improvement of vegetative communities. The opportunity for improvement decreases for each successive alternative. Implementation of Alternative V (No Action) would allow impacts to vegetative communities to increase each year that a gather is postponed, which would be a potential negative impact to special status species.

F. Vegetation

Direct impacts associated with the Proposed Action and Alternatives II, III, or IV would consist of disturbance to vegetation and soils immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic; hoof action as a result of concentrating horses, and could be locally severe in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. In addition, most gather sites and holding facilities would be selected to enable

easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the cumulative effects of these impacts.

Indirect impacts would differ among the alternatives. Implementation of the Proposed Action and Alternatives II, III, or IV would reduce the current wild horse population and provide the opportunity for the vegetative communities to progress toward achieving a thriving natural ecological balance. Reduced concentrations of wild horses would contribute to the recovery of the vegetative resource. Utilization levels by wild horses would be reduced, which would result in improved forage availability, vegetation density, increased plant vigor, seed production, seedling establishment, and forage production over current conditions. Population modeling (Appendix B) completed for the Proposed Action and Alternative II found that the average median population size over 10 years is projected to be 155 and 173 wild horses, respectively. This indicates that the population of wild horses would not exceed their carrying capacity until 2007. Population modeling (Appendix B) completed for the Alternative III and IV found that the average median population size over 10 years is projected to be 132 and 137 wild horses, respectively. This indicates that the population of wild horses would not exceed their carrying capacity until 2009. The implementation of the Proposed Action and Alternatives II, III, and IV would provide opportunity for a positive impact to vegetation and soils resources.

Implementation of Alternative V (No Action) would allow impacts to vegetation and soils to increase each year that a gather is postponed, having a negative affect on vegetation and soils. Utilization levels would continue to be in excess of objectives, and progression toward achieving a thriving natural ecological balance would not be possible.

The proposed action or alternatives would not directly impact water quality, wetlands or riparian zones within the project area, with the exception of some wild horses crossing streams or springs as they are herded to temporary gather sites. This impact would be temporary and relatively short term in nature. Gather sites and temporary holding facilities would not constructed on wetlands or riparian zones.

Indirect impacts would be related to population size. Population modeling completed for the Proposed Action and Alternatives found that the average median population size increased from Alternative III (lowest number) thru Alternative V (highest number). Reduction of the population from current levels would decrease competition for available water sources, which should lead to a reduction in hoof action around unimproved springs, improvement in stream bank stability, and improved riparian habitat condition. Implementation of the Proposed Action would provide the opportunity for the greatest improvement of riparian habitats and water quality. The opportunity for improvement decreases for each successive alternative. Implementation of Alternative V (No Action) would allow impacts to riparian habitats and water quality to increase each year that a gather is postponed.

G. Wilderness Study Area (WSA)

The Proposed Action and Alternatives II, III, and IV meet the non-impairment criteria as helicopter use is temporary use, causes no surface disturbance, and requires no reclamation. The use of a helicopter to gather wild horses is specifically allowed in handbook H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review (page 43). There would be a short-term impact on solitude for any visitors who are present in the WSA while the helicopter is being used. The time frame involved is very limited. Removal of excess wild horses would help to protect the vegetative cover within the WSA and would be beneficial for the wild horses which remain in the area.

Under the No Action alternative there would not be any direct impacts to the WSA as a result of not conducting the gather. However, as increasing numbers of horses require additional range, most of the impacts described above would also begin to occur in the WSA. The previously described impacts to vegetation, wildlife, wildlife habitat, and watershed function would have a detrimental effect on the WSA's ecosystem. Also, the deteriorated habitat would negatively impact opportunities for primitive and unconfined recreation.

H. Recreation and Visual Resources

Under the Proposed Action and Alternative II, III, and IV, maintaining wild horse populations at established AML's guarantees the opportunity for the public to view wild horses in a wild and free-roaming state. Although there would be fewer horses to view, the remaining horses would be in better condition than under the No Action Alternative. Additional recreational opportunities would be provided by wild horse adoption and adoption events. Adoption of wild horses provides the opportunity for a more in-depth, up-close, and long-term recreational experience for interested and qualified members of the public. Since wildlife and wildlife habitat benefit from the removal of excess horses, there is a beneficial effect for recreationalists who view game and non-game species and those who hunt.

Under the No Action Alternative, short-term impacts to recreationists observing wild horses on the range would be positive, as there would be more horses in more places. However, over time, the condition of the wild horses would decline, as would the habitat. Increases in wild horse numbers would likely mean a decline in the opportunity to enjoy wildlife-related consumptive and non-consumptive recreation. There would be no opportunity to adopt a wild horse from this area.

V. Cumulative Impacts

Cumulative impacts are impacts on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively major or problematic actions taking place over a period of time.

Past, proposed and reasonably foreseeable actions that may have similar effects to the McCullough Peaks HMA wild horse population would include past wild horse gathers and future wild horse gathers. Five gathers have been completed in the past, and future gathers would be scheduled according to a 4-5 year gather cycle. Over time, as wild horse population levels are maintained in an acceptable management range, a thriving natural ecological balance would be achieved and maintained. Cumulative effects that may result would include continued improvement of the range condition, and riparian-wetland condition. Cumulative beneficial effects from the implementation of Alternatives I, II, III, or IV to wildlife, the wild horse population and domestic livestock would occur as forage availability and quality is maintained and improved. Water quality and riparian habitat would also continually improve. The opportunity for cumulative beneficial effects decreases for each successive alternative.

