

United States Department of the Interior Bureau of Land Management

**Environmental Assessment
DOI-BLM-MT-C010-2009-35-EA**

**Pryor Mountain Wild Horse Range 2009 *Draft* Gather and
Population Management Plan
and *Preliminary* Environmental Assessment (EA)**

**U.S. Department of the Interior
Bureau of Land Management
Billings Field Office
5001 Southgate Drive
Billings, Montana 59101
Phone: 406-896-5013
FAX: 406-896-5281**

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation; rangelands; timber; minerals; watershed; fish and wildlife; wilderness; air; and scenic, scientific and cultural values.

BLM/MT/PL-08/12



**Pryor Mountain Wild Horse Range 2009 Gather
Population Management Plan
and Environmental Assessment (EA) MT-010-09-35**

TABLE OF CONTENTS

	<u>Page</u>
1.0 BACKGROUND INFORMATION.....	2
1.1 Introduction	
1.2 Location	
1.3 Need for the Proposal	
1.4 Relationship to Planning	
1.5 Issues	
2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.....	10
3.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES.....	13
3.1 Wild Horses	
3.2 Rangeland Health, Vegetation, and Soils	
3.3 Noxious and Invasive Plants	
3.4 Riparian/Wetland Areas and Surface Water Quality	
3.5 Wildlife, including Migratory Birds	
3.6 Special Status Plant and Animal Species	
3.7 Wilderness/Visual Resource Management	
3.8 Cultural and Paleontological Resources	
3.9 Recreation	
4.0 CUMULATIVE IMPACTS.....	27
5.0 MITIGATION and SUGGESTED MONITORING.....	30
6.0 CONSULTATION AND COORDINATION.....	30
7.0 REFERENCES CITED.....	32
8.0 APPENDICES.....	36

1.0 BACKGROUND INFORMATION

1.1 Introduction

The Bureau of Land Management (BLM) Billings Field Office (BiFO) proposes to gather, treat mares identified for retention with fertility control, and remove wild horses from the Pryor Mountain Wild Horse Range (PMWHR) and adjacent lands because it has determined excess wild horses are present on the range. The BLM has measured heavy utilization of vegetation forage species. The wild horse gather would also be conducted in coordination with the Custer National Forest to gather wild horses outside the PMWHR. The gather would begin in September, 2009 and continue until management objectives are met. The proposed action should prevent deterioration of the rangelands and help maintain a thriving natural ecological balance and multiple use relationships for several years. The method of capture would be helicopter drive-trapping using temporary traps of portable panels as well as trapping directly at Britton Springs Corrals. After capture in the trap, horses would be sorted on site and treated with fertility control or taken to the Britton Springs administrative site for sorting and application of fertility control. Treated mares and stallions identified for retention would be released; other wild horses would be prepared for adoption or sale.

This environmental assessment (EA) has been prepared to analyze the impacts associated with the BLM's proposal to remove excess wild horses and treat with fertility control.

An appropriate management level (AML) is the number of wild horses, determined through BLM's planning process, to be consistent with the objective of achieving and maintaining a thriving natural ecological balance (TNEB) and multiple-use relationship. The Pryor Mountain Herd Management Plan (HMAP, BLM-MT-PT-84-019-4321/June 1984) and the Billings Resource Area Management Plan (Sept. 28, 1984), established the initial stocking rate for the range at 115-127 wild horses. The AML was revised in July 1992 and set at 85-105 wild horses (MT-025-2-18). BLM's mandate, however, is to manage for healthy, self-sustaining herds on healthy rangelands. The habitat objectives in the HMAP are to manage for a slight upward trend in range health (HMAP, BLM-MT-PT-84-019-4321/June 1984). Cumulative impacts, including weather, drought, and grazing, have resulted in the current conditions (described later in this document).

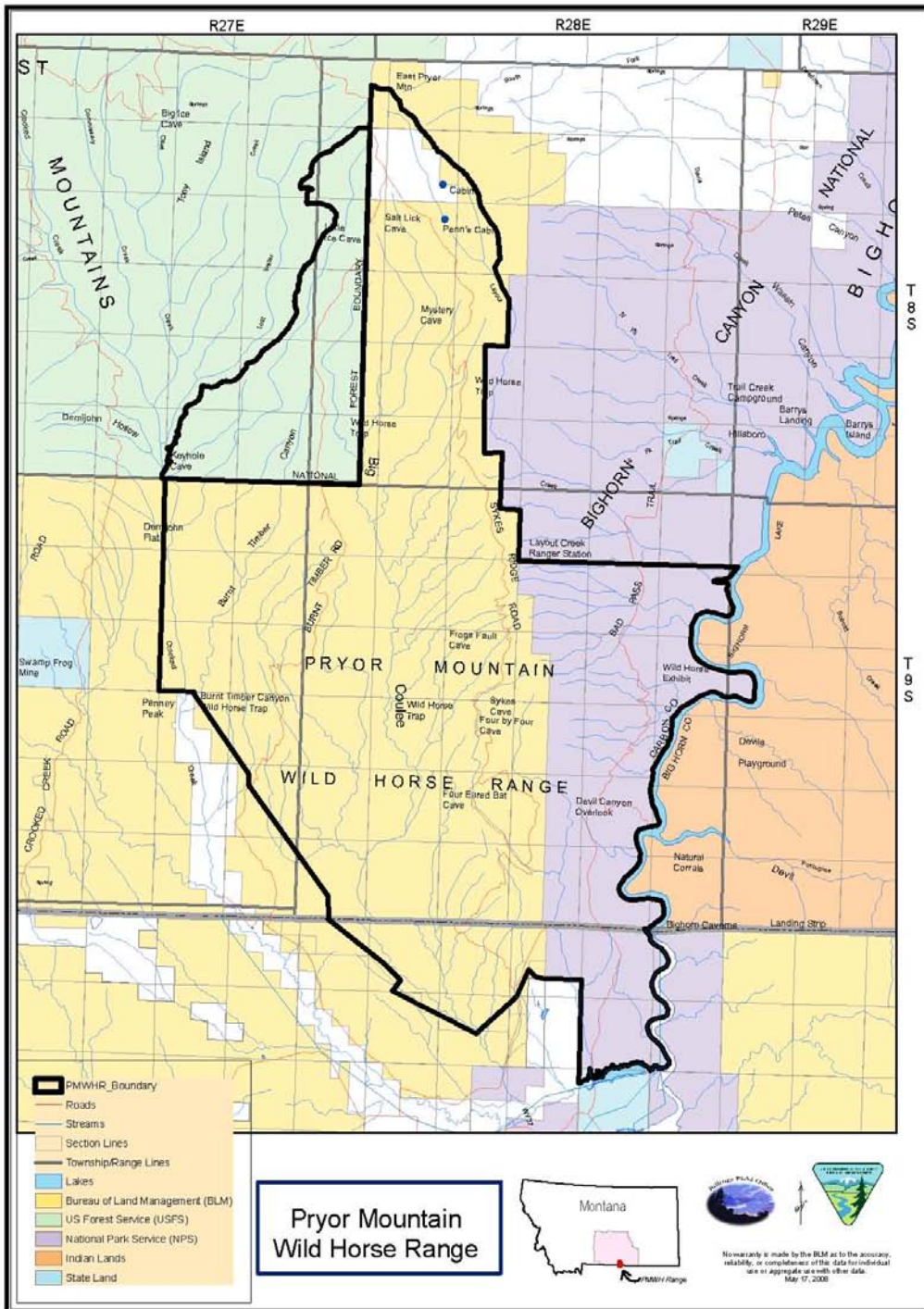
A gather operation was suspended in 2008 due to personnel availability. Excess wild horses were last gathered from the PMWHR in 2006 utilizing a bait trapping method. Previous to that, helicopter drive trapping was used in 1997, 2001, and 2003 (Coates-Markle 2006). Before helicopter drive trapping, gathers were conducted almost exclusively on horseback.

1.2 Location

The project area is located in southeastern Carbon County, Montana, and northern Big Horn County, Wyoming, in the PMWHR and adjacent Custer National Forest lands. The area is approximately 50 to 70 miles south of Billings, Montana, and 10 miles north of Lovell, Wyoming. Elevations range from 3,850 feet to 8,750 feet above sea level. Annual precipitation varies with elevation with six inches at the lower elevations to upward of 20 inches at the higher elevations. Plant communities also vary with elevation and due to precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches) to 20 to 40 inches deep depending on location. Water is limited to five perennial water sources within the PMWHR.

Most of the area managed as the PMWHR was created by order of the Secretary of the Interior Stewart L. Udall on September 9, 1968. At that time, the PMWHR encompassed 33,600 acres of BLM and National Park Service (NPS) lands in Montana. In 1969, an adjustment occurred through an additional Secretarial Order adding 6,400 acres of lands within Wyoming. In December 1971, the Wild Free-Roaming Horses and Burros Act became law. The management and protection of all unclaimed wild horses and burros was delegated to the Secretaries of the Interior and Agriculture. The BLM and Forest Service were charged with administering the Act. In 1974 and 1975, the range was expanded pursuant to authority contained in the Wild and Free-Roaming Horses and Burros Act. A joint Forest Service and BLM decision was reached in the 1974 *Pryor Mountain Complex Land Use Decision and BLM Pryor Mountain Complex Management Framework Plan* which analyzed where wild horses were found at the time of the passage of the Act. This joint assessment was based on public involvement, comprehensive inventories, and recommendations from agency specialists. The 1974 joint decision allowed wild horses to be managed within the Lost Water Canyon area (Forest Plan Management Area Q), the Mystic Allotment area, Lower Crooked Creek, and Upper Crooked Creek (BLM). Adjustment to the range occurred in 1984, with the temporary inclusion of the Sorenson Extension (using two five-year special use permits) from the Bighorn Canyon National Recreation Area (BCNRA) and closure of the administrative pastures. In 1990, the last adjustment occurred when the Sorenson Extension was not reauthorized by BCNRA. This resulted in the present boundary which encompasses more than 38,000 acres (see Map 1).

Map 1. Pryor Mountain Wild Horse Range



1.3 Purpose and Need

The purpose and need of the proposed action and alternatives is to manage for a thriving natural ecological balance (TNEB) over the next several years. This would be achieved by gathering the majority of the population, removing excess wild horses on the PMWHR and adjacent lands, balancing the sex ratio and treating the majority of the mares to be released after capture with fertility control vaccine. This determination was made by correlating census data with vegetation monitoring data to determine the level of wild horse use. The data from the NRCS Survey and Assessment and 2008 PMWHR Evaluation shows that the PMWHR does not have the capacity to sustain the current wild horse population over the long term that is conducive to healthy rangelands or ecological conditions. The Proposed Action and alternatives in this EA is needed to restore wild horse herd numbers to levels more consistent with a thriving natural ecological balance and to remove or relocate wild horses from areas outside the PMWHR. The proposed action would help to achieve a thriving natural ecological balance while maintaining multiple use relationships.

Since 1996, the Pryor Mountain wild horse herd has averaged 160 horses. March and April of 2009 aerial census showed the Pryor herd consisted of at least 186 wild horses with an estimate of up to 195 wild horses, excluding the current foal crop. Thirty-nine (39) of those wild horses are perpetually residing outside the PMWHR. The Natural Resource Conservation Service's (NRCS) *Pryor Mountain Wild Horse Range Survey and Assessment* (2004) and the *Interagency Pryor Mountain Wild Horse Range Evaluation* (February 2008) documented the occurrence of resource damage in the low elevation desert areas and sub-alpine meadows of the PMWHR (see Photo 1). Such resource damage is likely to continue unless immediate action is taken. In 2007, a shift toward a downward trend in ecological condition was documented for the low elevation areas of BLM and NPS lands. Heavy forage utilization continues to be documented in the same areas.



