United States Department of the Interior
Bureau of Land Management

Pryor Mountain Wild Horse Range Fertility Control
Environmental Assessment
DOI-BLM-MT-0010-2015-0006-EA
Tiered to the
Pryor Mountain Wild Horse Range Environmental Assessment
MT-010-08-24
And Herd Management Area Plan May 2009

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BLM/MT/PL-08/12

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Preliminary Environmental Assessment
DOI-BLM-MT-0010-2015-0006-EA
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TABLE OF CONTENTS

Page

1.0 BACKGROUND INFORMATION…… 1
1.1 Introduction.....3
1.2 Location.....2
1.3 Purpose and Need for the Proposal..... 5
1.4 Relationship to Planning.....5
1.5 Scoping.....6
1.6 Public Comment ……6

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.....6

3.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES..... 7
3.1 Critical Elements.....7
3.2 Wild Horses.....9
3.3 Social and Economic Values……14

4.0 CUMULATIVE IMPACTS…….....15

5.0 MITIGATION and SUGGESTED MONITORING.....16

6.0 CONSULTATION AND COORDINATION……..16
6.1 Response to Comments…….....17

7.0 REFERENCES CITED..... 29

8.0 APPENDICES..... 32
Appendix I Standard Operating Procedures
Appendix II Table 3 Summary of PZP Use On the Pryor Mountain Wild Horse Range

1.0 BACKGROUND INFORMATION

1.1 Introduction

The Bureau of Land Management (BLM), Billings Field Office (BiFO) received over 5,000 comment letters to the preliminary Environmental Assessment (EA). After review and analysis of comments within the scope of the EA, along with questions and information presented from interested parties, refinements, adjustments and clarifications into the proposed action of this EA have been incorporated. Additions to the EA have been made in order to allow interested parties to better understand National Environmental Policy Act (NEPA) planning processes, incorporate new information and provide for better clarity. All changes and additions to the document are highlighted in gray to help interested parties follow the additions and changes from the preliminary document. Comments are addressed in the consultation and coordination section of this document.

Since the January 2011 Pryor Mountain Wild Horse Range (PMWHR) Fertility Control Decision Record was issued, porcine zona pellucid (PZP) has been approved by the Environmental Protection Agency (EPA) as ZonaStat-H. The current decision record for the use of fertility control expires in 2015, leaving one more darting season under the current decision. The current protocol treats mare's ages 2, 3, 4, 11 and older. Monitoring results from the fertility control program has shown BLM that numerous treated mares ages 2, 3 and 4 have foaled; most likely due to timing of treatments as a result of inaccessibility in the spring. The two year olds that foal are becoming pregnant as 1 year olds. Some older mares have shown to be non-responders. It has also showed BLM that an untreated cohort as large as the number of 5-10 year olds has been over the past several years is too large a group to allow continuing to foal in order to stabilize herd growth. The recruitment rate has been reduced from 17.5% to 8%. Foal survivor rates have been as high as 88%. The population continues to exceed the capacity of the range, even with a bait trap gather in 2012.

Monitoring data shows that 90% efficacy rate of ZonaStat-H is accurate when individual mares receive treatment prior to estrus. The efficacy of the treatment application is influenced by the difficulty in accessing the wild horses during late winter/early spring to maximize effectiveness, and the number of mares that are natural non-responders to treatment. Another part of the challenge is mares that have never been treated require a primer dose that utilizes Fruend's Modified Adjuvant mixed with PZP. In order to render a mare infertile or "treated" they require a booster that consists of PZP mixed with Fruend's Incomplete Adjuvant and an annual booster to keep the immune system titers elevated to remain treated. Another finding since 2011 has been that about 6 additional foals are born annually to treated or 2 year old mares. Thus, an uncontrollable outcome is there are typically additional foals being born annually regardless of management actions.

In June 2013, the National Academy of Sciences (NAS) findings in part identified PZP as one of the "most acceptable alternative for managing population numbers".

In 2013 the BLM received numerous requests from the public for more use of fertility control to manage the wild horse population within the PMWHR, the Bureau of Land Management (BLM)

Billings Field Office conducted public scoping and released a preliminary EA, but determined that monitoring the results of the current fertility control would be better suited to help determine a new protocol for the future.

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 also incorporates by reference the Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment DOI-BLM-MT-0010-2010-0004-EA December 2010. 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 along with the PMWHR Fertility Control 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 focuses 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 the Appropriate Management Level (AML) when fertility control is utilized."