Adverse cumulative impacts on natural resources would occur depending on which alternative is selected. Adverse cumulative impacts would include periodic over utilization of vegetative resources, which would result in decreased vegetative density, plant vigor, seed production, seedling establishment, and forage production. This may result in periodic decreases of the ecological status of plant communities.

Adverse cumulative impacts on natural resources for Alternative V, No Action, would include continued over utilization of vegetative resources which would result in decreased vegetative density, plant vigor, seed production, seedling establishment, forage production, and a potential increase of non-native species to new areas in the HMA. Continued over use of the vegetative community would result in a loss of ecological status of the plant communities which may take decades to restore. Decreased vegetative density would result in an increase of bare ground, which may lead to increased erosion, increased negative impacts to stream banks and riparian habitat condition. A petition has been filed with the U.S. Fish and Wildlife Service to list sage grouse as an endangered species. With continued over use on upland sage grouse habitat, a negative adverse cumulative impact to this species would occur. Wildlife, migratory birds, and wild horses would all be negatively affected by these adverse cumulative impacts to natural resources.

Other reasonably foreseeable actions within the affected area include the potential designation by Congress of the McCullough Peaks Wilderness Area which may influence the AML or timing of future gathers, as well as, permitted livestock grazing, mining,

range improvements, and vegetation monitoring. Because other activities within the potentially affected area are generally isolated from each other and from the Proposed Action and Alternatives, whether by distance or by topography, the potential for cumulative impact on most of these identified resources is minimal.

Based upon these considerations, the effects of other existing and reasonably foreseeable future activities including Alternatives I, II, III, or IV, would not cause a major affect to the environment. Alternative V, No Action, may cause a major impact to the environment.

There would be no known adverse cumulative impacts to any of the resources analyzed in this document as a result of the Proposed Action. There would be minor adverse cumulative impacts from implementing Alternatives II, III, or IV, primarily to vegetation, soils and riparian habitat. Cumulative impacts would increase for each successive alternative. Adverse cumulative impacts to vegetation, soils and riparian habitat would occur as a result of selecting Alternative V, No Action.

VI. Consultation and Coordination

The Bureau of Land Management is responsible for obtaining public input on proposed actions within the wild horse program. A public scoping meeting was held on December 12, 2002. to solicit comments from interested parties.

In accordance with 43 CFR 4740.1(b), a formal statewide hearing regarding the use of helicopters for the roundup of wild horses in Wyoming was held July 8th 2004 in Lander, Wyoming. The public was provided an opportunity to discuss concerns and questions with BLM staff.

A letter was sent notifying interested groups and individuals that an Environmental Assessment for the McCullough Peaks Herd Management Area Gather Plan and Fertility Control Implementation Plan is available on the Wyoming BLM website for review and comment.

VII. List of Preparers/Reviewers

Patricia L. Hatle, CYFO
Alan Shepherd, BLM, WY State Office
Ron Hall, BLM, NPO, NV
Linda Coates-Markle, BLM, MT State Office
Susie Stokke, BLM, NV State Office
Don Ogaard, BLM, Worland
Shirley Bye-Jech, CYFO – recreation/VRM/WSA
Stephanie Sironen, CYFO - NEPA
Dennis Saville, CYFO - wildlife
Jim Chase, CYFO - archaeology
Jack Mononi, CYFO - range
Jerry Altermatt, WY G&F Dept.
Dr. Al Kane, APHIS
Susan Hahn, USGS-BRD
Jason Ransom, USGS-BRD
Dr. Francis Singer, USGS-BRD

VIII. References Cited:

BLM. Wyoming State Office, (2001) Draft Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Wyoming. 39pp.

Coates-Markle, L (2000) Summary Recommendations, BLM Wild Horse and Burro Population Viability Forum April 1999, Ft. Collins, CO. Resource Notes 35: 4 pp.

Kirkpatrick, J.F., R. Naugle, I.K.M. Lui, J. W. Turner Jr., M. Bernoco (1995) Effects of Seven Consecutive years of PZP Contraception on Ovarian Function in Feral Mares, Biology of Reproduction Monograph Series 1: Equine Reproduction VI: 411-418.

Singer F.J., Zeigenfuss L., (2000) Genetic Effective Population Size in the Pryor Mountain Wild Horse Herd: Implications for conserving genetics and viability goals in wild horses. U.S. Geologic Survey, Midcontinent Ecological Science Center, Ft. Collins CO. Resource Notes 29: 2 pp.

Turner Jr , J.W., I.K.M. Lui, Rutberg, A., J.W., Kirkpatrick, (1997) Immunocontraception Limits Foal Production in Free Roaming Feral Horses in Wyoming, J. Wildl. Manage. 61 (3):873-880.

ZooMontana (2000) Wildlife Fertility Control: Fact and Fancy. ZooMontana Science and Conservation Biology Program, Billings, MT.

APPENDIX A

SUMMARY OF FERTILITY CONTROL METHODOLOGY
Specific to McCullough Peaks HMA

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 annual booster dose to confer infertility for one breeding season. 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 McCullough Peaks HMA 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.

