Pryor Mountain Wild Horse Range/Territory

Environmental Assessment
MT-010-08-24
and
Herd Management Area Plan

May 2009

BLM

Billings Field Office

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Pryor Mountain Wild Horse Range Herd Management Area Plan and Environmental Assessment (EA) Number MT- 010-08-24

1.0 PURPOSE & NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the potential environmental consequences of updating the Pryor Mountain Wild Horse Range (PMWHR) Herd Management Area Plan. The EA is a site-specific analysis of impacts that could result with the implementation of the proposed action or alternatives. The EA assists the BLM and Forest Service to plan projects, ensure compliance with the National Environmental Policy Act (NEPA), and determine whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27.

An EA provides rationale for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of "Finding of No Significant Impact" (FONSI). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative. A Decision Record (DR), including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in Billings Resource Area Resource Management Plan (RMP) and subsequent Record of Decision (ROD), dated September, 1984 and the Custer National Forest Plan and Record of Decision, dated, 1987.

1.2 Need for the Proposed Action

The Bureau of Land Management (BLM) Billings Field Office, in coordination with the Forest Service, Custer National Forest and the National Park Service (NPS) Bighorn Canyon National Recreation Area (BCNRA) identified through the Pryor Mountain Wild Horse Range Evaluation dated February 2008 that the Criteria for Revision of the current Herd Management Area Plan (HMAP) has been met. The evaluation provided a technical recommendation to revise the current HMAP in order to correct management practices that would lead to healthy wild horses in a thriving natural ecological balance within the productive capacity of their habitat and protect the range from deterioration associated with an over-population of wild horses.

1.3 Purpose for the Proposed Action

The purpose of the proposal is to re-establish the Appropriate Management Level (AML), develop prescriptions for habitat limitations, identify opportunities for improvement, and emphasize stabilization of ecological conditions within existing Herd Management Area and Territory. The proposal is based upon the analysis from the PMWHR 2007 Evaluation and would determine specific herd structure, population management objectives and other resource objectives. It would serve also as the primary activity plan for the PMWHR. The emphasis of the proposal is to stabilize ecological conditions and halt range deterioration.

The objective of the proposed action is to improve wild horse and habitat management consistent with the BLM Resource Management Plan and Custer Forest Plan. The Herd Management Area Plan/Environmental Assessment (HMAP/EA) functions as an activity level plan under the umbrella of land use plan objectives and goals for the Pryor Mountain Wild Horse Range (PMWHR). The intent of the proposal is to supersede or incorporate previous direction identified from the 1984 and subsequent 1992 amended HMAP.

The HMAP/EA relies on the analysis from the Pryor Mountain Wild Horse Range Evaluation, applicable law, Code of Federal Regulations, policy, case law, and research findings to determine specific objectives for the management of the PMWHR. The proposal is intended to have a "lifespan" of five to ten years and to be maintained on an annual basis through the project log (Appendix VI) to determine if objectives are being met, management practices are working, and if the management situation has sufficiently changed that a revision or amendment is warranted prior to the "life" of the proposal.

Overall objectives of the proposed action are to: 1) ensure a thriving natural ecological balance is attained; 2) protect animal health; 3) make progress towards Standards of Rangeland Health while providing for stabilization and improvement of the rangelands and forests within the PMWHR; 4) conduct treatments in a way that minimizes impacts to other resources; and 5) maintain multiple use relationships.

1.4 Decisions to be Made

The BLM, Forest Service and NPS work cooperatively in the long-term management of the PMWHR. Each agency has certain management and decision making authorities related to their respective roles and jurisdictions in the management of the PMWHR. Before describing what decisions would be made as a result of this analysis, the following is a breakdown of each agency's management and decision-making authorities, as they relate to the PMWHR.

- The BLM has authority for population management, establishing appropriate management level (AML), habitat conditions, and monitoring associated with all portions of the PMWHR.
- Each agency has authority for management decisions (i.e. fencing, water developments, prescribed fire and fuels reduction, and seeding) on their portion of the PMWHR.