Photo 1. Severe utilization Turkey Flat 2008

The 2008 evaluation recommended an AML of 92 to 117 wild horses (excluding the current year's foal crop). The PMWHR Herd Management Area Plan analyzed an AML of 90-120. The recommendation was based upon carrying capacity calculations computed from the comparison of census data with measured utilization with a desired utilization of 45 percent. The evaluation also affirms that the existing AML of 85-105 horses is still appropriate.

The area has experienced years of drought with only four of twelve years having above average precipitation levels (PMWHR Evaluation 2008, Western Regional Climate Center). Excess wild horses were allowed to remain on the PMWHR during drought years, thereby magnifying the deterioration of the range that otherwise would have occurred at a slower rate. Removing both the excess wild horses from the PMWHR and horses from areas outside the PMWHR and applying fertility vaccine is necessary to restore and maintain a thriving natural ecological balance, prevent deterioration of the range, and maintain the multiple use relationships.

1.4 Relationship to Planning

The proposed population management is in conformance with Billings Resource Management Plan Final EIS (1984) Record of Decision (ROD) objectives to manage for a balance between a healthy population of wild horses and improvements in range condition, wildlife habitat, and watershed condition.

The Pryor Mountain Wild Horse Range Herd Management Plan (BLM-MT-PT-84-019-4321/June 1984) and July 1992 revision (MT-025-2-18), provide the authority to manage the horse herd at an established (AML) and make management decisions on the basis of animal type, conformation, color, age, sex, location and free-roaming behavior. The plan directs that management of wild horses be within a balanced program that considers all public values without impairment to the productivity to the land.

The new Pryor Mountain Wild Horse Range Herd Management Area Plan (MT-010-08-24 May 2009). Analyzed and documented the need to manage wild horses between 90-120 wild horses.

The BLM, Custer National Forest (USFS), and the Bighorn Canyon National Recreation Area (NPS) in 2005 signed a Memorandum of Understanding (MOU) to establish mutual goals and objectives relating to the management of the PMWHR. The agencies agreed that the primary goal with respect to management of the PMWHR is:

“Wild horses are to be managed as free-roaming, self-sustaining populations of healthy animals in a manner that is designed to achieve and maintain a thriving natural ecological balance in keeping with the multiple use management concept for public lands.”

The proposed action is in conformance with the Wild Free-Roaming Horses and Burros Act of 1971 (PL 92-195 as amended) and with all applicable regulations at 43 CFR (Code of Federal Regulations) 4700, and policies outlined by BLM and USFS. The BLM is the lead agency for

coordinating and implementing wild horse management in the Pryor Mountains.

The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) as amended, Section 1333 (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).” According to 43 CFR 4700.0-6, “Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.”

Wild horse management is limited to areas inhabited by wild horses at the time of passage of the Act (December 1971). Wild horses that have drifted outside the boundaries of the PMWHR would be removed in accordance with public land laws, rules, regulations, and policy. Management of wild horses “shall be undertaken with the objective of limiting the animals' distribution to herd areas,” which is the “geographic area identified as having been used by a herd as its habitat in 1971” (43 CFR-4710.4 and 43 CFR 4700.0-5).

1.5 Issues

On November 19, 2007 the PMWHR Draft Evaluation was issued for public review and comment. The evaluation process did not establish new goals or objectives but rather determined if current uses were in conformance with existing decisions and objectives established in the Billings RMP (1984), Custer National Forest Plan (1987), Bighorn Canyon National Recreation Area laws and policies, and the Pryor Mountain Herd Management Area Plan (1984, 1992).

The BLM asked interested parties to review the draft evaluation and provide additional relevant data, information, or analysis that could be used to measure progress toward meeting established objectives. The public was also asked to provide technical recommendations for meeting or making progress toward decisions and objectives. Two parties provided data that was incorporated into the evaluation. Eighty-seven parties provided comments and/or technical recommendations for management of the PMWHR. Four parties provided separate interpretations of the analysis for calculating the AML. The comments were incorporated into the Final Pryor Mountain Wild Horse Range Evaluation (February 2008).

The public's comments on the PMWHR Evaluation were used to identify issues related to the potential effects of the proposed action. An issue is an unresolved conflict or public concern over a potential effect on a physical, biological, social or economic resource as a result of the proposed action and alternatives to it. An issue is not an activity; rather, the projected effects of the proposed activity create the issue (cause and effect). The following issues have been identified at this time:

Issue: Ecological Condition

Deteriorating range and forest conditions associated with past management practices have led to

the current situation on the ground (2008 PMWHR Evaluation). The BLM is prohibited from allowing a “deterioration of the range associated with an over-population” as described in the Wild Free-Roaming Horses and Burros Act as amended section 1333 (2) (iv). The NPS is also mandated to manage sustainable lands. The proposed action and alternatives were developed in order to rectify this deficiency.

Issue: Appropriate Management Level (AML)

AML is based upon the carrying capacity of the habitat as identified by the Wild and Free-Roaming Horses and Burros Act. The BLM can only establish an AML based upon the carrying capacity of the land together with the consideration of preserving multiple use relationships. Establishing an AML is not intended to be a one-time determination but rather an adaptive process in which adjustments can be made based upon environmental changes and management needs. Establishing an AML is a separate process that is not typically completed as part of a wild horse gather. In order to manage for a herd number other than AML, the BLM is required to analyze the effects through the land use planning process.

Issue: Genetic Viability

BLM interpreted this issue to mean a concern for wild horse health. The issue is being addressed in that context.

Minimum viable population (MVP) size is a moving target. Part of the hypothesis behind MVP is that populations are not manipulated by human intervention, and it is generally about 200 years before a population is at risk due to a loss of genetic variation. A minimum effective population size for mammals (N_e) is sometimes identified as one-third of individuals within a population, but a true N_e is the total animals actually breeding. Scribner, Meffe, and Groom (2006) in “Principles of Conservation Biology” state, “While the loss of genetic diversity is a concern, it is important to recognize that the rate of loss is usually slower than the time frame in which management actions can occur.”

Small isolated populations tend to be at a higher level of risk associated with random events; small populations living on poor or degraded habitats are at an even higher risk because they lack the nutrition necessary to withstand these events. Managing wild horses in a manner designed to maintain a thriving natural ecological balance within the productive capacity of the habitat is mandated by the Act.

Research with domestic breeding animals has shown that reduced genetic diversity and inbreeding may result when less than 50 breeding adults are contributing to the next generation (Soule, 1980). This effective genetic population size is a difficult number to determine. PMWHR baseline genetic diversity has been determined by the analysis of blood samples collected during gathers in 1991, 1994, 1997 and 2001. According to these studies (Cothran, 2002; Cothran and Singer, 2000), *current levels of genetic diversity within the Pryor Mountain herd are relatively high for a wild horse population, are well above the mean for domestic breeds, and have been steady during the period of the studies.* Any significant loss of diversity over time can be detected by evaluating an inbreeding coefficient which measures observed

diversity in the herd in comparison to what might be expected. Presently, there is no evidence of inbreeding in the Pryor herd (Coates-Markle, 2006).

In the past, BLM has managed the herd to conserve the core breeding component, removing only younger animals for the adoption program. The latter is consistent with the National selective removal policy for the BLM Wild Horse and Burro program. In addition, fertility control has been applied only temporarily to younger mares that have not yet entered the breeding stage or older mares that have already contributed to the genetics of the herd.

In addition to maintaining the core breeding age horses within the herd, there are other management strategies that could sustain diversity including: skewing the sex ratio in favor of males (increasing the number of breeding males) and introducing one or two young mares from outside the herd every generation (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999).

Issue: Range Expansion

Wild horses can only be managed on areas of public lands where they were known to exist in 1971, at the time of the passage of the Act. Under section 1339 “Limitation of authority” the Wild Free-Roaming Horses and Burros Act of 1971 states “Nothing in this Act shall be construed to authorize the Secretary to relocate wild free-roaming horses or burros to areas of the public lands where they do not presently exist.” Designation of where wild horses will be managed is made in resource management plans and forest plans. Therefore, this issue is beyond the scope of the purpose and need. There are some areas currently closed to wild horse use that could potentially be opened in a resource management plan. These areas include the Administrative Pastures and Crooked Creek Natural Area. The acquisition or lease of private lands could also be pursued and areas within Bighorn Canyon National Recreation Area could be added to the PMWHR. However, there is no current proposal to open the Administrative Pastures or Crooked Creek Natural Area, and there is no proposal to acquire or lease private lands or to use additional areas within the BCNRA. Currently the Forest Service is under litigation regarding this issue.

2.0 DESCRIPTION of PROPOSED ACTION and ALTERNATIVES

2.1

In order to achieve a thriving natural ecological balance the BLM proposes to maintain the wild horse population 120 adults. Sex ratios would be balanced, bloodlines would be preserved, and rare colors would be preserved. Genetic samples would be taken from any wild horse born after 2001 via hair samples. Mares returned to the range which have previously foaled would be treated with the 22 month PZP pellet. Mares returned to the range which have not had a foal would not be treated during the gather operation but could be treated via remote darting at a later time. Starting on year two mares would start receiving boosters remotely via darting. New mares would be added to the treatment based upon survival rates of the herd, population levels and demographics in accordance with the proposed HMAP. The gather operation itself would be conducted identical to the proposed action.

The gather would most likely be conducted in September 2009. Multiple trap sites would be used to capture the wild horses. The traps would consist of portable panel pens with jute wings. A helicopter would be used to herd horses to the trap, into the wings where a “prada” horse would be released in front of the wild horses to guide them to the trap. When a band of horses or individuals enters the trap, the gate would be closed by the BLM contractor or BLM personnel. Animals identified for removal would be sorted at the trap site or transported to Britton Springs and sorted. Every effort would be made to keep individual bands intact during capture, and handling. Animals not identified for removal would be released back onto the range. Any mares identified for fertility treatment would be treated at the trap or Britton Springs prior to release.

The current sex ratio is at 65% female to male; therefore in order to balance the sex ratio in conformance with the PMWHR HMAP which states “maintain a sex ratio between 50% and the present 62% females” and the Billings RMP/EIS Record of Decision states “this action would require altering the sex ratio so that it is heavier to studs” for the entire herd, the removal sex ratio would be approximately 60 percent females and 40 percent males. This action would balance the sex ratio at 50 percent females to 50 percent males..

During gather activities, BLM personnel or BLM volunteers would record data for the captured horses including sex, age and color; and assess herd health (pregnancy/parasite loading/physical condition/etc), and sort horses by age and sex. Selected animals would be returned to the range based on Pryor characteristics for the herd, and consistent with the following selection criteria of the BLM’s *Gather Policy and Selective Removal Criteria for Wild Horses* (Washington Office IM 2005-206):

a) Age Class Five Years and Younger: Wild horses five years of age and younger should be the first priority for removal and placement into the national adoption program.

b) Age Class Six Years to Fifteen Years: Wild horses six to fifteen years of age should be removed last and only if management goals and objectives for the herd cannot be achieved through the removal of younger animals.

c) Age Class Sixteen years and older: Wild horses aged sixteen years and older should not be removed from the range unless specific exceptions prevent them from being turned back and left on the range.

Multiple capture sites (traps) could be used to capture wild horses from the project area. Appropriate site-specific clearance and review for cultural resources and species of concern would be conducted at each trap site prior to set up. No trap sites would be set up in sage grouse leks, riparian areas, cultural resource sites, or sensitive plant species locations. Capture sites would be located in previously disturbed areas when possible. All trap sites, holding facilities, and camping areas on public lands associated with the gather operations would be recorded with Global Positioning System equipment, given to the weed coordinator, and then assigned for monitoring during the next several years for noxious weeds. All capture and handling activities (including capture site selections) will be conducted in accordance with Standard Operating Procedures (SOPs) Appendix II. Capture techniques would consist of the helicopter-drive trapping method and/or helicopter assisted roping from horseback.