II. PARTICIPANTS

Project Manager:	Patricia L. Hatle, Wild Horse and Burro Specialist, CYFO, BLM
Horse Identification:	Field-trained and experienced Susan Hahn, Seasonal Employee, USGS, BRD Ada Inbody, Seasonal Volunteer, USGS, BRD Phyllis Preator, Seasonal Employee, USGS, BRD
Vaccine Preparation:	Robin Lyda, The Science and Conservation Center, ZooMontana, 2100 South Shiloh Road, Billings, MT 59106
Designated Vaccine Handlers	Jay F. Kirkpatrick, Kim Frank and Robin Lyda, The Science and Conservation Center, ZooMontana, Billings, Mt. Dr. John Turner Medical College of Toledo, Ohio Ron Hall, NPO, BLM
Research Oversight:	Linda Coates-Markle, BiFO, BLM Francis Singer, USGS, BRD Jason Ransom, USGS, BRD Dr. Al Kane, APHIS
Contract Veterinarian:	Lyle Bischoff, DVM, Powell Veterinary Service 522 S. Division, Powell, WY 82435

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 has developed a long-term research strategy for the Wild Horse and Burro Program. A final draft of the 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 is identified as a high priority and directions are provided in the National Wild Horse Fertility Control Field Trial Plan (FCFTP) (Singer and Coates-Markle, 2002). The implementation of additional fertility control field trials, under this research protocol, began in the summer 2002.

The proposed action would adhere to all guidance and research protocol set by the oversight documents. The intent of this research is to answer those remaining questions and concerns about fertility control using PZP that are best answered on free-ranging populations in the wild. The plan details protocols for injections, experimental design, and research methods that will be employed to evaluate effects of PZP on free-ranging animals. The research focuses on the effects of immunocontraceptive treatment on seasonality of foaling, any possible compensatory reproduction of mares post-treatment, duration of estrus cycles, population growth rates, and harem behavior. The behavior and fertility of the treated mares will be studied both during the treatment phase, and for a minimum of two years post-treatment to assure that a return to normal fertility occurs.

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 Wyoming 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 USGS-BRD field personnel. Approximately 40 released mares will be treated within the herd. The number and identity of animals would be selected on the basis of age and social structure as per the Environmental Assessment (EA) Alternative 1: Proposed Action. All animals selected for treatment would be female and at least one year old.

C. Delivery of contraceptive vaccine:

Target mares released back to the HMA would be treated with an immuno-contraceptive vaccine, Porcine zona pellucidae (PZP), administered by trained BLM personnel. The inoculation of mares would consist of a liquid dose of PZP vaccine and a time released portion of the drug in the form of pellets. The approach incorporates the PZP into a non-toxic, biodegradable material which can be formed into small pellets. The pellets are injected with the liquid and are designed to release PZP at several points in time much the way time-release cold pills work.

Delivery of the vaccine would be by means of jab stick syringe or dart with a 12 gauge needle or 1.5" barbless needle respectfully, 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 pellets would be placed in the barrel of the syringe or dart needle and would be injected with the liquid. Upon impact the liquid in the chamber would be propelled into the muscle along with the pellets. This formulation would be delivered as an intramuscular injection by a jab stick syringe, while mares are restrained in the working chute. This delivery method has been used previously to deliver immuno-contraceptive vaccine with acceptable results. Administration of this two-year vaccine to mares in late summer (before November) would be expected to be 94% effective the first year, 82% the second year, and 68% the third year.

D. Monitoring:

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.

The field trials will provide either three or four years of contraception to treated mares. Following three or four years of contraception, treated mares will be allowed to return to normal reproductive function. Their reproductive rates, behavior, and harem social structure will be observed for a minimum of two years post-treatment, to assure that normal fertility is resumed. The treated mares will be individually marked and/or be individually recognizable without error. The treated mares must be left on the range for the duration of the research, and are not likely to be treated again.

In May 2003, United States Geological Survey – Biological Research Division (USGS-BRD) biological technicians under the supervision of BRD research biologists began the field trial studies to assess effects on mare estrus, foaling, body condition, behavior, fitness and survival. Individual behavior, reproduction, survival, and any health abnormalities will be closely monitored in the individually recognized horses.

Mares in 7 or 8 harems were selected for intensive studies during the summer of 2003. Pretreatment data on harem dynamics, population dynamics, and behavior was collected in 2003

and will have been gathered for two consecutive years prior to contraception. Treated mares will be compared to untreated mares (controls) in the same harems. Multivariate models will include age of mare, year, weather, density-dependent relations, and compensatory responses. If possible, harems with no treated mares will also be observed.

As of August 1, 2004 USGS-BRD field technicians have identified and entered into WHIMS a total of 498 individuals as part of the field trial study. In conformance with the Fertility Control Field Trial Plan for Individual-Based Study Herds, individuals would be initially recognized from natural markings using a computerized photo ID system call WHIMS (Wild Horse Information Management System, USGS_BRD, Ron Osborne, Final report to BLM 1999). Records and any photos will be maintained at the field office and a copy of the completed PZP treatment form will be sent to the National Program Office (NPO), Reno NV and the WH&B Research Coordinator and BRD-USGS.

A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, the disposition of any unused PZP, and the number of treated mares by HMA, FO and State along with the freeze-mark applied by HMA. In the vast majority of cases, the released mares will never be gathered sooner than the mandatory three- year holding period. In those rare instances when, due to unforeseen circumstances, a treated mare(s) are removed from an HMA they will be maintain either in a BLM facility or a contracted Long Term Holding Facility until the expiration of the three- year holding period. In the event that it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three-year holding period, the animal may be placed in the adoption system**.**

Appendix B - Population Modeling

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. 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 - McCullough Peaks HMA

To complete the population modeling for the McCullough Peaks HMA, 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

Initial age structure for the 2003 herd was developed from age structure data collected during the 1999 McCullough Peaks HMA wild horse gather. The 1999 release data was combined with a data set developed for the estimated 14 animals not gathered in 1999. This data set was based on age structure data from the 1999-released population.

The following table displays the age structure for released animals, the estimated age structure for animals not gathered without age data, and the estimated post gather population for 1999.

