

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BILLINGS FIELD OFFICE

ENVIRONMENTAL ASSESSMENT

PRYOR MOUNTAIN WILD HORSE RANGE

**FY2003: Fertility Control on
Select Wild Horse Mares**

**FY2003: Selective Removal
of Young Wild Horse Stallions**

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TABLE OF CONTENTS

	<u>Page</u>
I. <u>Introduction</u>	5
II. <u>General Area, Population Description and Background Data</u>	6
A. Location	
B. Population Demographics and Genetic Viability	
a) Herd Census Activity	
b) Herd Social Structure	
c) Herd Age Structure and Sex Ratio	
d) Mare Foaling Rates and Foal Survival	
e) Herd Natural Mortality	
f) Herd Genetic Viability	
III. <u>Proposed Management Actions</u>	9
1) Humane-use of Fertility Control on Yearling Mares, Two-year Old Mares and Mares 14 Years of Age and Older	9
A. Purpose	
B. Need	
C. Objectives	
D. Proposed Fertility Control Agent	
E. Vaccine Quality and Remote-Delivery Protocol	
F. Permission and Criteria for Vaccine Use	
2) Partial Gather and Selective Removal of Young Wild Horse Stallions	12
A. Purpose	
B. Need	
C. Objectives	
A. Justification for Removal of Excess Horses	
D. Capture Operations and Adoption	
IV. <u>Authority for Proposed Actions</u>	16
V. <u>Conformance with Existing Land Use Plans</u>	17
VI. <u>Alternative Management Actions</u>	17
A. Use of Fertility Control for Reducing Foal Production in All Age Classes of Mares	
B. Full Gather Effort and Selective Removal of Pryor Mountain Wild Horses for Population Control	

- C. No Action Alternative: No Removals of Any Ages of Animals
- D. No Action Alternative: No Use of Fertility Control on Any Age Class of Mares

VII. **Affected Environment, Environmental Impacts and Mitigation Measures**..... 20

- A. Affected Environment
- B. Environmental Impacts and Mitigation Measures
 - a) Pryor Mountain Wild Horse Herd
 - b) Wilderness Study Areas (WSA)
 - c) Visual Resources, Recreation, and Hunting
 - d) Areas of Critical Environmental Concern (ACEC)
 - e) Sensitive Plants and T&E Species
 - f) Vegetation
 - g) Terrestrial Wildlife
 - h) Livestock Grazing and Trailing
 - i) Waste, Hazardous or Solid
 - j) Soils

VIII. **Consultation and Coordination**..... 28

- A. List of Preparers
- B. Individuals, Groups, and Agencies Consulted

IX. **Fonsi**..... 28

X. **References Cited**..... 29

- i. Figures
- ii. Appendices

LIST OF FIGURES

- Figure 1 – Mare Pregnancy Results PMWHR Spring 2003
- Figure 2 - Age Structure and Sex Ratio PMWHR Spring 2003
- Figure 3 – Mare Interchange Activity PMWHR 1998-2002 (2 years of age and older)
- Figure 4 - Mare Interchange Activity PMWHR 1998-2002 (yearlings and older)
- Figure 5 - Harem Interchanging Mares Losing Foals PMWHR 1999-2002
- Figure 6 – Ages of Interchanging Mares PMWHR 1998-2002
- Figure 7 – Herd and Foal Crop Sex Ratio PMWHR 1971-2002
- Figure 8 - Annual Foaling Rate PMWHR 1996-2002
- Figure 9 – Age Class Foaling Rates PMWHR 1996-2002
- Figure 10 - Population Numbers PMWHR 1971-2002
- Figure 11 - Foaling Periods PMWHR 1996-2002
- Figure 12 – Annual Foal Production per Age Class of Mares PMWHR 1996-2002
- Figure 13 – Rate of Increase in Herd Size PMWHR 1971-2002
- Figure 14 – Annual Foal Crop Survival PMWHR 1996-2002
- Figure 15 – Total Foal Production PMWHR 1996-2002
- Figure 16 – Recorded Mortality PMWHR 1996-2002
- Figure 17 – Foals Born and Surviving by Gender PMWHR 1996-2002
- Figure 18 – Grazing Impacts in Critical Use Areas PMWHR 1995-2002

LIST OF APPENDICES

- Appendix 1 - Pryor Mountain Wild Horse Population Demographics 1971-2002
- Appendix 2 - Fall 2002 Pryor Mountain Wild Horse Survey (as of Nov 20, 2002)
(indicating selected fertility control mares and young males for removal)
- Appendix 3 - 2003 Protocol for the Treatment of Wild Horses on the PMWHR with a Porcine Zona Pellucida (PZP) Contraceptive Vaccine
- Appendix 4 - Specific Operating Procedures for the 2003 PMWHR Gather and Removal
- Appendix 5 - Standard BLM Operating Procedures for Removal and Safety 2003
- Appendix 6 - Distribution List of Public Reviewers for EA, April 2003

I. INTRODUCTION

With passage of the Wild Horse and Burro Act of 1971, Congress found that: “Wild horses are living symbols of the pioneer spirit of the West”. In addition, the Secretary of the Interior was ordered to “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands”. From the passage of the Act through present day the Bureau of Land Management (BLM), Billings Field Office (BiFO), has endeavored to meet the requirements of the Act. The procedures and policies implemented to accomplish this mandate have been constantly evolving over the years.

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

The BLM continues to develop and update a long-term research strategy for the Wild Horse and Burro Program. A final draft of the current research strategic plan was reviewed and supported by the National Wild Horse and Burro Advisory Board in August 2002, and the BLM Director’s Science Advisory Board in January 2003. Within this strategy, continuing research on fertility control has been identified as a high priority. The implementation of additional fertility control field trials, under this research protocol, occurred in the summer 2002. Participation by the Pryor Mountain Wild Horse Range in this effort was assessed and determined by EA# MT-010-02-22 (EA available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO) and a Decision Record dated June 14, 2002. As a result, 11 yearlings and 6 two year-old mares received a primer and booster dose of PZP in 2002. The BLM proposes to continue with research-based fertility control efforts on the PMWHR in 2003.

The main goal of the 2001 PMWHR Gather (EA # MT-010-01-44) was to reduce the herd to a size that would not negatively impact its genetic viability in the short term nor cause irreparable harm to the range (EA available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO). As emphasized in this Environmental Assessment (EA), all available evidence including research, adaptive modeling and range monitoring efforts concur that PMWHR range conditions may suffer markedly under the prolonged impact of a wild horse population surpassing 200 animals in size. Research efforts have also shown that reducing the PMWHR population below 140-150 total herd size, over the long term, could have negative effects on its genetic viability. This suggests that 140-150 horses should be considered a minimum herd size under the BLM mandate to manage for a self-sustaining population.

The last herd census (Appendix 1) indicates there is a total of about 170 horses currently on the range. Based on Spring 2003 mare pregnancy results (Figure 1), an estimate of 35 foals are expected this year. This may result in a 2003 herd size above 200 total horses. With a proposed partial gather effort involving young wild horse stallions, BLM’s intent for 2003 would be to reduce the herd to a size that would not negatively impact its genetic viability in the short term nor cause irreparable harm to the range. This would allow time for further interagency and public

discourse as BiFO proceeds with on-going data evaluation and the herd plan revision for the Pryor Mountain wild horse herd.

This document outlines relevant information about the Pryor Mountain wild horse herd and presents alternatives for a partial gather of young wild horse stallions as well as continuing research with fertility control on wild horse mares. It also addresses the justification, methods and procedures to be used in implementing these actions, and assesses the environmental impacts of such actions on the Pryor Mountain Wild Horse Range (PMWHR). The Proposed Action section and Standard Operating Procedures for Removal and Safety (Attachments 1A and 1B) of this EA serve as the 2003 Operational Gather Plan.