2.2. No Action Alternative

Under this alternative, excess wild horses from the PMWHR and adjacent Custer National Forest lands would not be gathered and removed at this time. Direct management of the wild horse population in the Pryor Mountain Wild Horse Range and adjacent lands would be postponed. No progress toward meeting rangeland health standards would be made. Wild horse populations would continue to increase. A management plan to reduce herd numbers would be evaluated and implemented at a later time. The BLM would continue vegetation and population monitoring. More wild horses would reside outside the wild horse range. The size of the areas with excessive forage utilization would continue to increase. Forage would be consumed earlier in the year as more animals try to make a living on a finite piece of land.

2.6 Alternatives Considered but Eliminated from Further Analysis

2.6.1 Use of Fertility Control Only on All Ages of Wild Mares to Suppress Herd Growth Rates

Under this alternative, all mares would receive fertility control primers (as necessary) and annual boosters without removals. Although the use of fertility control only would stabilize the population it would not likely lead to a reduction in the population in order to achieve a TNEB. A decision is in place to apply fertility control through 2010 on mares over 11 years old and each action alternative has fertility control as a component of the alternative thus the use of fertility control has been partially addressed. This alternative was therefore considered but eliminated from further analysis because it did not meet the purpose and need for the action which is immediate reduction in herd size in order to preserve a thriving natural ecological balance, balancing sex ratios, preserving age classes and collecting genetic data.

2.6.2 Bait Trap Gather and Selective Removal of Wild Horses for Population Control

Under this alternative, the herd would undergo a bait trapping gather and capture of the entire population in order to selectively remove excess wild horses. This would not immediately reduce the herd size, since bait trapping is a prolonged process and takes several months and tends to be less successful than helicopter drive-trapping. Estimated costs for a removal of this type and scale would be less than for a helicopter drive-trapping effort, but it would take several months. This alternative was considered but eliminated from further analysis due to not meeting the purpose and need.

2.6.3 Gate Cut Gather

A gate cut gather was considered but eliminated from detailed analysis due to not meeting the purpose and need. A gate cut gather would consist of removing the first excess wild horses captured regardless of age, sex, or exhibiting “Pryor characteristics”. A gate cut is a sound tool for gathers that are grossly above the AML. However, the PMWHR gather is a maintenance gather and population management and fertility control are very appropriate for maintaining a wild horse herd, a gate cut would not allow this.

2.6.4 Natural Management-Proposed by The Cloud Foundation

An additional alternative considered was to have purely “natural management” of the population proposed by The Cloud Foundation. This alternative was eliminated from further analysis because it would not achieve the purpose or need for the action. Although the Wild and Free Roaming Horse and Burro Act does allow for “natural means” for population control, it does not allow for range deterioration. An ecological balance between grazing animals and resources would eventually be met once the range deteriorated beyond the point that forage species are eliminated or are such a small component of the plant community that wild horses would eventually start to die of starvation.

Mountain lions have been documented as preying upon foals, but not enough animals are killed to maintain the appropriate management level. In 2001 one foal was documented as being killed by a mountain lion. In 2004 much of the foal crop loss was attributed to mountain lion kills but there is no actual documentation of the absolute cause. Mountain lions are not now controlling the population nor have they historically controlled the population on the PMWHR.

2.6.5 Alternative Proposed by the Pryor Mountain Wild Mustang Center

This alternative was proposed by the Pryor Mountain Wild Mustang Center and would consist of yearly remote darting of selected mares. Under this alternative the gather would be conducted the same as the Proposed Action as far as the type of gather operation and wild horse data collection. During the gather operation mares selected for retention would be administered a “primer” prior to release. Beginning in late winter through spring of 2010 mares that were primed would receive their first booster. In subsequent years mares would be added to the treatment based upon survival rates of the herd, population levels and demographics. Under this

alternative the population would be managed towards a goal of 150 wild horses. This alternative was eliminated from further analysis as proposed since it would not meet the purpose and need by maintaining a population beyond what would achieve a thriving natural ecological balance. The proposal to conduct remote darting for population management has been incorporated into the proposed action.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and assesses impacts on the components of the human environment either affected or potentially affected by the proposed action and alternatives.

The affected environment was considered and analyzed by a multi-disciplinary team. Certain resources are protected by specific laws, regulations, or policies (e.g., Executive Orders). BLM refers to these resources as “Critical Elements of the Human Environment” and addresses them in all EAs. These Critical Elements identified below in Table 1 as being present and potentially affected are analyzed further in this chapter. The affected environment and environmental impacts are described for all resources, including Critical Elements, which are potentially affected by the proposed action.

Table 1 - Critical Elements

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
NI	Air Quality	Vehicle emissions and project related surface disturbance would be inconsequential from this action.
NI	Areas of Critical Environmental Concern	The East Pryor Mountains were designated as an ACEC in March 1999 to conserve the area for wild horses, paleontological values, recreational use, and fish and wildlife habitat. The proposed action would have no impact on these values.
NI	Cultural Resources	See analysis below.
NP	Environmental Justice	The proposed action would have no effect on minority or economically disadvantaged people or populations
NP	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the area.
NP	Floodplains	There are no floodplains within the area.
PI	Invasive, Non-native Species	Tamarisk (saltcedar) occurs sporadically in the low elevation areas of the range. All coulees in the low elevations, in addition to Cottonwood Spring, have tamarisk. Spotted knapweed is along the entire stretch of Burnt Timber (Tillet Ridge) road. Cheatgrass is widespread in the low elevation areas especially Big Coulee and along Sykes Ridge with sporadic occurrences on Burnt Timber. Halogeton is very common along the south entrance of the

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
		horse range and adjacent range lands. Mustards are widespread in the low elevation areas. Russian olive occurs at Cottonwood spring.
NP	Native American Religious Concerns	Although some traditional cultural properties occur within the project area, no Native American Religious Concerns are known in the area, and none have been noted by tribal authorities. Should recommended inventories or future consultations with tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures would be undertaken.
NI	Threatened, Endangered or Candidate Plant Species	Only BLM and USFS sensitive species are present, see impacts/mitigation
NP	Threatened, Endangered or Candidate Animal Species	On USFS portions of the range, formerly unoccupied habitat has been designated for the Canada lynx. State and agency Sensitive Species are present on BLM portions of the range; a site-specific survey would be completed before any action occurs.
NP	Wastes (hazardous or solid)	There are no hazardous or solid wastes located within the planning area.
NP	Water Quality (drinking/ground)	The proposed action would have no affect on ground or drinking water.
PI	Wetlands/Riparian Zones	Crooked Creek is within the planning area and could be affected by the proposed action. Cottonwood Spring would be affected and Krueger pond would be affected. See analysis below.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers located within the project area.
NI	Wilderness	The BLM is prohibited from taking any actions within or adjacent to wilderness study areas that would impair the wilderness characteristics or prevent an area from potentially being designated as wilderness. Actions could have minor, short term impacts on wilderness attributes, but the effects would not be irreversible or irretrievable
<p>*</p> <p>NP = not present in the area impacted by the proposed or alternative actions</p> <p>NI = present, but not affected to a degree that detailed analysis is required</p> <p>PI = present with potential for impact.</p>		

The following critical or other elements of the human environment are present and may be affected by the proposed action or the alternatives. The affected environment is described for the reader to be able to understand the impact analysis.

3.1 Wild Horses

Affected Environment

The origin of the PMWHR wild horses is not entirely known and there is much supposition about them. Many claim the horses are descendents of animals the Crow Indians obtained from the Spanish, or other tribes in contact with the Spanish. The Crow Indians were known to have horses by the 1700s and to inhabit the Pryor Mountains before European settlement. Others

claim the horses have been there forever. The trapper William Hamilton explored the Pryor Mountains in 1848 and did not note the presence of wild horses (Hall, 1972). By the early 1900s, wild horses were well documented within the Bighorn Basin. Most likely, the wild free-roaming horses inhabiting the PMWHR are descendents of numerous founding stocks. The most recent genetic tests conducted by Dr. Gus Cothran concluded the Pryor horses are descendents of New World “Spanish” breeds (saddle-type horses) and related to European “Spanish” breeds. Some of the Pryor horses carry a rare allele variant Qac that is traced back to original New World “Spanish” type horses that were developed from the original Spanish and Portuguese (Iberian) horses brought to the Americas. The Pryor horses carry no genetic markers that other horse breeds don’t carry.

Natural topographical barriers (westside-Crooked Creek, eastside-Bighorn Canyon), as well as manmade barriers (fence lines to the north and south), restrict the majority of horses to the available range. Otherwise, the Pryor herd freely roams throughout the range, largely unrestricted by internal fences. Seasonal harem movement typically results in horses distributed throughout the lower and middle elevations in the winter and primarily in the upper elevations in the summer. In the last decade, several harems and bachelors have been using adjacent National Forest upper-elevation lands from mid-summer through early fall. March and April, 2009, during a helicopter census 39 wild horses were observed on Commissary Ridge and Tie Flat.

Environmental Impacts

Assumptions for analysis: Impact analysis assumes that a 100% capture rate would be attained. An 85% capture rate with fertility control would slow reproduction rates. Previous research on winter application of the 22 month vaccine has shown that mares already pregnant will foal normally, but the fertility control treatment can be 94% effective the first year, 82% the second year, and 68% the third year when applied in the winter. Fertility control applied in September would most likely not be as effective due to the timing of the administration of the vaccine. The one year vaccine can be 90% effective when the boosters are applied during the winter-spring. The SOPs for Gather Operations (Appendix II) and SOPs for Fertility Treatments (Appendix III and IV) are incorporated as part of the proposed action and alternative. The population model (Appendix I) is for illustration purposes and management alternative comparisons and may not necessarily reflect actual growth rates or outcomes of management actions. The analysis also assumes a healthy wild horse population is composed of a 50/50 sex ratio, with the core breeding population composed of 5-10 year olds, and more males in the population reduces the growth rate.

Proposed Action – - Under the proposed action, nearly the entire population would be gathered, 70 excess wild horses (20 males and 50 females with any foals) would be removed from the PMWHR and adjacent lands. For the animals identified for retention: the sex ratio would be balanced at or near 50% male to 50% female, continued collection of information on herd characteristics, determination of herd health through direct examination of animals, and collection of genetic samples for animals born after 2001 for monitoring of genetic variation. Up

to fifty of the 60 mares identified for retention would be treated with 22 month PZP pellets prior to being released. At year two boosters would be applied via remote darting. The population would continue to be treated over a five year period with new mares added after they have progeny. This would improve herd health and eliminate conflict with other users. Less competition for forage and water resources would reduce stress and promote healthier animals.

Population modeling (Appendix I illustrates that the average wild horse population size of the median of 100 trials would most likely be 134 wild horses with a -0.3% growth rate and after the gather and initial treatment 63 wild horses would need to be removed over the next ten years. Modeling also indicates that the population after the gather would not put the population at as high of a risk of catastrophic loss or “crash” (Appendix I Alternative III).

The impacts to the population from this action would balance the wild horse population with representation of all age classes. The top heavy nature of this old population would be rectified. Enough young animals would be retained to ensure recruitment to a sound breeding population. Under this scenario the amount of genetic diversity would most likely be increased. Since the sex ratio would be balanced; allowing for more competition between stallions, more frequent interchange of mares thus a higher level of exchange of genetic material. The use of the one year remote application form of PZP allows for the highest amount of flexibility to adjust to the population dynamics that can change on a constant basis. This scenario also allows for nearly instant adjustment if needed at year two.

