United States Department of the Interior
Bureau of Land Management

Pryor Mountain Wild Horse Range Fertility Control
Environmental Assessment December 2010
DOI-BLM-MT-0010-2011-0004-EA
Tiered to the
Pryor Mountain Wild Horse Range Environmental Assessment
MT-010-08-24
And Herd Management Area Plan May 2009

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 Fertility Control
Preliminary Environmental Assessment
DOI-BLM-MT-0010-2011-0004-EA
Tiered to the
Pryor Mountain Wild Horse Range Environmental Assessment
MT-010-08-24
and Herd Management Area Plan May 2009

TABLE OF CONTENTS

Page

1.0 BACKGROUND INFORMATION

1.1 Introduction

After review and analysis of comments within scope of the Environmental Assessment (EA) along with questions from interested parties; refinements, small changes, reductions to the proposed action of this EA have been incorporated. Additions to the EA have been added in order to allow interested parties to better comprehend National Environmental Policy Act (NEPA) planning processes, to address misperceptions and misunderstandings of fertility control, educate the public about misinformation circulating in the internet, and simplify the management prescription. All changes and additions to the document are highlighted in gray to better help interested parties follow the additions and changes from the preliminary document. Individual comments are addressed in the consultation and coordination section of this document.

This environmental assessment (EA) is tiered to the 2009 Pryor Mountain Wild Horse (PMWHR) Range/Territory Environmental Assessment (EA) (MT-010-08-24) and Herd Management Area Plan (HMAP) in accordance with the Council on Environmental Quality (CEQ) regulations, 40 CFR 1502.2, and incorporates by reference all the descriptions of the affected environment and impacts analyzed in the 2009 HMAP and EA and subsequent Finding of No Significant Impact (FONSI) and Decision Record (DR). This EA has been prepared to analyze the impacts associated to wild horses from application of fertility control to wild horse mares within the PMWHR through 2015. The HMAP and EA with FONSI and DR are available on the Bureau of Land Management (BLM), Billings Field Office (BiFO) website at: http://www.blm.gov/mt/st/en/fo/billings_field_office/wildhorses/pryorherd.html

Incorporation by reference and tiering provide opportunities to reduce paperwork and redundant analysis in the NEPA process. When incorporating by reference, the author refers to other available documents that cover similar issues, effects, and/or resources considered in the NEPA analysis that is being prepared. Incorporation by reference allows for briefly summarizing the relevant portions of other documents rather than repeat them.

Tiering is a form of incorporation by reference that refers to previous EAs or EISs. Incorporation by reference is a necessary step in tiering, but tiering is not the same as incorporation by reference. Tiering allows for narrowing the scope of the subsequent analysis, and focus on issues that are ripe for decision-making, while incorporation by reference does not. Only EAs or EISs may be tiered to, whereas one may incorporate by reference from any type of document.

Tiering is using the coverage of general matters in broader NEPA documents in subsequent, narrower NEPA documents (40 CFR 1508.28, 40 CFR 1502.20). This allows the tiered NEPA document to narrow the range of alternatives and concentrate solely on the issues not already addressed. Tiering is appropriate when the analysis for the proposed action will be a more site-specific or project-specific refinement or extension of the existing NEPA document.

The author may tier to a NEPA document for a broader action when the narrower action is clearly consistent with the decision associated with the broader action. In the tiered document, there is no need to reexamine alternatives analyzed in the broader document. Focus the tiered document on those issues and mitigation measures specifically relevant to the narrower action but not analyzed in sufficient detail in the broader document.

The BLM has determined through the 2009 EA and HMAP and subsequent FONSI and DR that 90 to120 wild horses (excluding current year's foals) are needed in order to ensure and achieve a thriving natural ecological balance. The HMAP DR stated "The population will not be taken to the low range of AML when fertility control is utilized." The proposed fertility control would begin in 2011 and continue through 2015. The

proposed action should help prevent deterioration of the rangelands and help maintain a thriving natural ecological balance and multiple use relationships as described in the HMAP. The method of fertility control would be through remote darting application utilizing liquid or native Porcine Zona Pellucida (PZP) into selected mares over one year of age.

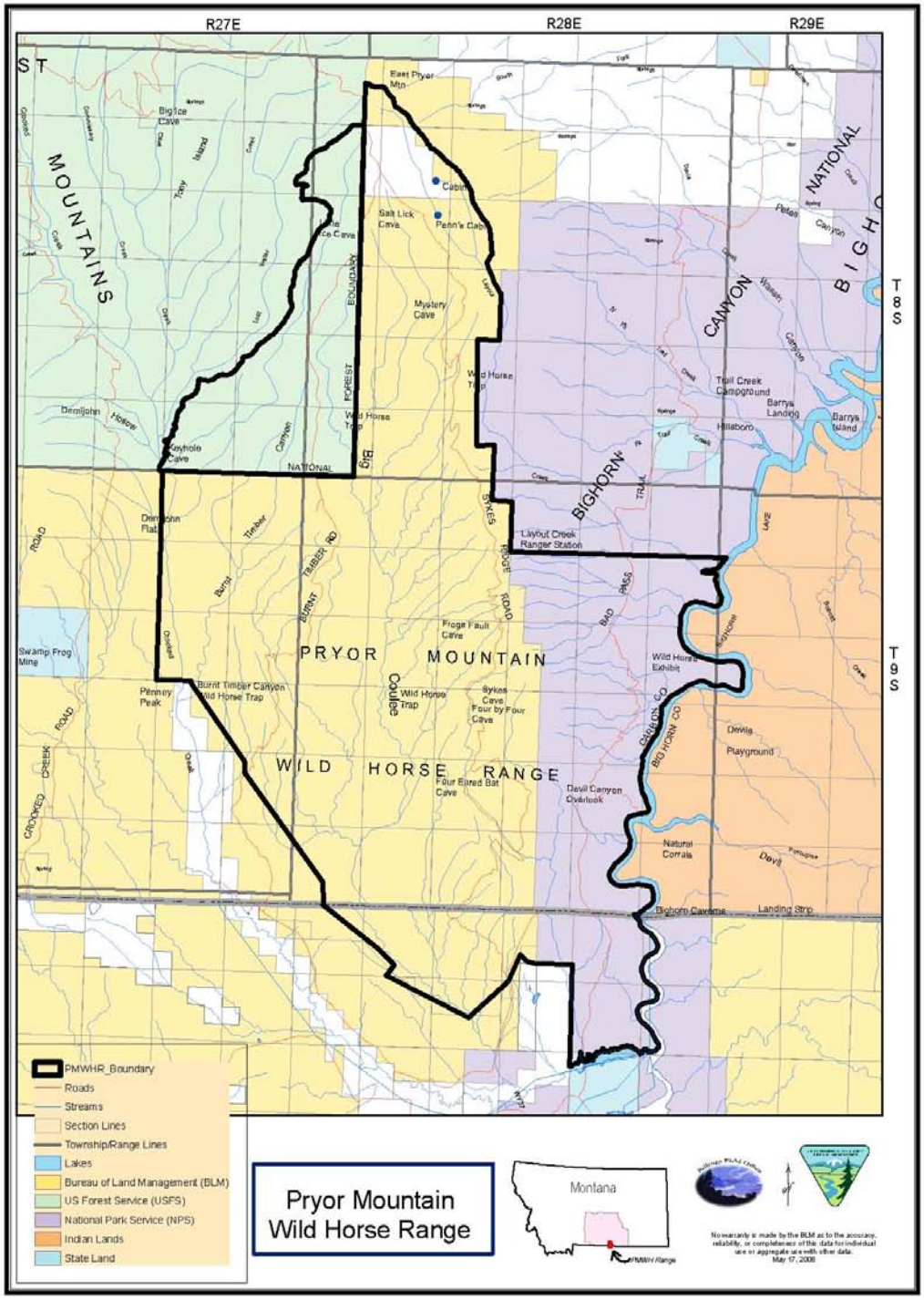
Seven separate EA's have analyzed the impacts of PZP fertility control to wild horses within the PMWHR. PZP has been utilized since 2001 in various prescriptions, applications, and in two forms; the liquid one year and 22 month pelleted version (see appendix I).

Forage utilization monitoring data continues to measure heavy use made by wild horses.

1.2 Location

The project area is located in southeastern Carbon County, Montana, and northern Big Horn County, Wyoming, in the PMWHR (see Map 1). 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. Live water is limited to five perennial water sources within the PMWHR. Nine water catchment sites consisting of 12 guzzlers are installed and collecting water along with one catchment trough system on Sykes Ridge. Various other water projects also provide limited seasonal water.

Map 1. Pryor Mountain Wild Horse Range



1.3 Purpose and Need for the Proposal

The purpose of the Proposed Action is to further implement the 2009 PMWHR HMAP through the use of fertility control. The HMAP identified the AML at 90-120 wild horses as the carrying capacity in order to maintain ecological stability of the range. The HMAP DR stated "The population will not be taken to the low range of AML when fertility control is utilized." The purpose is also to stabilize the population in order to reduce the need for larger helicopter gather and removal operations. The Proposed Action in this EA is needed to help maintain wild horse herd numbers to levels consistent with the AML, to make progress towards standards of rangeland health, and achieve objectives and decisions authorized in the 2009 PMWHR EA and HMAP. The Proposed Action is needed to maintain the population in a thriving natural ecological balance by maintaining wild horse population within the confines of their habitat or the AML. The need is also to implement a flexible and adjustable fertility control program. The need is also to analyze the impacts to the wild horses from utilization of fertility control.

Decision to be made: The BLM will decide whether nor not to apply fertility control to select mares on the PMWHR through 2015 in order to help maintain the appropriate management level (AML) of 90-120 wild horses through remote darting application utilizing liquid native (PZP) into selected mares over one year of age.

1.4 Relationship to Planning

The proposed population control 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 2009 Pryor Mountain Wild Horse Range Environmental Assesment (MT-010-08-24) and Herd Management Area Plan and and Finding of No Significant Impact (FONSI) Decision Record (May 2009) analyzed and documented the need to manage the wild horse population between 90-120 wild horses. The HMAP states " manage the herd within AML either through removals, fertility control, natural means, or a combination of methods." The Decision Record states: "The population will not be taken to the low range of AML when fertility control is utilized." The HMAP was affirmed by the Interior Board of Land Appeals in January 2010 after ruling on an appeal.