The BLM, in consultation with the Forest Service and NPS, would decide whether or not to revise the 1984/1992 Herd Management Area Plan (HMAP), as amended. Therefore, should the BLM decide to revise the HMAP, the decision would include establishing Appropriate Management Level (AML), use of population management techniques, structural and non-structural improvements (i.e. water developments, fencing, and prescribed fire) and design features and mitigation measures to be used in the implementation of that decision.

1.5 Background/General Setting

The PMWHR is located in the southeastern portion of Carbon County, Montana, and northern Big Horn County, Wyoming. The area is approximately 50 miles south of Billings, Montana, and 10 miles north of Lovell Wyoming. The area is high in diversity and complex in nature. Elevations range from 3850 feet to 8750 feet above sea level. Annual precipitation varies with elevation from 6 inches of precipitation in the lower elevations to upwards of 20 inches in the alpine high elevation. Plant communities also vary with elevation and precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches) to 20-40 inches deep depending on site locations and position on the landscape. Water is considered limited as there are five perennial water sources.

The majority of the PMWHR was created by order of the Secretary of the Interior, Stewart L. Udall on September 9, 1968 (see map 1). At the time, the PMWHR encompassed 33,600 acres of BLM and NPS lands in Montana. In 1969 another adjustment occurred, adding lands within Wyoming (see map 1). In December 1971 the Wild Free-Roaming Horse and Burro Act was signed into law. The management and protection of all unclaimed wild horses and burros was delegated to the Secretaries of the Interior and Agriculture. The Bureau of Land Management and Forest Service were charged with administrating the Act as outlined in Section 1332 (a) of said Act. In 1974 and 1975, the range was expanded pursuant to authority contained in the Wild and Free-Roaming Horse and Burro Act when a joint Forest Service and BLM decision was reached in the 1974 *Pryor Mountain Complex Land Use Decision and* BLM *Pryor Mountain Complex Management Framework Plan*.