Impacts to individual animals could occur as a result of stress associated with the gather, capture, processing, fertility treatment (see Appendices II and III), and transportation of animals. The intensity of these impacts would vary by individual and would be indicated by behaviors ranging from nervous agitation to physical distress. Mortality to individuals from this impact is infrequent but can occur. Other impacts to individual wild horses include separation of members of individual bands and removal of animals from the population.

Impacts to individual mares would be the same as the proposed action and Alternative I for application of the 22 month PZP. Mares would subsequently be followed-up and receive a booster from a remote dart. The dart would be delivered via a CO2 powered gun or possible rifle for difficult horses. These impacts (granulomas, nodules) are monitored on a regular basis under research protocol, do not appear to cause pain or discomfort to the mares, and typically subside with time. “Mortality and/or permanent injury of individuals from direct impacts due to darting is unlikely” (Coates-Markle 2006). According to the USGS 2009 “Our results for frequency of occurrences of abscesses in mares darted at Pryor (0.8%) were very similar to those reported.....but somewhat higher (5.5%) at Little Book Cliffs.” Abscesses would be expected to develop in 0.8 to 5.5% of all mares darted. Dart trauma could occur from improperly placed dart or firing the dart too deep into the animal if the gun isn’t properly adjusted for distance. This should be avoidable if the darter is utilizing the SOPs (Appendix III).

Indirect impacts can occur to horses after the initial stress event and could include increased social displacement or increased conflict between studs. These impacts are known to occur

intermittently during wild horse gather operations. Traumatic injuries could occur and typically involve biting and/or kicking bruises.

No Action Alternative – Under the no action alternative, excess wild horses would not be removed from the PMWHR. The animals would not be subject to the individual direct or indirect impacts as a result of a gather operation this summer. However, individuals in the herd would be subject to more stress and possible death as a result of increased competition for water and forage as the herd population grows.

Wild horses are a long-lived species with high survival rates. Predation and disease do not substantially regulate wild horse population levels. This would lead to a steady increase in wild horse numbers, and the carrying capacity of the range would continue to be exceeded. The consequences of exceeding the established AML and the carrying capacity of the range would be increased risk to both rangeland and horse herd health. Individual horses would be at risk of death by starvation and lack of water. The population of wild horses would compete for the available water and forage resources, affecting mares and foals most severely. Social stress would increase. Fighting among stud horses would increase as they protect their position at water sources; such fighting could result in injuries and death to other horses. The areas closest to the water would experience severe utilization and degradation. Over time, the animals would deteriorate in body condition as a result of declining forage availability and the increasing distance needed to travel to forage. Many horses, especially foals and mares, may die after a period of time when the resource is exhausted.

As populations increases beyond the capacity of the habitat, more bands of horses would leave the boundaries of the PMWHR seeking forage and water. This in turn could put them at risk in new and unfamiliar country and in conflict with authorized users. The health of the wild horse herd population would be reduced, the condition of the range would deteriorate, and other range users would be impacted. This alternative would not achieve the stated objectives for wild horse herd management areas, which are to “prevent the range from deterioration associated with overpopulation,” and “preserve and maintain a thriving natural ecological balance and multiple use relationship in that area.”

To facilitate comparison of alternatives, the no action alternative was also modeled for ten years. The average of 100 population modeling trials indicates that if the current wild horse population continues to grow without a removal at this time, the median population size would be 314 wild horses with a growth rate of 7.2% (Appendix I No Action).

3.2 Rangeland Health, Vegetation, and Soils

Affected Environment

The PMWHR is located in southeastern Carbon County, Montana, and northern Big Horn County, Wyoming. Elevations range from 3,850 feet to 8,750 feet above sea level. Annual

precipitation varies with elevation with six inches of precipitation in the lower elevations to upwards of twenty inches in the alpine high elevation. Plant communities also vary with elevation and precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches) to 20-40 inches deep depending on site locations and position on the landscape. There are five perennial water sources within the PMWHR.

The PMWHR is within two Major Land Resource Areas (MLRA) - MLRA 32 Northern Intermountain Desertic Basins and MLRA 43A Northern Rocky Mountains (Natural Resource Conservation Service, 2006). The average annual precipitation in most parts of the basins is six to 12 inches. It is as high as 22 inches in the higher elevation areas of the basins. The maximum precipitation from frontal storms occurs in spring and fall. The surrounding mountain ranges block many of the regional precipitation events. The average annual temperature is 39 to 48 degrees F. The temperature can vary widely within short periods due to the drainage of cooler mountain air into the basins. The freeze-free period averages 145 days and ranges from 110 to 180 days.

This area supports shrub-grass vegetation. Big sagebrush, Gardner's saltbush, rhizomatous wheatgrasses, Indian ricegrass, and needle and thread are the dominant species. Black sage, Gardner's saltbush, and bluebunch wheatgrass are common on shallow soils in the uplands.

This area is also in the northern part of the Northern Rocky Mountains. Douglas fir, lodgepole pine, subalpine fir, limber pine, and juniper are the dominant overstory species, depending on precipitation, temperature, elevation, and landform aspect. The understory vegetation varies, also depending on climatic and landform factors.

Low elevation areas of the PMWHR are experiencing a downward trend in ecological condition due to the excess of wild horses coupled with the effects of drought. The horse population is beyond the capacity of the habitat to sustain the numbers in balance with the available resources or how the resource is utilized by the horses. The PMWHR Evaluation (2008) documented this measured trend in the low elevation desert areas of the wild horse range. The mountain meadows are also in poor ecological condition with an inverse proportion of forbs to grasses. Drought, coupled with a wild horse population above the AML, has magnified the range deterioration. At the same time, mid-elevation areas within the wild horse range that have little water and have received slight, light, and moderate wild horse use have shown an upward trend.

Environmental Impacts

Proposed Action – Removing excess wild horses to a level of 120 wild horses along with 22 month fertility treatment during the gather, followed by yearly boosters and adding new mares to the program as identified would achieve a thriving natural ecological balance immediately, and most likely over the next 5 years. Implementation of this alternative would reduce the PMWHR wild horse population to a population that achieves a thriving natural ecological balance. It would reduce stress on vegetative communities and be in compliance with the Wild Free-Roaming Horses and Burros Act, Standards for Rangeland Health, and land use plan

management objectives. Rangeland health and vegetative resources would improve with the population at AML. Vegetation species would experience little over-utilization by wild horses, which would lead to healthier, more vigorous forage plants and plant communities. This would result in an increase in forage availability, vegetation density, vigor, productivity, cover, and plant reproduction. Plant communities would become more resilient to disturbances such as wildfire, drought, and grazing.

Overall, soil conditions would improve if wild horse numbers were reduced. Less compaction would occur in riparian areas where the soils are most susceptible. Compression impacts to biological soil crusts from horses would be lessened over the area, and crust cover on the highly calcareous soils would increase. Following wild horse removal, increased vegetative and biological soil crust cover would reduce wind and water erosion.

Impacts from gather operations to vegetation and soils with implementation of the proposed action would include disturbance of native vegetation immediately in and around temporary trap sites and holding and processing facilities. Impacts would be by vehicle traffic and the hoof action of penned horses and would be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than one-half acre) in size. Soil compaction, localized wind erosion, and destruction of biological soil crusts, where present, would occur at the trap sites. Since most trap sites and holding facilities would be re-used during recurring wild horse gather operations, any impacts would remain site-specific and isolated in nature. In addition, most trap sites or holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment and would generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. Vehicles used in the horse gather would also cause soil compaction and increased erosion in a small area. By adhering to the SOPs (Appendix II), adverse impacts to soils would be minimized.

No Action Alternative – Under the no action alternative, wild horse populations would continue to grow. Increased horse use throughout the PMWHR would adversely impact soils and vegetation health, especially around riparian resources. As native plant health deteriorates and plants are lost, soil erosion would increase. Continued heavy wild horse use, especially around water sources, would cause further compaction, reduced infiltration, increased runoff and erosion, and loss of biological soil crusts. Compaction caused impacts would be greatest on moist soils and soils with few surface coarse fragments. The greatest disturbance impacts to crusts would occur when the soils are dry and on highly calcareous sites. The shallow soils typical of this region cannot tolerate much loss without losing productivity and reducing the ability to be re-vegetated with native plants. Invasive, non-native plant species would increase and invade new areas following increased soil disturbance and reduced native plant vigor and abundance. Wild horses likely transport weed propagules, and this transport would increase as horse numbers increased. This would lead to both a shift in plant composition towards weedy species and an irreplaceable loss of topsoil and productivity due to erosion. With the no action alternative, the severe localized trampling associated with trap sites would not occur, but this alternative would not make progress towards achieving and maintaining a thriving natural ecological balance.

3.3 Noxious and Invasive Plants

Affected Environment

Noxious weeds known to exist within the area are Russian knapweed along the Burnt Timber road and tamarisk (salt cedar) along low elevation coulees and riparian zones occurs.

Invasive plants include cheatgrass, mustards, and halogeton. These plants occur primarily in the low elevation areas and in isolated occurrences on mid-slope areas.

Environmental Impacts

Proposed Action – The proposed gather could promote the spread of existing noxious or invasive weed species. This could occur if vehicles drive through infestations and spread seed into previously weed-free areas. If noxious weeds are found, the facilities would be moved to another location. Any off-road equipment exposed to weed infestations would be cleaned before moving into weed-free areas. All trap sites, holding facilities, and camping areas on public lands would be monitored for weeds during the next several years. The spread of invasive weeds from wild horse grazing is most likely to be reduced.

No Action Alternative – Under this alternative, the wild horse gather would not take place. The likelihood of noxious weeds being spread by gather operations would not exist. However, continued overgrazing of the present plant communities could lead to an expansion of noxious weeds and invasive non-native species. When over-utilization occurs desirable species are weakened and eventually cease to persist in the ecosystem. The plant communities are then susceptible to noxious and invasive plants. If the pattern persists then eventually the plant community would be permanently converted.

3.4 Riparian/Wetland Areas and Surface Water Quality

Affected Environment

There are limited riparian areas within or adjacent to the PMWHR. Crooked Creek is available to wild horses on BLM lands on the west side of the range above private property holdings, but receives little wild horse use. Cottonwood Spring, Little Sykes Spring, and the seep off of Bad Pass are located in Wyoming. These are small springs with little riparian potential yet extremely important due to the limited amount of riparian habitat. On the BCNRA, the primary riparian areas are Crooked Creek Bay and Layout Creek.

Environmental Impacts

Proposed Action –No gather facilities or traps would be placed on riparian areas, thus no impacts from gather operations are anticipated. Riparian areas are very limited and currently have some

impact from wild horses. Hoof action on the soil around unimproved springs and stream banks would be lessened, which would lead to increased stream bank stability and improved riparian habitat conditions. Improved riparian areas would dissipate stream energy associated with high flows and filter sediment that would result in some associated improvements in water quality. There would also be a reduction in hoof action on upland habitats and reduced competition for available water sources. Some improvement could be realized, but due to the limited nature of water sources; improvement is more likely to be realized from management of water sources rather than wild horse numbers.

No Action Alternative – Wild horse populations would continue to grow. Increased wild horse use throughout the area would adversely impact the few riparian resources present and their associated surface waters. As native plant health deteriorates and plants are lost, soil erosion would increase. With the no action alternative, the severe localized trampling would continue to occur. This alternative would not make progress towards achieving and maintaining a thriving natural ecological balance.

3.5 Wildlife, Including Migratory Birds

Affected Environment

The primary big game species found in the project area are mule deer, Rocky Mountain bighorn sheep, elk, and black bear. Mule deer are the most abundant of these species and most widely distributed. The sagebrush, juniper/mountain mahogany belt at lower elevations in the southern foothills is considered crucial mule deer winter range. The most recent counts of bighorn sheep estimated populations in the Pryors at 160 animals. Elk do not utilize the area on a regular basis. The elk primarily utilize the National Forest to the west and north, but have occasionally been observed in the spring and summer on the meadows on the north end of PMWHR. Black bear are abundant in the north central portions of PMWHR where the terrain is rugged and forested. Mountain lions have also been observed on the PMWHR.