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, 36 CFR 222, 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." In addition, 36 CFR 222.21 states that wild horses within USFS territories be administered to "maintain a thriving ecological balance considering them an integral component of the multiple use resources, and regulating their population and accompanying need for forage and habitat in correlation with uses recognized under the Multiple–Use Sustained Yield Act of 1960."

1.5 Scoping

On August 16, 2010 the BLM issued a Scoping Notice "For Application of Fertility Control Vaccine of Wild Horses within the Pryor Mountain Wild Horse Range". The public was asked to provide input that would help the BLM in development of a proposed action and alternatives, further identify issues, potential environmental consequences, mitigation opportunities, monitoring or provide information, data, or analysis to be used in development of an Environmental Analysis. The public's scoping comments and information provided were used to further develop the proposed action and analysis and mitigation related to the potential effects of the proposed action. No issues were identified that have not already been addressed in the 2009 PMWHR HMAP. All public scoping comments are available upon request.

1.6 Public Comment

On November 1, 2010 the BLM issued the Pryor Mountain Wild Horse Range Fertility Control Preliminary EA for public comment. Based on public comment additions and clarifications were made to the EA. All public comments are available upon request.

2.0 PROPOSED ACTION and ALTERNATIVES

This EA focuses on the Proposed Action and No Action alternatives. As no unresolved issues have been identified, there are no issues to resolve through other action alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

2.1 Proposed Action

The BLM Billings Field Office proposed to apply flexible and adjustable fertility control to select mares on the PMWHR through 2015 in order to help maintain the appropriate management level of 90-120 wild horses and lesson the need for a large scale gather. The Proposed Action is a fertility treatment program in order to implement the 2009 PMWHR HMAP. The program would start in 2011 and last through 2015. The fertility control program would consist of the administration of native PZP applied through remote darting in the one year liquid dose. The program would be designed to treat mares ages 2, 3, 4, and ages 11 through 20+. Mares ages 5-10 would not be treated. Mares would be approached on foot or possibly baited in (not trapped) to be treated. The primary window for treatment would be March through June, although previously treated mares could receive a booster any time of the year.

2.2. No Action Alternative

The no action alternative is required by the National Environmental Policy Act (NEPA) to provide a baseline for impact analysis.

Under this alternative, wild horse mares from the PMWHR lands would not be placed on a multi-year fertility treatment regiment utilizing PZP. Fertility control would be completed in one year increments through various treatments prescriptions and intensities. A plan to apply fertility control would be evaluated and implemented at a later time. The BLM would continue vegetation and population monitoring. The no action would lead to the need for more gathers and removals.

2.3 Alternative Considered but Eliminated from Further Analysis

2.3.1 Helicopter Capture, Treat and Release of Wild Horses with injection of PZP 22 fertility control vaccine for mares returned to the range.

Under this alternative, the herd would undergo a helicopter gather and capture of the entire population in order to selectively remove excess wild horses and apply fertility control PZP-22 to mares identifed for release. This would immediately reduce the herd size to about 120 adult horses and treat about 80 mares. This alternative was considered but eliminated from further analysis due to not meeting the need for a flexible and adjustable fertility control program.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and analyzes impacts on the components of the human environment either affected or potentially affected by the Proposed Action and No Action alternatives.

The analysis of the Proposed Action determined there are no impacts to any resources or resource uses other than to wild horses themselves as a result of the Proposed Action.

The 2009 PMWHR EA and HMAP identified and analyzed the effects to the environment. For a complete description of the affected environment and environmental consequences, see pages 44-85 of the Pryor Mountain Wild Horse Range/Territory Environmental Assessment and Herd Management Area Plan May 2009. http://www.blm.gov/mt/st/en/fo/billings_field_office/wildhorses/pryorherd.html

3.1 Critical Elements of the Human Environment

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. Those Critical Elements that are identified below as being present and potentially affected would be 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

Determi-nation*	Resource	Rationale for Determination
NI	Air Quality	The proposed action would have no impact on these values
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	The proposed action would have no impact on these values

Table 1 - Critical Elements CRITICAL ELEMENTS		
Determi-nation*	**Resource**	**Rationale for Determination**
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.
NI	Invasive, Non-native Species	The proposed action would have no impact on these values
NP	Native American Religious Concerns	The proposed action would have no impact on these values
NP	Threatened, Endangered or Candidate Plant Species	The proposed action would have no impact on these values
NP	Threatened, Endangered or Candidate Animal Species	The proposed action would have no impact on these values
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.
NI	Wetlands/Riparian Zones	The proposed action would have no impact on these values
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 Wilderness. Actions could have minor, short term impacts on wilderness attributes but the effects would not be irreversible or irretrievable. If desired, these unnatural features could be removed.

*
NP = not present in the area impacted by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for impact.

3.2 Wild Horses

Affected Environment

The affected environment is described and incorporated by reference from the 2009 PMWHR EA and HMAP. The only new impacts that would occur from this action are to the wild horses themselves. This section only analyzes the impacts to the wild horses as the 2009 PMWHR EA and HMAP already disclosed the impacts of management utilizing a combination of methods including fertility control.

There could potentially be 82 mares ages 2-24 years in the population starting in 2011. However, it is unlikely due to age, and natural mortality all 82 would be alive in 2011, especially with five mares over 20 years old. Out of these mares, 23 would be in the 5-10 year old age class, 23 would be in the 2, 3, and 4 years old age class, and 36 would be 11-24 years old. Thirty of these mares have no current fertility control treatment. The effectiveness of fertility control for all treated mares would be expired by June 2011.

Based upon public comment, the current mares under treatment is being identified as part of the affected environment in order to help interested parties better understand past PZP treatments beyond the information in Appendix I and the scoping notice. As identified in the scoping notice and Appendix I (provided during the EA comment period and in this document) 52 mares (40 PZP-22 and 12 native PZP or liquid) are under treatment with PZP (two mares were only primed).

Individual mares treated with PZP-22 in 2009 consist of a mix of age classes and would be two age classes older by the time of the first native PZP treatment. PZP-22 lasts 22 months in a mares system. Mares that were treated in September of 2009 would no longer be vaccinated or have enough active titers in their systems by June of 2011, which is 22 months from the PZP-22 treatment. The following table identifies the number mares by age class when they were treated with PZP 22, their expected age class in 2011, and the potential number of treatments they would receive under the proposed action.

Table 1. PZP-22 Mares

Number in the cohort	Age in 2009	Expected Age in 2011	Proposed Action years of treatment
6	2	4	2011
4	3	5	none
3	4	6	none
0			
2	6	8	2014, and 2015
2	7	9	2013,2014, and 2015
3	8	10	2012 through 2015
3	9	11	2011 through 2015
1	10	12	2011-2015
16	11 and over	13-23	2011-2015

Environmental Impacts

Assumptions for analysis: This impact analysis assumes that a 100 percent treatment rate would be attained for identified mares. Liquid dose native PZP is at least 90% effective in preventing conception. The Standard Operating Procedures (Appendix II) for use and application of PZP are incorporated as part of the proposed action and no action. 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.

Proposed Action

The proposed action incorporate proven Standard Operating Procedures (SOPs, Appendix II) which represent the "best methods" for ensuring quality results, minimizing risks and reducing impacts associated with this activity. All activity would be carried out according to current BLM policy with the intent of conducting as safe and humane an operation as possible. Protocols have been specifically developed for remote-delivery techniques of the fertility control vaccine.

The proposed action is a flexible and adjustable fertility treatment program in order to implement the 2009

PMWHR HMAP starting in 2011 and lasting through 2015, reducing the need for population wide gathers and large removals. The use fertility control would consist of the administration of remote darting of native PZP applied in the one year liquid dose. The program is designed to treat mares ages 2, 3, 4, and 11 through 20+. Mares ages 5-10 would not be treated. Mares would be approached on foot or baited using certified weed free feeds or by utilizing existing salt placements as analyzed in the 2009 HMAP and incorporated by reference. In order to maximize efficacy, the primary window for treatment would be March through June, although treated mares could receive a booster any time of the year.

How this prescription would work is a mare that is 2 years old would begin treatment in year one, then be given a booster in year two when she is 3 years old, then another booster in year three when she is 4 years old, then not treated as she moves into the 5-10 year old window. A mare that is currently 3 years old would begin treatment in 2011, given a booster in 2012 when she is four and then to go off treatment as she turns 5 through 10 years old. A mare that is four would be given one treatment. A mare whose age is from eleven years old through 20+ would be treated over the course of 2011-2015. As a mare and moves out of the 5-10 year old window and turns eleven, she would be placed on the treatment. Mares that would turn one year old would be placed on treatment when they turn two years old or in 2012 and treated in 2013, and 2014. Fillies born in 2011 would begin treatment in 2013 and would be treated again in 2014 and 2015. Fillies born in 2012 would be treated in 2014 and 2015. The last cohort to be treated would be fillies born in 2013 which would be treated in 2015.

Impacts

The immunocontraceptive Porcine Zona Pellucida (PZP) vaccine meets most of the requirements (Singer and Coates-Markle, 2005) for an ideal contraceptive agent including criteria for safety and efficacy. When injected, PZP vaccine acts as an antigen and causes the mare's immune system to produce antibodies. These antibodies then bind to eggs in the mare's ovaries and effectively block sperm binding and fertilization (Zoo Montana, 2000). The vaccine is relatively inexpensive and can be remotely administered in the field. Research has demonstrated that contraceptive efficacy is 90% for mares treated twice in the first year and boostered annually (Turner and Kirkpatrick, 2002). Contracepted mares typically show improvements in body condition and may actually live longer (Turner and Kirkpatrick, 2002).

PZP contraception appears to be temporary (Kirkpatrick and Turner, 2002), does not appear to cause out-of-season births (Kirkpatrick and Turner, 2003), 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, the PZP vaccine has not shown to affect normal development of the fetus or hormone health of the mare.