Initial Age Structure 1999

Age Class	McCullough Peaks Released Animals – 1999		Typical Population for 10 Un-gathered animals and 4 studs missing age data*		McCullough Peaks Estimated Post Gather Population 1999	
	Females	Males	Females	Males	Females	Males
Foals	6	2	1	0	7	2
1	2	0	0	0	2	0
2	2	3	0	0	2	3
3	2	0	0	0	2	0
4	3	2	0	0	3	2
5	1	0	0	0	1	0
6	9	1	1	0	10	1
7	7	3	1	0	8	3
8	6	3	1	0	7	3
9	7	2	1	0	8	2
10-14	7	15	1	2	8	17
15-19	4	10	0	1	4	11
20+	3	7	0	5	3	12
Total	59	48	6	8	65	56

***** Data was estimated based on percentages of the 1999 released animals.
Post Gather (1999) Total = 121 Sex Ratio = 46% Males and 56% Females

The following table shows the proposed age structure will try to be achieved:

Proposed Initial Age Structure
Post Gather – 2004

Age Class	Percent of Population
<5	25%
5 – 9	55%
10+	20%

All simulations used the survival probabilities, foaling rates, and sex ratio at birth that was supplied with the WinEquus population model for the Garfield Range HMA (granites_berger.sin & granites_berger.fin). Survival and foaling rate data were extracted from, "Wild Horses of the Great Basin", by J. Berger (1986, University of Chicago Press, Chicago, IL, xxi + 326 pp.). They are based on Joel Berger's 6 year study in the Granite Range HMA in northwestern Nevada.

Survival probabilities and foaling rates utilized in the population model for five alternatives analyzed, including the Proposed Action and No Action Alternatives, and are displayed in the following table:

Survival Probabilities and Foaling Rates

Age Class	Survival Probabilities		Foaling Rates
	Females	Males	
Foals	.917	.917	0
1	.969	.969	0
2	.951	.951	.35
3	.951	.951	.40
4	.951	.951	.65
5	.951	.951	.75
6	.951	.951	.85
7	.951	.951	.90
8	.951	.951	.90
9	.951	.951	.90
10-14	.951	.951	.85
15-19	.951	.951	.70
20+	.951	.951	.70

The following is the sex ratio at birth was utilized in the population modeling for Alternatives I - V:

Sex ratio at Birth:

50% Males
50% Females

To date, one herd area has been studied using the 2-year PZP vaccine. The Clan Alpine study, in Nevada, was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% year one, 18% year two, 32% year three and 43% year four. This

data must be compared to normal fertility rates in untreated mares of 50/60% in most populations. The Clan Alpine fertility rate in untreated mares collected in September of each year by direct observation averaged 51% over the course of the study.
The following percent effectiveness of fertility control was utilized in the population modeling for Alternatives I and III:

Year 1: 94%

Year 2: 82%

Year 3: 68%

The following table displays the removal parameters utilized in the population model for Alternatives I, II, III, and IV:

Removal Criteria
(Alternatives I, II, III, & IV)

Age	***Percentages for Removals***	
	Females	**Males**
Foal	100%	100%
1	90%	90%
2	90%	90%
3	90%	90%
4	90%	90%
5	10%	10%
6	10%	10%
7	10%	10%
8	10%	10%
9	10%	10%
10-14	90%	90%
15-19	90%	90%
20+	90%	90%

The following table displays the contraception parameters utilized in the population model for Alternative I and Alternative III:

Contraception Criteria

(Alternatives I & II)

Age Class **(Mares)**	**Percentages for Fertility Treatment**
1- 4 yrs	100%
5 – 9	75%
10+	100%

Population Modeling Criteria

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

- Starting Year: 2003
- Initial gather year: 2004
- Gather interval: regular interval of three 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
- Percent of the population that can be gathered: 90%
- Minimum age for long term holding facility horses: 10 years old
- Foals are NOT included in the AML
- Simulations were run for ten years with 50 trials each

The following table displays the population modeling parameters utilized in the model:

Population Modeling Parameters

Modeling Parameter	**Alternative I** Proposed Action **(Remove to Middle & Fertility Control)**	**Alternative II** **(Remove to Middle & No Fertility)**	**Alternative III** **(Remove to Low & Fertility Control)**	**Alternative IV** **(Remove to Low & No Fertility)**	**Alternative V** No Action **(No Removal & No Fertility Control)**
Management by removal and fertility control	Yes	No	Yes	No	N/A
Management by removal only	No	Yes	No	Yes	N/A
Threshold Population Size for Gathers	140	140	140	140	N/A
Target Population Size Following Gathers	100	100	70	70	N/A
Gather for fertility control regardless of population size	No	No	No	No	N/A
Gathers continue after removals to treat additional females	Yes	No	Yes	No	N/A
Effectiveness of Fertility Control: year 1	**94%**	N/A	94%	N/A	N/A
Effectiveness of Fertility Control: year 2	**82%**	N/A	82%	N/A	N/A
Effectiveness of Fertility Control: year 3	68%	N/A	68%	N/A	N/A

Population Modeling Results - McCullough Peaks HMA

Population Modeling Results

Population size in ten years

Out of 50 trials in each simulation, the model tabulated minimum, average, and maximum population sizes. The model was run from 2004 to 2013 to 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.