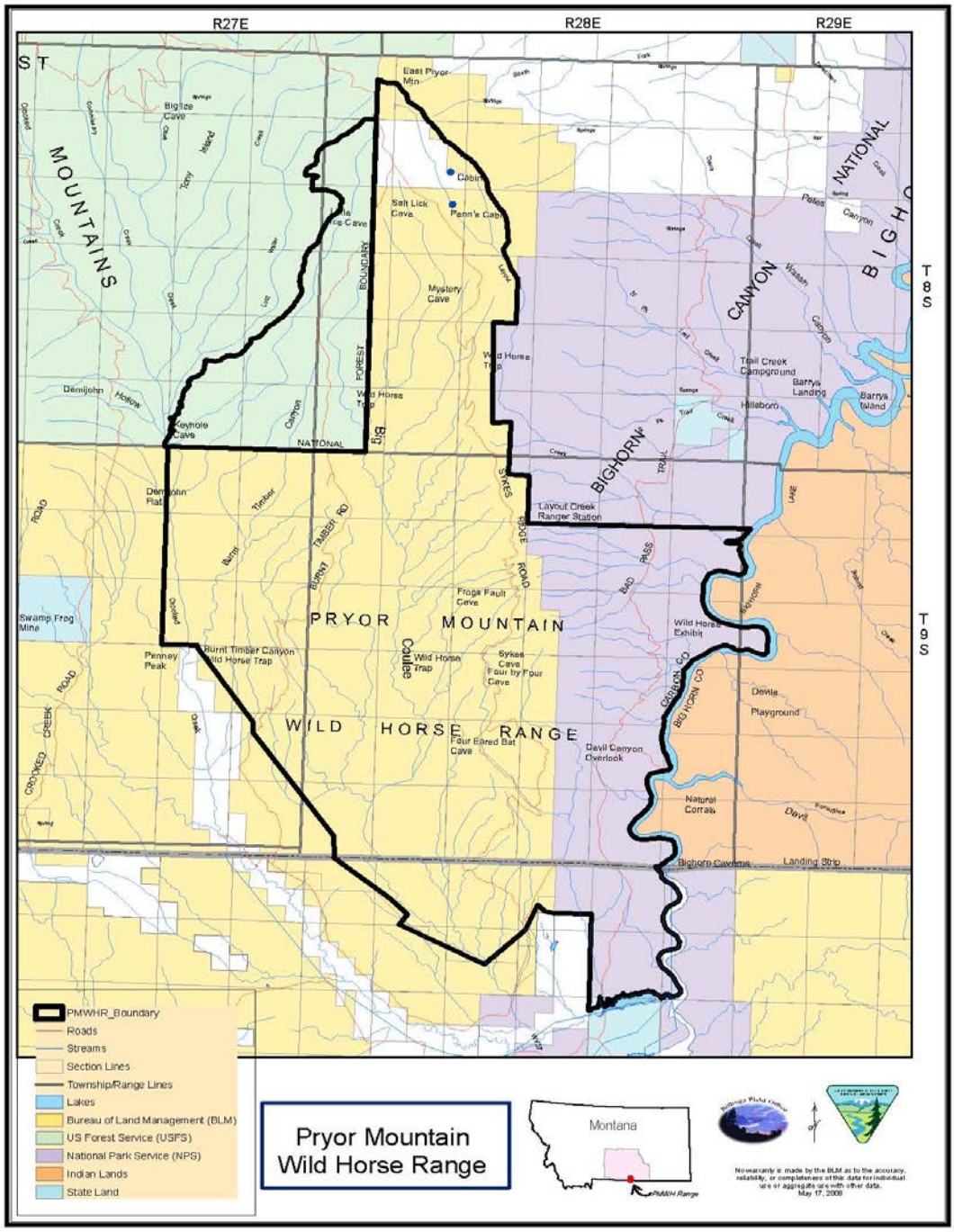
The proposed action should help prevent deterioration of the rangelands and help maintain a thriving natural ecological balance and multiple use relationships as described in the HMAP. The method of fertility control would be through remote darting application utilizing liquid or native PZP into selected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

Eight separate EAs 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).

1.2 Location

The project area is located in southeastern Carbon County, Montana, and northern Big Horn County, Wyoming, in the PMWHR (see Figure 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.

Figure 1: Map - Pryor Mountain Wild Horse Range



1.3 Purpose and Need for the Proposal

The Proposed Action is needed to help 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 to develop a fertility control program that balances the recruitment rate with annual death loss. The need is also to analyze the impacts to the wild horses from utilization of a new fertility control prescription. 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 gather and removal operations. The Proposed Action in this EA is needed to help maintain wild horse herd numbers at levels to be 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.

Decision to be made: The BLM will decide whether nor not to conduct a fertility control treatment prescription in order stabilize the population based upon results of the fertility control program since 2011, while working towards the appropriate management level (AML) of 90-120 wild horses including remote darting application utilizing ZonaStat-H.

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

The BLM Billings Field Office is utilizing the previous scoping comments from April 2013 and the August 2013 comments on the 2013 Pryor Mountain Wild Horse Range Fertility Control Modification Preliminary Environmental Assessment DOI-BLM-MT-0010-2013-0034-EA for the purposes of scoping the current proposal. Those comments are incorporated by reference for this EA.

Comments received were in two categories; place more mares on fertility control but not like Assateague National Seashore and continue with the current fertility prescription in place. Concern for animal welfare in relation to the use of PZP continues to be a concern and is addressed as part of the proposed action and Standard Operating Procedures (SOPs). No new information or studies were provided in the scoping comments or comments on the 2013 preliminary EA to the BLM to help form a new decision. 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. No issues were identified that have not already been addressed in the 2009 PMWHR HMAP. All public comments are available upon request.

1.6 Public Comment

On January 13, 2015 a notice that the Pryor Mountain Wild Horse Range Fertility Control Tiered Preliminary Environmental Assessment (DOI-BLM-MT-010-2015-006 and unsigned Finding of No Significant Impact would be available for a 30-day public review and comment period from January 20, 2015 to February 20, 2015.

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 proposes a fertility control prescription that has treatments by age, but also incorporating thresholds to allow for adjustments to treatments based upon demographic and annual changes in recruitment. This action would begin in 2015 and remain in

effect until conditions warrant a change. Mares would be approached on foot or possibly baited in (not trapped) to be treated with ZonaStat-H through remote darting applications.

Mares ages 2, 3, and 4 would be treated. Young mares in the one year old age class becoming two year olds could begin primer treatments in the autumn at 18 months of age. Mares ages 5-9 would not be boostered (unless they meet a threshold). Mare ages 10 would be brought back onto boosters and mares 10 and older would be treated continuously until twenty years of age. Mares 21 and older would no longer be treated. Any mare within a treatment age or meeting a threshold could be treated any time of year.

Thresholds:

- Mares ages 5-9 years old that have two offspring one year and older would be brought back onto treatments, If a mare has one surviving offspring one year and older on the range after having two offspring one year and older she would remain on treatments, regardless if the one offspring was removed or died.
- When the AML is exceeded and another threshold isn't being met for an individual mare, reverse age treatment would be implemented based upon kinship representation (bloodline) beginning with the 9 year olds, then 8 year olds, and then 7 year olds until 90% of the total mares 20 and younger are treated.
- If the population falls below 100 animals then the open age class would increase first with the 10 year olds then with the 11 year olds until the population is within 5% of the high range of AML.