Public comments to the EA, must be submitted in writing, contain original signatures and be postmarked by May 16, 2003. The proposed partial gather and fertility control activities are scheduled to begin no earlier than July 7, 2003 and may continue sporadically through September 30, 2003. Boostering of mares within the proposed fertility control program would continue until all identified mares are fully treated. Based on concerns regarding gather activity impacts on young foals, gather efforts would probably occur towards the end of the proposed time period. (September 2003). Culmination of the gather effort, with an organized oral competitive-bid adoption, would be advertised to the public via a press release. The adoption would be held at the BLM Britton Springs Administrative Site, near Lovell, Wyoming.

A public hearing, regarding the use of helicopters in this proposed action, will be held on Thursday, June 26, 2003 (7 pm) at the Bighorn Canyon National Recreation Area Visitor Center, in Lovell, Wyoming.

Any subsequent gather or fertility control efforts, involving animals not identified in this EA, would be covered by additional NEPA documents.

II. GENERAL AREA, POPULATION DESCRIPTION and BACKGROUND DATA

A. LOCATION: The Pryor Mountain Wild Horse Range (PMWHR) is located in the southeastern portion of Carbon County, Montana and extends into the northern portion of Big Horn County, Wyoming (maps available at <http://www.mt.blm.gov/bifo/whb/information.html> or by contacting BiFO). The range is approximately 13 miles north of Lovell, Wyoming. The PMWHR was created in 1968 by order of the Secretary of the Interior, Stewart L. Udall. This designation was the first of its kind in the United States, and directs that management of the wild horses be within a balanced program, which considers all public values without impairment to the productivity of the land. Henceforth this area has been administered for the protection and management of wild horses, wildlife, watershed, archeological, recreational, and scenic values. The order also states that the BLM will manage the range in a manner compatible with the Bighorn Canyon National Recreational area, which is adjacent to East Pryor Mountain.

The PMWHR encompasses about 38,000 acres and includes BLM, National Park Service (Bighorn Canyon/Dryhead), Custer National Forest (lower Lost Water Canyon), and private lands (Krueger). Natural topographical barriers (westside - Crooked Creek; eastside - Bighorn

Canyon), as well as man-made barrier fence lines to the north and south, restrict the majority of horses to available range. Otherwise the Pryor herd freely roams throughout the range, largely unrestricted by internal fences.

The wild horses are seasonally migratory, however, and winter in the lower and mid-elevations where typical snow-depths range from 0-25 cm. The mid-elevation ridges and plateaus are nearly always snow-free because of wind and exposure to winter sunshine. The horses typically do not spend the winter in the subalpine meadows where snow-depths may exceed 1 m for several months. During other times of the year, especially mid to late summer, horse distribution seems to be restricted to the upper elevations within easy access of forage and nearby water reservoirs. Additional background information can be found at <http://www.mt.blm.gov/bifo/whb/information.html> or by contacting BiFO.

B. POPULATION DEMOGRAPHICS and GENETIC VIABILITY:

Specific details regarding the appropriate management level (AML) for the herd, colonial Spanish phenotype, population color balance, demographics, genetic viability, and reproductive fitness were addressed within the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) as well as the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents for additional herd descriptive information. Updated information for consideration in the current EA is presented below.

a) Herd Census Activity: The Pryor Mountain wild horse population comprises a harem band social structure with associated bachelor groups. Individual horses can be recognized by coat color and scars, facial and leg markings, and group association and are tracked annually using a CD-ROM wild horse management database (WHIMS) developed by BRD-USGS researchers (Appendix 2). Within the last decade, population census and monitoring has comprised a combination of aerial census (a maximum of twice annually) and year-round ground surveys by BLM employees, student interns, and public volunteers. The composition of harems and dominant stallions is fluid in nature, and therefore this information is tracked on an on-going basis primarily from May through November of each year.

Current estimates place the population at 23 yearlings and 147 adults as of November 20, 2002 (Figure 2; Appendix 2). Based on Spring 2003 mare pregnancy results (Figure 1), a minimum of 35 foals are expected this year. This may result in a 2003 herd size above 200 total horses. The impacts of winter (2002-2003) mortality and 2003 foal births on the herd will be determined by field personnel and evaluated by management prior to the initiation of any proposed activity.

b) Herd Social Structure: According to available data (Hall, 1972; Garrott and Taylor, 1990) and recent research (Singer et al, 2000), the number of harems within the PMWHR changes due to population demographics and has increased from 18 to 31 in the last decade. This increase has been correlated with a decreasing number of average mares per harem and an overall increase in the number of male horses on the range. In addition, the population is characterized by having

one the highest rates of mare interchange between harem stallions recorded for wild horse herds. An average of around 40% of all mares interchange between harems per year (Figures 3 and 4). Sometimes foals are abandoned or injured and subsequently die because of this activity (Figure 5). Furthermore, a high rate of interchange activity between harems appears to be the "norm" for yearling and especially two-year old mares (Figure 6). This interchange activity has resulted in a fairly fluid or unstable social structure and one where the stallions seem to be the dominant decision-makers on the range.

c) Herd Age Structure/Sex Ratio: A typical age structure for a wild ungulate herd would be pyramidal in shape with the majority of animals in the youngest age categories. This has historically been (Perkins *et al.*, 1979), and currently is (Figure 2), the structure for the PMWHR herd. There is a slight tendency towards bimodality (some age groups under-represented) and it is possible that age selective management has contributed to this condition. Bimodality could present a problem if severe climate, or other extreme environmental factors, were to have a negative influence on foal production (or survival) during years when smaller numbers of horses comprise the core breeding age classes. As such, a more uniform age structure would provide the population with more resilience to these catastrophic events. The maximum age of horses on the range appears restricted, with limited numbers of horses older than 15-16 years. It is probable that environmental conditions such as severe winters have contributed to this pattern.

The herd has experienced wide variations in sex ratio (Figure 7) over the years. Wide variation has especially been seen in the foal crop during the last decade. Researchers (Singer *et al.*, 2000) have indicated that an emphasis on the production of male foals suggests females may be in overall better condition.

d) Mare Foaling Rates and Foal Survival: BLM and BRD research efforts characterize the herd as having a moderate foaling rate of ~53% (Figure 8), with noted variation among age classes of mares (Figure 9). Long-term trends in the production of live foals indicate an annual average of 26 foals (Figure 10), primarily born during the months May-June (Figure 11). The actual foaling rate may be somewhat higher, as the incidence of early post-natal deaths may be higher than previously recorded. Mares aged 3-13 years appear to primarily contribute to foal production (Figure 12). In general, there appears to be only limited conception by yearling fillies with foaling as two-year olds (under 10% of age class).

Annual rates of population increase have also varied tremendously (Figure 13) in this herd. During more recent years (1996-2002), foal survival has been impacted (Figures 14 and 17) as much as 30% by mountain lion and black bear predation as well as mare interchange related foal injuries and foal abandonment. Since average herd foaling rates have appeared to drop by 10% over this same period, annual rates of population increase have dropped to about a 10% level. It is interesting to note that the recent increase in conception and foaling by 3 year olds in 2000-2002 (Figure 15) may have been a population response to reduced foal survival (Figure 17). Some of these young mares and their foals died, and all mares initially were in poor physical condition due to the energy demands of gestation and lactation. Despite these concerns, current estimates of herd foaling success are indicative of a healthy and productive wild horse population. The recent trend of decreasing foal survival continues to be monitored closely by the BLM.

e) Herd Natural Mortality: Data from earlier research studies (see 2001 Gather Plan, MT-010-1-44) have been used to define patterns of natural mortality (due to predators, disease, and environmental exposure) within the Pryor Mountain wild horse herd. These data have been compared to known deaths and carcass retrieval information from more recent studies (Figure 16), as well as age-class related survival estimated from tracking known individuals on the range. There appears to be relatively limited mortality across most age classes, with more deaths occurring among younger and older horses (Figure 16). It also appears that females are more susceptible to a shorter lifespan, perhaps as a result of energy expenditure in years of foal production.

f) Herd Genetic Viability: According to recent studies by Cothran (2002) and Cothran and Singer (2000), current levels of genetic diversity within the Pryor Mountain herd appear to have limited vulnerability to inbreeding depression. In fact, genetic variation is relatively high for a wild horse population and well above the mean for domestic breeds. The impact of inbreeding is apparently much less than would be expected in a horse population of its current size. Since inevitable loss of genetic variation could reduce long-term adaptability and survivability of the herd, it is important to continue to regularly track herd diversity.