The Pryor Mountains support the most diverse bat fauna in Montana. Ten bat species have been documented and the potential exists for additional species to be present (Hendricks, P., C. Currier and J. Carlson, 2004), (Bats of the Billings Field Office in south-central Montana, with Emphasis on the Pryor Mountains), and (Montana Natural Heritage Program, Helena, MT 19 pp. and appendices.)

The gray wolf has been reported in the area north of the PMWHR.

Upland game birds include blue grouse, greater sage-grouse, and ring-necked pheasant. Blue grouse occur in the timbered portions of the PMWHR. Great sage-grouse may occur in the southern and eastern part of the PMWHR. Pheasants occur in the southern area near cultivated fields. None of these species are considered abundant.

Neotropical migratory bird use is heaviest during spring and summer months. Nesting usually

occurs in late May, June, and early July depending on elevation.

Environmental Impacts

Proposed Action – Individual animals of all species could be disturbed or displaced during gather operations. Small mammals, birds, and reptiles would be displaced at trap sites, but this would only be for a few days. There would be no impact to animal populations as a result of gather operations.

Because the gather would not be done in the spring or early summer, there would be no impact to breeding and nesting sage grouse, raptors, and migratory birds.

Removing excess wild horses from the PMWHR and adjacent areas would result in reduced competition between wild horses and wildlife, especially large mammals, for available water resources. Managing wild horses at the AML would result in improved habitat conditions for all species of wildlife by increasing herbaceous vegetative cover in the uplands and improving riparian vegetation and water quality at springs and seeps.

No Action Alternative – Individual animals would not be disturbed or displaced under the no action alternative. Competition between terrestrial big game wildlife and wild horses for forage is minimal. Competition at water resources may increase as wild horse numbers continue to grow above AML. Wild horses are aggressive around water sources. Some animals may not be able to compete, which could lead to the death of individual animals. Other wildlife habitat would deteriorate as wild horse numbers above AML reduce herbaceous vegetative cover. This could result in lower nesting success for migratory birds.

3.6 Special Status Plant and Animal Species (federally listed, proposed, or candidate threatened or endangered species; State listed species; and BLM sensitive species)

Affected Environment

Timbered areas within the national forest boundary in the Pryor Mountains are designated as unoccupied Canada lynx habitat. This does not include any designated or proposed lynx critical habitat. There are no known threatened and endangered (T&E) species or their habitat in the Pryor Mountains. Recently, the peregrine falcon has been delisted from T&E species status.

Several BLM and Montana state sensitive species occur in the area. These include the peregrine falcon, a possible gray wolf occurrence, Yellowstone cutthroat trout in Crooked Creek, and spotted bat (*Euderma maculatum*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Plecotus townsendi*). USFS sensitive species include long-eared myotis (*Myotis erotis*) and Baird's sparrow (*Ammondromus bairdii*).

Fifteen special status species plants occur in the PMWHR. All are categorized as Bureau Sensitive Species and one as both BLM and USFS sensitive (*Shoshonea*). There are no known

or suspected federally listed plant species in the project area. The majority of the special status species are found in the Pryor Mountain foothills, with only five of the species occurring in the higher elevations of the horse range.

Environmental Impacts

Assumptions for analysis: Trap sites and holding corrals would not be located where sensitive plant and animal species are known to occur. There would be no impact to populations of special status species as a result of gather operations. There is no information that wild horses are having an impact on any special status plant species (PMWHR Evaluation BLM 2008).

Proposed Action – Removing excess wild horses from the project area and managing wild horses at AML on the PMWHR would result in improved habitat conditions for all special status animal species by increasing herbaceous vegetative cover in the uplands and improving riparian vegetation and water quality in springs and seeps.

No Action Alternative – Individual animals would not be disturbed or displaced because gather operations would not occur under the no action alternative. Habitat conditions for all special status animal species would continue to deteriorate as wild horse numbers above the AML reduce herbaceous vegetative cover.

3.7 Wilderness

Affected Environment

Three BLM areas and one NPS area partially within the wild horse range were recommended for wilderness in August 1991 and December 1981. The recommendations followed a wilderness study process that considered resource values, present and projected future uses, public input, manageability as wilderness, environmental consequences of designating or not designating the areas as wilderness, and mineral surveys. As a result, the following wilderness study areas (WSAs) continue to be managed so as not to impair the wilderness values identified in the study: Burnt Timber Canyon WSA, Pryor Mountain WSA, Big Horn Tack-On WSA, and Bighorn Canyon National Recreation Area WSA. WSA designation automatically defaults to a Class I visual resource management (VRM) classification. Class one VRM does not allow for management actions that would impair the viewshed.

There are 3,430 acres within the Burnt Timber Canyon WSA that were recommended as suitable for wilderness designation. The WSA is bounded by USFS lands on the north, and it adjoins the USFS 9,520-acre Lost Water Canyon WSA. The area encompasses an extremely rugged and isolated portion of Crooked Creek Canyon, which has remained relatively free of modern human influences. The WSA is predominantly natural and offers outstanding opportunities for solitude and primitive recreation.

Burnt Timber Canyon WSA exhibits unique outstanding geologic and scenic values. The major canyon and rugged side canyons cut through several hundred feet to the Pryor Mountain

limestone strata. These deep canyons contain numerous caves, rock overhangs, and natural alcoves that provide ample opportunities for exploration.

Canyon bottoms are deep and profusely vegetated. They are difficult to traverse but offer outstanding opportunities for solitude and isolation. The ridges and canyon rims are open and sparsely vegetated. These ridge tops constitute about 10 percent of the total WSA area. The ruggedness of the area provides a real challenge to the foot traveler. Dense canyon-bottom vegetation, steep talus slopes, and steep canyon walls make foot traffic difficult. The WSA has outstanding opportunities for photography, rock climbing, nature study, backpacking, spelunking, and hiking.

The major drainage, Crooked Creek, supports a genetically pure strain of native cutthroat trout. The creek is not considered an outstanding fishery because the trout are small, and dense brush restricts ready stream access; however, the native trout species have a very high intrinsic value. The BLM installed a fish barrier in the upper reaches of Crooked Creek in the summer of 2007 to protect this species.

All but 430 acres of the Burnt Timber WSA lies within the Pryor Mountain Wild Horse Range (PMWHR). The WSA also is inhabited by bighorn sheep, mule deer and black bear; however, big game hunting is quite restricted by topography and dense vegetation.

A portion of the Burnt Timber WSA, the Demi-John Flat Archeological District, is noted for its numerous stone rings and rock cairn alignments. The Tillet Fossil Area/Crooked Creek Natural Area, which has been evaluated as having outstanding interpretive potential and picturesque geologic formations created by the Crooked Creek drainage.

The rough broken topography precludes most uses, and timber harvesting is not allowed in land-use plan decisions. The decision to protect timber in the WSA is primarily due to topography and limited production. The WSA is rated for having low potential for mineral development, and is rated low to moderate for energy resource potential. No development is projected due to low potential and other resource considerations.

The Pryor Mountain WSA (12,575 acres) includes 4,352 acres in Wyoming. This WSA contains some of the most rugged, isolated portions of the Pryor Mountain Range. The wide expanses and topographic screening in this area offer outstanding wilderness values. This unit is in the heart of the PMWHR, and the supplemental attribute of the free-roaming wild horse herd enhance the wilderness characteristics of the area. Human activity is well-distributed throughout the WSA. Vegetation and topographic screening significantly limit any detractor from the WSA's extensive natural setting.

Topographic features are rough, broken, highly varied, and provide excellent opportunities for isolation and solitude. Elevation changes rapidly within the Pryor Mountain WSA, dropping from 8,400 to 3,800 feet in less than 13 miles. The southern aspect provides a vast panorama. Opportunities for nature photography, rock climbing, hiking, backpacking, nature study, and

viewing a variety of multicolored erosional geologic features are outstanding. The WSA contains a wide spectrum of geologic and biotic features, ranging from elements typical of desert environments to those found only in sub-alpine mountainous settings.

Conflicts with other resource uses in the Pryor Mountain WSA are minimal. Topography severely limits any potential cross country vehicle travel. Commercial timber harvesting in the WSA is not allowed. No livestock use is authorized in the WSA nor are there any oil and gas leases. The development potential for petroleum resources is rated low to moderate.

The Big Horn Tack-On WSA and Bighorn Canyon National Recreation Management Area WSA is a narrow strip of land averaging nine miles in length and less than one to two miles in width. It is located between the Sykes Ridge Road on the west and the Bighorn Canyon National Recreation Area power line access road to the east. On BLM, the area is 2,470 acres with an additional 353 acres in Wyoming. In the BCNRA, the area is 8,101 acres; less than half of that is within the PMWHR.

This WSA is primarily in a natural state with a few dispersed, but fairly well-screened, human intrusions. These consist of uranium exploration pits, a wild horse trap in the northern portion along the west boundary road, vehicle ways, one in the north and one in the south, and the power line on the southeast.

Environmental Impacts

Proposed Action – Temporary impacts to opportunities for solitude could occur during gather operations due to the possible noise of increased vehicle traffic and activity around the WSAs. Those impacts would cease when the gather was completed. No surface impacts within wilderness are anticipated to occur during the gather since all trap sites and holding facilities would be placed outside wilderness study areas.

No Action Alternative – No impacts would occur to wilderness due to gather operations. Impacts to wilderness values could be threatened through the continued population growth of wild horses. These impacts would result in long term degradation to the natural environment. To some, the sight of heavy horse trails, trampled vegetation and areas of high erosion detract from the wilderness experience.

3.8 Cultural Resources/Paleontological Resources

Affected Environment

The Pryor Mountains contain a rich prehistoric and historic archaeological record. The prehistoric archaeological types of sites located in the Pryor Mountains include, but are not limited to: quarry sites, rock art sites, rock shelter/cave sites, vision quest sites, lithic scatters, rock cairns/rock alignments, tipi rings, drive sites, wooden structure habitation sites, occupation sites, and hunting related sites. The historic archaeological types of sites located in the Pryor

Mountains include, but are not limited to: rail lines, lime kilns, ranching-related sites, wooden structure habitation sites (cabins), historic trails, horse traps, homesteads, etc. Traditional cultural properties (TCP) are found throughout the area. The Dryhead Overlook and Sykes Ridge are the primary areas for TCPs within the affected environment. These areas have been used for generations by Crow tribal members for traditional uses, ceremonies, and vision quest sites.

Direct impacts that could occur where wild horses concentrate include trampling, chiseling, and churning of site soils, cultural features, and artifacts; artifact breakage; and impacts from standing, leaning, and rubbing against above-ground features, structures, and rock art. Indirect impacts could include soil erosion, gulying, and increased potential for unlawful collection and vandalism. In areas where cultural site presence coincides with areas of wild horse concentration, continued grazing could contribute to substantial ground disturbance and cause cumulative, long term irreversible adverse effects to historic properties.

Environmental Impacts

Proposed Action – No impacts to cultural resources/paleontological resources would be anticipated to occur from gather operations since all trap sites and holding facilities would be inventoried to Class III intensive inventory standards for cultural resources prior to set-up. Trap sites and holding facilities would be located on previously disturbed areas. If cultural resources are encountered at proposed trap sites or holding facilities, those locations would not be utilized unless it could be modified to avoid impacts to cultural resources. Once the gather is completed, reduced horse numbers would result in less hoof action around riparian spring areas where cultural resources tend to occur in higher frequency. This could lead to decreased damage to cultural resources by wild horses.