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. The No Action alternative is the current fertility control program in place from 2011 through 2015. The No Action alternative consists of the administration of ZonaStat-H through remote darting in the one year liquid dose. The program is designed to treat mares ages 2, 3, 4, and ages 11 through 20+. Mares ages 5-10 are not treated to be infertile. 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.

2.3 Alternative Considered but Eliminated from Further Analysis

2.3.1 Suspending the use of Fertility Control.

Under this alternative, mares would not be treated with fertility control. This would require more frequent or larger gathers, more wild horse congestion, and be inconsistent with the PMWHR HMAP which identifies fertility control as one tool for population management. This alternative was considered but eliminated from further analysis due to not meeting the need of developing a fertility control program that balances the recruitment rate with annual death loss.

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 Critical Elements. Other resources or resource uses other than to wild horses themselves as a result of the Proposed Action. Based upon public comment a social values analysis was added.

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).

Table 1: Critical Elements of the Human Environment**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
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

Table 1: Critical Elements of the Human Environment**CRITICAL ELEMENTS**		
Determi-nation*	**Resource**	**Rationale for Determination**
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 the proposed 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.

Since the January 2011 Fertility Control Decision Record was issued, PZP has been approved by the EPA as ZonaStat-H. Monitoring results of 2011 protocol (see Table 2) shows too many foals are being born to balance the recruitment with the death rate of the wild horse population. This has been in part due to the number of mares in the 5-10 year class. Young treated mares are foaling, but mares when treated in the prime window (late winter/early spring) are having 90% efficacy rate from the ZonaStat-H. Difficulty in accessing the wild horses during late winter/early spring to maximize effectiveness of ZonaStat-H is resulting in more births than anticipated, and the natural number of mares that are non-responders to treatment is outside the biological control of ZonaStat-H.

Table 2: Wild Horse Monitoring Results from 2011 Protocol

Wild Horse Monitoring Results From 2011 Protocol					
Year	Mares Treated	Treated Mares that Foaled	Mares Untreated	Foals Born	Population *March 1 excludes foals
2011	36	N/A	18	N/A	159
2012	63	13	28	26 (7 removed 2 died)	172 (*134 post gather)
2013	52	6	24	17 (2 died)	145
2014	63	6 (2 two years olds also)	26	18 (3 died)	159

Environmental Impacts

Assumptions for analysis: ZonaStat-H is the same as PZP for terminology used throughout the analysis. This impact analysis assumes that observed treatment rates, non-responding mares and two year olds would produce at least 6 unplanned foals per year. Logistic limitations would remain the same. ZonaStat-H is at least 90% effective in preventing conception after a mare has been given a booster prior to estrous. The long term average death loss for the herd is six individuals per year and this would remain the same. Historical long term foal survival rates of 60% would continue however recently survivor rates of foals have increased with PZP. The Standard Operating Procedures (Appendix I) 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 incorporates proven Standard Operating Procedures (SOPs, Appendix I) which represent the "best methods" for ensuring quality results, minimizing risks and reducing impacts associated with this activity. All activity would be carried out in accordance with the use of ZonaStat-H label. Protocols have been specifically developed for remote-delivery techniques of the fertility control vaccine.

The proposed action is based upon observed outcomes of the 2011 fertility control treatments prescription, and designed to implement the 2009 PMWHR HMAP and continue until changes occur that require a new analysis. Reduce the need for large removals. The use fertility control would consist of the administration of remote darting of ZonaStat-H applied in the one year liquid dose mixed with either Fruend's Modified Adjuvant for the primer or Fruend's Incomplete Adjuvant to render mares treated. This fertility control modification is designed to limit herd growth, while still ensuring the continuation of the herd. Mares ages 2, 3, and 4 would be treated. Young mares in the one year old age class becoming two year olds could begin primer treatments in the autumn at 18 months of age. Mares ages 5-9 would not be boostered (unless they meet a threshold). Mare ages 10 would be brought back onto boosters and mares 10 and older would be treated continuously until twenty years of age. Mares 21 and older would no longer be treated. Any mare within a treatment age or meeting a threshold could be treated any time of year.

Thresholds:

Mares ages 5-9 years old that have two offspring one year and older would be brought back onto treatments, If a mare has one surviving offspring one year and older on the range after having two offspring one year and older she would remain on treatments, regardless if the one offspring was removed or died.

- When the AML is exceeded and another threshold isn't being met for an individual mare, reverse age treatment would be implemented based upon kinship representation (bloodline) beginning with the 9 year olds, and then 8 year olds if needed.

- If the population falls below 100 animals then the open age class would increase first with the 10 year olds then with the 11 year olds until the population is within 5% of the high range of AML.

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 prior to estrus, although treated mares could receive a booster any time of the year.

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 five 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. Permanent sterility for mares treated consecutively 5-7 years was additionally verified (Nunez et al 2010). However, Knight and Rubenstein (2014) speculated that three consecutive years may trigger infertility in some mares.

A mare being primed does not result in infertility as they would not be infertile without a booster. A mare primed as a one year old but not given a booster until a two year may reduce the efficacy (Personal communication with Dr. Jay Kirkpatrick). Attempting to dart in the spring is challenging to prime and booster in that window due to access and typical weather patterns that hinder operations. This is the most likely cause for young mares having foals. Priming in the fall

when the wild horses are more easily accessible and giving a booster in the winter/spring would afford the best opportunity for preventing conception.

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 two 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 I). 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.

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. Nunez et al (2010) found that mares that came off treatments showed no change in behavior or timing of foaling.

In two studies involving a total of four 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. (2010) 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. Nunez (2010) found that PZP treatments can broaden the breeding and foaling season. In a study by Knight and Rubenstein (2014) it was found that mares that were treated had better body condition lived longer and switched harems more frequently, while mars that foaled spent more time concentrating on grazing and lactation and had lower overall body condition.

Aggression between stallions and mares has also been studied in three 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.

In June 2013, the National Academy of Sciences (NAS) findings in part identified PZP as one of the "most acceptable alternative for managing population numbers".