A primary concern is that the current level of herd genetic variation is based on high allelic diversity within the herd. Over 50% of this material is considered rare and present at low frequency levels. These alleles are at a relatively high risk of being lost, especially at low population sizes (<200 animals). Due to the relatively long generation time of horses (~10 year span) and the long reproductive life span of individual horses, maintenance of genetic variability within the population is not yet at a critical level. There are, however, several alternative management strategies, which can be used to promote genetic conservation within the herd (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999).

From a management standpoint, increasing population size is not always an effective method of conserving herd genetic health. For example, if management suggests setting a conservation goal for maintaining 90% of existing diversity over the next 200 year period, then Gross (2000a) has demonstrated that the Pryor herd size would need to be increased to levels far beyond that which the Pryor range could sustain (see 2001 Gather Plan, MT-010-1-44). However, other alternatives do exist and any management action that serves to delay the age of first reproduction for mares (by removing or contracepting young mares) would reduce the number of lifetime matings for those animals. This would act to reduce the total loss of genetic material from the herd due to random matings (genetic drift), and serve to conserve genetic variation within the herd over time. These concepts have been specifically modeled for the Pryor herd and subsequently published in peer-reviewed journals by Gross (2000b).

III. PROPOSED MANAGEMENT ACTIONS:

- 1) **Humane-use of Fertility Control on Yearling Mares, Two-year Old Mares and Mares 14 Years of Age and Older**

A. PURPOSE: Under this alternative, all yearling and two-year old mares, as well as those 14 years and older, currently on the range, would receive contraception. In support of humane management and compassionate use of fertility control, BLM is recommending that all 10 yearling and 11 two-year old mares (Figure 2; Appendix 2) within the Pryor herd receive primer and booster doses (or just booster doses) of immunocontraceptive Porcine Zona Pellucida (PZP) vaccine. The vaccine would induce one year of infertility, allowing the mares to mature in a healthier condition, before becoming pregnant and producing and supporting a foal. Contracepting younger mares also affords advantages to herd genetic diversity and this has been researched and evaluated for the Pryor herd (Gross, 2000a,b). Individual contracepted mares would have their genetic contributions delayed but not removed from the herd.

Humane fertility control would undoubtedly benefit older mares as well. This has been clearly demonstrated for older mares on Assateague Island National Seashore (Turner and Kirkpatrick, 2002). Most mares on the Pryors start producing by age three and then steadily produce foals either every year or every other year. Generally foal production ceases by the 16th year on the Pryors (Figures 9, 12 and 15). Most mares do not live much beyond this age (Figures 2 and 16). Humane contraception would permit older mares a year or more of existence on the range in better physical condition. As all of these mares have already made genetic contributions to the herd (data on file at BiFO), there would be minimal impact to the genetic diversity of the herd by reducing their lifetime contribution by an estimated one foal.

Therefore, the Billings Field Manager proposes to apply fertility control to select younger and older wild horse mares, under a humane-use application, in order to achieve and maintain a healthy and genetically viable Pryor Mountain wild horse population.

B. NEED: In the last 7 years (1996-2002), BLM monitoring has shown that a total of 5 two-year old mares and 30 three-year old mares have produced foals (Figure 15). Their contribution to annual production has averaged <1 foal per year from the two-year old age class, and ~4 foals per year from the three-year old mares (Figure 12). The largest annual contribution from three-year old mares was in 2000 and presumably in response to notably increased foal mortality the year before. In several cases, the energetic demands of gestation and/or lactation had deleterious impacts on these mares. Since 1996, several young mares have lost their foals. In fewer cases, both mare and foal died. Young mares have also suffered serious injuries presumably during a prolonged or difficult labor. All young mares have been in poor body condition post-foaling (1-2 condition factor, out of a possible 5), in stark contrast to young mares that were naturally delayed in foal production. Several of these mares have taken 1-2 years to improve their condition. Several of these mares and one foal were removed from the range during scheduled gathers, for adoption purposes, due to concerns about survivability on the range.

Currently there are 8 mares, 14 years of age and older (Figure 2; Appendix 2), on the range. Spring 2003 pregnancy data (Figure 1) indicate that 7 of 8 of these mares will probably foal in 2003. The pregnancy status for the 8th mare is undetermined at this time. Monitoring has indicated that since 1996, these older age classes of mares have had limited conception, tend to skip foaling years and have produced an average of 2 foals per year (Figure 12). It is likely that these mares will naturally not conceive in 2003 nor produce a foal in 2004. The application of a one-year agent would delay pregnancies in 2004 as well. This would allow these mares at least 2

years of recovery post-foaling, providing an opportunity for improvement in physical condition and health. By 2005, most mares of these mares would be old enough to succumb due to natural causes. This application of fertility control would also allow us to determine, if in fact, 1-2 years of relief from foal production would extend the lives of these older mares.

C. OBJECTIVES: The objectives of this proposed action are to:

- 1) implement the humane-use of a one-year fertility control agent to 21 young mares and 8 older mares on the PMWHR;
- 2) specifically provide fertility control primers and boosters (at least one month apart) to 10 yearling mares born in 2002 and 1 two-year old (2001) mare (Appendix 2);
- 3) specifically provide fertility control boosters to 10 two-year old mares (Appendix 2);
- 4) specifically provide fertility control primers and boosters (at least one month apart) to 8 fourteen years of age and older mares (Appendix 2);
- 4) conduct safe, successful and minimally-intrusive remote-delivery of fertility control vaccine in the field (Appendix 3);
- 5) support recommendations within the Wild Horse and Burro Strategic Research Plan and conduct monitoring under research protocol within the BLM National Wild Horse Fertility Control Field Trial program including impacts on herd foaling rates, foaling seasonality, herd genetic viability, and individual mare body condition, fitness and behavior.

Fertility control provided in the summer of 2003 would impact 2004 pregnancies only. The impact of the proposed action on population demographics including herd size, age structure and sex ratio over time have been evaluated. The numbers, age, and sex of animals for the proposed action are supported by recent research on genetic viability of the herd (Gross, 2000a,b). Herd data has also been applied to WinEquus (Wild Horse Population Model Version 1.4; April 2, 2002) developed by Dr. Stephen Jenkins, Associate Professor, University of Nevada, Reno and available at <http://unr.edu/homepage/jenkins>. Details on all completed research efforts have been made available to the public on an on-going basis and parameters and output for specific population modeling runs are on file at the Billings Field Office (BiFO).

D. PROPOSED FERTILITY CONTROL AGENT: At this time, all published research indicates that the Immunocontraceptive Porcine Zona Pellucida (PZP) vaccine meets BLM requirements for an ideal contraceptive agent including criteria for safety and efficacy (Appendix 3). When injected, PZP vaccine acts as an antigen and causes the mare's immune system to produce antibodies. These antibodies then bind to eggs in the mare's ovaries and effectively block sperm binding and fertilization (ZooMontana, 2000). The vaccine is relatively inexpensive (\$20 per dose), can be remotely administered in the field, and requires a single annual booster dose to confer infertility for one breeding season. Research has shown that contracepted mares clearly show improvements in body condition and may actually live longer (Turner and Kirkpatrick, 2002). From a mare physiological standpoint, PZP contraception appears to be completely reversible (Kirkpatrick and Turner, 2002), does not appear to cause out-of-season births (Kirkpatrick and Turner, in prep.), and has no ill effects on ovarian function if contraception is not repeated for more than 5 consecutive years on a given mare.