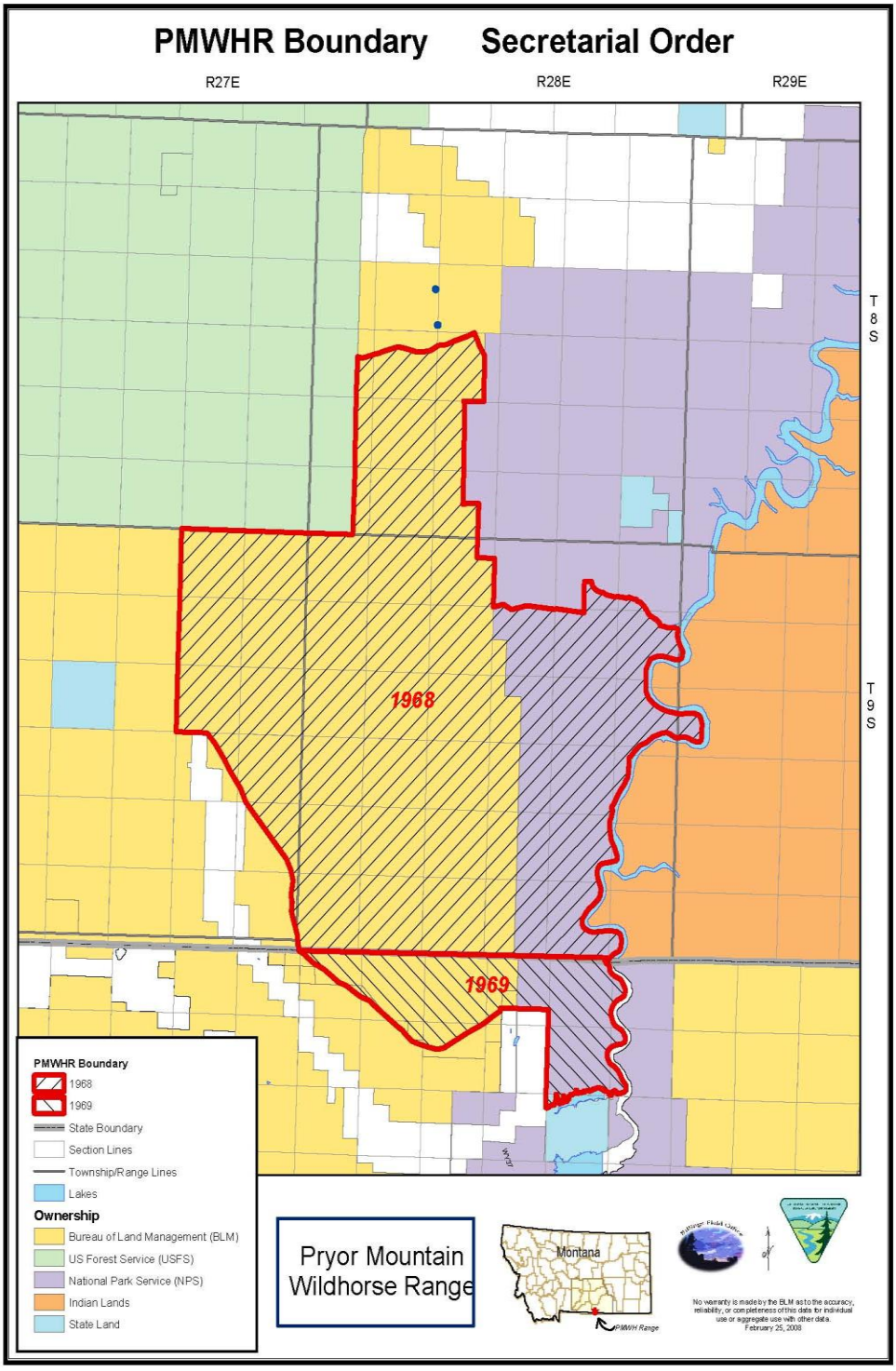
This joint BLM and Forest Service assessment and land use decision was based on public involvement (BLM/USFS, 1974), comprehensive inventories and recommendations from agency specialists (Hall, 1972 and BLM/USFS, 1974). Hall's 1971/1972 assessment was prepared for the BLM/Forest Service joint land use planning process (Hall, 1972, URA Step 4, I. B.7. and preamble) and determined where wild horses were found at the time of the passage of the 1971 Act (Hall, 1972, URA Step 3, III; B.11.a-h.; URA Step 4, I. A.; I.B.1-4.; and Appendix #8 Map of Hall). This comprehensive study of wild horses on BLM, Forest Service, and National Park Service lands in the Pryor Mountains was a documented scientific study conducted during the time of the 1971 Act, (see map 2) was a reasoned approach for determining where horses occurred at the time of the passage of the Act1, and provided a solid foundation of where wild

1 Ron Hall, agency wildlife biologist, conducted the study. He worked for the BLM Billings Field Office from 1968 through 1973. Hall's 1971/1972 assessment was prepared for the BLM/Forest Service joint land use planning process (Hall, 1972, URA Step 4, I. B.7. and Study Preamble), and to determine where wild horses were found at the time of the passage of the 1971 Act (Hall, 1972, URA Step 3, III; B.11.a-h.; URA Step 4, I. A.; I.B.1-4.; and Appendix #8 Map of Hall). This comprehensive study of wild horses on BLM, Forest Service, and National Park Service lands in the Pryor Mountains was conducted during the time of the 1971 Act and was a