No Action Alternative – Under this alternative, the wild horse gather would not take place and therefore, no trap sites or holding facilities would be constructed. There would be no possibility that cultural resources would be damaged as a result of horse gather operations; however, higher numbers of wild horses above the AML could cause damage to cultural resources due to trampling, especially around water sources, where the occurrence of cultural resources can often be high.

3.9 Recreation

Affected Environment

Recreation-related visitation has been increasing in the Pryor Mountains over the last several years and that trend is expected to continue. The area is composed of USFS, BLM, and NPS lands. Visitor logs at Penn's Cabin, located on the top of East Pryor Mountain, indicate an increase in visitor use, especially in the past five years. The logs also show an increase in both foreign and domestic visitors. Wild horses can often be seen near the cabin in the summer through early fall.

Recreation opportunities are primarily wild horse viewing during the warmer months of the year, especially during foaling season. Other opportunities include, but are not limited to, bear, deer and small game hunting, hiking, and snowmobiling. Motorized use is limited to designated roads. The area is largely managed for dispersed recreation. Hiking opportunities in the Pryor Mountains are excellent. However, there are no maintained trails for hiking or off-highway vehicle use. Other uses include camping, horseback riding, photography, sightseeing and wildlife viewing. There are several caves, some of which are large enough to explore.

Special recreation permits are becoming more prevalent as more people wish to pay for the opportunity to participate in guided or organized activities on public lands. Wild horse photography tours, viewing tours, and cattle drives are the primary recreation-permitted activities. These activities provide a gateway for future visitation by an ever growing segment of the public.

Environmental Impacts

Proposed Action - Opportunities to view and photograph large groups of wild horses would be diminished because excess wild horses would be removed from the range. Opportunities from other recreation activities would be expected to be unchanged unless road closures are deemed necessary to facilitate gather operations. If so, recreationists could be unable to utilize the area for up to a week. Gather operations should be completed prior to the rifle hunting season, thus eliminating any potential conflicts with sportsmen. However, if operations are not complete, there would be minimal disruption of hunting activities since most trapping would occur in areas with quite a lot of current human use and activity.

No Action - There would be no impacts to recreational wild horse observation under this alternative. However the view shed may become diminished over time as vegetative and riparian areas became more degraded from excess wild horse use. Wild horse health could suffer as numbers increase with less forage to compete for. Thin horses may not be appealing to the public for viewing and photography opportunities.

4.0 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 significant actions taking place over a period of time. The area of cumulative impact analysis is the PMWHR.

According to the 1994 BLM *Guidelines for Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and proper management of wild horse.

Past Actions

The PMWHR is unique because a large portion of it was established under two Secretarial Orders in 1968 and 1969 prior to the Wild Free-Roaming Horses and Burros Act. The PMWHR was the second wild horse range established and the first public wild horse range. Herd areas were identified from 1971-1974 as areas occupied by wild horses at the passage of the Act. These areas identified where wild free-roaming horses and burros were “presently” found. Due to this, the wild horse range was able to be expanded beyond the Secretarial Orders’ boundary.

The BLM also moved to long-range planning with the development of resource management plans (RMPs) and environmental impact statements (EISs). These EISs analyzed impacts of the RMPs’ management direction for resources and uses including wild horses, as updated through BLM policies, rangeland program direction, and wild horse program direction. Allocations were made, and range monitoring studies were initiated to determine if objectives were being achieved or if progress toward allotment standards was being made. In the 1984 Billings RMP, the areas where wild horses would be managed were adjusted due to the need have facilities for the management of wild horses. Two administrative pastures were fenced to be used a gather pastures since all wild horse management was relegated to horseback gathers. The PMWHR Herd Management Area Plan was completed in 1984 and adopted the AML that was identified in the Billings RMP. During this time the Sorenson Extension was allowed for wild horse use under two five-year use permits issued to the BLM by the NPS. In 1992, the Sorenson Extension was not renewed. Subsequently, the AML was adjusted to the current level of 85 to 105. At the same time, the use of helicopters for gather operations was allowed as well as the management of the population as a whole instead of by separate herds.

Due to these laws, planning, and subsequent court decisions, wild horse management has occurred in the PMWHR. Twenty-three gathers have been completed on portions of the PMWHR. Approximately 600 wild horses have been removed from the PMWHR since 1968. Populations are thriving and have not been negatively impacted. An AML determination for the PMWHR was established through BLM planning process and completed in 1992. Fertility control has been used since 2001 in several different prescriptions. However, the wild horse population over the last decade has been on average 60 horses over the established AML. This has lead to the current situation of deterioration of the range.

Present Actions

Today, the PMWHR and adjacent national forest lands have an estimated population of 195 adult wild horses. Resource damage is occurring in portions of the range and on adjacent lands managed by the Custer National Forest due to excess animals. Current monitoring data indicates that no more than 120 wild horses can be present and still have a thriving natural ecological balance. The PMWHR HMAP directs BLM to conduct removals targeting portions of the wild horse population based upon age and allowing the correction of any sex ratio problems that may occur. Program goals have expanded beyond establishing a thriving natural ecological balance by simply maintaining AML for individual herds, but includes achieving and maintaining

healthy, vigorous, and stable populations.

Current mandates prohibit the destruction of healthy animals that are removed or deemed to be excess. Only sick, lame, or dangerous animals can be euthanized, and destruction (although legal) is no longer used as a population control method. The most recent amendment to the Wild Free-Roaming Horses and Burros Act allows the sale of excess wild horses that are over 10 years old or have been offered unsuccessfully for adoption three times. This sale authority has not been fully implemented, thus, facility space and funding for gathers is less available as more unadoptable wild horses are maintained in facilities. Fertility control is continuously being improved and researched presently for the best ways to utilize it.

Today, public interest in the welfare and management of wild horses is higher than it has ever been. Many different values pertaining to wild horse management form various perceptions on the management of wild horses. Wild horses are viewed by some as nuisances and by others as living symbols of the pioneer spirit.

The BLM, Forest Service, and NPS completed the PMWHR Evaluation 2008 and identified the need to make management adjustments and conduct vegetation treatments to improve watershed health. The evaluation identified management deficiencies that need to be rectified in order to meet land use plan objectives, laws, regulations, and policies. As a result of this process, the PMWHR HMAP was identified as meeting a “Criteria for Revision” from the current HMAP. The new HMAP was recently finalized and its direction changed the way wild horses and the resources are to be managed within the PMWHR. However this HMAP is under Appeal by the Cloud Foundation

The focus of wild horse management has also expanded to place more emphasis on achieving rangeland health as described in the Standards for Rangeland Health. Adjustments in numbers, grazing use, and allowable use are based on evaluating progress toward reaching the standards.

Reasonably Foreseeable Future Actions

In the future, the BLM would manage wild horses within the PMWHR in a population range, while maintaining genetic diversity, age structure, and sex ratios. Current policy is to express all future wild horse AMLs as a range, to allow for regular population growth, as well as better management of populations rather than individual here management areas. The BLM is in the process of revising its resource management plan; the revision would analyze wild horse management on a programmatic basis, including areas where wild horses can be managed. Future wild horse management would focus on an integrated ecosystem approach with the basic unit of analysis being the watershed. The BLM would continue to conduct monitoring to assess progress toward meeting rangeland health standards. Wild horses would continue to be a component of the public lands, managed within a multiple use concept.

As the BLM has achieved AML on a bureau-wide basis, gather opportunities and budgets have become less predictable due to full facility space and the feeding of horses. Fertility control is

approved for use through 2010 on the PMWHR. Fertility control should also become more readily available as a management tool, with treatments that last for multiple years, reducing the need to remove as many wild horses, and possibly extending the time between gathers.

Currently a bill, House Resolution 1018 has been passed. This bill if passed through the Senate and signed into law by the President would substantially change the way wild horses are managed on public lands. If this Bill does not pass it is reasonable to foresee an amendment to the Wild Free-Roaming Horse and Burro Act in the future.

Impacts

Past actions regarding the management of wild horses have resulted in the current wild horse population within the PMWHR. Wild horse management has contributed to the present resource condition and wild horse herd structure within the gather area.

The combination of the past, present, and reasonably foreseeable future actions, along with the proposed action, should result in more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple-use conflicts.

5.0 MITIGATION AND SUGGESTED MONITORING

Proven mitigation and monitoring are incorporated into the proposed action and alternative I and also through standard operating procedures, which have been developed over time. These SOPs (Appendix II, III and IV) represent the best methods for reducing impacts associated with gathering, handling, transporting, collecting herd data and fertility treatments.

Specific mitigation measures identified in the proposed action I include:

Cultural Survey, sensitive species survey, monitoring for noxious and invasive weeds, weed free hay, monitoring for genetic health and utilizing wild horses gathering SOPs and fertility treatment SOPs.

6.0 CONSULTATION AND COORDINATION

In March 3, 2009, the BLM mailed out notices asking people to respond by March 27, 2009 regarding their desire to be included in the annual Montana wild horse and burro mailing list for participation in wild horse management activities. A lack of response did not preclude any interested party from being added at a later date. Interested parties are added throughout the year per request. Currently the mailing list has over 2000 interested parties.

On May 22, 2009, The Pryor Mountain Wild Horse Range Herd Management Area Plan Finding of No Significant Impact (FONSI) and Decision Record (DR) were issued. This plan was finalized after public participation in the Evaluation and Draft HMAP process. Public comment and data were incorporated into this document and used to develop parts of the HMAP. This plan is currently under litigation.

On July 15, 2009 a hearing was conducted for the use of motorized equipment including helicopters in the management of wild horses. A total of five parties spoke during the hearing. Two parties were opposed to the use of helicopters and two in favor of the use of helicopters.

7.0 REFERENCES

AllenDorf, Fred W. and Luikart Gordon 2007 Conservation and the Genetics of Populations

Beever, E. 2003. Management Implications of the ecology of free-roaming horses in semi-arid ecosystems of the western United States. Wildlife Society Bulletin. 31:887-895

Brownell, J 1999. Horse Distribution in the Pryor Mountains Region Preceding the Creation of the Pryor Mountain Wild Horse Range.

Bureau of Land Management, Forest Service, National Park Service, 1972. Pryor Mountain Wild Horse Range Biology and Alternatives for management, Billings MT.

Bureau of Land Management, Forest Service, 1974. Pryor Mountain Complex Land Use Decisions.

Bureau of Land Management, 1974. Bighorn Management Framework Plan.

Bureau of Land Management 1984. Billings Resource Area Resource Management Plan and subsequent Record of Decision. Billings MT.

Bureau of Land Management, Forest Service, National Park Service 1984. Herd Management Area Plan Pryor Mountain Wild Horse Range. Billings MT.

Bureau of Land Management 1985. Technical Reference 4400-7 Rangeland Monitoring Analysis, Interpretation, and Evaluation.

Bureau of Land Management 1988. BLM Manual 4700 Wild Free-Roaming Horse and Burro Management

Bureau of Land Management 1988. BLM Manual 4710 Management Considerations

Bureau of Land Management 1992. Herd Management Area Plan Revision Pryor Mountain Wild Horse Range. Billings MT.

Bureau of Land Management 1992. Technical Reference 4400-5 Rangeland Inventory and Monitoring Supplemental Studies.

Bureau of Land Management 1995. HANDBOOK 8550-1 Interim Management Policy For Lands Under Wilderness Review

Bureau of Land Management 1999. Current Events Population Viability. Fort Collins, Colorado.

Bureau of Land Management 2004, 2006. National Training Center Course Manual number 4700-07 Wild Horse and Burro Management.

Bureau of Land Management, Forest Service, National Park Service, Interested Publics 2008. Pryor Mountain Wild Horse Range Evaluation. Billings MT.