Population Sizes in 11 years - Minimum

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	101	100	56	70	494
10th Percentile	101	101	71	70	502
25th Percentile	102	103	74	73	514
Median Trial	**106**	**108**	**78**	**76**	**532**
75th Percentile	114	114	81	80	565
90th Percentile	118	119	87	83	593
Highest Trial	125	123	89	91	801

This table shows that in eleven years and 50 trials for each alternative, the lowest number of 0-20+ year old horses ever obtained was 56 under Alternative III. Half of the trials were greater than the median and half were less than the median. Additional interpretation may be made by comparing the various percentile points. For example, for the Proposed Action, only 10% of the trials resulted in fewer than 101 wild horses as the minimum population, and 10% of the trials resulted in a minimum population larger than 118 wild horses. In other words, 80% of the time, one could expect a minimum population between these two values for the Proposed Action, given the assumptions about survival probabilities, foaling rates, initial age-sex distribution, and management options made for this simulation.

The Proposed Action (selective removal to mid point AML = 100 with fertility control) reflects the 2nd highest minimum population of all the alternatives. The simulation results for Alternative II (selective removal to mid AML = 100 without fertility control) are similar to Alternative I. The simulation results for Alternatives III (selective removal to lo AML = 70 with fertility control) and IV (selective removal to lo AML = 70 without fertility control) are both similar, but the lowest population totals fall below or at the low AML of 70. Alternative V (No Action) reflects the highest minimum population level of all of the trials.

None of the results obtained for any of the alternatives indicate that a crash of the population would occur if the alternative were implemented. The level to which the population is gathered (lower or mid limit of the management range/AML) appears to be more of an influence to the population size than fertility control.

The lowest population size ever obtained (56 head) is less than the lower level of the management range of 70 wild horses. However, for 90% of the time the simulation indicates that the population will be 87 head or more, which is slightly higher than the lower level of the management range. This occurs due to the assumptions made by the model, which include census accuracy, effectiveness of the gather, and mares that foal following the gather.

Population Sizes in 11 years - Average

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	143	157	126	136	1252
10th Percentile	147	161	137	150	1382
25th Percentile	150	165	140	152	1493
Median Trial	**157**	**171**	**143**	**159**	**1667**
75th Percentile	161	177	148	163	1911
90th Percentile	164	180	154	170	2176
Highest Trial	170	184	157	173	2356

This table displays the average population sizes obtained for the 50 trials run for each alternative. The average population size across eleven years ranged from a low of 143 wild horses under the Alternative III, to a high of 2356 wild horses under Alternative V (No Action).

Population Sizes in 11 years - Maximum

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	183	195	178	217	2411
10th Percentile	188	206	192	219	2746
25th Percentile	195	217	199	226	3228
Median Trial	**206**	**234**	**206**	**242**	**3632**
75th Percentile	214	250	214	266	4275
90th Percentile	226	264	218	284	5112
Highest Trial	240	272	226	305	5941

This table displays the largest populations that could be expected out of 50 trials for each alternative. The figures for the Lowest Trial represent what the population is likely to be in 2015. All figures are very similar under Alternatives I – IV because of the same starting population, and gather efficiency, etc., is assumed. The numbers vary due to randomness and assumptions inherent to the modeling program.

Average Growth Rates in ten years

Average growth rates were obtained by running the model for 50 trials from 2004 to 2014 for the proposed action and each alternative. The following table displays the results obtained from the model:

Average Growth Rate in 10 Years

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	10.2%	14.6%	13.1%	18.3%	14.7%
10th Percentile	12.5%	18.0%	13.9%	19.2%	18.1%
25th Percentile	13.3%	19.5%	15.3%	19.7%	19.4%
Median Trial	**15.8%**	**21.3%**	**16.7%**	**21.7%**	**21.4%**
75th Percentile	17.0%	23.2%	17.7%	23.3%	22.6%
90th Percentile	19.1%	25.0%	18.8%	24.9%	24.5%
Highest Trial	20.1%	25.1%	19.3%	28.3%	26.9%

As expected, the two alternatives implementing fertility control (Proposed Action and Alternative III) reflect the lowest overall median growth rate. For the median trial, the fertility control alternatives are 5.5% and 5.0% lower than the respective non-fertility control alternative. For the 10^{th} Percentile trial, the fertility control alternatives are 5.5% and 5.3% lower than the respective non-fertility control alternative. The lowest trial growth rate of 10.2% for the Proposed Action does not appear to be a direct result of the management options, but appears to reflect the random nature of the model and the ability to show extremes in possible outcomes. The one particular trial for this alternative that resulted in the low growth rate must be reflecting a "bad" year. The range of growth rates is a reasonable representation of what could be expected to occur in a wild horse population.

Totals in eleven years – Gathered, Removed and Treated

Totals in 11 Years -- Gathered

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	283	245	171	184	NA
10th Percentile	316	266	299	205	
25th Percentile	321	302	321	223	
Median Trial	**432**	**338**	**330**	**248**	
75th Percentile	486	372	354	308	
90th Percentile	504	399	365	381	
Highest Trial	528	414	510	419	

Totals in 11 Years -- Removed

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	75	165	65	127	NA
10th Percentile	105	174	94	149	
25th Percentile	115	202	112	158	
Median Trial	**140**	**228**	**123**	**174**	
75th Percentile	180	255	138	226	
90th Percentile	192	274	150	269	
Highest Trial	216	275	186	291	

Totals in 11 Years – Treated

Alternative	Proposed Action	II	III	IV	V
Lowest Trial	54	NA	37	NA	NA
10th Percentile	61		60		
25th Percentile	68		62		
Median Trial	**86**		**66**		
75th Percentile	97		76		
90th Percentile	106		84		
Highest Trial	110		108		

The number of horses gathered does not differ greatly between alternatives because gather criteria is the same for all alternatives. What does differ widely is the number of wild horses removed and treated under the different alternatives. The Proposed Action and Alternative II are similar in the number of animals removed, because each of these alternatives includes gathering to the target number of 100, which is mid AML. Similarly, Alternatives III and IV are also similar because they both include a target number of 70.