The mares treated last spring with the native PZP or liquid dose are all over 11 years of age. Each one of these mares could have a total of six years worth of dosage by the end of the treatment although due to many of these mares advanced age it is unlikely all would live long enough to receive five doses, as few individuals live beyond 20 years, although treated mares life's tend to be extended beyond the average. If still alive, there is a possibility for permanent sterility, although these animals would be beyond prime productive breeding age and unlikely to produce foals at an advanced age even without treatment. PZP-22 was applied in 2009 to seventeen mares that are now in the 11 through 20+ age class. Out of these mares, nine would be over the age of 16 with lower potential to produce foals regardless if treated or not, and less likely to persist in the population due to age. Out of the 82 mares in the population, eleven individual mares may be susceptible to permanent sterility. Treated mares are monitored for any potential swelling, stiffness, muscle tremors, nodules, granulomas, abscesses and/or behavioral depression which might develop subsequent to the darting procedures. A lump that appears or persists longer than 2 weeks after an injection is defined as a persistent nodule. In order for the

swelling to be classified as an abscess, it would require the nodule to eventually open at the surface allowing for the drainage of pus, as a sign of infection at the site.

Direct individual impacts are those impacts that are immediately associated with implementation of the proposed action. These impacts include stress associated with the remote-darting activity for delivery of the vaccine. The intensity of these impacts varies by individual and is indicated by behaviors ranging from nervous agitation to physical distress. Impacts to individual mares for application of PZP (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" according to Coates-Markle (BLM 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 treated. This should be minimized when utilizing the SOPs (Appendix II). In order to mitigate the impacts of fertility control, all vaccine would be controlled, handled and administered by trained, certified and experienced darters. These personnel would be on-site during all phases of the operation, and would be responsible for the accurate identification of individual age-specific mares.

Population-wide direct impacts are immediate effects which would occur during or immediately following implementation of the proposed action or alternatives. Remote-delivery of the fertility control vaccine would result in fewer disturbances to the herd and support a minimum feasible level of management. Direct population-wide impacts might consist of a heightened awareness of human presence following the darting activity. This is likely to be temporary in nature but may persist for some time in some mares. Repeated (annual) remote-darting of older mares does not appear to cause cumulative horse/harem sensitivity or stress within the Pryor herd (Coates-Markle 2006) .

Population-wide indirect impacts would not appear immediately as a tangible effect and may be difficult to quantify. These are primarily associated with the use of fertility control and reductions in fecundity in treated wild mares. Nearly every mare would conceivably be treated from 2011 through 2015.

Use of fertility control can create a higher percentage of core-breeding age animals within the herd which offers genetic advantages to small populations. Reduced herd growth allows for longer periods of time between gathers, reduces the size and impact of gathers and limits the loss of genetic diversity through removals of horses. Economic modeling (Bartholow, 2004) indicates that the use of fertility control may also significantly reduce management costs for the PMWHR.

Indirect individual impacts are those impacts that occur after the initial stress event and may develop as a result of the application of fertility control vaccine. Impacts that may occur include increased social disorder among the horses and/or a prolonged foaling season. Impacts may also result in an opportunity for increased fitness and body condition in treated mares. Extended length between generations provides for lengthening generation time and slows the rate of genetic loss (Cothran personal communication 2010). All treated mares would be monitored for behavior, body condition and foaling under research protocol. Utilizing bait certified weed free-feed (if used) could result in crowding and congregation of animals that could lead to conflict between bands. Baiting would only be used on limited basis, for animals that are difficult to approach, and small amounts placed in areas prevousy disturbed.

Ransom et al. (2010) found no differences in how PZP-treated and control mares allocated their time between feeding, resting, travel, maintenance, and social behaviors in 3 populations of wild horses, which is consistent with Powell's (1999) findings in another population. Likewise, body condition of PZP-treated and control

mares did not differ between treatment groups in Ransom et al.'s (2010) study. Turner and Kirkpatrick (2002) found that PZP-treated mares had higher body condition than control mares in another population, presumably because energy expenditure was reduced by the absence of pregnancy and lactation.

In two studies involving a total of 4 wild horse populations, both Nunez et al. (2009) and Ransom et al. (2010) found that PZP-treated mares were involved in reproductive interactions with stallions more often than control mares, which is not surprising given the evidence that PZP-treated females of other mammal species can regularly demonstrate estrus behavior while contracepted (Shumake and Wilhelm 1995, Heilmann et al. 1998, Curtis et al. 2002). Ransom et al. (2010) found that control mares were herded by stallions more frequently than PZP-treated mares, and Nunez et al. (2009) found that PZP-treated mares exhibited higher infidelity to their band stallion during the non-breeding season than control mares. Madosky et al. (in press) found this infidelity was also evident during the breeding season in the same population that Nunez et al. (2009) studied, resulting in PZP-treated mares changing bands more frequently than control mares.

Aggression between stallions and mares has also been studied in 3 wild horse populations and no difference was found between the treatment groups (Ransom et al. 2010). Data regarding level of competition and aggression between band stallions in relation to the presence and number of treated mares were also collected during this study, but analyses are incomplete. These results will be published upon completion. Harem tending by stallions, such as urine and fecal covering of mare excretion and active defense of mares against other stallions, was best explained by a model of mare body condition in the Ransom et al (2010) study. Stallions in this study tended higher condition mares more frequently than lower condition mares.

No Action

Under this alternative, wild horse mares from the PMWHR lands would not be placed on a multi-year fertility treatment regiment utilizing PZP. Fertility control would be completed in one year increments through various treatments prescriptions and intensities. The no action incorporated proven Standard Operating Procedures (SOPs, Appendix II) which represent the "best methods" for ensuring quality results, minimizing risks and reducing impacts associated with this activity. All activity would be carried out according to current BLM policy with the intent of conducting as safe and humane an operation as possible. Protocols have been specifically developed for remote-delivery techniques of the fertility control vaccine. A plan to apply fertility control would be evaluated and implemented at a later time. The BLM would continue vegetation and population monitoring.

Impacts

The impacts to individual mares would be the same from fertility treatments as the proposed action, except it would occur in a one year increment. Currently Appendix I demonstrates the no action use of fertility control. Under this alternative, fertility control would be given on a one year basis and then additional treatment evaluated and implemented at a later time. Under this alternative the need to gather and remove excess wild horses would be greater than the proposed action as treatments would be variable and not necessary on a timed schedule.

4.0 CUMULATIVE IMPACTS

The cumulative impacts of implementing the 2009 PMWHR EA and HMAP and subsequent FONSI and DR have been analyzed and are incorporated by reference. Therefore, only the cumulative impact to the wild horses from the use of fertility control is discussed.

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 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 horses within the established boundaries of the PMWHR.

Past, present, and reasonably foreseeable activities that would be expected to contribute to the cumulative impacts of implementing the proposed action or alternatives would include past, present and future wild horse selective removals, fertility control treatments, natural mortality including variable predation, disturbance due to recreation and hunting, and increased or decreased size and quality of rangeland available for wild horse use. BLM would identify these impacts as they occur and mitigate them as needed on a project specific basis to maintain a thriving natural ecological balance and maintain acceptable levels of herd health. The Proposed Action would contribute to the cumulative impacts of future actions by maintaining the wild horse population nearer AML. Monitoring and management actions would establish a process whereby biological and/or genetic issues would be identified and resolved over time.

The cumulative impacts of the proposed action and alternative including foal production and herd size and growth over the next five years is discussed in the 2009 EA and HMAP and incorporated by reference. In addition, the proposed action has been evaluated for cumulative impacts to the demographics (size, age structure, sex ratio) of the herd over time using WinEquus. Parameters and output for these population modeling runs are in the 2009 HMAP (Appendix II). Modeling efforts forecast that the cumulative impacts for the proposed action would not be expected to reduce herd growth rates below a sustainable level under conditions of average natural mortality. In addition, the average adult herd size would not fall below the existing AML of 120 adult horses, an important consideration in terms of maintaining genetic diversity within the Pryor herd. Additionally, according to Eggert et al..2010 “the higher the Ne/N ratio for the inbreeding effective size may indicate an avoidance of inbreeding.”

Due to the relatively long time between generation (~10 years) and the long reproductive life-span of individual horses, the loss of genetic material from the herd is relatively slow and able to be monitored and mitigated by management. There would be minimal impact to herd genetic diversity by restricting first time births to later in a mares life and reducing the lifetime contribution of older mares. Given the current levels of genetic diversity in the Pryor horses, suppressing herd growth rates over a five year period, in combination with small-scale removals to reduce herd size, would not result in deleterious cumulative genetic impacts. According to Cothran 2010 “Genetic similiarity results suggest a herd with mixed ancestory that includes Spanish blood.” The mix of breeds and historically introduced horses is directly responsible for the high level of genetic variation.

5.0 MITIGATION AND SUGGESTED MONITORING

Proven mitigation and monitoring are incorporated into the proposed action and also through standard operating procedures, which have been developed over time. These SOPs (Appendix II) represent the best methods for reducing impacts associated with remote application of PZP and collecting herd data. Additional mitigation could include marking treated mares with remote delivery livestock paint, in order to ensure no mares are inadvertently double treated.

6.0 CONSULTATION AND COORDINATION

On January 19, 2010, the BLM mailed out notices asking people to respond by February 26, 2010 regarding their desire to be included in the annual Montana wild horse and burro mailing list for participation in wild horse management activities that would begin by March 1, 2010. 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.

On August 16, 2010 the BLM issued a Scoping Notice "For Application of Fertility Control Vaccine of Wild Horses within the Pryor Mountain Wild Horse Range". BLM asked the public to provide input that would help the BLM in development of a proposed action and alternatives, further identify issues, potential environmental consequences, mitigation opportunities, monitoring or provide information, data, or analysis to be used in development of an environmental Analysis.