No Action

The no action is the 2011 Fertility Control Prescription in order to implement the 2009 PMWHR HMAP starting in 2011 and lasting through 2015. The use fertility control would consist of the administration of remote darting of ZonaStat-H. The program is designed to treat mares ages 2, 3, 4, and 11 through 20+. Mares ages 5-10 would not be treated to be infertile. 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

Impacts

The impacts to individual mares would be the same from fertility treatments as the proposed action except fewer mares would be treated annually. Under this alternative, fertility control would be given through 2015 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 not be administered to 20-25% of the mares.

3.3 Social Values and Economic Considerations

Affected Environment

A social value within the PMWHR could include viewing wild horses, wildlife, or other features of the landscape. This type of value, also known as a non-use value, cannot necessarily be quantified, but rather a recognition of these social values. This value could include the idea that something is still out there or how the thought of something makes a group or an individual feel. Conversely, the value that wild horses should be subservient to other resources such as wilderness and wildlife is not quantifiable but also apparent from comments received.

The economic costs associated with the management of the PMWHR are limited to the area and the wild horses themselves.

Proposed Action Impacts

Under the proposed action alternatives, people's social values or ideas would be heightened should they consider that a value for wild horses that they do not have impacts, or will suffer emotional distress from impacts of fertility control to a mare or the herd. People may feel that their values or system of beliefs are being challenged, as opposed to an action that is designed to manage a herd of wild horses and resources within the PMWHR. Conversely, the social value people hold for multiple-use on public lands may be re-affirmed with these actions.

No direct economic impact would exist to individuals since wild horses cannot be used for commercial purposes, and wild horses would continue to be present after a gather operation. However, costs associated with a fertility control would include public consultation,

environmental assessments, potential legal challenges, treatment operations themselves, record keeping and data collection.

No Action Impacts

Under the no action alternative, fertility control vaccine would be applied to 70-80% of the mares, no adjustments would occur based upon monitoring and observation. Parties that would litigate against the use of fertility control have a different value for its use, as the no action is not a purely hands off management approach.

The costs associated with this alternative include the continued use of PZP at a lower level, along with extra monitoring and a subsequently larger gather in the future. Potential future costs would entail larger or more gather operations, subsequent feed and care of excess animals, and adoption events would be more expensive in the future when a greater amount of excess wild horses would exist.

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 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 two and one half year 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 generations (~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, 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.

The implementation of this action would continue to result in permant sterilization of older mares. The mares would be expected to survive longer due to increase in body condition. Eventually every mare would have the opportunity to reproduce and bloodlines would be balanced as the management action progressed. Fewer foals would be born annually but higher survivabilty would occur as the percentage living to sexual maturity would increase. Fewer animals would be removed from the range as the growth rate would be further reduced with recruitment being closer to death rate.

5.0 MITIGATION AND SUGGESTED MONITORING

Proven mitigation and monitoring are incorporated into the proposed action and also through standard operating procedures (SOPs), which have been developed over time. These SOPs (Appendix I) represent the best methods for reducing impacts associated with remote application of PZP and collecting herd data.

Collection of treatment data occurs simultaneously with treatments. This would continue and be analyzed with herd data continuously.

6.0 CONSULTATION AND COORDINATION

In February, 2013 the BLM mailed out notices asking people 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, 2013. 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 April 1, 2013 the BLM issued a Scoping Notice "For Increased use 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.

Scoping comments received were in two categories; (1) place more mares on fertility control but not like Assateague National Seashore and (2) continue with the current fertility prescription in place. Concern for animal welfare in relation to the use of PZP continues to be a 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 alternatives or that had not already been addressed in the 2009 HMAP and EA.

In August 2013 the Pryor Mountain Wild Horse Range Fertility Control Modification Preliminary Environmental Assessment DOI-BLM-MT-0010-2013-0034-EA was made available to the public for comment. Although a decision wasn't issued this allowed the public an opportunity to share with the BLM thoughts concerning the way fertility control is used.

From January 20, 2015 to February 20, 2015 a public comment period was conducted for this EA effort. Over 5,000 members of the public commented on the preliminary EA. Due to public comments and additional information provided to the BLM, the EA was finalized with new information and clarifications incorporated.

6.1 RESPONSE TO COMMENTS

The majority of letters received are from people using a sample letter or talking points provided from internet sites and thus are considered one comment. Overall the majority of the interested parties were complimentary to the BiFO for proposing a new fertility control program based upon past outcomes and lessons learned. Due to this overwhelming number of comments in support of fertility control, those comments aren't individually addressed, rather acknowledged here. BiFO received numerous constructive comments from numerous parties regarding the thresholds and recommended adjustments. Several parties provided data, information and recommended adjustments that were incorporated either wholly or partially into the EA. 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. Comments regarding national policies, horse slaughter, changing the AML, expansion of the PMWHR, predator protection, drones, hound dogs, introducing jack donkeys, pending litigation, etc.. are not addressed as they are outside the scope of analysis of this EA.

Comment 1: TCF supports decreasing the core breeding population to the 5-9 rear-old mares. We support eliminating all mares 20 and older from receiving PZP. We support priming the "long" yearling fillies, those yearlings 15 months of age or older. We request that foals born in the fall of the year be eliminated from receiving the primer until they are at least 15 months of age. We also request that a close, yearly evaluation be conducted to analyze the results of this

change in PZP protocol. *The Cloud Foundation, Return to Freedom, American Wild Horse Preservation Campaign and et al.*

Response: The proposed action identifies yearlings between 18-21 months of age for fall primer. Based upon public comment the proposed action has been changed to 18 months of age to address concerns of too early of a treatment of "short" yearlings and bring clarity to the proposal.

Comment 2: We would encourage you to eliminate from PZP darting any mare, regardless of age, that has a life threatening reaction to the vaccine. We know of only one reaction like this since 2000 and that is mare 9104 and we ask that she be eliminated from darting. This mare has not had a foal since 2007 so it is highly likely she is permanently sterile. *The Cloud Foundation, Return to Freedom, American Wild Horse Preservation Campaign and et al.*

Response: Development of an abscess is a rare but known impact that can occur from PZP administration. This is caused primarily from any bacteria that are carried through the skin from the hair and material on the hair such as dirt, mud, feces etc. The injection site can give the bacteria a good environment to grow when this occurs. However any "unusual case" that occurs BLM has, does, and will consult a veterinarian.