reasoned approach for determining where horses occurred at the time of the passage of the Act. The 1972 Hall assessment was based on one year of observations of distribution and behavior (Hall, 1972, Abstract). One of the objectives was to determine wild horse distribution pursuant to the 1971 Act. Distribution was recorded and certain bands were identified for specific distribution and determination of home ranges. Four-wheel drive vehicles, snowmobiles, and saddle horses were used with the aid of a spotting scope. In addition, a fixed wing aircraft was used regularly and a helicopter was used occasionally (Hall, 1972, Step 3. IV. A.) Census inventories were conducted at different times of the year, different times of the day, and with different observers (Hall, 1972, URA Step 3, III.B.12.). The 117 page assessment addressed history and uses of the study area; vegetation and soils conditions, trends and potential; water sources; interactions of roads, recreation, mining, wildlife, archaeology, and livestock; influences of past decisions; November 1971 roundup methods; biology of wild horses (breeding, age class, sex ratios, physical stature, stud piles, ancestry, behavior, stud groups, harem organization, instincts, food habits, home ranges, distribution of horses by each season, and population counts - Hall, 1972, URA Step 3, III; B.10-11 and Appendices #4 and #13 Maps); capabilities and opportunities for development for wild horses (potential habitat expansion per the 1971 Act (Hall, 1972, URA Step 3, III; B.11.a-h; URA Step 4, I. B. and Appendix #8 Map of Hall), land trade