Scoping comments received were in two categories; no use of fertility control and the use of fertility control more specifically modeled after Assateague National Seashore. The effects to wild horses both direct and indirect were a repeated concern, and the impacts of which are incorporated into the analysis. Concern for animal welfare in relation to the use of PZP was another repeated concern and is addressed as part of the proposed action and SOPs. No new information or studies were provided that the BLM was not aware. No new issues were identified that were not addressed in the Proposed Action and No Action alternative or that had not already been addressed in the 2009 HMAP and EA.

On November 1, 2010 the BLM issued the Pryor Mountain Wild Horse Range Fertility Control Preliminary EA for public comment. Based on public comment, additions and clarifications were made to the EA. Although during scoping the use of fertility control modeled after Assateague National Seashore was identified by the public, in fact the public was not in favor of a similar treatment when given an opportunity to comment on the proposed action. Not using fertility control was still identified during comments of the document, as well as a myriad of items not related to wild horse management and outside the scope of the purpose and need.

6.1 RESPONSE TO COMMENTS

Individual comments that are similar in nature and received from several parties are summarized and responded to in that manner. There was one Freedom of Information Act (FOIA) request received, that won't be addressed as a comment but responded to under the FOIA process. The majority of letters received are from people repeating an example letter provided by the Cloud Foundation and thus are considered one comment. There were numerous letters and comments received that are accusatory in nature; with personal attacks against BLM employees and other parties and as such will not be addressed. The use of PZP-22 is not part of this action nor is a gather, therefore they are out of scope of this document and those comments will not have an individual response. The Cloud Foundation submitted an eleven page letter with attachments. After analysis of this letter it became extremely difficult to identify individual comments, as many parts of the letter contradict other parts, thus nearly each paragraph was pulled out as a comment. Comments regarding national policies in regard to disposition of wild horses were not necessarily individually addressed as the Billings Field Office does not establish these policies.

Comment 1: Concerned PZP is used as an immuno-contraceptive and not cause permanent sterility. Concerned mares previously treated with PZP-22 in 2009 and native PZP in 2010 would be adversely affected by causing sterility with five more years of treatment. *Pryor Mountain Wild Mustang Center, Patience O'Dowd Wild*

Horses Observers Association, Wyoming Wild Horse Coalition, Cloud Foundation Talking Points, Carl and Laura Pivonka, Barbara Warner(American Horse Defense Fund)

Response: BLM is aware that treatment for more than five years can lead to sterility (see page 12). Due to these concerns, the EA has been modified from the preliminary to show the number of currently treated mares, their ages, and a broader description of the proposed management prescription. The analysis also identifies that a total of 11 out of 82 mares may be susceptible to sterility through this prescription. Those 11 mares are older animals that already have foaled and have been biologically successful and treated prior to 2009 and 2010.

Comment 2: Please focus your efforts on:

- -expanding the boundaries of the Pryor Wild Horse Range
- -tearing down the 2-mile long, $200,000+ fence that now prevents horses from using critical high elevation grazing
- -protecting mountain lions that have been effective in the past and can stabilize herd growth rates
- -removing dangerous barb wire fencing from within the range
- -fixing information kiosks and supply them with brochures and guidelines
- -improving Burnt Timber and Sykes Ridge roads
- -giving tours to school groups
- -enforcing speed limit for all vehicles on roads within designated road *Cloud Foundation Talking Points*

Response: These comments are outside the scope of the EA, as this action is analyzing the use of fertility control on wild horses.

Comment 3: PZP is creating social havoc. *Cloud Foundation Talking Points, Carl and Laura Pivonka*

Response: Thank you for your opinion on wild horse behavior. Please review the EA under impacts where it clearly analyzes the possible impacts of wild horse interaction from the use of PZP, documenting studies that have been conducted on wild horse behavior under PZP, both Nunez et al and Ransom et al. Further Eggert 2010 is analyzed under cumulative impacts. Please review the references section.

Comment 4: Most mares have received a multi-year infertility drug (PZP-22) that has no published papers or conclusions on how it affects wild mares and their future ability to have foals. *Cloud Foundation Talking Points,*

Response: The effects of PZP are well known. The use of PZP-22 is not part of the proposed action. The best PZP-22 can accomplish is up to 22 months worth of vaccination. The efficacy can only last for 22 months on 68% of mares treated when applied during the prime window during winter. There is nothing unknown.

Comment 5: This world famous herd is already being managed at population levels below your own minimum standards for genetic viability in your newly released BLM Handbook for the Wild Horse and Burro Management (July 2010). I call on you to follow the 1971 Wild Horse and Burro Act which calls for the least feasible management-not the most potentially destructive. *Cloud Foundation Talking Points, Barbara Warner*

Response: Thank you for your opinion, however BLM is following the handbook, and BLM has no minimum standards for genetic viability. The Wild Free Roaming Horse and Burro Act states “minimum feasible management” not least feasible management. Birth control is minimum and feasible, especially considering the

other techniques involve capture and treatment. This comment is further elaborated on under the Cloud Foundation comment letter response.

Comment 6: Please select the no action alternative. *Cloud Foundation Talking Points, Carl and Laura Pivonka The Cloud Foundation, Jerri Tillet, Howard Boggess, Barbara Warner, Cindy Macdonald*

Response: Thank you for your comment.

Comment 7: I do not support removal of wild horses or chemical sterilization. *Cindy Macdonald.*

Response: These comments are outside the scope of the EA. This EA is not a gather plan, nor is PZP a chemical sterilant.

Comment 8: BLM and congress need to have moratorium on gathers and the use of PZP. *Cindy Macdonald. Carl and Laura Pivonka*

Response: Thank you for your comment. The Billings Field Office doesn't establish law, regulation, or policy.

Comment 9: The HMAP is in error and inadequate, slip shod, and missing data. *Cindy Macdonald*

Response: Thank you for your opinion. The HMAP is an approved plan, affirmed by the Interior Board of Land Appeals in January 2010. Your letter and comments are outside the scope of this EA.

Comment 10: The preliminary EA is difficult to understand and needs more clarification. How many horses are going to be treated? Please resend the EA in a preliminary form. *Barbara Warner*

Response: The EA was simplified and additions made to help people understand the proposed action. Many of your concerns are addressed in these changes. A new preliminary EA is not necessary as the purpose of public scoping and comment on a preliminary document are designed to do exactly what has been done.

Comment 11: The AML is too low and needs to be at least 150 wild horses to ensure genetic viability. *Barbara Warner*

Response: Thank you for your comment. The AML is already established and this proposed action is not about the AML as that has been previously determined, thus this comment is outside the scope of this EA.

Comment 12: I urge a "no action" alternative" ..... this request is based on two pieces of new scientific evidence about effects of current immune-contraception use. *Christine DeCarlo*

Response: Thank you for your comment, however no new scientific evidence was provided as to change the analysis of the impacts. Please refer to the references section of the EA.

Comment 13: In favor the use of PZP. *Clayton McCracken, Matt Dillon and John Nickle of Pryor Mountain Wild Mustang Center, Grant Barnard, Tracey Holmes of National Mustang Association/Colorado, Patience O'Dowd of Wild Horses Observers Association, Town of Lovell Mayor Bruce Morrison*

Response: Thank you for the endorsement. The Proposed Action has been refined to address concerns about use of bloodlines and potential sterility.

Comment 14: I would prefer seeing a program plan in which the objectives and action steps necessary to reach those objectives are spelled out. Projections for the herd, the EA holds the agency to only a vague goal. *Clayton McCracken*

Response: The objectives and actions for managing the PMWHR are spelled out and identified in the Herd Management Area Plan. For this reason, this EA is tiered to that document. This EA is not intended to be a new management plan; rather it is simply designed to further implement the HMAP. Additional language about tiering and incorporation by reference was added to the EA to help interested parties better understand the process.

Comment 15: What is the target population? There appear to be three different goals, 90-120 or no less than 90 and not fall below 120 adult horses. Keeping the herd size above 120 is not managing within the AML. *Clayton McCracken*

Response: This tiered EA does not change the AML of 90-120. The HMAP re-established the AML at 90-120 wild horses excluding current year's foals and further decided the population wouldn't be taken to the low AML when fertility control is utilized.

Comment 16: Fertility control for PMWHR does not require capture or branding of treated horses, economically is has much more money savings than conducting capture and release gathers, and slows down growth not to make gathers as necessary. The greatest loss of genetic material is through removals and a fertility control program allows every horse to contribute his or her genetics, mares that have their first foals older than 2, 3, or 4 are healthier and raise healthier foals. Studies show few side effects to PZP, mares do not come into heat every month, PZP is not a hormone, it does not make mares become masculine, and stallions do not rape mares. That is a wholly human construct and has no place in wildlife biology. Horses form intricate social and familial bonds that benefit from fewer less frequent gathers and removals of band members. It is traumatic for horses to undergo such large removals every few years. We approve of this fertility control plan. *National Mustang Association/Colorado President Tracey Holmes.*

Response: Thank you for your comments and support of the use of fertility control. Many of your comments are indeed factual concerning the use of PZP. The final EA has been modified slightly based upon comments of the preliminary EA.

Comment 17: The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue, and the Colorado Wild Horse and Burro Coalition do not support or recommend a five-year plan of PZP administration on mares in the Pryor Mountain Wild Horse Range (PMWHR) or any removals at this time. We ask you to choose the "No Action Alternative" and not conduct a five-year PZP protocol. Further, we demand that no PZP be used at this time on this unique and genetically significant herd.

We remind you that PZP-22, which can render mares infertile for up to three years in some cases, was already applied to every mare captured in the round up and returned to the range in September of 2009 (with one exception, and that mare was field darted after release per the Pryor Mustang Center). *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Please see response #6 for response to first half of this comment. BLM is aware of its management of the PMWHR. PZP-22 was applied in September of 2009. The 22 in PZP-22 stands for 22 months. Twenty-two (22) months from September 2009 is June 2011. Thus, three years of possible vaccination is mathematically impossible due to earlier than ideal window of application. Coverage of two breeding seasons

or more accurately 1½ seasons of coverage is the most that treatment could have for efficacy. More than one mare was not treated. No yearlings were treated and no mares over 20 were treated.