Comment 3: We do not support placing mares that have never foaled and are 10 years of age or older back onto PZP. TCF believes that all mares should have the opportunity to successfully raise at least one offspring to adulthood. If the mare is of a rare, underrepresented genetic line, we believe she should have the opportunity to raise at least 2 offspring before being placed back on PZP. This may help to minimize what appears to be a loss of genetic variability in the herd. Dr. E. Gus Cothran's most recent report, *Genetic Analysis of the Pryor Mountains Wild horse Range, MT, August 22, 2013*, states that "*Genetic variability of this herd in general is on the high side but compared to past sampling of this herd, variability levels for all measures has been in decline.*"
The Cloud Foundation, Return to Freedom, American Wild Horse Preservation Campaign et al.

Response: BLM understands the concern but cannot ensure any mare will produce a surviving foal. The proposed action is designed with the thought that every mare would be granted the same opportunity to produce an offspring while balancing the need to conduct population management. The thresholds have been refined to address the concerns while still providing for an effective fertility control protocol. The proposal is designed to be an equal opportunity program that would prevent gaps and start and stops that has resulted from 8 separate treatment protocols since 2001.

Dr. Cothrans *Genetic Analysis of the Pryor Mountains Wild horse Range, MT, August 22, 2013* though sound in its analysis lacked one key piece of information while conducting the interpretation. The genetic samples were from inter-related horses including mares and foals, siblings and dominate bloodlines. The fact the analysis showed lower variability from this sample indicates the correct management actions had occurred, it should not be used to extrapolate to the genetic diversity of the entire herd.

Comment 4: Also, we believe that the PZP plan should be flexible enough to change course if unintended consequences occur or unanticipated events happen (i.e. a rise in predation or a catastrophic storm), or if the genetic health of the herd can be better maintained by eliminating a particular mare from treatment. We suggest adding a sentence about being flexible—reserving the option to make changes based on observations, which is consistent with DOI Adaptive Management—learning by doing, and adapting based on what's learned. Adaptive management encourages flexibility. (http://www.doi.gov/ppa/upload/executive_summary-27.pdf)
The Cloud Foundation, Return to Freedom, American Wild Horse Preservation Campaign et al.

Response: A thresholds were proposed to allow for this type of adjustment. Refinements have occurred based upon comments received.

Comment 5: Stop all fertility control on the PMWHR. *Jerri Tillet, Mary Beth Devlin, Sherry Oster, Ms. Gregg,*

Response: Suspension of Fertility Control was considered but eliminated from further analysis. No information or data was presented as to why it should be suspended, but new information was provided as to potential impacts and was incorporated.

Comment 6: Continue with the current no action alternative in order to allow BLM more time to consider other management options. *Anna Catherman,*

Response: The no action protocol has had success in slowing the population growth, no information or data was provided as to why the No Action should continue as opposed to the proposed action which is based upon outcomes from past application in particular the No Action.

Comment 7: HSUS supports the efforts of the Billings Field Office drafting a plan to implement protocol shifts in fertility control program based upon examination of treatment gaps. *Gillian Lyons Wild Horse and Burro Manager for The Humane Society of the United States*

Response: The Proposed action is based upon monitoring results from previous treatments, outcomes, and learned challenges.

Comment 8: The probable cause for the pregnancy of the younger mares (or any mare) that becomes pregnant may be due to the fact that the number of stallions to mares was off balance-having more stallions than mares in the 2012 removal of horses. Also consider the fact that weather, the condition of the mares, the time of year and the fact that in all wild animals there is always a percentage of animals that do not take with any type of chemical. *Bettye Dominick*

Response: The PMWHR is managed for a 50/50 sex ratio, as per the HMAP. This ratio is a natural ratio for a wild equine herd as foals tend to be nearly evenly split between genders on average. It is unlikely that this is a cause for young mares being pregnant. The weather, field conditions, mare body condition, timing, and non-responders are all factors.

Comment 9: I do have a question regarding the EA statement that the 5-10 year olds haven't been vaccinated because it's too large a group? *Bettye Dominick*

Response: The No Action has a treatment protocol of treating mares ages 2,3,4 and 11 and older. Since 2011 the number of mares in 5-10 year old age class was quite large leading to more foals being born annually than originally anticipated.

Comment 10: In response to Section 2.1, I would like to see the mare range to postpone PZP treatments extended from age 5 to age 15 for those mares with no living foals on the range to help broaden the scope of the genetic lines in 2015 to 2017. Those mares with two living foals within age range 5-15 would all receive PZP. *Elizabeth Lumsen*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 11: I support yearlings receiving PZP during the fall prior to their first birthday to prevent them from being stolen from their herd at such a young age due to desperate stallions seeking in season mares. The case of Nimbus and Moenkopi being prime examples. I believe this is fallout of the effective PZP program being too effective that needs to be addressed. *Elizabeth Lumsen*

Response: The impact to the individual mare that has been treated in the prime window has been in line with existing research as to the effectiveness. This is discussed under Background Information. There was no information or data presented to indicate that PZP on Pryor mares was more effective. The EA discusses the behavioral impacts regarding band fidelity and behavior and is addressed.

Comment 12: Please postpone PZP treatment of full term pregnant mares until 30 days after birth of their foals, or preferably to the coming fall. All three foals that died within the first three weeks, at least two mares Demure and Moenkopi, showed recent PZP vaccinations with reactive swelling. Please do not vaccinate full term mares especially Fools Gold until well after she foals or create a second tier of those to receive PZP in fall such as yearlings and nursing mares. *Elizabeth Lumsen*

Response: The animal welfare concerns are shared by the BLM, however there is no information from existing research or information provided that what occurred with the mares and foals you reference is from PZP.