Population Modeling Summary – McCullough Peaks HMA

Population Modeling Summary

To summarize the results obtained by simulating the range of alternatives for the McCullough Peaks HMA wild horse gather, the original questions can be addressed.

- Do any of the Alternatives "crash" the population?

None of the alternatives indicate that a crash is likely to occur to the population. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely.

- What effect does fertility control have on population growth rate?

As expected, the two alternatives implementing fertility control (Proposed Action and Alternative III) reflect the lowest overall median growth rate. For the median trial, the fertility control alternatives are 5.5% and 5.0% lower than the respective non-fertility control alternative. The target size to which the population is gathered to (100 or 70 wild horses) appears to have minimal impacts to growth rates, as demonstrated by the growth rates being quite similar for the Alternatives II and IV (no fertility control alternatives).

- What effect do the different alternatives have on the average population size?

The level to which the population is gathered (lower or middle limit of the management range) appears to be more of an influence to population size than fertility control, as there are larger differences within the population minimums from the lower limit of the management range to the middle limit of the management range alternatives. It is clear that fertility control with a gather to the lower limit of the management range would produce the lowest minimum population, and no fertility control with a gather to the middle limit of the management range would produce the highest minimum population, for the four action alternatives. As expected, the No Action Alternative results in the highest minimum population.

- What effects do the different alternatives have on the genetic health of the herd?

The minimum population levels and growth rates are all within reasonable levels for the Proposed Action and Alternatives II, and V, therefore, adverse impacts to the population are not likely under these alternatives. Under Alternatives III and VI, the minimum population level falls below Dr. E. Gus Cothran's recommendation of "maintaining an average herd size of 100 adult horses" and may result in a loss of genetic variation. The drop in population numbers may have detrimental/adverse impact to the genetic viability of the herd, especially, if Alternative III (Selective Removal to lo AML = 70 and fertility control) was selected.

Appendix C
Objectives in the McCullough Peaks HMA

1985 HMAP OBJECTIVES

- *Improve all acreage that is in a downward range trend, as measured by monitoring plots in key areas, to at least a static or upward trend in 15 years.*
- *To maintain a healthy herd of 100 adult horses allowing a variation of plus 40 and minus 30 animals, through periodic removals*

1990 RMP/ROD OBJECTIVES

- *To maintain a viable herd that will maintain the free-roaming nature of wild horses in a thriving ecological balance.*
- *To provide opportunity for the public to view wild horses.*

RECLAMATION ALLOTMENTS OBJECTIVES in EVALUATION

Resource Goals, Standards and Objectives:

Cody Resource Management Plan (November 8, 1990)

Livestock Grazing Management

To improve forage production and ecological range condition for the benefit of livestock use, wildlife and watershed resources.

Wildlife Habitat Management

Maintain and enhance wildlife resources so that the forage production, quality of rangelands and wildlife habitat will be maintained or improved.

Watershed Management

Stabilize and conserve soils, increase vegetative production and to maintain or improve water quality.

Cultural and Paleontological Resources

Protect study and expand the interpretation of these resources.

Wild Horse Management

Maintain a viable herd in the McCullough Peaks WHHMA that will maintain the free-roaming nature of wild horses in a thriving ecological balance and to provide opportunity for the public to view wild horses.

1. ***Rangeland Program Summary Objective (September 19, 1991)***

Improve forage production and ecological range condition for the benefit of livestock use, wildlife, and watershed resource

3. *RMP as Amended Objective (July 21, 1999)*

"The livestock grazing management objective is to improve forage production and ecological range condition for the benefit of livestock use, wildlife, and watershed resources consistent with the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming."

RECLAMATION ALLOTMENTS OBJECTIVES

1. Short-Term Objectives

Utilization of herbaceous key species will average 40% in allotments entered prior to August 15 and 50% in allotments grazed after August 15. In riparian areas, utilization of key woody species will average 30%.

2. Long-Term Objectives

Upland Trend

Upland Transect I

1. Increase the present herbaceous foliar cover from 5% to 15%.
2. Increase present key grass species (AGSP, STCO, & ORHY) foliar cover from 10% to 20%.

Upland Transect II

1. Increase the present herbaceous foliar cover from 5% to 15%.
2. Increase present key grass species (AGSP, STCO & ORHY) foliar cover from 9.6% to 20%.

As long as significant progress is being made towards meeting either objective for Upland Transects I and II, changes in grazing management are not necessary.

Riparian Trend

Riparian Transect I

1. Increase the desirable herbaceous community types from the baseline 35% composition.
2. Decrease the undesirable herbaceous community type from the present 65% composition.
3. Decrease the woody species (TACH/Salt Cedar) from 17 plants to 0 plants in 5 years.

3. Sage Grouse Habitat Objectives

Sage grouse habitat evaluation and monitoring will be conducted in within the next 4 years. Objectives to maintain or improve grouse nesting and brood rearing habitat will be developed and any changes to grazing management will be implemented as needed to be consistent with grouse habitat objectives.

APPENDIX D

STANDARD BLM OPERATING PROCEDURES for WILD HORSE REMOVAL

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.

Additional personnel are being requested through the Wild Horse National Program Office (NPO) in Reno, to assist with field operations and on-the-ground technical assistance. Personnel to be provided will have extensive experience as project CORs, overseeing helicopter gather operations within the BLM Wild Horse and Burro Program.