Comment 18: "Irresponsible" seems far too mild an assessment of the planned use of infertility drugs on a herd which is currently experiencing an unprecedented level of societal disruption because of the continuous heat cycles of nearly every mare on the range. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: TCF is entitled to their opinion; however the observations appear to be casual observation and not a controlled study, nor based upon knowledge of basic animal science. True measurement of an estrous cycle or colloquially referred to as "heat cycles" by TCF can only be assessed accurately via endocrine evaluations. Behavioral assessment of heat cannot be visually accessed accurately as not all mares respond the same during estrous. If this phenomenon was occurring, during a mare's estrous cycle, she spends 2-14 days in estrus with ovulation lasting typically 2 days. A mare will typically only be receptive to breeding near to and during ovulation. The remainder of the cycle or diestrus occurs between two successive estrus cycles. Thus mares cannot be continually bred. The observation appears to be without knowledge of "reverse transitional season" in the fall, where among untreated mares estrogen levels can surge, without ovulation, especially considering mares naturally have estrous cycles into September in the northern hemisphere and go into anestrous for the majority of the year. "Social disruption" is not defined in any scientific manner, rather a value statement that the TCF has for the wild horses of the PMWHR.

Comment 19: As we documented in late August, a quiet time when most mares are bred and the horses are focused on gaining weight to survive the coming winter, there was a degree of unrest unseen in 16 years of field study and photography on the herd. We observed a degree of infidelity among the mares and long standing band stallions who had lost all their mares. One band stallion who found his daughter and her foal unattended by any stallion pursued her over a two day period, running her until he raped her. Other unattended mares were observed and stallions left their existing bands to go after them. In the case of Flint (Blue Moon), he lost his entire family while in pursuit of an older mare in heat who was unattended by any stallion. The fabric of wild horse society was unraveling before our eyes, not because of natural impacts, but because humans had decided to drug all the mares. This cycle of breeding with a return to estrous within 30 days typically lasts from March through October in the Pryor Mountains. Photos and video are available from the Cloud Foundation to substantiate this and the other points made above.

Response: This is not unusual behavior for a wild horse herd. Especially considering the amount of congregation and crowding that occurs on the northern portion of the PMWHR during that time of year. Mares being in estrous in August is not unique. The typical "breeding season" for a mare in North America is March through September. Since estrous is triggered by total number of daylight hours, horses displaying breeding behavior in August is not unusual. A band stallion "raping" his own daughter is beyond anything BLM can do since wild horses are known to inbreed (Image). Stallions gathering up unattended mares or stealing mares is what wild horses do. To attribute natural behavior to the use of PZP cannot be substantiated through casual observation. Further this comment substantiates that mares do indeed breed during this timeframe when TCF states "March through October".

Comment 20: As if the use of infertility drugs on all mares isn't bad enough, you fail to point out, except by reference to the HMAP plan, that there will be a removal of more horses from the herd in 2011. Bait trapping is the likely method of removal, taking the herd to unsustainable levels in which geneticist Dr. Cothran has already observed decreasing genetic diversity over the past eight years. If we are to believe your quote in the Billings Gazette, horses to be removed in 2011 could include Cloud as well as his off-spring. In 2009, Cloud

had his daughter and brother removed as well as five grandchildren—nearly all of his progeny. Is it your intention to attempt to punish advocates who call for the preservation of wild horses by taking from the Pryor herd Cloud as well as his only son, Bolder and their respective progeny?

Response: This comment is outside the scope of the EA. The proposed action is not a gather plan, and would in fact lessen the need for future gathers.

Comment 21: We realize that because of infertility drug use on all the mares, it is unlikely that Cloud and Bolder will have any future opportunity to produce foals, particularly one that is a rare color with the personality of Cloud as a foal.

Response: Efficacy of PZP is not 100%. Even among treated mares foals will be born. The treatment prescription is age based and has been modified to make it as clear as possible how the treatment would work.

Comment 22: We refer to the foal the BLM calls Killian that we call Echo. We believe that you have grossly underestimated the love of the public for their wild horses and the outcry that would result from the removal of these animals in particular. From an economic standpoint, ignoring the eco-tourism dollars generated from having the world's most famous wild horse and the most popular wild horse herd in the West which happens to be only hours away from Montana's largest city, Billings, is short-sighted in the extreme. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment is outside the scope of the EA as the proposed action is not a gather plan.

Comment 23: After the massive removal of 56 Pryor wild horses in September of 2009 and the unrestricted use of infertility drugs, you approved the building of a fence that currently prevents the Pryor herd from accessing vital grazing lands in the Custer National Forest which they have used for centuries. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment is outside the scope of the EA. BLM did not issue the decision for the fence and it is not on BLM administered lands.

Comment 24: This fence threatens what Dr. Gus Cothran refers to as the "most popular herd" in the BLM system. In response to the proposed removal of nearly one third of the Pryor herd in 2009, Dr. Cothran warned that the size and extent of the removal plan was not advisable. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The BLM is not aware of Dr. Cothran's professional judgment regarding management of the Forest Service lands. The Proposed Action is a fertility treatment program in order to implement the 2009 PMWHR HMAP. The Proposed Action is not a gather plan or a discussion on last year's gather. This comment is out of scope.

Comment 25: Despite this, you removed 56 animals, including, not only most of the progeny of Cloud but an entire sub-population of animals in the Forest Service on Commissary Ridge. Despite having aged animals in this sub-population, the removal (which was unannounced until the day before the round up began) you proceeded with this total removal. Animals in this population include rare genetics now lost to the main herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment is outside the scope of the EA as the proposed action is not a gather plan.

Comment 26: This cruel removal action, the indiscriminant use of PZP, and the construction of a barrier fence preventing the herd from accessing essential summer and fall underscore the enormous threats to the very survival of the Pryor wild herd. Again we ask that you drop any plan to repeatedly drug the Pryor mares. You are well aware that use of the drug for five years will likely render the mares permanently sterilized. In other words, mares given PZP-22 as well as several years of the one-year drug will forever remove those mares from producing foals. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The best PZP-22 can do is having an effect until June 2011 most likely only on 60% of the treated mares, thus making efficacy duration shorter. The proposed action is an age based prescription and the proposed action has been modified to make the prescription 100% age based. The proposed action does not call for the treatment of young horses for five years. Since the youngest mares that were treated with PZP-22 in 2009 would be four years old in 2011 the most they could be treated is for three years. There are most likely 11 older mares that could potentially become infertile. The construction of the fence on USFS land was a USFS action and is beyond the control of the BLM and is out of the scope of this document.

Comment 27: The results of PZP-22 have yet to be seen and the impact on the mares is simply a guess at this time. According to your BLM records and, based on our own on site documentation and a recent peer reviewed study, it is impacting the social integrity of this unique and historic wild horse herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Inter-band movement is highly variable and is dependent upon many factors other than fertility control, including sex ratios, age classes, and population densities. The use of PZP-22 is not part of the proposed action.

Comment 28: We do not support any further use of PZP-22 through a helicopter capture, treat and release action. This is inhumane, expensive and further damaging to this small herd, as evidenced by the 2009 roundup/removal/PZP-22 application. In addition, we do not support any one-year applications of any mares until the results of the massive use of PZP-22 are made known. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*
Response: This comment is outside the scope of the EA. The use of PZP-22 is not part of the proposed action Please review Alternatives Considered but Eliminated from Further Consideration. This alternative (Helicopter Capture, Treat and Release of Wild Horses with injection of PZP 22 fertility control vaccine for mares returned to the range) was considered but eliminated from further analysis because it would not meet the need for a flexible and adjustable fertility control program.

Comment 29: Legal Background: In 1971, by the *Free Roaming Wild Horses and Burros Act,* wild equids were designated as protected and rightful users of over 54 million acres of public lands in ten western states. Since that time over 24 million acres have been completely cleared of wild horses and burros and over 112 of the original 303 herds designated for protection by a unanimous Congress have been eliminated. Over 75% of the remaining herds are managed at genetically non-viable numbers. One of the stated reasons for this infertility control and population suppression is to maintain “multiple use relationships” on the PMWHR. However, this prerogative seems aimed at reducing the herd to unsustainable and artificially low numbers that benefits neither the herd nor the habitat. The desire to sustainably and responsibly manage the PMWH herd does not seem to be an objective of your BLM office. The clear intent of the Act is that wild horses and burros will be managed for

self-sustaining herds and principle users of the land dedicated for their use (in a thriving balance with other wildlife). Across the board, BLM's interpretation of the law and subsequent mismanagement of wild horses and burros (including the zeroing out of herds) is illegal. Ranges, as repeatedly written in the Act, applies to all herd management areas (formally herd areas) and the natural range of wild horses and burros as found in 1971. "Ranges" does not apply to only the three pre-1971 wild horse ranges, but to all herds on their natural ranges and areas defined following the passage of the Act. Author and former ABC-TV correspondent, Hope Ryden, was one of the writers/consultants on the Act and can attest to the intention of "ranges" applying to all recognized wild horse and burro herds. Regardless of definition- the PMWHR is clearly to be managed *principally* for Montana's only remaining herd of wild horses and allow them to live in harmony with the other wildlife and plant species on the range.

Local History: In a Lovell Chronicle article dated October 21, 1971, it was reported that: "Lovell area residents who fought for preservation of the horses in the beginning and against 'over-management' ever since, contend that the herd's size has remained fairly static over the years, due to natural controls." Some winter-kill, they say, and after a hard winter, there are fewer foals born. These views are substantiated by biologists. . . who have done research in the area, as well as ranchers who have observed the horses over many decades. Nearly 40 years after the passage of the Act, those concerned with the future of the historically significant Pryor Mountain wild horse herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your opinion. However allowing wild horses to exhaust their habitat to the point that it is permanently impaired and promoting mass die off or starvation is not within the mission of the BLM. No reasonable person could say that wild horses are meeting the "thriving" part of thriving natural ecological balance if they are starving to death and impairing their range. Anything will self regulate when they are in a confined area and allowed to exhaust all resources. Even horses in a corral or dogs in a kennel without food or water will self-regulate.