Comment 13: I am recommending that PZP be properly administered at the proper time of year. This would be all that is needed to manage the numbers. *PA Birch*

Response: BLM makes every effort we can to administer PZP prior to breeding season.

Comment 14: My main concern with your recommendation is the chance that 90% of the mares could be on PZP to me this might produce a disaster even with the reversible nature of the vaccine. The plan needs to be more flexible so that changes can be made if unintended consequences develop. *Anne Evans*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 15: I do have concerns regarding the suggested actions to alter the existing PZP plan. For this reason, I would request that either modifications be made to proposed action 2.1. If this is not possible, please continue under the 'No Alternative Action' *Rachel Reeves*.

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 16: I am particularly concerned with the fourth threshold. As you are aware, the current AML for the Pryor horse herd is 120 horses. With the herd at its current population, threshold 4 will be met every year for the foreseeable future. Under that threshold, 90% of the total mares 20 and younger would be treated. In order to meet this goal, all horses aged 2-4 and 7-19 would be darted with PZP. Thus, each mare would only be given two years to produce healthy offspring on the range. *Rachel Reeves*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 17: For some mares, two years would be enough time, as those mares would then fall under the first or second threshold. However, other mares do not immediately foal upon being taken off of PZP. If this threshold was implemented in 2015, mares such as Gaelic Princess or Hailstorm, who have no offspring in the wild would be placed back on PZP regardless of whether they had offspring or not. Hailstorm is one of two offspring from the mare Aztec, a mare with a unique bloodline. *Rachel Reeves*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 18: Again, I can understand that the BLM's proposal is written with the intention of limiting if not preventing future roundups. However, given the closed population of the Pryor herd, I would submit that it is not worth the risk of losing important genetic bloodlines. *Rachel Reeves*

Response: Thank you for your comment. The proposal was designed to provide equal opportunity for each mare to contribute to the next generation. Although nothing can guarantee the success of a stallion, each mare can be allowed the opportunity with fertility control. With the proposal and the adjustment to the thresholds this should result in balancing the herd's representation as the protocol progresses over time.

Comment 19: This is why the second threshold listed is also a cause for concern. The second threshold proposes that so long as one living offspring over 1 year old is still on the range, a mare will be darted with PZP. I recognize that in some instances, the mare may foal that year and if that foal survives, bring her total number to two offspring on the range. However, there is no guarantee of this, and there are just as many mares who do not foal every single year as those

that do. There are many situations in which a horse over the age of 1 dies before having the opportunity to reproduce and not all of these are due to any genetic inadequacy on the part of the horse. Should a mare be placed on PZP with only one offspring left in the range, there is a much higher risk of losing that bloodline. *Rachel Reeves*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 20: I would also like to recommend that the BLM also consider not darting mares over the age of 9 years who have no living offspring on the range. Specifically, this list would include the mares known as Aurora, Beulah, and Baileys. It is highly likely that they are sterile and will not foal. However, should they foal it would help add to the genetic diversity of the herd. This is especially noteworthy in the case of Bailey's who is the only offspring of the stallion known as The Count remaining in the wild. Should they foal successfully it would be reasonable to place them on PZP after that time. *Rachel Reeves*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided. Aurora, Beulah and Bailey's are currently under treatment with the existing protocol and with the amount of PZP treatments they have now are unlikely to contribute even if taken off. The proposal is designed to be an equal opportunity program that would prevent gaps and start and stops that has resulted from 8 separate treatment protocols since 2001.

Comment 21: I thank you for considering the above comments and concerns regarding the proposed changes to the PZP program. I appreciate the BLM's willingness to consider adjusting the existing plan. However, the suggested proposal is extremely rigid. In a herd such as the Pryors which is so closely tracked and monitored, I do believe a more flexible plan could be implemented. *Rachel Reeves*

Response: BLM understands the concern but cannot ensure any mare will produce a surviving foal. The proposed action is designed with the thought that every mare would be granted the same opportunity to produce an offspring while balancing the need to conduct population management. The thresholds have been refined to address the concerns while still providing for an effective fertility control protocol.

Comment 22: For example, the BLM may consider a PZP strategy that is based around each individual mare. One such example would be to allow each mare to successfully produce two live offspring. After such a time as the second foal is born and seen alive at the time of the annual darting, that mare would be placed back on PZP. Another alternative to this would be to allow a mare's first two offspring to remain wild, but remove any subsequent offspring that may be born. In this way, all lines have the opportunity to be represented, with a lower risk of losing any given bloodline while maintaining a stable population with a minimal number of horses removed from the wild. *Rachel Reeves*

Response: BLM understands the concern but cannot ensure any mare will produce a surviving foal. The proposed action is designed with the thought that every mare would be granted the

same opportunity to produce an offspring while balancing the need to conduct population management. The thresholds have been refined to address the concerns while still providing for an effective fertility control protocol.

Comment 23: The use of PZP alone will not result in the AML being achieved or will take years. *Eastern Wildlands Chapter Montana Wilderness Association President Bernard Quentchenbach, Dick Walton, Clayton McCracken, Margaret Webster.*

Response: PZP is one population management tool that is a readily used and feasible for annual population management on the PMWHR. This EA is tiered to the HMAP and does not amend that document or eliminate the decision that the herd will be managed by a combination of methods, one of which is fertility control.

Comment 24: The analysis in the EA should include a projection of when BLM's management actions will finally get the horse numbers down within 90-120 range. *Dick Walton, Clayton McCracken*

Response: PZP is one population management tool that is a readily and feasible for annual population management on the PMWHR. This EA is tiered to the HMAP and does not amend that document or eliminate the decision that the herd will be managed by a combination of methods, one of which is fertility control. The HMAP has a population model in the appendices that generated likely outcomes of its implementation, which this document is a part of as it is Tiered to the HMAP. Please see section 1 of background information that provides a detailed discussion regarding Tiering and incorporation by reference.