If mares are already pregnant, research has shown that PZP vaccine will not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions (see

EA# MT-010-02-22, Appendix 6). Recent behavioral studies with the Assateague Island and Shackleford Banks wild horses (Powell, 1999; Rogers, 2001) have shown that contracepted and uncontracepted mares had virtually identical activity budgets, associated in a similar manner with the harem stallion and showed no increase in harem exchange behavior or change in their social status during the study. All mares affected by the proposed action would continue to be monitored for body condition and aspects of social behavior. The latter would be compared to existing baseline data and control studies (Anderson, 1998; Jenson, 2000; Harty, 2000; Meredith, 2001, BRD on-going studies, 2002).

E. VACCINE QUALITY and REMOTE-DELIVERY PROTOCOL: All PZP vaccine used on mares within the PMWHR would be provided by the Science and Conservation Lab (SCC), ZooMontana and subjected to quality control testing (see EA# MT-010-02-22, Appendix 7). All documented aspects of PZP vaccine provision, mare selection, vaccine remote-delivery, dart recovery, record keeping, veterinary emergencies, and media relations would be strictly adhered to by all participants in the proposed action (Appendix 3). This protocol shall serve as the Standard Operating Procedures (SOPs) for this proposed management action. Implementation of the SOPs would take into consideration all safety concerns, individual animal health and condition, seasonal distribution of the horses, as well as local weather and environmental considerations.

Due to known summer horse distribution during the months of July, August and September (see EA# MT-010-02-22, Appendix 8), it is anticipated that most darting activity would take place in the upper elevations of the PMWHR. Minimal darting activity is also expected on the National Park Service (NPS) portion, Bighorn Canyon National Recreation Area, of the horse range and within upper elevation Custer National Forest lands (USFS) outside of the designated horse range. Permission was sought and has been granted by responsible management agencies to dart in these other areas, as necessary.

F. PERMISSION and CRITERIA for VACCINE USE: The Humane Society of the United States (HSUS) has made the PZP vaccine available to the BLM under the Investigational New Animal Drug exemption (INAD #8857) filed with the federal Food and Drug Administration (FDA) (see EA# MT-010-02-22, Appendix 9). As a condition of using the PZP vaccine, the HSUS expects the BLM to follow the Draft Criteria for Immunocontraceptive Use in Wild Horse Herds recommended by the Wild Horse and Burro National Advisory Board in August 1999 (see EA# MT-010-02-22, Appendix 10). BiFO, in its management of the PMWHR, is in full compliance with all pertaining criteria. The proposed action would also adhere to all guidance and research protocol set by the BLM National Wild Horse Fertility Control Field Trial program.

2) Partial Gather and Selective Removal of Young Wild Horse Stallions

A. PURPOSE: The purpose of this proposed action is to achieve and maintain the determined PMWHR herd AML, maintain sustainable rangelands, and maintain a healthy and genetically viable Pryor Mountain wild horse population. Following a thorough review of existing BLM herd and range monitoring data, results of recent research studies (on herd genetic viability and range ecological site inventories), ecosystem modeling and recognizing that wild horses are to be

managed in a thriving natural ecological balance with other multiple uses and resources, the Billings Field Office manager has determined a need for a partial herd gather and removal of excess horses within the PMWHR. The proposed action would reduce the horse population to a number within the Appropriate Management Level (AML), initially determined by the Herd Management Area Plan (June 1984), and subsequently revised by the Revision of the Herd Management Plan (July 1992). Detailed discussions of AML pertaining to the Pryor Range can be found in the previous 2001 Gather EA (<http://www.mt.blm.gov/bifo/whb/doc2.html>) or by contacting BiFO).

B. NEED: AML is defined as the range of wild horses which an area can support before long-term impacts become deleterious to the herd and other multiple uses of the range. The maximum range of AML is the point at which mitigation of negative impacts requires a gather and removal of excess horses to reduce herd size. The lower range can be determined by the minimum number needed to assure that a genetically viable herd of horses is maintained over the long term.

All available evidence including research, adaptive modeling and range monitoring efforts concur that PMWHR range conditions may suffer markedly under the prolonged impact of a wild horse population surpassing 200 animals in size. Research efforts have also shown that reducing the PMWHR population below 140-150 total herd size, over the long term, could have negative effects on its genetic viability. This suggests that 140-150 horses should be considered a minimum herd size under the BLM mandate to manage for a self-sustaining population.

The last herd census (Appendix 1) indicates there is a total of about 170 horses currently on the range. Based on Spring 2003 mare pregnancy results (Figure 1), an estimate of 35 foals are expected this year. This may result in a 2003 herd size above 200 total horses. Due to critically limited funding within the National Wild Horse and Burro Program FY2003, funds are not available to support a large-scale gather operation on the Pryors this year. Available funds will only support a partial gather and removal of excess horses. This proposal to gather would not be advanced at all without additional funding and support coming from both the Custer National Forest and the Bighorn Canyon National Recreation Area.

BLM therefore proposes that a partial gather effort involving 15-20 yearling and 2-year old wild horse stallions (Appendix 2), would be adequate to reduce the herd to a size that would not negatively impact its genetic viability in the short term nor cause irreparable harm to the range.

In addition, this gather effort would allow time for further interagency and public discourse as BiFO proceeds with on-going range monitoring and studies, data evaluation and the herd plan revision for the Pryor Mountain wild horse herd. The herd plan revision is currently on hold pending completion of the NRCS Ecological Site Inventory for the Pryors in early 2004.

C. OBJECTIVES: The objectives of this proposed action are to:

- 1) reduce population size to level which would permit both a healthy and genetically viable herd as well as a thriving natural ecological balance to be maintained on the range;
- 2) conduct a safe and successful gather and removal effort having minimal impact on the existing herd age structure, sex ratio and phenotypic composition and maintain the breeding

integrity of the herd social structure.

3) specifically conduct a partial gather and removal of 15-20 yearling and 2-year old wild horse stallions (Appendix 2), reducing the herd to a size that would not negatively impact its genetic viability in the short term nor cause irreparable harm to the range.

Removal decisions would be selective (Appendix 2), with priority given to maintaining a genetically viable herd while preserving the population social structure including healthy and reproductively successful individuals. The recommended approach would also be in keeping with previously established selective removal strategies for the Pryor herd (see FY2001 Gather EA at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO).

Young males were particularly elusive to gather efforts in FY2001. As such, Appendix 2 highlights 23 yearling and two-year old males that may be considered for removal in FY2003. The intent is to remove no more than one-half of the stallions in each age group. Actual removal, for most horses, would depend on a given animal's susceptibility to the gather effort. Since the population structure is very fluid within the Pryors, proposed actions may need to be re-evaluated and adjusted just prior to the beginning of the gather.

Within the herd, two young males (Appendix 2) have been identified with extremely rare genetic qualities (color alleles) based on evaluations by researchers (P.Sponenberg and G. Cothran, personal communication). For these reasons, it is recommended that these animals not be removed from the range. Responsible management should recognize and retain rare genetic qualities; otherwise, color and conformation (phenotype) are not currently used in developing the selective removal program for this population.

The impact of the recommended removal on population demographics including herd size, age structure and sex ratio have been evaluated. The numbers, age, and sex of animals proposed for the upcoming removal are supported by recent research on genetic viability of the herd (Gross, 2000a,b) and predicted impacts on the range as shown by ecosystem models (Coughenour, 2000). Herd data has also been applied to WinEquus (Wild Horse Population Model Version 1.4; April 2, 2002) developed by Dr. Stephen Jenkins, Associate Professor, University of Nevada, Reno and available at <http://unr.edu/homepage/jenkins>. Details on all completed research efforts have been made available to the public on an on-going basis and parameters and output for specific population modeling runs are on file at BiFO.