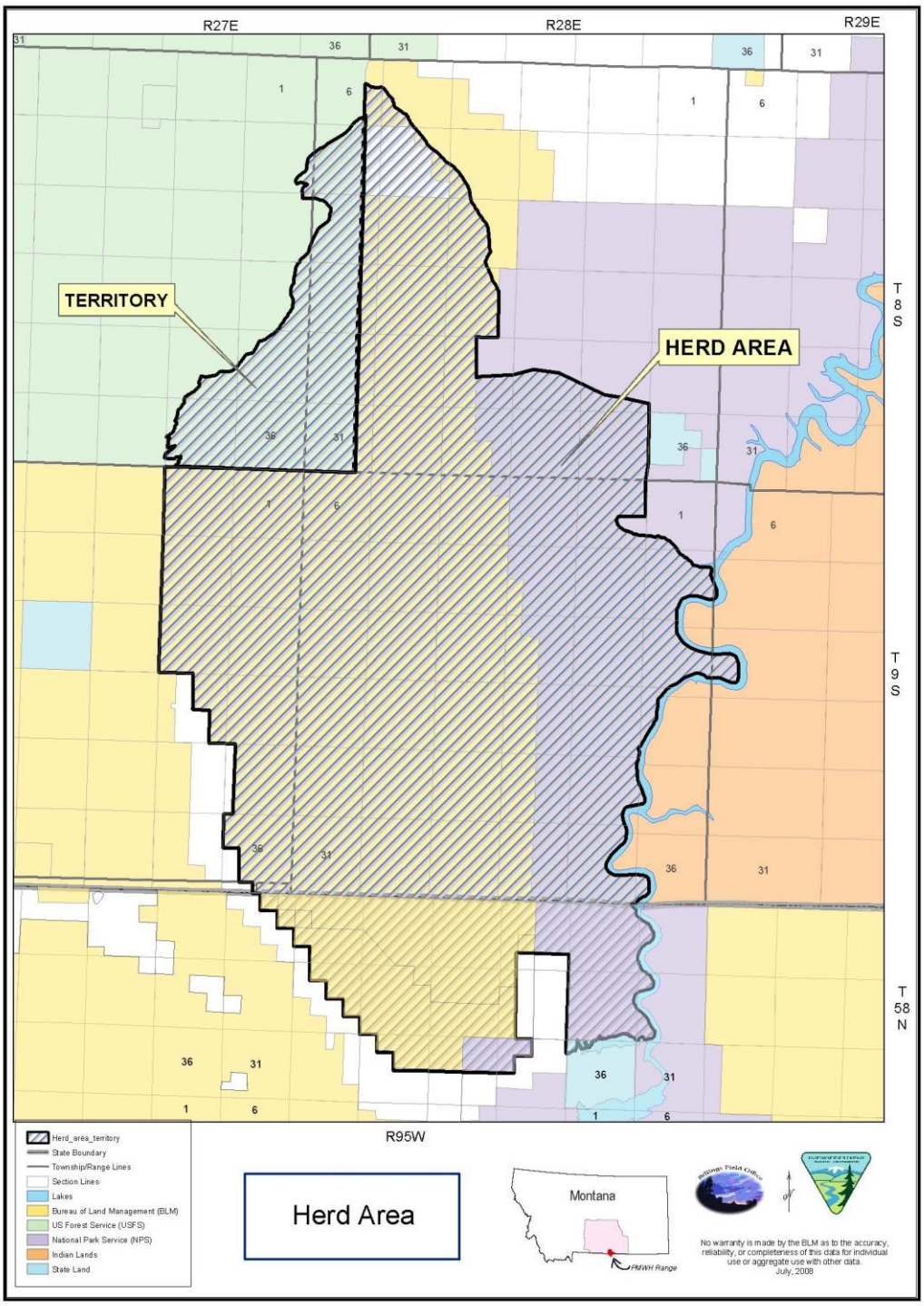
horses existed geographically pursuant to the 1971 Act (Hall, 1972, URA Step 4, I.A.). The 1974 joint decision determined that wild horses were to be managed not only within the 1968 Refuge, but also Hall's recommended Lost Water Canyon area (Forest Plan Management Area Q), the Mystic Allotment area, Lower Crooked Creek and Upper Crooked Creek (BLM). In each of these areas, Hall specifically identified the number of horses, their location, and the season of year (summer/winter) in which they were observed. Subsequent agency land use planning, public involvement and resulting decisions (BLM, 1984 and USFS, 1987) reaffirmed the same BLM herd area and Forest Service territory boundaries as originally assessed and outlined in 1974. Adjustment to the managed range occurred in 1984 with the temporary inclusion of the Sorenson Extension, (using two five year special use permits) from the Bighorn Canyon National Recreation Area (BCNRA), and adjustment to the BLM herd management area by closure of the administrative pastures. In 1990, the last adjustment occurred when the Sorenson Extension was not re-authorized by BCNRA. This resulted in the present boundary encompassing more than 38,000 acres of lands (see map 3).