Comment 25: Under Thresholds, page 10 it implies that a mare in the 5 through 9 year age bracket would be allowed to have two offspring remaining on the range. Is that correct? If so, you are not following the one mare, only one offspring policy. *Clayton McCracken*

Response: The BiFO is not aware of any policy.

Comment 26 If a mare age 5 through 9 years does have two or more offspring, will BLM somehow dispose of those offspring that are in addition to the allowed one offspring? How long will BLM allow those excess offspring to graze on the range? One, two, three years of one horse grazing does reduce the amount of forage available per horse. *Clayton McCracken*

Response: PZP is one population management tool that is a readily and feasible for annual population management on the PMWHR. This EA is tiered to the HMAP and does not amend that document or eliminate the decision that the herd will be managed by a combination of methods, one of which is fertility control.

Comment 27: It is unclear in this proposed protocol how mares ten years or older will be managed if they have more than one offspring. Example: a mare while she was in the 5 through 9 years age range conceived one offspring that survived and remains on the range. Then for whatever reason she becomes pregnant when she is ten years old or older. She produces another foal that also survives the first year of life. What does the BLM propose to do with the additional

offspring? *Clayton McCracken*

Response: PZP is one population management tool that is a readily and feasible for annual population management on the PMWHR. This EA is tiered to the HMAP and does not amend that document or eliminate the decision that the herd will be managed by a combination of methods, one of which is fertility control.

Comment 28: On page 10 under thresholds you state, "when the AML is exceeded … reverse age treatment would be implemented" If that is truly your intent, in 2015, we expect you to vaccinate 90% of the total mares 20 and younger. *Clayton McCracken*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 29: Since the PZP is only 90% effective, is there not some possibility that a mare over age 20, that will not be given an annual booster, might conceive a pregnancy? Should that happen, then what? *Clayton McCracken*

Response: Under Impacts section of the EA: **"**(Kirkpatrick and Turner, 2003), [PZP] has no ill effects on ovarian function if contraception is not repeated for more than five consecutive years on a given mare." A mare over age 20 would have 10 treatments with the chances of conceiving unlikely and not a reasonably foreseeable.

Comment 30: I continue to be puzzled by low rate of effectiveness you report for the use of PZP. I have been told that every "contraceptive failure" is studied. I have never seen any case reports of these "contraceptive failures". I have not seen any analysis of these cases. To manage your program, each and every unintended pregnancy needs to be documented and carefully studied. By now there should be enough case reports to warrant an analysis. *Clayton McCracken*

Response: BLM disagrees that there is a low rate of effectiveness. BLM has been using PZP in accordance with its required protocol's which includes post treatment monitoring. The EA summarizes the finding s of the monitoring data and discussing the BLMs interpretation of the outcomes. Please review the background information and the wild horse section.

Comment 31: You continue to site weather and terrain as a reason for not reaching the horses scheduled for PZP. Over a three-year period I spent days at a time on East Pryor during the month of May. I have slid off the road into very precarious situations and several times I rode high onto snowdrifts and could not back off. I was by myself. But a team, properly equipped, can reach the horses in late winter/early spring. *Clayton McCracken*

Response: The BLM, volunteers and National Park Service personnel have treated mares between January and May typically. Weather and terrain primarily on Sykes ridge are limiting factors for safe and responsible access to those mares. These are legitimate factors that contribute to some of the challenges.

Comment 32: Be very careful how you use the term "fertility control". Some hear that to mean

the PZP makes the horses infertile. PZP is a contraceptive. When the vaccination boosters are discontinued and the antibodies against the zona pellucida drop, the mare becomes, once again, able to conceive a pregnancy. She is not infertile, she never was made infertile. *Clayton McCracken*

Response: BLM disagrees that the term fertility control is not properly utilized. The management protocol is to control when a mare reproduces. After more than five consecutive years a mare is likely to be unable to conceive. Mares over 20 will most likely be infertile.

Comment 33: It is time for us to set an objective, to set the time the objective will be met, and make known the consequences if the objective is not met by that time. Quit waffling on the AML. The HMP allows BLM not to do gathers, if a contraceptive program is underway *Clayton McCracken*.

Response: The BLM has objectives for the PMWHR and the Pryor wild horses through the HMAP. This EA is tiered to the HMAP.

Comment 34: The EA makes spectacular statements about what may occur. These statements should not be included unless listed clearly as speculation and without data. *Wild Horse Observers Association Patience O'Dowd President*

Response: The BLM is not sure where the spectacular claims are being made in the Document. The impact analysis has a plethora of information cited from numerous subject matter experts and PZP researchers.

Comment 35: It would be important to also mention/reference the National Academy of Science (NAS) Recommendations to the BLM's Wild Horse and Burro Program and how this plan for the Pryor Wild Horses is in line with NAS recommendations. *Wild Horse Observers Association Patience O'Dowd President*

Response: Thank you for your comment, the NAS report is referenced under impact analysis for wild horses, it can be referenced under back ground information also.

Comment 36: The fourth threshold would endanger the genetic diversity of the herd considering the current population. *Abbie*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 37: The second threshold places too much danger of a mare losing genetic representation. *Abbie*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 38: Concerned that darting yearlings could lead to permanent infertility, recommend that fillies of rare blood lines not be treated as yearlings. *Abbie*

Response: The information about permanent infertility is when a mare is treated prior to puberty. The proposed action identifies a mare at 18 months of age as the earliest she could be primed. This is further clarified based upon numerous public comments. The later a mare foals the longer time between generation's leads to slower rate of loss of genetic material. Not treating these fillies would work to defeat this.

Comment 39: The current proposal does not take into account the most current science regarding PZP to properly analyze impacts. *Sherry Oster, Marybeth Devlin, Ms. Gregg*

Response: Thank you for the providing the information provided. Accredited research was incorporated into the impact analysis.

Comment 40: Horse and burro management and control strategies cannot be based on biological or cost considerations alone; management should engage interested and affected parties and also be responsive to public attitudes and preferences. *Sherry Oster, Marybeth Devlin, Ms. Gregg*

Response: Thank you for the comment. A Social section was added to the EA to address your comment.