D. JUSTIFICATION FOR REMOVAL OF EXCESS HORSES: The long term management goal on the Pryor Mountain Wild Horse Range involves maintaining a balance within the entire ecosystem, of which the wild horses are only a component. The Herd Management Plan (BLM-MT-PT-84-019-4321/June 1984) clearly states that the range should be administered for the protection and management of wild horses, wildlife, watershed, archeological, recreational, and scenic values. A "thriving natural ecological balance" should promote viable populations of multiple floral and faunal species and mutual co-existence. Potentially detrimental conditions, affecting this balance, should be evaluated and corrected prior to evidence of deteriorating range condition and trend.

The primary function of utilization data is to promote and protect the health of the land by

limiting grazing impacts to acceptable levels based on plant physiological responses to grazing. Studies are performed using the Key Forage Plant method (grass species only), which focus on the most vulnerable forage species at each site. Utilization studies are performed on the PMWHR in areas that are identified as known use areas by the horse herd. These use areas change seasonally, and often annually and the horses are not static in the use of the range. In order to stay current with horse use patterns the BLM monitors daily horse activity May through November, and has performed aerial surveys in the late Fall and late Spring of several years. Horse activity is tracked on the basis of individual bachelors, harems and subpopulations. As a result, BLM has been able to identify seasonally changing patterns of use and identify areas to monitor utilization impacts biannually.

Detailed discussions of utilization and actual use studies pertaining to the Pryor Range can be found in the 2001 Gather EA (<http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO). In summary, however, aerial surveys show that during the late Fall through late Spring, horse distribution is relatively uniform across the landscape, but mostly concentrated in the lower and mid-elevations of the range. Monthly actual use studies clearly show the seasonal migration to the upper elevation sub-alpine meadows by both the Burnt Timber and Sykes Ridge subpopulations. As vegetative conditions mature on the upper meadows, several harems from primarily the Burnt Timber subpopulation move north onto undesignated range within the Custer National Forest. Residency time, in this area, is primarily restricted to the months of July through September and is highly variable depending on weather, impacts from predators and possibly visitors to the area. In the last several years, 2-3 harems have become permanent residents in this area.

Recent BLM utilization studies demonstrate the seasonal differences in intensity of multi-species grazing impacts on the range (Figure 18). Average grazing impacts on the range appear light to moderate over the last eight years and are reflective of an average of 165 horses (all ages) on the range, as well as impacts from other grazing species. Consistent with historical trends, the Park Service Dryhead portion of the range, as well as other areas of the lower range, appear to be more heavily impacted from grazing. Horse numbers are not generally high in these areas (Appendix 2), but there is a year-round presence and vegetation production in these areas is limited due to poor soils and limited precipitation. BLM also continues to note and make efforts to remedy limited grazing impacts by trespass cattle on lower Sykes.

Although average impacts on unauthorized Forest Service lands appear to be light (Figure 18, upper FS), the FS maintains its position regarding the undesignated status of these lands for wild horse use. Clearly, grazing opportunities provided by these FS lands have provided obvious relief to the sub-alpine meadows within the designated range. Due to the above concerns, gather activities would primarily concentrate on removing selected young male horses that are more commonly found in the lower Sykes and Dryhead areas of the range. Removals would also concentrate on those young males found on undesignated Custer National Forest lands during late summer.

E. CAPTURE OPERATIONS and ADOPTION: All capture and handling activities would be conducted in accordance with the Standard Operating Procedures for Removal and Safety section of this EA and Gather Plan (Appendices 4 and 5). Selection of capture techniques would

primarily involve the use of a helicopter and would take into consideration animal health and distribution, time of year, and local weather and environmental conditions. Given the logistics of the proposed action, temporary capture trap sites would be pre-selected at appropriate locations throughout the range. Specific bachelors and/or harems containing selected young males would be moved via a helicopter into the nearest trap. Animals would remain in the traps only long enough to sort out the selected animal for removal and then any other animals captured at the same time would be released on site. The excessed horse would be transported via truck and trailer to the Britton Springs facility the same day. No animals would be left in traps unattended. No harems from the upper elevations would be herded to the Britton Springs Administrative Site. It is possible that some isolated young males may be picked up from lower or middle Sykes Ridge, or from the Park Service Dryhead area, and directly herded into Britton Springs.

Based on concerns regarding gather activity impacts on young foals, gather efforts would probably occur towards the end of the proposed time period. (September 2003). The animal capture success rate and available funding would determine the duration of the gather activity. All excessed young stallions would be held at the Britton Springs Administrative Site and corral facility, at the base of the PMWHR, until the scheduled adoption. Culmination of the gather effort, with an organized oral competitive-bid adoption, would be advertised to the public via a press release. The adoption would be held at the Britton Springs facility.

IV. AUTHORITY for PROPOSED ACTIONS:

The Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195) as amended, Section 3(b)(1), states that the Secretaries of the Interior and Agriculture shall “determine appropriate management levels of wild free-roaming horses and burros on areas of public lands; and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals, or other options (such as sterilization or natural controls on population levels).” Section 3(b)(2) states, “that if an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken, so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation.” The authority may also be found at Title 43 of the Code of Federal Regulations (CFR-4700, Protection, Management and Control of Wild and Free-Roaming Horses and Burros).

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

With implementation of the proposed gather, wild horses would be removed from inside the Herd Management Area in accord with 43 CFR 4700.0-2 which states, in part, that [...wild horses will be managed] "as an integral part of the natural system of the public lands under the

principle of multiple use...", with 43 CFR 4700.0-6 which identifies that [...wild horses]" shall be managed as self-sustaining animals in balance with other uses and the productive capacity of their habitat", and with Public Law (PL) 92-195 Sec 3 (b) (2) which identifies the need to maintain appropriate management levels of wild horses within their herd management area (HMA).

Wild horses that have drifted outside the designated boundaries, and land made available through interagency agreements or established grazing leases, of the Pryor Mountain Wild Horse Range, will be removed in accordance with 43 CFR-4710.4 which states that "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 4700.0-5), and with PL 92-195, which limits wild horse management to areas inhabited by wild horses at the time of passage of the Act (December 1971).

V. CONFORMANCE with EXISTING LAND USE PLANS:

The Billings Resource Management Plan Final EIS (Sept.1984), Record of Decision, has been reviewed and the proposed action is in conformance with this proposed action by supporting objectives of managing a balance between a healthy and viable 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), provides the authority to manage the horse herd at an established Appropriate Management Level (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 Revision of the Herd Management Plan (MT-025-2-18/July 1992) and the accompanying Environmental Assessment (FONSI - MT-025-2-18) and Decision Record (EA-MT-025-2-18), specifically provide for a revision of the established AML, allowing the authorized officer the discretion to determine the exact number of horses (within a previously approved range), based on forage and range conditions, animal health and the size of the foal crop. These same documents also allow for the opportunity to use helicopters to move and capture wild horses except during the foaling period.

VI. ALTERNATIVE MANAGEMENT ACTIONS:

The following represents a reasonable range of alternatives based on the issues and goals identified through public scoping efforts, public response during comment periods following the release of previous gather and fertility control EAs, and the results of multi-agency, multi-institutional research efforts on wild horse fertility control, herd genetic viability and ecological balance within the Pryor ecosystem.

A. Use of Fertility Control for Reducing Foal Production in All Age Classes of Wild Mares

Under this alternative, all breeding-aged mares, currently on the range, would receive contraception. Mares would need to be gathered and brought into Britton Springs for primer and/or booster shots, or the vaccine could be remotely-delivered in the field. Research studies on east-coast barrier island populations indicate that, for population growth control purposes, at least 80% of all breeding aged mares must receive annual vaccine boosters for each year of expected infertility. This level of mare infertility would be required to achieve zero population growth.