BLM, BiFO (June 2001) Environmental Assessment and Gather Plan, Pryor Mountain Wild Horse Range, FY2001 Wild Horse Population Gather and Selective Removal. EA#MT-010-1-44

BLM, BiFO (April 2002) Environmental Assessment, Pryor Mountain Wild Horse Range, FY02 Humane-Use of Fertility Control on Select Young Wild Horse Mares. EA#MT-010-02-22

BLM, BiFO (April 2003) Environmental Assessment, Pryor Mountain Wild Horse Range, FY03 Fertility Control on Select Young Wild Horse Mares; Selective Removal of Young Wild Horse Stallions. EA#MT-010-03-14

BLM, BiFO (April 2004) Environmental Assessment, Pryor Mountain Wild Horse Range, FY04 Fertility Control on Age-Specific Wild Horse Mares. EA#MT-010-04-18

BLM, BiFO (May 2005) Environmental Assessment, Pryor Mountain Wild Horse Range, FY05 Use of Fertility Control on Mares 11 Years and Older to Suppress Herd Growth Rates. EA# BLM MT-010-05-16

BLM, BiFO (April 2006) Environmental Assessment, Pryor Mountain Wild Horse Range, FY06 Pryor Mountain Wild Horse Range Population Control. EA# BLM MT-010-06-19

Code of Federal Regulations 2007. CFR part 4700-Protection, Management, and Control of Wild Free-Roaming Horses and Burros.

Code of Federal Regulations 2007. 36 CFR Subpart B - 222.20-36. Management of Wild Free-Roaming Horses and Burros.

Cooperative Extension Service, U.S. Department of Agriculture Forest Service, Natural Resource Conservation Service Grazing Land Technology Institute, and U.S. Department of the Interior Bureau of Land Management 1996. Interagency Technical Reference Sampling Vegetative Attributes.

Cooperative Extension Service, U.S. Department of Agriculture Forest Service, National Oceanic and Atmospheric Administration <http://www.noaa.gov/>

Frankham R., Ballou J.D., Briscoe D.A. Seventh Edition 2007. Introduction to Conservation Genetics

Groom, Martha J. Meffe, Gary K. Carroll, Ronald Third Edition 2006. Principles of Conservation Biology

Heidel, Bonnie. 2001. Monitoring *Shoshone pulvinata* in the Pryor Mountains, Carbon County, Montana 1999 Trend Report. Prepared for Bureau of Land Management.

Holecheck, Jerry. Pieper, Rex D. Herbel Carlton H. 1995. Range Management Principles and Practices Second Edition

Peterson, J., Fahenstock, and J.K. Detling. 1999. Ungulate/vegetation dynamics at the Pryor Mountain Wild Horse Range. Colorado State University, Fort Collins Colorado.

Montana Natural Heritage Program. 2006. Plant Species of Concern. MNHP, Helena. 50 pp.

Natural Resource Conservation Service 2004. NRCS report Pryor Mountain Wild Horse Range Survey and Assessment April 2004.

Natural Resource Conservation Service 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin

Resource Conservation Service Grazing Land Technology Institute, and U.S. Department of the Interior Bureau of Land Management 1996. Interagency Technical Reference Utilization Studies and Residual Measurements.

Rockwood, Larry L. 2006. Introduction to Population Ecology

Sanderson, Quigley, and Tiedemann 1990. Response of Herbage and Browse Production in Six Range Management Strategies United States Department of Agriculture.

Schoenecker, Kathryn A. United States Geologic Survey 2004. Bighorn Sheep Studies, Population Dynamics, and Population Modeling in Bighorn Canyon National Recreation Area, Wyoming and Montana, 2000-2003.

Singer, Francis, and Zeigenass United States Geologic Survey, and Colorado State University. Genetic effective size in the Pryor Mountain Wild Horse Herd: Implications for conservation genetics and viability goals in wild horses.

Sponenberg, Philip D. 2003. Equine Color Genetics.

United States of America Public Law 195-92 1971, 1976, 1978, 2004. Wild Free-Roaming Horses and Burros Act as amended.

United States of America, Interior Board of Land Appeals.

United States Geological Survey 1992-1997. Managers' Summary-Ecological Studies of the Pryor Mountain Wild Horse Range

United States Geological Survey 2009. Injection –Site Reactions in Wild Horses (*Equus caballus*) Receiving an Immunocontraceptive Vaccine

Western Regional Climate Center precipitation data <http://www.wrcc.dri.edu/index.html>

APPENDIX I POPULATION MODEL

Population modeling was completed for the PMWHR 2009 Population Management Plan and EA in order to demonstrate a likely outcome of the management scenario. The herd was based upon the demographics from the horse list provided by the Pryor Mountain Wild Mustang Center (except for the estimated 2009 foal crop because foaling season has not concluded). Survival probabilities were used from data Linda Coates-Markle developed and finalized in 2002. One hundred trials were run, simulating population growth and herd demographics to help simulate the projected herd structure for herd after a gather operation. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

Interpretation of the Model

The estimated population of 195 wild horses is for the entire wild horse population excluding current year foal crop within the Pryor Mountains regardless if the animals are residing within or outside the range. Year one is the baseline starting point for the model and reflects wild horse numbers with fertility control vaccine being applied. In this population modeling, year one would be 2009. Although this management scenario is for one season, subsequent years are calculated out. Year two would be exactly one year in time from the original action, and so forth for years three, four, and five. In this model, year ten is 2019. This is reflected in the Population Size Modeling Table by “Population sizes in 10 years” and in the Growth Rate Modeling Table by “Average growth rate over 10 years.” The Full Modeling Summaries contain tables and graphs directly from the modeling program.

Population Modeling Criteria

The following summarizes the population modeling criteria:

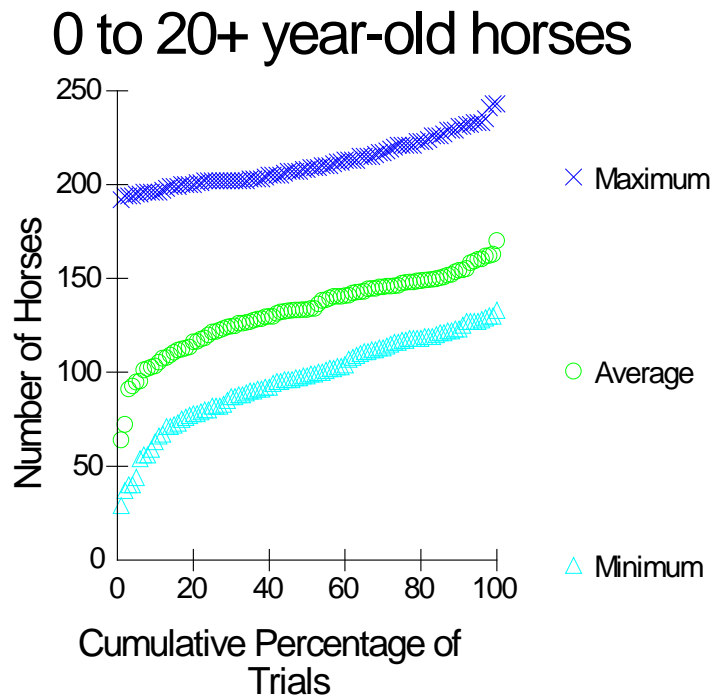
- Starting Year: 2009
- Initial gather year: 2009
- Gather interval: once
- Sex ratio at birth: 50% female-50% male
- Percent of the population that can be gathered: 100%
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each
- Fertility control

Proposed Action Population Model Table and Graphs

This table compares the projected population size and growth rate after a gather conducted in accordance with the Proposed Action. The population averages are across all 100 trials. The population model indicates the average population would be 134 wild horses with an average growth rate of -0.3% or no growth and 63 animals would need to be removed and 95 mares treated if this action is repeated over ten years

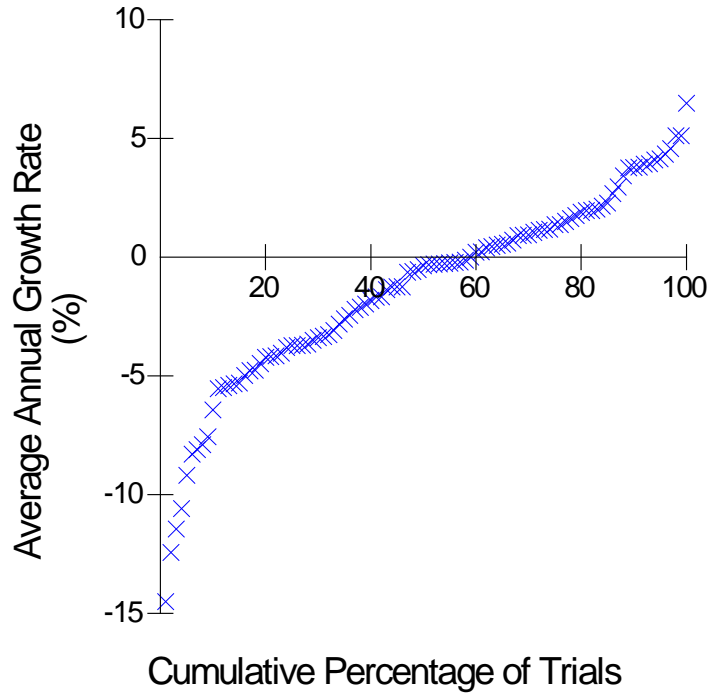
Population Sizes in 11 Years*			
	Minimum	Average	Maximum
Lowest Trial	29	64	192
10th Percentile	64	104	196
25th Percentile	82	122	202
Median Trial	98	134	208
75th Percentile	117	148	221
90th Percentile	124	154	231
Highest Trial	133	170	243

* 0 to 20+ year-old horses



Average Growth Rate in 10 Years

Lowest Trial	-14.5
10th Percentile	-6.0
25th Percentile	-3.7
Median Trial	-0.3
75th Percentile	1.4
90th Percentile	3.8
Highest Trial	6.5



Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	300	47	48
10th Percentile	423	49	77
25th Percentile	482	52	86
Median Trial	528	63	95
75th Percentile	578	84	105
90th Percentile	600	98	112
Highest Trial	666	138	124

* 0 to 20+ year-old horses

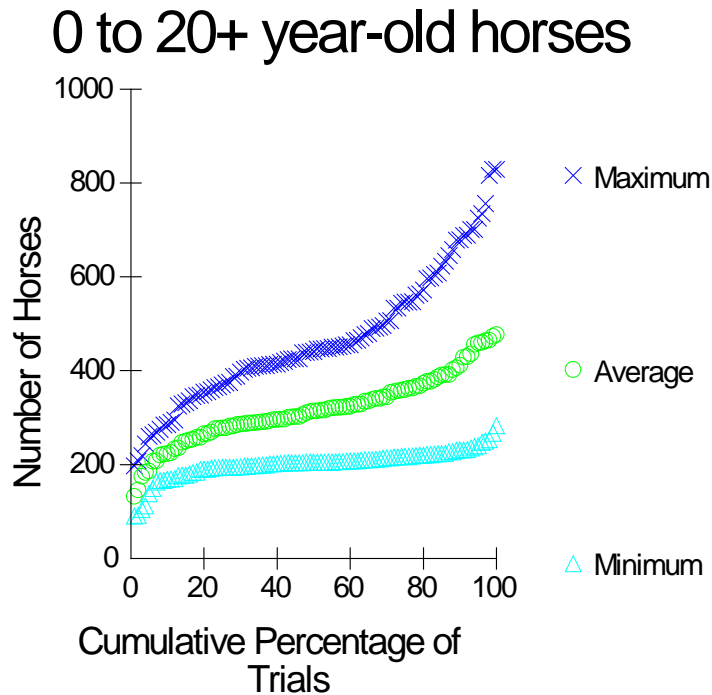
No Action Population Model Table and Graphs

This table compares the projected population size and growth rate without gather conducted in accordance at this time. The population averages are across all 100 trials. The model indicates with no action the population would average 314 wild horses and have a likely growth rate of 7.2%.