Comment 30: Genetically viable generally defined as a population of horses 1 year and older that is at or above 150-200 individuals with a Ne (genetic effective number) of 50 or more. The minimum population for viability also depends upon genetic *variability* within the herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Minimum viable populations or MVP is the accepted nomenclature in the field of population biology. This appears to be a new word definition not from an accredited source. Genetically viable population is not "defined by 150 horses." The true viable population is the number of horses that can successfully breed and raise their offspring as the population doesn't collapse. The number of 150 is three times the true MVP (50) accepted for mammals. The herd is being managed for a number that is more than twice the theoretical MVP.

Comment 31: Background of PZP use in the Pryors: Porca Zona Pellucida (PZP) treatment was first administered to young females (seven yearlings and one two- year-old) in 2001 when they were given shots in the corrals after a roundup in September 2001. The drug was designed to extend one year of infertility to this group. It was given in two consecutive years. The second year the drug was administered via field darting. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your comment please see Appendix II.

Comment 32: Of these eight young mares, one died and four have foaled (*see figure 1 below*). The only two-year- old, Moshi, foaled in 2002, as she was already pregnant. Moshi didn't foal again for 6 years until her out-of-season filly was born in September 2008. Moshi was removed in 2009. One mare, Atlantis (2000), foaled in September 2009 and then disappeared later that fall with her foal. The mare's remains were found the following year. It is assumed the out-of-season birth and nursing the foal in winter caused her premature death as well as the death of her foal. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your opinion. BLM would like to point out that untreated mares die as well.

Comment 33: Of the seven remaining yearlings, four have produced a foal. Of the four foals, three were born in September. Administration of PZP was stopped on younger mares in 2005 due to a natural decrease in population largely because of mountain lion predation and the unexpected absence of foal production by the young mares. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your comment; however the population cannot decrease from loss of a foal crop. A decrease would only come from recruitment not keeping pace with mortality.

Comment 34: Of the 36 young mares to receive the drug between 2001-2004, 11 have died, 13 have foaled and 12 have not foaled (*see figure 2 below*). Four veterinarians (from Switzerland, Florida, Georgia and Colorado) have independently expressed the same concern to us: mares not producing foals at a typically younger age (i.e. three-seven years) will have a more difficult time conceiving. They point out that this is true not just in horses but in humans as well as other species. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Early births are a major contributor to poor condition (Ghost Dancer and Huachuca 2009) and leads to mortality. The contention that mares not producing foals at a younger age will have a more difficult time conceiving has no empirical data to support it. A mare will complete its growth typically by age 4 or 5 and be in its physical prime between ages 5-10. The contention a mare in her prime cannot conceive does not appear factual nor in line with accepted animal science. It appears these anonymous veterinarians may not be fully aware of the proposed management prescription.

Comment 35: Of these 13 young mares that have foaled, nine foals have been born out of season, including three in September of 2008 and one in November 2008. One foal born in September, never grew to full-size and was subsequently bait trapped and adopted out in September 2006. Another foal, born to Cecelia, #2224, a mare darted as a yearling and two-year-old in 2003 and 2004, was born in *December of 2006*. The majority of Pryor Mountain mares foal from May 15- June 15. She didn't foal in 2007 and then foaled in September of 2008. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: During this time frame, six untreated mares foaled after July as well.

Comment 36: Photo evidence attests to the masculine and aggressive behavior of certain PZP'd fillies as well as the masculine appearance of Aurora #2036. She has a stallion-like cresty neck and physique. It is obvious that the hormones of these young mares have been altered by PZP. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment appears to show a lack understanding of the biological action of PZP. Personal communication with Dr. Jay Kirkpatrick has informed BLM the vaccine does not alter the endocrine system. PZP is a vaccine that stimulates antibodies that block fertilization. If the comment was factual then common horse vaccinations such as encephalitis, rhino, and distemper would have a similar effect. The claim is inconsistent with the biological mechanism of the vaccine.

Comment 37: Of 21 older mares (11 years of age and older) given PZP from 2003-2007, 57% or 12 mares have foaled in spite of the field darting with Porcine Zona Pellucida. Only 43% or nine mares have not foaled (drug worked as designed). One mare, Tonopah #8603, produced a foal at the age of 21 in 2007. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Personal communication with Dr. Jay Kirkpatrick has informed BLM the cause of this is due to delaying treatment outside of the pre-breeding prime window. If TCFs concern (as stated in earlier comments) is truly about not having any foals or infertility of mares treated for more than five years, then BLM fails to understand how reduced efficacy be a concern?

Comment 38: Aside from the cruelty of raising a newborn foal going into a Montana winter, the drug has had other negative side effects in the form of abscesses, bleeding, and swelling on the hips of field darted mares. Of the 54 mares listed on the PMWHR Injection and Reaction Observations – updated June 2007 (BLM-03262), 41 mares were listed with swelling, nodules, bleeding or a combination of all these. 20 mares still have visible signs of nodules even years after they were injected. One mare, Hightail #8901, had an abscess from darting in 2007 which has since healed on its own. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Dr. Jay Kirkpatrick has informed BLM the nodules are granulomas which are the equivalent of the smallpox vaccination scar on humans but under the skin instead of on top of it. The commenter is confusing injection nodules with persistent nodules. Please review the EA again as the effects are clearly described under impacts. Abscesses are not caused by the vaccine, but rather by remote darting where skin bacteria or hair is forced into the wound.

Comment 39: Phoenix #9104 had a major wound at the location of an injection site lump from the last field darting prior to the observed wound (*see figure 5 following comments*). Photo comparisons indicate the wound, which appeared in June 2007 matches the left hip nodule from a previous darting with PZP. The mare and her colt were captured and she was treated in the corrals at the base of the mountain. Upon release to her band, the abscess looked to be healing although the mare had lost weight while in the Britton Springs corrals. Despite continued weight loss, the mare survived a long winter with deep snow at times, and looks remarkably fit in 2010. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Phoenix's wound was examined by veterinarian Dr. Brent Thompson. There were no foreign objects within the wound. The wound was a skin infection most likely initially caused from a wound that got infected. As the wound itched the mare continued to rub it resulting in peeling of more hair and hide. There was nothing to indicate it was related to a PZP treatment.

Comment 40: The BLM has reported that *density dependence* (the ability for a wildlife population to self-regulate its numbers based on available resources) and *compensatory reproduction* (higher than normal production of foals to increase an under-represented population) have taken place on the Pryor Wild Horse

Range. In other words, the older mares that continued to reproduce despite the use of PZP were responding to an under-population. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This is a function of reduced efficacy from late treatment.

Comment 41: Generally the core reproducers as well as the older females shared this burden. One older mare, Madonna #8913, who has been darted with PZP yearly since 2003, foaled in June 2007. The foal appeared to have trouble suckling and milk ran out its nose when nursing. The foal likely died during the night, as she was not with her mother the following morning. Madonna foaled again, late in the 2009 season, giving birth to a healthy colt. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: A casual observation cannot be correlated to the use of PZP. Foals die all the time regardless of a dams treatment.

Comment 42: Of the original group of young mares given the shot by hand while in the corrals in 2001, only one had any swelling. The other seven had no swelling, nodules or abscesses. This compares with 41 of 54 mares (a staggering 76%) with reported swelling, nodules and bleeding from at least one field darting experience. 43% of the mares darted in 2007 have nodules or bleeding and one mare had an abscess (Hightail #8901). *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This confirms the data and research that hand injections cause fewer injection site reactions. When a mare is inoculated in the chute, the injection site is shaved and washed with isopropyl alcohol first. Bacteria on the skin are the likely cause of any reaction from remote delivery.

Comment 43: According to scientific reports, not all darts are recovered. Some needles may break off and remain in the mare where they could cause later abscessing. Significant problems may not be immediately observed, rather bacteria may linger and the problem area might be walled-off for some time then suddenly emerge as was possibly the case with Phoenix #9104. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: See response to comment #39

Comment 44: This was mentioned by four of the six equine veterinarians with whom we consulted. These veterinarians practice in California, Oregon, and Colorado and were asked for their opinions regarding the efficacy of field darting mares in the PMWHR, the potential hazards of this practice, and the possibility for a late abscess to appear months after the darting. One veterinarian expressed concern that the mare was darted again, thereby placing more strain on the immune system. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: These anonymous veterinarians may not understand how PZP works through the immune system. A vaccination does not cause stress to an immune system, it has the opposite effect as more boosters create a stronger response.

Comment 45: Phoenix is one of the older mares who produced a foal despite 'vaccination' with PZP. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: BLM is aware of past treatments of Phoenix. Please see earlier responses regarding efficacy.

Comment 46: Compassionate Use? Ironically, the initial stated reason for the administration of PZP by BLM was *"purely from the standpoint of compassionate use"*. Compassionate use was defined as *"the use of the tool (or in this case a fertility control agent) to improve the quality of life of another (in this case younger or older wild mares)."* (BLM Field Manager, Sandra S. Brooks, June 3, 2004). BLM sought to prolong the life of the older mares by causing them not to foal and to delay the foaling of the younger mares for one year. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment is outside the scope of the EA.

Comment 47: According to the newly released BLM Handbook for Wild Horse and Burro Management *"Our current understanding is that to maximize treatment effects, at least 90 percent of all mares should be treated [with PZP]." The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The handbook states: *"Fertility control will be most effective when treatment of 50-90 percent of all breeding-age mares within the herd is possible using application in conjunction with gathers or remote delivery (darting). Our current understanding is that to maximize treatment effects, at least 90 percent of all mares should be treated." This* means 50 to 90% of mares should be treated and 90% of mares treated to maximize its benefits. The proposed action would treat 70-80% of the mares annually.

Comment 48: PZP use at this level would cause even greater unrest. Is this the goal of the Billings field office? *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The proposed level is not at 90%. The goals and objectives for the PMWHR are already determined and affirmed by IBLA in the HMAP.