This alternative was considered but eliminated from further analysis due to unacceptable impacts on the population at this time. At this time, it is not a PMWHR management goal to control overall population growth rates by fertility control. The intent of the proposed management action is humane-use of fertility control only. Management requires additional time to evaluate the impacts of predation on foal mortality prior to recommending the additional application of fertility control. One concern is that the impacts of predation on the foal crop may continue to increase and the combination of high-levels of contraception as well as natural foal deaths may result in the loss of whole age classes of horses from the herd. Missing age classes could potentially affect long-term population viability. Further analysis of Pryor mare behavior following fertility control, as well as the increasing impacts of predation and other natural mortality is needed prior to further consideration of this alternative.

B. Large-Scale Gather and Selective Removal of Wild Horses for Population Control

The last herd census (Appendix 1) indicates there is a total of about 170 horses currently on the range. Based on Spring 2003 mare pregnancy results (Figure 1), an estimate of 35 foals are expected this year. This may result in a 2003 herd size above 200 total horses. Based on data and information presented in the FY2001 Gather EA (<http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO), this would indicate the need to excess approximately 50 animals. However, due to critically limited funding within the National Wild Horse and Burro Program FY2003, funds are not available to support a large-scale gather operation on the Pryors this year. Available funds would only support a partial gather and removal of 15-20 excess horses. Even this level of effort would not be proposed without additional funding and support coming from both the Custer National Forest and the Bighorn Canyon National Recreation Area. As such, this alternative was considered but eliminated from further analysis due to lack of funding to support a larger gather than the proposed action.

C. No Action Alternative: No Removals of Any Age Classes of Wild Horses

Under this alternative, no horses would be subjected to capture and removal operations. This alternative was considered but eliminated from further analysis due to unacceptable long-term impacts on the population and range, and the inability of this alternative to reduce the herd to within the acceptable range of AML. This alternative would allow natural controls to regulate the size of the Pryor herd. There would be no active management to control the size of this population. Under this alternative, the wild horses would be allowed to regulate their numbers naturally through predation, disease, and forage, water and space availability. Gather operations may only occur through court orders.

This alternative was eliminated from further consideration due to several factors. The Pryor horses are a long-lived species (average 15-20 years) with documented survival rates exceeding 90% for most age-classes. The herd is currently not substantially regulated by predators. Documented impacts are only on the foal crop and remain at 30% of the age class or less. Research with other wild horse herds, which are known to be regulated by predation (Turner *et al.*, 1992), indicate that at least 70% of the foal crop must succumb to natural predation in order for stabilization of herd size to occur. Significantly greater predation impacts, or a combination of disease and starvation as well as predation, would be needed to reduce herd size. Therefore this alternative would result in a steady increase in the Pryor herd that would quickly exceed the carrying capacity of the range.

Ecosystem studies (Coughenour, 2000) have shown that the Pryor herd would potentially increase to 300-450 horses before density-dependent regulatory mechanisms would take effect. By this time, the herd would be experiencing high levels of natural mortality and reduced fitness coupled with irreparable damage to the range. At this number of horses, forage use would exceed 90% in many areas of the range and, consequently, negative impacts to all grazing species on the range would be detected. This is not a BLM management objective (see PVA Forum recommendations) as the Wild Horse and Burro Act of 1971 mandates the Bureau to “prevent the range from deterioration associated with overpopulation”, and “preserve and maintain a thriving natural ecological balance and multiple use relationships in that area”.

D. No Action Alternative: No Use of Fertility Control on Any Age Classes of Wild Mares

Under this alternative, no mares would receive fertility control for humane-use reasons. Neither PZP immunocontraceptive vaccine primers nor boosters would be given to any yearling, two-year old or 14 years of age and older mares. These mares would be allowed to conceive naturally and potentially be subjected to the physiological constraints of foal production at an early and late age. A total of 29 mares would be affected with a maximum potential for 10-11 foals in 2005 (based on an average 53% herd foaling rate and 70% foal survival). Given that the yearling and older age classes of mares produce less than the herd average (Figures 9 and 15), the overall gain in live foal production would be less than a total of 10 foals for 2005 only.

This alternative was considered but eliminated from further analysis because of unacceptable impacts on the future body condition and fitness of the 2003 yearling, two-year old and 14 years of age and older mares. Given the probability that no more than 10% of the 10 yearlings may conceive in 2003 and produce a foal in 2004, fertility control would prevent these mares from conceiving again in 2004. This would allow at least a year of recovery following foal production in these young mares. The remaining 90% of the yearling age class would probably not become pregnant in 2003, and due to fertility control, conception would be delayed until 2005 when they are 3 years of age. This delay in conception would allow these mares the opportunity to fully mature before becoming pregnant and in all likelihood improve primiparous (first time foaling) mare and foal condition and survival.

Spring 2003 pregnancy data indicate that at least one two-year old mare is going to produce a foal in 2003 (Figure 1). It is likely that up to 50% of this age class may conceive in 2003 and produce foals in 2004 as 3 year olds. Fertility control in 2003 would not impact existing

pregnancies, but would prevent conception in 2004. This would allow at least a year of recovery following foal production in these young mares. Within the remaining half of this age class then, fertility control in summer 2003 would delay pregnancy until 2005 (as 4 year olds). Once again, this delay in conception would allow these mares the opportunity to fully mature before becoming pregnant and in all likelihood improve primiparous mare and foal condition and survival.

Spring pregnancy data (Figure 1) indicates that 7 of the 8 older mares will foal in 2003. In all likelihood, these mares will not conceive in 2003 but may again in 2004. Fertility control would prevent pregnancies in 2004 only and reduce foal production in these age classes by an estimated 2 foals in 2005. By 2005, all of these mares would be at least 16 years old with their physical condition showing the demands of lifetime foal production. Death generally occurs shortly thereafter. A very few Pryor mares have survived 3-4 years past their last foaling year, and generally in very poor physical condition. A one-time application of fertility control may allow these selected mares improved fitness and condition in later life.

VII. AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:

A. AFFECTED ENVIRONMENT: The purpose of this section is to provide the reader and decision-makers with a listing of the resource values which are known to occur within the Pryor Mountain Wild Horse Range. A detailed description and discussion of these resource values can be found in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents. Updated information for consideration in the current EA is presented below.

Table 1. Summary of Critical Elements & Other Resources of Concern within The Human Environment.

Element	Present	Not Present	Element	Present	Not Present
Sensitive, Threatened or Endangered Plant Species	X		Range and Watershed Condition	X	
Cultural and Paleontological Resources	X		Native American Religious Concerns	X	

Wilderness Study Area	X		Sensitive, Threatened or Endangered Wildlife Species	X	
Water Quality (surface or ground water)	X		Fisheries Habitat	X	
Visual Resources Recreation, and Hunting	X		Areas of Critical Environmental Concern (ACECs)	X	
Climate and Air Quality	X		Wetlands and Riparian Areas	X	
Hazardous Waste	X		Livestock Grazing and Trailing	X	
Pryor Mountain Wild Horses	X		Vegetation	X	
Soils	X		Terrestrial Wildlife	X	
Social Economic Concerns	X		Forestry/Timber	X	

The following resources of concern, although present, were determined not to be affected or impacted by the proposed action and will not be discussed further in this EA: Climate and Air Quality; Cultural and Paleontological Resources; Threatened, Endangered, Candidate, or Sensitive Wildlife Species; Range and Watershed Condition; Water Quality (Surface or Ground Water); Native American Concerns; Social Economic Concerns; Forestry/Timber; Fisheries Habitat; and Wetlands and Riparian Areas. The remaining resources (**in bold**) will be evaluated for potential impacts and mitigation measures.