Population Sizes in 11 Years*

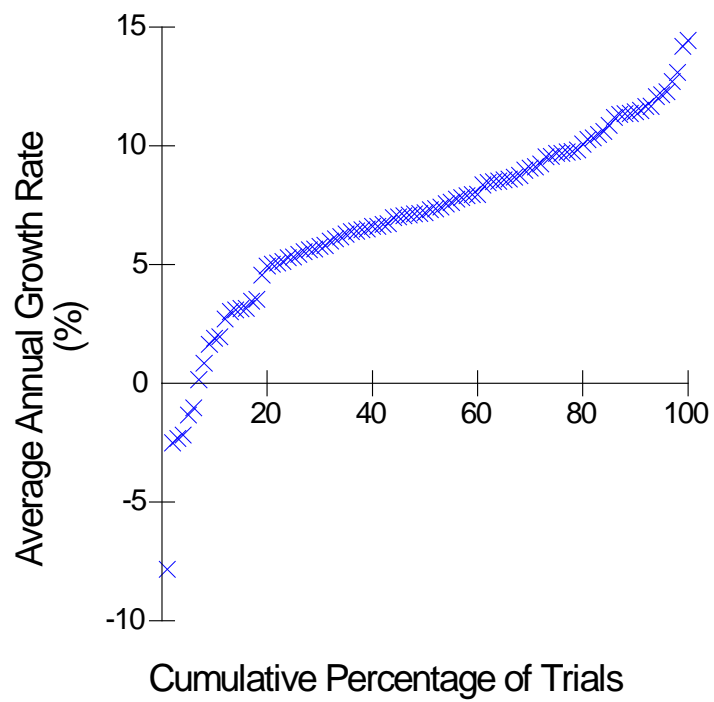
	Minimum	Average	Maximum
Lowest Trial	90	132	197
10th Percentile	168	224	288
25th Percentile	194	278	372
Median Trial	205	314	444
75th Percentile	217	361	546
90th Percentile	231	420	684
Highest Trial	283	477	829

* 0 to 20+ year-old horses



Average Growth Rate in 10 Years

Lowest Trial	-7.8
10th Percentile	1.9
25th Percentile	5.4
Median Trial	7.2
75th Percentile	9.7
90th Percentile	11.5
Highest Trial	14.4



APPENDIX II

Standard Operating Procedures for Wild Horse Gathers

Gathers would be conducted utilizing contractors from the Wild Horse Gathers-Western States Contract or BLM personnel. The following procedures for gathering and handling wild horses would apply whether a contractor or BLM personnel conduct a gather.

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the 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 a large number of animals may need to be euthanized or capture operations could be facilitated by a veterinarian, these services would be arranged before the capture would proceed.

Trap sites and temporary holding sites will be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads.

The primary capture methods used in the performance of gather operations include:

1. Bait Trapping. This capture method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary trap.

The following procedures and stipulations will be followed to ensure the welfare, safety and humane treatment of wild horses in accordance with the provisions of 43 CFR 4700.

A. Capture Methods used in the Performance of Gather Contract Operations

1. The primary concern is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:
 - a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of six feet high and shall be fully covered with plywood or metal without holes larger than two by four inches.
 - c. All runways shall be a minimum of 30 feet long and a minimum of six feet high

for horses and five feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of one to five feet above ground level for burros and one to six feet for horses. The location of the government-furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the gather crew.

- d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of one to five feet above ground level for burros and two to six feet for horses.
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.
2. No modification of existing fences will be made without authorization from the agency of jurisdiction.
3. When dust conditions occur within or adjacent to the trap or holding facility, the contractor shall be required to wet down the ground with water.
4. Alternate pens within the holding facility to separate mares or jennies with small foals, sick and injured animals, strays, or other animals determined need to be housed in a separate pen from the other animals. Animals shall be sorted according to age, number, size, temperament, sex, and condition when in the holding facility to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age or sex or for other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. The contractor shall furnish alternate pens to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the BLM.
5. A continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. An animal held at a temporary holding facility through the night is defined as a horse/burro feed day.
6. It is the responsibility of the contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

7. Animals shall be transported to final their destination from temporary holding facilities within 24 hours after capture unless prior approval is granted for unusual circumstances. Animals to be released back into the herd management area following gather operations may be held up to 21 days or as directed by the COR/PI. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted. No shipments shall be scheduled to arrive at final destination on Sunday and federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three hours in any 24-hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site.

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

1. Capture attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap. The following applies:
 - a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
 - b. All trigger and/or trip gate devices must be approved by the BLM prior to capture of animals.
 - c. Traps shall be checked at least once every 10 hours.

C. Use of Motorized Equipment

1. 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.
2. All motorized equipment, tractor-trailers, and stock trailers 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.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of six feet six inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two partition gates providing three compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of six feet high and shall have a minimum of a five-foot-wide swinging gate. The use of double deck tractor-trailers is

unacceptable and shall not be allowed.

4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. 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 all trailers must be strong enough so that the animals cannot push their hooves through the side
- 5.
6. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.
7. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:
 - 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
 - 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
 - 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
 - 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).
8. The BLM shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The BLM shall provide for any brand and/or inspection services required for the captured animals.

D. Safety and Communications

1. The Agencies involved shall have the means to communicate with the all personnel engaged in the capture of wild horses utilizing a VHF/FM transceiver or VHF/FM portable two-way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.
 - a. All accidents occurring during the performance of any task order shall be immediately reported to the field office.

E. Site Clearances

Personnel working at gather sites will be advised of the illegality of collecting artifacts.

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary

clearances (archaeological, T&E, etc.). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up.

Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

F. Animal Characteristics and Behavior

Releases of wild horses would be near available water if the area is new to them, a short-term adjustment period may be required while the wild horses become familiar with the new area.

G. Public Participation

Opportunities for public viewing (e.g., media, interested public) of gather operations will be made available to the extent possible; however, the primary considerations will be to protect the health, safety and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

H. Responsibility and Lines of Communication

Jared Bybee or delegate has direct responsibility to ensure human and animal safety. Billings Field Manager Jim Sparks will take an active role to ensure that appropriate lines of communication are established between the field, field office, state office, national program office, and BLM holding facility offices. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity and public contact and inquiries will be handled through the Billings Field Manager and Montana State Office of External Affairs. These individuals will be the primary contact and will coordinate with the COR on any inquiries.

The BLM delegate will coordinate with the corrals to ensure animals are being transported from the capture site in a safe and humane manner and are arriving in good condition.

The BLM require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced.

Appendix III

Standard Operating Procedures for Population-level Fertility Control Treatments utilizing the 22-month time-release pelleted vaccine

22-month time-release pelleted vaccine: The following implementation and monitoring requirements are part of the Proposed Action and Alternative I:

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.
2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18 gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14 gauge needle. These are delivered using a modified syringe and jabstick which injects the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time release cold capsule.
3. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mares are restrained in a working chute. 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (Freund's Modified Adjuvant, a compound that stimulates antibody production). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, just above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
4. Mares which have never been treated would receive 0.5 cubic centimeters (cc) of the PZP vaccine that has been emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) a compound that stimulates antibody production) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine that has been emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
5. Potentially, the vaccine may be administered remotely using an approved long range darting protocol and delivery system.
6. All treated mares will be freeze-marked on the hip or can be clearly identified through photographs or markings to enable researchers or HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

Monitoring and Tracking of Treatments:

1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e. # of foals to # of adults).
2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using ground, helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine HMA field monitoring (on-the-ground), data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.
3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be

forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.

4. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

Appendix IV

Standard Operating Procedures for Population-level Fertility Control Treatments utilizing the one-year liquid vaccine

One-year liquid vaccine: The following implementation and monitoring requirements are part of Alternative III:

1. PZP vaccine would be administered through darting by trained BLM personnel or collaborating research partners only. For any darting operation, the designated personnel must have successfully completed a Nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
3. The liquid dose of PZP vaccine is administered using 1.0 cc Pneu-Darts with 1.5" barbless needles fired from either Dan Inject® or Pneu-Dart® capture gun.
4. Only designated darters would mix the vaccine/adjuvant and prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a capture gun.
5. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the mare is standing still.
6. Safety for both humans and the horse is the foremost consideration in deciding to dart a mare. The Dan Inject® gun would not be used at ranges in excess of 30 m while the Pneu-Dart® capture gun would not be used over 50 m, and no attempt would be taken when other persons are within a 30-m radius of the target animal.
7. No attempts would be taken in high wind or when the horse is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.
8. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.
9. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.
10. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.
11. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the horse at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine.
12. All mares targeted for treatment will be clearly identifiable through photographs to enable researchers and HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

13. Personnel conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with the Project Veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the Project Veterinarian, providing all available information concerning the nature and location of the incident.

14. In the event that a dart strikes a bone or imbeds in soft tissue and does not dislodge, the darter would follow the affected horse until the dart falls out or the horse can no longer be found. The darter would be responsible for daily observation of the horse until the situation is resolved.

Monitoring and Tracking of Treatments:

1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e. # of foals to # of adults).

2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using ground, helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine HMA field monitoring (on-the-ground), data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.

3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.

4. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

Appendix V

Genetics Data Collection Instructions

Analysis of DNA to determine genetic diversity of wild horse and burro (WH&B) herds is now being done using hair samples rather than blood samples. Unless there is a previously recognized concern regarding low genetic diversity in a particular herd, it is not necessary to collect genetic information at every gather. Typical herds should be sampled every 10-15 years. A new baseline does not need to be established through hair analysis if blood analysis has already been completed. Please follow the instructions below for collecting the hair samples and call Alan Shepherd, WH&B Research Coordinator, if you have any questions. While it is preferred to sample release horses you may also sample removed horses if necessary. In complexes or HMAs where separate breeding populations are thought to exist, each group of animals in a distinct population should be sampled separately. Do not mix samples from different horses or different breeding populations. Minimum sample size is 25 animals or 25% of the post-gather population, not to exceed 100 animals per population. Samples should be collected from males and females in the same approximate ratio as the population. Animals of any age class may be sampled. Burros should be sampled in the same manner as horses.

1) You will need one plain white paper envelope, a white #10 business envelope works best, for each horse. Do NOT routinely use plastic or zip-lock bags; do NOT use plastic coated envelopes or envelopes with windows in them.

2) Hair samples must be obtained by pulling the hair NOT cutting or shaving it off the horse. The DNA is in the root follicle not the hair itself. Mane hair will work, but on foals or young horses you may need to obtain tail hair. Please submit about 30 hairs per animal. A bundle of 30 hairs is about the diameter of a pencil.

The easiest way to pull a good sample is to grasp a bundle of hair and wrap it around a clean mane comb or hoof pick. Holding the bundle close to the neck, pull *straight out* firmly. Foal hair is more brittle and tends to break off. If you are having trouble getting hair with the root attached try obtaining a tail hair sample instead.

3) Check that you have the hair roots or hair bulbs attached to the hair at the base. They feel like little bumps on the end of each hair.

Keep the hair in a loose bundle pointed in one direction or twist it together and place it in an envelope. You can cut off excess hair and leave only a few inches with the hair root attached to put in the envelope if that is easier.

4) Seal the envelope and *write the sample number on the envelope*. Write the sample number along with the horse's color, sex and age on the data collection sheet. If animals cannot be aged in years, at least record adult, yearling or foal.

Keep stray hairs out of the comb and off your clothes so they don't contaminate the next sample. Please NOTE: It is best to sample when the hair is dry. If you need to sample when it is raining or the horses are wet, then DO use zip-lock bags for each sample AND keep the samples cool not frozen (refrigerate then shipped with cold packs) until they arrive at the lab.

Please fill out the top of the form completely, including the HMA number and date the sample was collected.