opportunities, influence of people on wild horse behavior); and management opportunities (population management and enhancement, carrying capacity, type of animal for removals, physical appearance, sex ratios, methods of reduction, disposal of animals, distribution of grazing pressure, introduction of new blood); Advisory Committee Recommendations, and future possibilities.

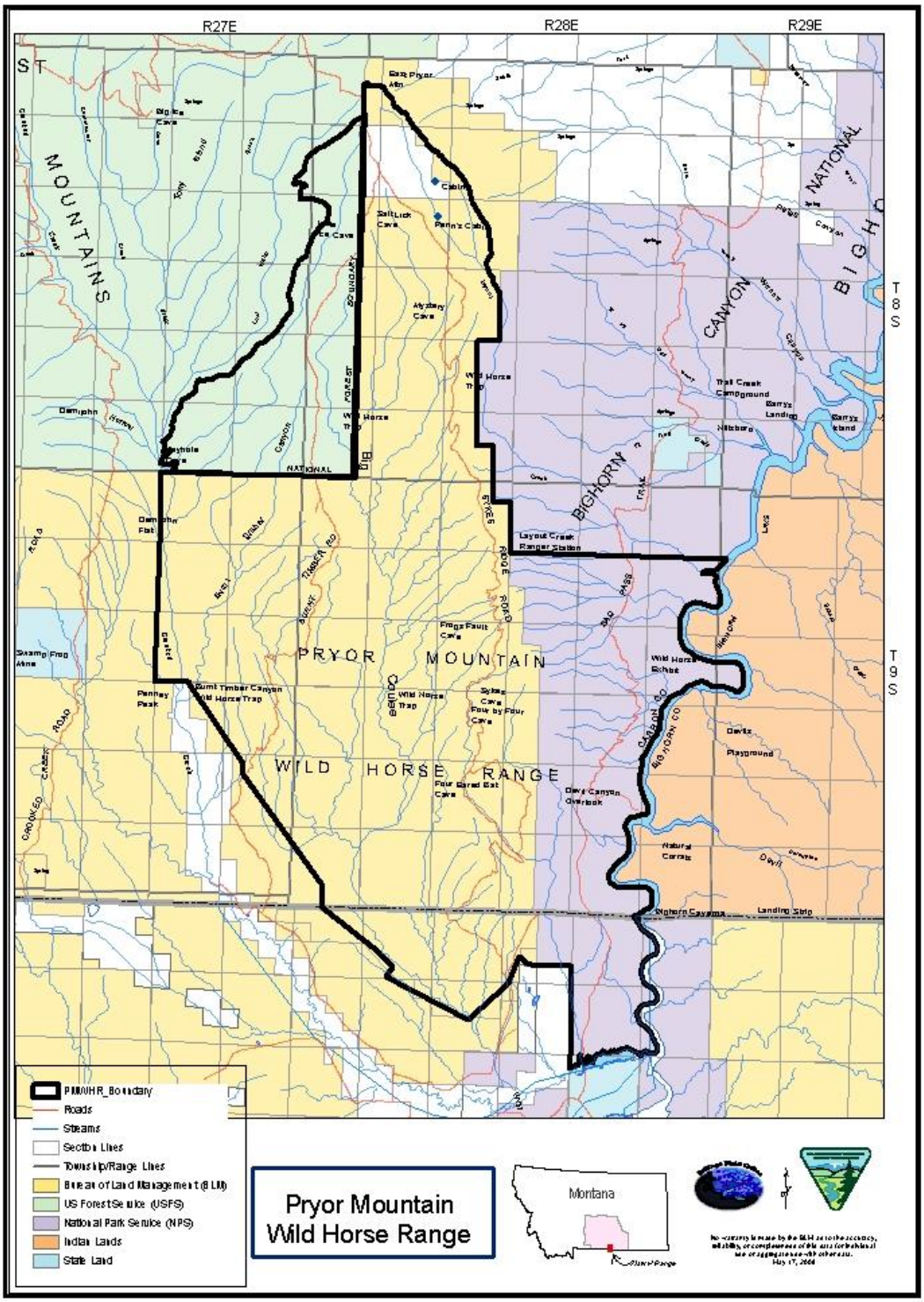
Map 1 - Secretarial Orders



Map 2 - Herd Area/Territory



Map 3 - Pryor Mountain Wild Horse Range Current Boundary



The exact origin of the wild horses within the PMWHR is not entirely known, though there is much supposition. Many claim the horses are descendents of animals the Crow Indians got from the Spanish or other tribes in contact with the Spanish. The Crow had horses in the early 1700s and inhabited the Pryor Mountains before European settlement. Others claim the horses have been there forever. Wild horses within the Bighorn Basin were well documented by the early 1900s. Most likely, the wild free-roaming horses inhabiting the PMWHR are descendents of numerous founding stock. Genetic tests conducted in 1992 by Dr. Gus Cothran identified the Pryor horses as descendents of New World "Spanish" breeds (saddle type horses) and related to European Iberian breeds. The Pryor horses carry a rare allele variant Qac that is traced back to original New World "Spanish" type horses that were developed from the original Spanish and Portuguese (Iberian) horses that were brought to the Americas.

Generally, wild horse use tends to shift with forage availability and elevation accessibility. Wild horses tend to live in family groups (harems) or bands. Bands are primarily composed of one dominant stallion with several mares and a "lead" mare, depending on the stallion's capability of maintaining the mares. A band can range in size from one mare and one stallion to numerous mares and one stallion with their progeny. A bachelor band is usually comprised of young males that are not yet mature enough to build a band and defeat rival stallions for mares or steal a mare. Typically but not exclusively young males tend to be displaced from the family band upon reaching breeding age. The typical band is led by one dominant mare that controls the day to day activities, unless the stallion feels threatened and moves the band out of an area. Each band has a small home range but there are seasonal shifts in roaming patterns. The Pryor horses are no exception to this structure or behavior.