1. Capture Methods That May Be Used in the Performance of a Helicopter Gather

a. 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 rough terrain, 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. It may take several days to move the band to a suitable trap site located outside the Wilderness Study Area.

The distance that animals must travel shall not exceed limitations set by the COR, who will consider terrain, physical barriers, weather, condition of the animals, as well as other factors. It is understood that the proposed action may cause some stress to the animals, however, the health and well-being of the gathered and captured horses is paramount during this scheduled operation. The responsibilities

for overseeing this operation lie with the designated COR and PI, as well as the Field Office Manager.

Several methods may be used to monitor the removal operations, including air to ground communications, observers on horseback or in vehicles, and/or placing stationary observers in strategic locations. Among other aspects, capture operations shall be monitored to ensure foals are not orphaned and left on the range. It will be standard practice to check for wet mares without foals or foals coming into the trap without a mare. This information will be relatively easy to verify due to the existence of a very current identification database for the population.

At least one saddle horse should be immediately available at the trap site to perform roping if necessary. Roping shall be done as determined by the Contracting Officer's Representative (COR) or Project Inspector (PI). Under no circumstances, unless an absolute emergency, shall animals be tied down.

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 be used to assist in the gather.

b. Helicopter Assisted Roping

Some capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. This will only happen if helicopter drive-trapping methods are proving unsuccessful and only under the express permission of the Field Manager.

Only under circumstances of extreme emergency, involving issues of horse safety and as determined by the COR/PI, shall horses be tied down.

Animals to remain on the range will be identified during the roping process and released immediately unless additional information is necessary on the individual. Only animals designated for removal from the range will be transported to the Herd Area sorting/holding facility.

Roping shall be performed in such a manner that bands will remain together. Foals shall not be left behind.

2. Other Non-Helicopter Capture Methods

a. Water Trapping

Although unlikely, water trapping may be used as an additional or alternative method of capture. This will only happen if helicopter drive-trapping methods are proving unsuccessful and only under the express permission of the Field Manager. This method involves setting up a trap around a well-used water source and employing a self-closing gate with a triggering device or finger gates. Finger gates can be used only with the prior approval and under the supervision of the COR/PI. It may be necessary to exclude access to other neighboring water sources to encourage use by the target population at the trap site. Water traps equipped with trip wires would be checked at least every 8 hours for trapped animals.

Animals to remain on the range will be identified at the trap site and released immediately unless additional information is necessary on the individual. Only animals designated for removal from the range will be transported to the Herd Area sorting/holding facility.

Animals shall be transported to Herd Area sorting/holding facility from temporary traps within a maximum of 8 hours after capture unless prior approval is granted by the COR/PI for unusual circumstances.

All exclosures constructed for the purpose of the gather would be flagged and highly visible to the horses, wildlife, and the public. The wires, twine, and flagging would be promptly removed following completion of the trapping.

All water traps and exclosures would be constructed (whenever possible) to accommodate wildlife access points. These points would be where wildlife could get to water by going underneath the panels, such as along trails, washes or low spots.

Placement of portable corral panels would be permitted during foaling season to allow wild horses to become accustomed to them.

b. Bait Trapping

Although unlikely, bait trapping using hay or other enticements may be used as an additional or alternative method of capture. This will only happen if helicopter drive-trapping methods are proving unsuccessful and only under the express permission of the Field Manager. This method would involve setting up a panel trap in an area accessible to the horses and feeding of enticements in the trap over a period of time to habituate the target animal to the bait. Once virtually all horses in an area were coming in to the bait, they would be trapped. Animals to remain on the range will be identified at the trap site and released immediately unless additional information is necessary on the individual. Only animals designated for removal from the range will be transported to the Herd Area sorting/holding facility. The principal limitation of this method is that forage must be limited or the bait must be more desirable than the surrounding forage.

3. Stipulations for Capture Efforts and Traps/Holding Facilities

All capture attempts shall be accomplished utilizing either helicopter-drive trapping, helicopter-roping, or bait trapping techniques and shall incorporate the following:

The Herd Area holding/sorting facility will act as the final destination for this gather effort. This holding/sorting facility is constructed of steel portable panels and will be covered with burlap (jute) and/or snow fence to enhance the visual barrier to horses. At this facility, there will be a separate holding facility for domestic horses, if needed, to alleviate the need for communal housing of wild and domestic horses.

The helicopter shall be used in such a manner that family bands will remain together. Foals shall not be left behind. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors. Given the ruggedness of the McCullough Peaks are terrain, it is recommended that the horses be given every opportunity to choose both rate and path of movement, in response to helicopter pressure.

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 inside. Trapped horses would not be held inside the traps for a period exceeding 8 hours, unless provided with feed (weed free hay) and water.

Animals to be released back into the HMA following gather operations must be so released as soon as feasible without interference to on-going gather efforts. In rare situations, animals may be held up to a maximum of 21 days or as directed by the COR/PI. Animals shall not be held in temporary traps and/or satellite holding facilities on days when there is no work being conducted except as specified by the COR/PI.

The Wyoming Game and Fish Department would be notified as soon as possible if any wildlife became injured during capture operations. Wildlife caught inside traps would be released immediately.

4. 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 that, 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. The Contracting Officer or his/her representative must approve all such replacements in advance of operation.

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

5. 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 Cody 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.

6. 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 apprised 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 that 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. Collection of gather fees and any appropriate trespass charges will be done at the time of change of possession. If animals are not redeemed by payment of trespass and capture fees by their owners, they will be sold at public auction.