B. ENVIRONMENTAL IMPACTS and MITIGATION MEASURES: Resources impacted by the proposed action 1) **Humane-use of Fertility Control on Yearling Mares, Two-year Old Mares and Mares 14 Years of Age and Older** will be evaluated for direct, indirect and cumulative consequences. Mitigation measures will be provided as needed. No irretrievable or irreversible impacts to any resource value are anticipated (with the exception of a possible 29 wild mares which may be successfully contracepted for one year only) with implementation of the proposed action. Resources impacted by the proposed action 2) **Partial Gather and Selective Removal of Young Wild Horse Stallions** will be evaluated for direct, indirect and

cumulative consequences. Mitigation measures will be provided as needed. No irretrievable or irreversible impacts to any resource value are anticipated (with the exception of 15-20 individual wild horses identified as excess) with implementation of the proposed action.

a) Pryor Mountain Wild Horse Herd: Proposed actions incorporate proven Standard Operating Procedures (SOPs) which have been developed over time. All activity would be carried out according to current BLM, HSUS and ZooMontana policy with the intent of conducting as safe and humane an operation as possible. In addition, the proposed actions would also adhere to all guidance and research protocol set by the BLM National Wild Horse Fertility Control Field Trial program. Protocol have been specifically developed for remote-delivery techniques of fertility control vaccine. These SOPs (Appendix 3) represent the “best methods” for ensuring quality results, minimizing risks and reducing impacts associated with this activity. SOPs have also been developed (Appendices 4 and 5) representing the “best methods” for reducing impacts associated with gathering, handling, transporting and adopting wild horses. If conditions warrant, and animal health or welfare is in jeopardy at any time, remote-darting and/or gather operations would be delayed or halted.

1) Fertility Control Impacts:

Impacts to the wild horses take the form of direct and indirect impacts and may occur on either the individual or the population as a whole. Direct individual impacts are those impacts which occur to individual horses and are immediately associated with implementation of the proposed action. In order to mitigate the impacts of the proposed fertility control, all vaccine would be controlled, handled and administered by a lead researcher in fertility control, Dr. Jay Kirkpatrick, ZooMontana, or a certified and experienced associate. Dr. Kirkpatrick has been responsible for the remote-delivery of PZP vaccine on various east-coast barrier island wild horse populations for over 14 years. In addition, knowledgeable and experienced BLM personnel would be on-site, during all phases of the operation. These BLM employees would be responsible for the accurate identification of individual selected mares. A contract veterinarian would be on-call, at all times during the operation. Possible veterinary emergencies have been discussed in detail within Appendix 3. Observers are welcome, but in order to decrease additional stress and disruption to the animals and the operation, would be asked to remain a safe distance from the animals during all phases of darting (see Appendix 3).

Indirect individual impacts are those impacts which occur to individual horses after the initial stress event, and may develop as a result of the application of fertility control vaccine. Some of these impacts have yet to be noted and documented for wild horses in the scientific literature but may include increased social disorder among the horses and/or a prolonged foaling season. The proposed action may also result in an opportunity for increased fitness and body condition in a maximum of 29 younger and older mares prior to or immediately following foaling. Other potential physiological impacts of the PZP vaccine were discussed under the specifics of the proposed action. All mares subjected to fertility control would continue to be monitored for aspects of social behavior, body condition and foaling under the guidance and research protocol set by the BLM National Wild Horse Fertility Control Field Trial program. Behavioral data would be compared to existing baseline data and control studies on the Pryors (Feist, 1971;

Anderson, 1998; Jenson, 2000; Harty, 2000; Meredith, 2001; BRD on-going studies, 2002).

Population-wide direct impacts are immediate effects which would occur during or immediately following implementation of the proposed action. Direct population-wide impacts might consist of a heightened awareness of human presence. This is likely to be temporary in nature but may persist for several days following the darting activity.

Population-wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify. Population-wide indirect impacts are associated primarily with use of fertility control drugs and reductions in short term fecundity of a small number of young mares. A maximum of 29 mares would be affected with a potential for 10-11 foals in 2005 (based on an average 53% herd foaling rate and 70% foal survival). Given that the yearling and older age classes of mares produce less than the herd average (Figures 9 and 15), the overall gain in live foal production would be less than a total of 10 foals for 2005 only. This effect of limited fertility control is not expected to have a significant impact on population dynamics or appropriate management level (AML), sex ratio or age structure of the herd. All available research indicates that delaying the age to first reproduction for younger mares would result in positive genetic benefits to the herd over time. As all of the proposed older mares have already made genetic contributions to the herd (data on file at BiFO), there would be minimal impact to the genetic diversity of the herd by reducing their lifetime contribution by an estimated one foal. No cumulative impacts to the long-term viability of the managed herd are expected with the proposed action.

2) Gather and Removal Impacts:

Direct individual impacts include handling stress associated with the gather, capture, sorting, animal handling and preparation, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality of individuals from these impacts is infrequent but may occur in one half to one percent of horses gathered in a given removal operation (national BLM statistics).

Protocols have been developed (Appendices 4 and 5) which would minimize impacts associated with handling stress. There are no indications that these direct impacts persist beyond a short time following the stress event. They would be expected to completely dissipate following release. Stress levels, and the potential for injury, are however, expected to be highest immediately following capture, and when animals are moved through the chutes in preparation for adoption. Mitigation measures would include well-constructed corrals at the corral facility, well-maintained equipment, and additional pens for animals determined best kept separate from other animals, in an effort to decrease stress and the potential for injury and illness. If necessary, the holding facility would be watered down regularly, to keep down the dust. Safety and performance records, and years of experience in gathering wild horses would be weighed carefully during selection of the helicopter contractor. Experienced BLM personnel would be on-site, during all phases of the operation. A contract veterinarian or APHIS veterinarian technician would either be on-site, or on-call, at all times during the operation. Observers would be asked to remain some distance from the animals during all phases of the gather and

preparation of the animals, in order to decrease additional stress due to surrounding levels of commotion and activity.

Indirect individual impacts are those impacts that occur to individual horses after the initial stress event, and may include spontaneous abortions in mares and increased social displacement and conflict in stallions. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish that occurs with older stallions following sorting and release into containment pens. This generally lasts less than two minutes. With the proposed action, every effort would be made to contain no more than 1 or 2 family groups at a time in the capture trap. Animals would be sorted as soon as feasible, with the excessed animals held in the trap, while the remaining animals are released. Every effort would be made to minimize the level of social disruption. Certain circumstances, during the gather, may prevent this from happening. Situations would be handled on a case-by-case basis. Excessed animals would be sorted by age once located in the Britton Springs facility. Companion animals would be provided as numbers and individual animal behavior allows.

Regardless of the sorting and handling process, traumatic injuries are usually rare, however, they do occur. These injuries typically involve a bite and/or kicking with bruises that don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortions among mares following capture are not expected, as the gather would not proceed until the vast majority of mares on the Pryors have completed 2003 foaling.

Population wide direct impacts are immediate effects that would occur during or immediately following implementation of either action. They include the displacement of bands during capture and the associated re-dispersal which occurs following release, the modification of herd demographics (age and sex ratios), the temporary separation of members of individual bands of horses (although avoided if at all possible), the reestablishment of bands following releases, and the removal of animals from the population. With exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days following release. No observable effects associated with these impacts would be expected within one month of release except a heightened awareness of human presence.