Appropriate Management Levels and History

a. 1984	Appropriate Management Level	121 Wild Horses
b. 1992	Appropriate Management Level	95 Wild Horses
c. Present	Current AML	95 Wild Horses

Table 1 - Past Inventory Information

Year	Wild Horse Numbers
1971	155
1972	155
1973	120
1974	130
1975	140
1976	140
1977	145
1978	87
1979	105
1980	127
1981	155
1982	144
1983	147

Year	Wild Horse Numbers
1984	141
1985	139
1986	155
1987	147
1988	130
1989	122
1990	133
1991	120
1992	115
1993	143
1994	118
1995	146
1996	175
1997	147
1998	158
1999	173
2000	188
2001	160
2002	170
2003	161
2004	142
2005	160
2006	145
2007	159
2008	170
2009	195

Table 2 - Past Population Management Actions/Table of gather removals and fertility control application

Year	Removals	Fertility Control Treated
1971	45	
1972		
1973	35	
1974		
1975	25	
1976		
1977	25	
1978		
1979		
1980	1	
1981	6	
1982	43	
1983	21	

Year	Removals	Fertility Control Treated
1984	13	
1985	25	
1986	0	
1987	23	
1988	26	
1989	21	
1990	3	
1991	16	
1992	46	
1993	1	
1994	51	
1995	0	
1996	0	
1997	46	
1998	0	
1999	1	
2000	0	
2001	46	6 mares
2002	0	14 mares
2003	7	14 mares
2004	0	4 mares
2005	0	12 mares
2006	22	17 mares
2007	0	27 mares
2008	0	0 mares
2009	0	0 mares

1.6 Conformances with Land Use Plan(s)

The proposed action is in conformance with the Resource Management Plan/Environmental Impact Statement and Record of Decision for the Billings Resource Area issued in April, 1983 and September, 1984, respectively. In June 1987, a Record of Decision was issued for the Custer Forest Plan. It outlines management area direction for the Pryor Mountain Wild Horse Territory and reaffirms BLM as the lead administrating agency. These documents guide the management of public lands within the PMWHR:

1. The Billings Resource Area Record of Decision states in pertinent part:

WILD HORSE MANAGEMENT
This action will balance population levels with the forage available for horses by herd area. The population of a herd area will be held at a level that provides opportunity for improvement of range condition, herd health and viability, wildlife habitat, and watershed condition, or maintain these in good balance."

Resource Objectives and Planned Actions

"The resource objectives in this action will be to maintain a viable breeding herd which could perpetuate the characteristics of the Pryor Mountain wild horses; maintain 2,775 acres that are currently in good range condition; prevent further deterioration of range sites in less than satisfactory condition and to achieve an upward trend in range condition on those sites. The primary benefit will be a healthier, more viable horse herd."

"Under this action the initial stocking level will be 121 adult horses; 46 on Tillet Ridge, 44 on Sykes Ridge and 31 on the Dryhead herd area. These numbers are based on current estimates of grazing capacity for each herd area. These numbers are also dependent on the continuation of current agreements which allow wild horses to graze areas outside the designated wild horse range boundary."

The initial target allocation for wild horses will be 121 head (it is estimated that 80 percent of this number would be 2 years old or older). Actual numbers may vary from year to year due to variations in foal crops, natural death loss, forage productivity and other factors including budgetary constraints."

"During the short term period (8 years), monitoring studies will be conducted to confirm or modify the initial estimates of grazing capacities and trends in habitat conditions. Data from these studies will be used to modify the initial target allocation, either upward or downward."

"During the long term (25 years), the number of wild horses in a herd area will be permitted to increase if monitoring shows that additional forage is available. Ultimately, the Pryor Mountain Wild Horse Range (PMWHR) has the potential to support up to 179 wild horses yearlong. This assumes all areas now grazed by wild horses will continue to be available. However, the projected long-term population increase in this action is considerably less than the potential level of 179 head since no rotational grazing systems will be in effect."

"Improved wild horse grazing habits and distribution will be attempted by controlling their access to water sources. When the average utilization on important grasses within the area serviced by water sources reaches 45 percent by weight, access to that water source will be denied. This would stimulate the horses to move to another watered area."

To assure that non-public lands remain available for grazing by wild horses, the United States will attempt to acquire 1,467 acres from the State of Montana, and 632 acres of private land.

The emphasis in herd management will be to limit the reproduction rate and perpetuate the characteristics of the Pryor Mountain Wild Horses. This will necessitate beginning a selection program to retain only those wild horses with confirmation, color and breeding (genetic) characteristics typical of the Pryor Mountain wild horses."