Comment 49: As per the 2009 Herd Management Area Plan of your office, the PMWH herd is to managed at 90-120 wild horses one year of age and older—a level significantly below the minimum to ensure genetic diversity. To safeguard the remaining genetic variability of this unique and historic herd. Dr. E. Gus Cothran, PhD, noted, trusted and relied upon geneticist for BLM, wrote to BLM Wild Horse specialist Linda Coates-Markle in summer 2006:

From a population viability standpoint, if there are no unexpected problems then the plan to keep the herd at 100 for five years should have minimal impact. However, five years should be set as a maximum time span and if range conditions improve herd size should be increased as soon as possible to minimize both the unavoidable impact and the increased risks that the reduced population size expose the Pryor herd to.
The BLM Handbook further advises:

Determine whether or not the WH&B herd size proposed in Tier Two is sufficient to maintain genetically diverse WH&B populations (i.e., avoid inbreeding depression). To avoid inbreeding depression in wild horse populations, a minimum herd size of 50 effective breeding animals (a total population size of about 150-200 animals) is recommended [emphasis added].

Utilizing PZP on such a small and relatively fragile herd goes against solid and responsible wild horse management and your own BLM Handbook. PZP use is not required in herds below genetically viable numbers (i.e. 150-200 adult animals) and the use of this drug in herds kept at levels below that is irresponsible and not in keeping with the Free-Roaming Wild Horses and Burros Act of 1971 which charges the BLM to sustainably manage wild horses and burros on public lands with "least feasible management." *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The comment appears to refute TCFs own definition of "genetic viability". The comment also is a gross misrepresentation of the handbook. The handbook states:

4.4.6.3 Herd Size

A minimum population size of 50 effective breeding animals (i.e., a total population size of about 150-200 animals) is currently recommended to maintain an acceptable level of genetic diversity within reproducing WH&B populations (Cothran, 2009). This number is required to keep the rate of loss of genetic variation at 1 percent per generation. Animal interchange between adjacent HMAs with smaller population sizes may reduce the need for maintaining populations of this size within each individual HMA. Research has not yet established a recommended minimum breeding herd size for burros.

4.4.6.4 Management Actions

If the recommended minimum wild horse herd size cannot be maintained due to habitat limitations (e.g., insufficient forage, water, cover and/or space) or other resource management considerations (e.g., T&E species), a number of options may be considered as part of an appropriate site-specific NEPA analysis to mitigate genetic concerns:

- Maximize the number of breeding age wild horses (6-10 years) within the herd.
- Adjust the sex ratio in favor of males to increase the number of harems and effective breeding males.
- Introduce 1-2 young mares every generation (about 10 years), from other herds living in similar environments.

Comment 50: Efficacy: The stated goal of the scientific community regarding an ideal wild horse fertility control agent was that it should be *"at least 90% effective"* (Wild Horse Contraceptive Research document, 1991 USGS website, posted 2-21-06). While the drug appears to be over 90% effective on Assateague Island, it has not performed in a similar manner in the Pryors. It did not prevent foaling by a majority of the older mares and it did prevent foaling by the majority of the younger mares, in some cases, for nine years. These mares were obviously made sterile and are barren because they received the drug before their hormones and reproductive systems. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: See response to comment # 37

Comment 51: We request that you revisit the statement that *"PZP vaccine meets most of the requirements for an ideal contraceptive agent including criteria for safety and efficacy"*—as clearly, it does not. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your comment, BLM disagrees.

Comment 52: Incorrect Timing of Application:
It is unconscionable and dangerous to propose to resume one-year treatments on mares without assessing the results of the PZP-22, a timed released pellet requiring administration by a hand delivered shot. This drug has had absolutely no completed or peer reviewed study revealing its ultimate results on wild mares. Studies are underway in Sand Wash, a Colorado herd as well as in Cedar Mountain in Utah, but no results are available as yet since the studies only began in 2008. What does appear apparent, based on the report given verbally to concerned citizens in Colorado by Heidi Hopkins (Sept. 2010) who is in charge of these two studies on behalf of the Humane Society of the United States, is that there appears to be out-of season births based on when the drug was administered.

She indicated that the most appropriate time for PZP-22 is December-March. She stated that September is the wrong time. September is the month in which the majority of Pryor mares received the drug. Hopkins stated that experiments are underway to reformulate the PZP-22 pellets to change the dissolving rates so that the drug will still be effective and successful with the goal of in-season births.

Again, we reiterate that without knowing the results of the PZP-22 shots administered at admittedly the wrong time of year, continuing to give 1-year doses of PZP jeopardizes not only the individual mares in question but the entire herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: See response to comment #17

Comment 53: We are well aware that one-year doses have been delivered by the Pryor Mustang Center with the approval of BLM in 2010, effectively rendering all sub-adult (2 year old) and adult mares contracepted on the mountain. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: The mares treated with one year vaccine were mares over 11 years old. There is no way physically or mathematically possible for any mare that is two years old to be treated, as the youngest mares treated in 2009 were two years old. By 2011 these mares will be four years old.

Comment 54: And yet, the BLM has already given PZP-22 to the majority of the Pryor mares as well as the one-year drug to the remainder and are now proposing the use of the one- year drug through 2015, without any knowledge of the results of the massive use of PZP-22 given to mares in September 2009. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: see response to comment #17

Comment 55: On the heels of the largest removal in the history of this small, beloved herd you have now decided to continue the use of the one-year drug through 2015. This could result in permanent chemical sterility on an indeterminate number of mares. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: It is false that an indeterminate number of mares will end up permanently sterile. Most likely eleven older mares could potentially become sterile.

Comment 56: Social Unrest: Currently, 52 mares are on infertility drugs and are cycling monthly, being bred and defended by their band stallions, only to come back into heat the following month. The competition for these 52 females who are cycling monthly has resulted in disruption and interchanges to 60% of the observed bands including three band stallions who lost their families in a one month period. We have not seen this high degree of societal breakdown on the mountain in 16 years of observation. It is indicative of the unprecedented level of human manipulation of the herd.

In addition to the statistical analysis of PZP use, it is hard not to comment on the social stress placed on both mares and their bands stallions when the mares cycle monthly and are repeatedly bred but do not settle. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your opinion, however it appears to be based on casual observations.

Comment 56: In July of 2008, we witnessed one young mare (#2315) being bred three times in a fifteen-minute period while she struggled to get away. Mares that cycle monthly attract the attention of bachelors and other band stallions on a regular basis and the stallion expends energy both in defense of his mare and in breeding her. This social unrest has not been reported on Assateague Island, but is easily observed in the Pryors, when individual horse bands come in close proximity to each other during the summer months. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: BLM is aware that wild horses breed in July. That would lead to a June foal which is when most foals are born in the PMWHR.

Comment 57: We appreciate the inclusion of new science showing the effects of PZP on behavior of wild equids.

Observations made of the social unrest in the Pryors since the onset of PZP use are similar to those reported by biologist Cassandra M.V. Nunez, PhD of Princeton University who studies the Shackleford Banks wild horses. In her 2009 paper: "Immunocontraception decreases group fidelity in a feral horse population during the non-breeding season2" Nunez along with James S. Adelman, Carolyn Mason and Daniel I. Rubenstein write:
The differences we observed in harem fidelity and reproductive behavior may result from prolonged estrous cycling into the post-breeding season in response to repeated failures to conceive. This hypothesis has been proposed to explain reproductive behavior during the post-breeding season in both PZP-treated elk (Heilmann et al., 1998) and white-tailed deer (McShea et al., 1997).
Contracepted mares are more likely to switch harem groups and visit more groups than are control mares. Decreases in mare fidelity to the harem male have debilitating consequences for harem stability.... In addition, frequent changes to a harem's composition are likely to prohibit the establishment of a stable female dominance hierarchy, which is paramount to maintaining social cohesion among mares and overall group stability (Berger, 1977; Houpt and Wolski, 1980; Heitor et al., 2006).... Because contracepted females do not simply switch repeatedly between two well-known groups, but rather interact with several different groups, these detrimental effects of harem instability may be felt throughout the entire population [emphasis added].
Nunez et al. conclude: *PZP has been reported to have little to no effect on the behavior of wild horses, specifically, but also wild ungulates in general (Kirkpatrick et al., 1996, 1997; Powell, 1999). The results of this study refute those claims, and in fact, highlight the pitfalls of generalizing recipient and group responses to PZP from one population to another. Moreover, these data emphasize the necessity of study during all stages of the animals' reproductive cycle to determine the effects of contraception on social behavior. Managers of feral*

horse and other ungulate populations must use caution in basing contraceptive decisions upon data collected only during the breeding season and from a few, separate populations. Regardless of the ecological and sociological similarities between sites, subtle differences in factors such as demography, ready access to resources, and, as this paper suggests, seasonality, may prove important. Among different populations, such factors may shape the physiological and behavioral effects of PZP in unique and potentially unpredictable ways. Finally the trade-offs between managing population size and maintaining animal health and well-being are worth serious consideration. For social species such as the horse, such consideration is crucial if managers are to maintain behaviorally functional populations [emphasis added]. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: BLM encourages TCF to review all research on the use of PZP as well.

Comment 58: Current management of the PMWH herd resembles a breeding farm and not the Congressionally-mandated "least-feasible management" required by the 1971 Wild Free Roaming Horses and Burros Act. The PMWHs are a wildlife species, functioning best without interference from the BLM, the Park Service, or the Forest Service. Just last year Judge Collyer wrote in her decision regarding the West Douglas Herd of Colorado that: "Moreover, the statute expressly provides that BLM's "management activities *shall* be at the *minimal* feasible level." *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your comment. BLM disagrees.

Comment 59: Management of the PMWHs is neither warranted nor legal as per the WFRHBA of 1971. In the Pryor Mountains it has been demonstrated that mountain lions, natural die offs in winter, lightning strikes, and nature's own controls in the form of density dependency and compensatory reproduce are fully capable and effective in maintaining the herd at sustainable levels which fluctuate naturally within dynamic parameters. Controlling the breeding of every mare on the mountain (through selective application of PZP or injection of PZP-22) is unnecessary and costly. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: No natural event is keeping the herd within AML. Anything can be starved to death if allowed to exceed the confines of its habitat in natural management. It is not unusual for all living things to eventually die. To attribute natural mortality to natural population control is a huge leap that has no documentation or scientific basis.