Comment 41: We recommend that each mare scheduled for treatment be given a treatment priority based on her harem's composition: Younger mares with higher potential fertility should be treated before older mares who have had multiple treatments and have lower potential fertility. *Pryor Mountain Wild Mustang Center President John Nickle*

Response: Thank you for your comment. BLM agrees that when conducting treatment there are higher priority mares such as young mares and mares coming back onto fertility treatments. However, most important thing is to get a mare treated when the opportunity arises.

Comment 42: The proposed plan states that mares could be treated at any time of the year. We recommend that this be reconsidered. It may be fine to treat an older mare who has received many treatments at any time of the year. However, we do feel that there is increased risk for undesirable results to occur with younger mares who are treated outside of the spring months. We feel that it is possible to treat the majority of the younger mares in the spring, especially if strategic planning, as discussed above, were implemented. *Pryor Mountain Wild Mustang Center President John Nickle*

Response: Thank you for the comment. Although late winter early spring is the best time of year to administer treatments, and the majority of treatments are completed before May, to not treat a mare that is missed outside the prime window only leads to another year of lag time and more likely for a second pregnancy outside the 5-9 year old window.

Comment 43: The first and second thresholds could easily be combined into one. Again, the proposed plan must state that a mare that moves into the 10-19 year old cohort still must meet these two thresholds before being able to be treated. *Pryor Mountain Wild Mustang Center President John Nickle, Sandy Elmore*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 44: To simplify the proposed plan and address these concerns, we recommend that the proposed plan's simple treatment requirements for mares in the 10-19 year old cohort be removed. Instead, we recommend that mares over that are at least 5 years of age resume treatments after meeting the criteria of the first two Thresholds. Once these criteria have been met, than the mare can resume treatments until she turns 20. This would be a true equal opportunity plan: Every mare that is at least 5 years old should be allowed to have at least 2 foals that survive to be as least 1 year old; and she should be treated if at least one of these offspring is still on the Range. *Pryor Mountain Wild Mustang Center President John Nickle*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 45: We do not fully understand the need for the third Threshold, which states "Any mare that was missed as a young mare would be primed and given a booster regardless of age". If a mare somehow did not receive her primer and any subsequent boosters at ages 2, 3, and 4, she would resume treatments once she met the first and second Thresholds anyway. Please consider if this Threshold is necessary. *Pryor Mountain Wild Mustang Center President John Nickle, Sandy Elmore*

Response: Part of the treatment protocol is designed to delay a mares first birth in order to expand the time between generations. The longer timeframe between a mares birth to her first foal reduces the rate of genetic material being lost. Additional language has been added to the document to better describe this concept.

Comment 46: We recommend that the fourth Threshold be reconsidered. First, we recommend that the proposed plan state that mares 21 and over that are not being treated still count as treated mares for this Threshold. Second, we recommend that the goal of this Threshold be that a range of up to 80-90% of mares be treated instead of having the goal be only 90%. If this range was used as the goal, we do not believe that this Threshold is even necessary: Under the proposed plan, we estimate that up to 68% of the herd's mares would be treated in 2015 if every 2-4 and 10 and older mares were treated. If mares meeting the criteria of the first and second Thresholds were treated, the number would move to 80%. Third, clearly define how kinship would determine how the remaining 5-9 year olds would be treated under this Threshold. Ideally, the first and second Thresholds would be used here. However, if these Thresholds no longer applied to the fourth Threshold, then a definition of over- and underrepresented bloodlines would need to be developed so that members of underrepresented bloodlines within the 5-9 year old cohort would not be treated though members of overrepresented bloodlines that may not meet the first and second Thresholds may be treated. We do not have a specific recommendation on these definitions, though we would be happy to go over our current kinship chart with you so that these definitions can be developed. *Pryor Mountain Wild Mustang Center President John Nickle*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 47: We feel that it may be appropriate to also extend the definitions of over- and underrepresented bloodlines to the first and second Thresholds. *Pryor Mountain Wild Mustang Center President John Nickle*

Response: Thank you for your comment, the thresholds have been adjusted based upon numerous comments and information provided.

Comment 48: We feel that the proposed plan makes good progress in ensuring herd health. However, it still may be prudent to make this a 5 year plan so that lessons learned from it can be used as necessary to further refine the next plan. *Pryor Mountain Wild Mustang Center President John Nickle, Sandy Elmore*

Response: BLM doesn't believe a timeframe is necessary due to the fact that if conditions change a new EA effort can be undertaken. The proposal is designed to be an equal opportunity program that would prevent gaps and start and stops that has resulted from 8 separate treatment protocols since 2001.

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Appendix I

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 appropriate projectors designed for the dart.
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. Any smooth bore gun (projector) would not be used at ranges in excess of 30 m while rifled gun (projector) would not be used over 50 m, and no attempt would be taken when other non-darting 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.

Appendix II

Table 3 Summary of PZP Use On the Pryor Mountain Wild Horse Range					
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. (High foal mortality)
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. (Foal crop died)
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 fall pop. post gather
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, budget reduced	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 (11 from outside HMA horse returned)
2011	Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment December 2010 DOI-BLM-MT-0010-2011-0004-EA	Mares 2,3,4 and 11 and older	ZonaStat-H remote dart	36	159
2012	Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment December 2010 DOI-BLM-MT-0010-2011-0004-EA	Mares 2,3,4 and 11 and older	ZonaStat-H remote dart	63	172 (134 post gather)
2013	Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment December 2010 DOI-BLM-MT-0010-2011-0004-EA	Mares 2,3,4 and 11 and older	ZonaStat-H remote dart	52	145
2014	Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment December 2010 DOI-BLM-MT-0010-2011-0004-EA	Mares 2,3,4 and 11 and older	ZonaStat-H remote dart	63	159
2015	Pryor Mountain Wild Horse Range Fertility Control Environmental Assessment December 2010 DOI-BLM-MT-0010-2011-0004-EA	Mares 2,3,4 and 11 and older	ZonaStat-H remote dart	In progress	170