The effect of removal of horses from the Pryor herd is not expected to have significant impact on population dynamics or structure, as long as the selection criteria for the removal maintains the social structure and breeding integrity of the herd (Appendix 2). All research indicates that this would result in positive genetic benefits to the herd (see section on Genetic Viability). The recommended selective removal strategy for the Pryors would maintain the age structure of the critical breeding-age animals, and have minimal impact on the sex ratio. Similar selective removals in 1997 and 2001 focused primarily on younger animals (1-4 years old) that had not, as yet, entered the breeding ranks of the herd. This pattern of removal mimics potential patterns of natural mortality and recognizes that younger animals would generally adapt easier to domestication and thus facilitate longer retention after adoption. In wildland species, a more uniform age structure is also known to provide the population more resilience in the face of

environmental extremes or catastrophes. As such, removed animals were taken from the most abundant age classes; ensuring sufficient animals were left to carry on the age class (e.g. no more than 50% of the age class was targeted for removal). No long-term negative impacts have been detected on the herd, as the direct or indirect result of these previous gathers.

Maintaining the PMWHR population within an acceptable range of AML (lower limit determined by minimum effective genetic herd size and upper limit determined by the point at which grazing impacts surpass an acceptable use level based on a risk management approach) would result in no cumulative impacts to the long-term viability of the managed herd and would aid in the attainment of a thriving ecological balance on the range.

b) Wilderness Study Areas (WSA): Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents.

c) Visual Resources, Public Recreation and Hunting: Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents.

1) Fertility Control Impacts:

In an effort to ensure the safety and welfare of all persons during the darting period, management would notify the public of intended activity via posted signs at the entrance points to the range and through the provision of handouts by participants explaining on-going activity to public visitors. Mitigation measures would include early and repeated notification to the public regarding proposed activities and timing, as well as close inter-agency co-ordination during the proposed darting period.

Fertility control efforts on the Bighorn Canyon National Recreation Area "Dryhead" would be coordinated through the NPS and information shall be made available to the public at the NPS Visitors Center, Lovell, Wyoming. No impacts are expected with "livestock trailing" activities on the Dryhead area as completion of fertility control darting is expected prior to Fall trailing activities. Completion of the darting activity by the end of September should mitigate, if not eliminate, most conflicts with mule deer, black bear and bighorn sheep hunters on the PMWHR.

Also, in an effort to facilitate anticipated media and public interest and attention towards the darting activity, management would hold "public and media notification" periods at Britton Springs Administrative Site, at the base of the PMWHR. These would provide opportunities for

information sharing as well as co-ordinating field viewing of darting activities. Information on the timing of these activities would be made available by calling the Billings Field Office.

2) Gather and Removal Impacts:

In an effort to ensure the safety and welfare of all participants and observers for the proposed gather, management may apply minimum closures affecting the designated capture area on the range. As such, for a 1-day period in which the helicopter is working a targeted area, the area, including any road access, would be closed to the public. Only one area would be affected at a time. Gather efforts along the Bighorn Canyon National Recreation Area "Dryhead" would be coordinated through the National Park Service. This area would not be closed but some traffic control would be in effect during actual days of helicopter activity. It would also be necessary to coordinate with "livestock trailing" ranchers who may be using the Dryhead area during this same time period. Mitigation measures would include early and repeated notification to the public regarding proposed closures and timing, as well as close inter-agency coordination during the gather period.

Scheduling of the gather in early September should mitigate, if not eliminate, most conflicts with mule deer, black bear and bighorn sheep hunters on the PMWHR. Efforts would be made to contact hunters who might be using the area, to inform them of the planned gather and schedule for closures well in advance the event. It should be stressed, however, that area and road closures would be of limited duration and only on days the helicopter is actually working a particular ridge.

Also, in an effort to facilitate anticipated media and public interest and attention towards the gather activity, management would hold "public and media notification" periods at Britton Springs Administrative Site, at the base of the PMWHR. These would provide opportunities for information sharing as well as co-ordinating possible field viewing of gather activities. Information on the timing of these activities would be made available by calling the Billings Field Office.

d) Areas of Critical Environmental Concern (ACEC): Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents.

e) Sensitive Plants and T&E Species: Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents. In addition, all efforts would be made to avoid selecting temporary

capture trap sites anywhere near the vicinity of known populations of these plants.

f) Vegetation: Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO. The reader is encouraged to review these documents.

In addition, temporary capture trap sites would be selected so as to minimize the distance horses would need to be herded as well as accessibility to existing roads. All efforts would be made to minimize off-road vehicle impacts. In some cases, wranglers may need to use ropes to transfer excessed horses from a capture trap to a temporary holding facility to facilitate trailer loading for transport to Britton Springs.

g) Terrestrial Wildlife: Impacts and mitigation measures pertaining to the proposed actions have been previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO.

h) Livestock Grazing and Trailing: Movement of cattle through the Dryhead (NPS) portion of the horse range occurs during the Fall period under agency authorized trailing activities. Coordination with the Park Service and local ranchers would be necessary to mitigate potential impacts of helicopter gathering on this trailing activity.

In addition one family group of horses (~4 animals) has, for parts of the past three years, used portions of Commissary Ridge within the Custer National Forest unauthorized lands on a year-round basis. Part of the removal effort may involve bringing these animals back onto designated or authorized range. This would require co-ordination with the Forest Service as well as the permittees who may have cattle in the Commissary Allotment at the time of the gather. Removing these horses from unauthorized lands would reduce conflict for the permittee as well as the Forest Service, and also provide the BLM with an improved opportunity to provide protection to this band of horses as required by law.

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

j) Soils: Impacts and mitigation measures pertaining to the proposed actions have been

previously addressed in the Affected Environment, Environmental Impacts and Mitigation Measures section of the EA and Gather Plan for the FY2001 PMWHR Gather and Selective Removal (MT-010-1-44) and the EA for the Humane-Use of Fertility Control on Select Young Wild Horse Mares (MT-010-02-22). These documents are available at <http://www.mt.blm.gov/bifo/whb/doc2.html> or by contacting BiFO.

VIII. CONSULTATION AND COORDINATION: The process of public scoping for the Pryor Mountain Wild Horse Range Herd Plan Revision, has included two public meetings as well as the submission and summary of significant written comments. BLM has received and reviewed input regarding herd AML, genetic viability, population control techniques and ecosystem management. Several mailings went out to the public during this period in order to seek additional input on several other issues being considered in the plan revision. All relevant input was considered in the development of this EA. In addition, the results of several research studies on Pryor wild horse herd genetics and viability as well as ecosystem modeling were given detailed consideration. It is significant that these studies involved co-operative efforts with state and federal agencies and academic institutions. Results of all previous research efforts as well as previous EAs for Gathers and Fertility Control have been mailed to a Pryor Mountain mailing distribution list currently totaling just under 500 individuals and groups (Appendix 6).

A. List Of Preparers:

Linda Coates-Markle, Wild Horse and Burro Specialist, Montana/Dakotas

B. Individuals, Groups and Agencies Consulted: This EA and Gather Plan have been distributed to members of the general public, special interest groups, intra- and interagency personnel, and researchers at several different institutions (see Appendix 6) for review and comment. A press release was issued in the local and state media informing the public that the Fertility Control and Selective Removal EA has been prepared and is available for review. Copies of the EA are available at the Billings Field Office, BLM, P.O.Box 36800, Billings, MT 59107-6800 or by calling 406-896-5013. Comments to the EA may be submitted to the same address.

IX. FONSI: The environment assessment, analyzing the environmental effects of the proposed actions, has been reviewed. With the implementation of the attached mitigation measures, there is a finding of no significant impact on the human environment and an Environmental Impact Statement (EIS) is not required. Implementation of the Proposed Actions will not result in unnecessary or undue degradation of the Public Lands. In addition, the Proposed Actions are in conformance with the appropriate and approved land use and herd management plans.

SIGNATURE OF PREPARER: _____

Date Signed: _____

SIGNATURE OF ENVIRONMENTAL REVIEWER: _____

Date Signed: _____

SIGNATURE OF AUTHORIZED OFFICIAL: _____

Date Signed: _____

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