Comment 60: The effects of the last eight years of PZP use have not been documented by the BLM and the timing of the application is still a relative experiment in progress. The PMWH herd cannot sustain being an experiment. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: BLM is aware of the results of the previous PZP use. TCF obviously knows which horses have been treated, foaled, and the results as well or how could TCF have made all their comments?

Comment 61: Bait-trapping is harmful to the range and to the social structure of the wild horses. Each bait-trapping event requires an EA and public comment period as each is a separate action. We do not support or condone the use of bait-trapping to dart mares with PZP. If a mare is not accessible, she should not be given PZP. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your opinion however your comment is outside the scope of the analysis as bait trapping is not part of the proposed action. Utilizing bait to draw in difficult to approach horses is part of the proposed action.

Comment 62: We recommend you begin to focus your energies and our tax dollars on ways to minimize intensive and invasive management techniques in keeping with the Wild Free Roaming Horses and Burros Act. This includes the protection of the mountain lions so that a natural predator-prey balance can be re-established to naturally limit herd growth. We encourage you, as lead agency in the management of the PMW horses and range, to put a concentrated effort into working with Wyoming and Montana wildlife officials to reduce or ban mountain lion hunting in the PMWHR and surrounding areas. BLM's assistance in funding a mountain lion study would be a far more productive use of taxpayer dollars that human- determined management through PZP. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: Thank you for your comment; however it is out of scope. NPS is currently conducting a mountain lion study.

Comment 63: While BLM Director Bob Abbey repeatedly states that wild horses have no predators this is, as you are well aware, categorically untrue. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: In the context of all wild horse herds this statement is factual. Herds maintained by predation are by far the exception rather than the rule.

Comment 64: It should be pointed out that your predecessors in the BLM actively solicited hunters to come and kill mountain lions. At a Resource Advisory Council (RAC) meeting in Montana, the BLM stated that mountain lion hunters were paid to kill cougars in the Pryor Mountains. We were told that this was done as BLM needed to have a population growth rate of 5% so that they might continue the darting of mares for an infertility control study. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: It would be illegal for BLM to pay people to hunt mountain lions. BLM has no record of any requests or payments made to hunters. Please provide your documentation so a legal investigation can begin.

Comment 65: Instead of trying to manage the Pryor Mountain Wild Horses in a natural way, allowing for a predator-prey balance and only conducting a roundup when truly necessary, wild horse managers opt for the use of PZP **in combination** with helicopter roundups and bait trapping. These policies threaten the health of the world famous mustangs of the Pryor Mountains.

We urge you to work to expand the legal boundaries of the range to reflect the current and historic use areas of the herd and to allow the herd to expand to well beyond minimum levels of genetic viability. And we encourage you to leave the wild horses alone if they become ill due to natural causes. This idea that you will "not allow them to die" on the range is contrary to the laws of nature. Removing, rehabilitating, and re-introducing animals that would have died naturally only serves to weaken this wildlife population.

Protecting a Unique Herd: In the past the Billings office has stated that the solution to inbreeding problems caused by managing the PMWH at small population levels is to introduce horses from the Sulphur Herd of

Utah. The PMWH are uniquely adapted to their northern mountain home and have characteristics to survive here based on over 200 years of natural selection. Rather than introducing wild horses from other herds, the Commissary Ridge bands (the core of which the Cloud Foundation maintains in a wild state with their families) should be returned to the PMWHR to contribute now unrepresented and historic genetic lines. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This comment is outside the scope of the EA.

Comment 66: It is our understanding that any use of PZP must be approved by the Humane Society of the United States. We believe that PZP should not be used on herds that do not meet your own standards for genetic viability (as per the 2010 BLM handbook). This includes the Pryor Wild Horse Herd. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: PZP is approved by the Humane Society of the United States. Also please see response to # 47

Comment 67: Conclusion: We oppose a five-year plan to apply infertility drugs to the Pryor Wild Horse Herd. Currently the PHWH herd is below genetically viable population numbers and applying infertility drugs to suppress herd growth is not warranted and further endangers the diversity of this unique and world-famous herd. A plan for the use of PZP for the next five years is unwarranted and dangerous. We also oppose the permanent removal of any Pryor wild horses until there is verifiable proof that the herd is stabilized at 150 – 200 reproducing animals. We urge you to look to natural controls rather than intrusive management practices that damage the wild horses, diminish their wildness, and adversely impact the public's ability to view wild horse bands carrying out their natural behaviors in their native environment which includes not only the designated PMWHR but their adjoining historic home in the Custer National Forest lands atop the mountain. *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: This is outside the scope of the EA.

Comment 68: Exhibits of Phoenix *The Cloud Foundation, The Equine Welfare Alliance, Front Range Equine Rescue and the Colorado Wild Horse and Burro Coalition*

Response: BLM is well aware of the wound from 2007 and how it was not correlated to PZP treatment.

7.0 REFERENCES

Bureau of Land Management 2010. BLM Handbook 1790-1 National Environmental Policy Act

Bureau of Land Management 2010. BLM Handbook 4700 Wild Horse and Burro Management

Bureau of Land Management 2010. BLM Manual 4700 Wild Free-Roaming Horse and Burros Management

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

BLM, BiFO (May 2009, Affirmed January 2010) 2009 Pryor Mountain Wild Horse Range/Territory Environmental Assesment (MT-010-08-24) and Herd Management Area Plan.

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.

Cothran, Gus E, 2010. Genetic Analysis of the Pryor Mountains HMA, MT. Department of Veterinary Integrative Bioscience, Texas A&M University

Curtis, P.D., Pooler, R.L., Richmond, M.E., Miller, L.A., Mattfield, G.F., Quimby, F.W. 2002. Comparative effects of GnRH and porcine zona pellucida (PZP) immunocontraception vaccines for controlling reproduction in white-tailed deer (*Odocoileus virginianus*). Reproduction Supplement 60:131–141.

Eggert, Lori S et al. 2010. Pedigrees and the Study of the Wild Horse Population of Assateague Island National Seashore. Journal of Wildlife Management

Heilmann, T.J., Garrott, R.A., Caldwell, L.L., Tiller, B.L. 1998. Behavioral response of free-ranging elk treated with an immunocontraceptive vaccine. Journal of Wildlife Management 62:243–250.

Madosky, J.M., Rubenstein, D.I., Howard, J.J., Stuska, S. In press. The effects of immunocontraception on harem fidelity in a feral horse (*Equus caballus*) population. Applied Animal Behavior Science.

Nunez, C.M.V., Adelman, J.S., Mason, C., Rubenstein, D.I. 2009. Immunocontraception decreases group fidelity in a feral horse population during the non-breeding season. Applied Animal Behavior Science 117:74–83.

Powell, D.M. 1999. Preliminary evaluation of porcine zona pellucida (PZP) immunocontraception for behavioral effects in feral horses (*Equus caballus*). Journal of Applied Animal Welfare Science 2:321–335.

Ransom, J.I., Cade, B.S., Hobbs, N.T. 2010. Influences of immunocontraception on time budgets, social behavior, and body condition in feral horses. Applied Animal Behavior Science 124:51–60.

Shumake, S.A., Wilhelm, E.S. 1995. Comparisons of effects of four immunocontraceptive treatments on estrous cycle and rutting behavior in captive white-tailed deer. Denver Wildlife Research Center, Colorado, USA.

Turner, A., Kirkpatrick, J.F. 2002. Effects of immunocontraception on population, longevity and body condition in wild mares (*Equus caballus*). Reproduction Supplement 60:187–195.

Turner, A., Kirkpatrick, J.F. 2008 Achieving population goals in a long lived wildlife species (Equus caballus) with contraception.

Appendix I

Pryor Mountain Wild Horse Range Fertility Control Application Table

Year	Environmental Assessment	Number and age of mares identified for treatment	PZP Formulation	Total treated	Total Pop. (as officially reported)
2001	Pryor Mountain Wild Horse Range FY2001 Wild Horse Population Gather and Selective Removal EA Number MT-010-1-44	11 fillies of one and two year olds	One year liquid applied during a gather in the chute	11	160 post gather fall pop
2002	FY2002 Humane-Use of Fertility Control on Select Young Wild Horse Mares EA Number MT-010-02-22	12 one year olds and 7 two year olds	One year liquid remote dart	19	170 fall pop.
2003	FY2003: Fertility Control on Select Wild Horse MaresFY2003: Selective Removal of Young Wild Horse Stallions EA # MT-010-03-14	7 yearlings, 9 two year olds, and 8 over fourteen	One year liquid remote dart	24	161 post gather fall pop.
2004	FY2004: Fertility Control on Age-Specific Wild Horse Mares EA # MT-010-04-18	5 yearlings, 4 two year olds, and 7 over fourteen	One year liquid remote dart	16	142 fall pop.
2005	FY2005: Use of Fertility Control on Mares 11 Years of Age and Older to Suppress Herd Growth Rates EA # BLM- MT-010-FY05-16	mares over the age of 11	One year liquid remote dart	21	160 fall pop.
2006	Pryor Mountain Wild Horse Population Control 2006 EA # BLM- MT-010-FY06-19	Mares over 11	One year liquid remote dart	22	145 post gather fall pop.
2007	Pryor Mountain Wild Horse Population Control 2006 EA # BLM- MT-010-FY06-19	Mares over 11	One year liquid remote dart	27	154
2008	Pryor Mountain Wild Horse Population Control 2006 EA # BLM- MT-010-FY06-19	Mares over 11	No application	0	170
2009	Pryor Mountain Wild Horse Range 2009 Gather Plan and Environmental Assessment (EA) MT-C010-2009-35	42 mares over the age of one	22 month pellet applied during a gather in the chute	40	195 (125 post gather)
2010	Pryor Mountain Wild Horse Population Control 2006 EA # BLM- MT-010-FY06-19	Mares over 11	One year liquid remote dart	12	140-150 (outside HMA movement)

Appendix II

Standard Operating Procedures for Population-level Fertility Control Treatments One-year liquid vaccine:

The following implementation and monitoring requirements are part of the Proposed Action:

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.