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 is 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 necessary to protect the safety and health of the animals.

All additional, trap and holding facility locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and holding facilities not located on BLM land must have prior written approval of the agency and/or landowner.

Each general trap site will be selected by the COR/PI after determining the habits of the animals and observing the topography of the area. The Contractor, with the BLM's approval, within this general pre-selected area, may recommend site-specific locations. Trap sites will be located to cause as little damage to the natural resources of the area as possible. Sites will be located on or near existing roads, and will receive cultural, and/or threatened/endangered plant and animal clearances prior to construction.

Trap sites will be located to cause as little injury and stress to the animals. 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 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.

Temporary wings shall not be constructed out of barbed wire or other materials injurious to animals and must be approved by the COR/PI. Wings may be constructed along existing fence lines, at the discretion of the COR/PI, only if the barbed wire or other wire fencing material is removed from the fence posts and laid on the ground for the length of the wing, or if portable panels are placed along the inside of the fence to protect the animals from injury from fence wire. In this case, the panels

must then be covered with either jute or plastic snow fence to facilitate viewing and further reduce possible horse injury.

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. Runways may be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 6 feet above ground level for horses.

All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.

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

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

When holding facilities are used, and alternate pens are necessary to separate mares with small foals, animals which will be released, sick and injured animals, and estrays from the other animals or to facilitate sorting as to age, number, size, temperament, sex, and condition. Animals shall be gathered and sorted preferably by family band or, if this is not possible, by age number, size, temperament, sex, and condition. This is to minimize, to the extent possible, intrusive activity and injury due to fighting and trampling when in the holding facility.

In some cases, the Government will require that animals be restrained for determining an animal's age or for other purposes. In these instances, the Government will provide a portable restraining chute. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

The Contractor may be required to assist BLM personnel in the special handling of some animals before their release or transport. Such special handling may include, but is not limited to, de-worming, inoculations, blood-draws, and freeze branding.

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 8 hours or more in the traps or holding facilities shall be provided good quality hay (preferable grass/alfalfa mix) at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. This hay must be certified as weed-free. Due to unnecessarily high protein content, straight alfalfa hay is not acceptable.

Separate water troughs shall be provided at each pen where animals are being held. Water troughs

shall be constructed of such material 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 to alleviate the problem. When excessively muddy conditions occur within or adjacent to the trap or holding facility, the contractor shall be required to scatter wood shavings or straw to improve footing for reasons of safety. Operations will not take place when conditions are so wet that excessive and irreparable resource damage will occur.

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

The contractor/BLM shall restrain sick or injured animals if treatment is necessary. An APHIS or contract veterinarian may be called to make a diagnosis and final determination. Euthanasia 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 appropriate Instructional Memorandum.

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 or incurable disease or serious congenital defect;
c. Requires continuous treatment for relief of acute pain and suffering;
d. Incapable of maintaining a body condition rating above two, in a normal rangeland environment;
e. The animal is a danger to itself or others.

The Authorized Officer will determine if injured animals must be euthanized and provide for the euthanasia of such animals. The contractor/BLM may be required to dispose of the carcasses as directed by the Authorized Officer. State sanitation laws provide for the disposition of animal carcasses at the local landfill, but it is ecologically more appropriate for the carcasses to be subjected to natural decomposition on the range.

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

8. 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 of vertically. The rear door must be capable of opening the full width of the trailer. All panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of the trailer must be strong enough, so that the animals cannot push their hooves through the sides. Final approval of vehicles to transport animals shall be held by the Authorized Officer.

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

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

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

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

Communication lines will be established with personnel involved in off-loading the animals to receive feedback on how the animals arrive (condition/injury etc.). Should problems arise, gathering

methods, shipping methods and/or separation of the animals will be changed in an attempt to alleviate the problems.

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

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

9. 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.

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 sighting and construction of traps will avoid adverse impacts from trap sighting, construction, or operation to wildlife species, including threatened, endangered, or sensitive species.

10. Herd Health and Viability Data Collection

The following information will be collected form 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 research, 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 and diversity studies and as required by the Field Trial Plan for pregnancy testing.

On occasion, it may be necessary to enhance and maintain genetic diversity of the herd. In this situation, a few animals with compatible characteristics may be introduced from other neighboring HMAs. Introduced animals will be taken from areas with similar habitat and climate.

b. Immunocontraceptive Research

When the immunocontraceptive vaccine is used, trained individuals will conduct delivery of the vaccine, using approved delivery methods. The vaccine will be administered to 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. No public viewing during the gathering activities at the trap sites will be allowed. No public viewing during activities at the holding facilities will be allowed. All Agency personnel or other individuals must have prior approval from the CYFO Field Manager and WH&B Specialist before being allowed to photograph, take video footage, etc. at trap sites, the holding facilities or any activity involving wild horses associated with the gather.

The public must adhere to guidance from the agency representative and viewing must be prearranged. A media/public day will be selected in coordination with the Zone Public Affairs Officer.

11. Safety

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

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

All BLM personnel, contractors, and volunteers will wear protective clothing suitable for work of this nature. BLM will alert observers of the requirement to dress properly. BLM will assure that members of the public are in safe observation areas.

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

13. Responsibility and Lines of Communication

The Contracting Officer's Representative, (from the National Program Office), and Project Inspector from the Cody Field Office, have the direct responsibility to ensure the contractor's compliance with the contract stipulations.

The Cody Field Manager and the Assistant Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office and the Herd Area holding/sorting facility.

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

14. 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.