"This action will require altering the current sex ratio so that it is heavier to studs than the current population. This will reduce the foal crop and minimize the need for excessing wild horses."

"When it becomes necessary to reduce the number of horses within a herd area, the excess horses will, if possible, be relocated to one of the other herd areas. If this option is not available, the excess horses will be disposed of through the adoption program or other legal processes."

A Wild Horse Herd Management Area Plan (WHHMAP) is being developed jointly between the National Park Service, Forest Service and BLM, with the BLM as the lead agency, and will incorporate the management direction provided by this plan. This WHHMAP will be released in September 1984.

Proposed Range Improvements

This action requires minimal additional man-made improvements or facilities. Five water catch-ments will be required to improve grazing distribution by bands of horses. About 2 miles of fence will be needed for improving the efficiency of capturing horses. The estimated cost to implement this action is $50,500. In the short term, the annual excessing of horses will continue, requiring an estimated $18,000 to $21,000 annually to gather and excess an average of 30 horses. In the long term, altering the sex ratio will reduce the foal crop, but some level of annual excessing may still be required. Costs in the long-term cannot be estimated because the timing of the sex ratio reversal and its impacts to horse numbers has not been established.

Rationale

"The primary objective will be to maintain a healthy, viable herd that displays the characteristics typical of the Pryor Mountain wild horses. In order to accomplish this, the range must be kept at a condition that will provide both the quantity and quality of forage needed to sustain the herd. The Bureau has an obligation to other agencies as well as private individuals who own land within the horse use areas to ensure that basic soil and vegetative resources are not degraded."

The 1981 Ecological Site Inventory determined what stocking level the range could support in its current condition. This is a target allocation and monitoring studies will be established to determine what, if any, adjustments are needed."

The proposed water catchments are to improve wild horse distribution through the availability of water. The BLM is currently exploring new designs for catchments to improve their efficiency, aesthetics, and lower the initial cost and maintenance costs.

Two miles of fencing will be constructed to facilitate the capture of the horses and is designed to reduce the stress horses are subject to during gather operations.

Monitoring
"Management progress will be evaluated to assure the level applied and the decisions made are compatible with multiple use objectives for the PMWHR. Vegetation monitoring will focus on utilization levels, movement toward reaching the stated objective of the Herd Management Area Plan (HMAP) and long term trend (change in condition)."

"Studies on the wild horses will include population size, animal distribution, foraging habits and population characteristics. The studies on population characteristics will include sex ratio, age structure, social structure, animal condition and special characteristics identified in the HMAP such as selection of color, a more detailed discussion on monitoring techniques can be found in the HMAP."

WILDLIFE MANAGEMENT
"The Federal Land Policy and Management Act (FLPMA) of 1976 chartered BLM with the responsibility of maintaining or enhancing the fish and wildlife habitats that occur on the public lands."

Resource Objectives and Planned Actions
"The Billings Resource Area operates under a number of general wildlife habitat management objectives which are utilized Bureauwide. Each objective is mandated and/or supported by specific Federal regulation or legislation. The BLM wildlife habitat management program places special emphasis on, but is not limited to the protection, maintenance and enhancement of:

Crucial habitats for big game, upland game birds and waterfowl.

Crucial habitats for non-game species of special interest and concern to state and other Federal agencies.

Wetland and riparian habitats.

Existing or potential fisheries habitat

Habitat for state or federally listed threatened and/or endangered species."

TIMBER MANAGEMENT

Resource Objectives and Planned Actions
"A total of 9,500 acres of forest land will be protected from cutting, except where needed for other resource value or concern such as watershed, safety or wildlife. The protection area includes the Pryor Mountains WSA's……"

OFF-ROAD VEHICLE USE

Resource Objectives and Planned Actions
"The BLM will attempt to meet the demand for off-road vehicle (ORV) use on public land, while protecting watershed, visual resources and other conflicts which may occur between ORV users, adjacent landowners and permittees."

WILD HORSE INTERPRETATION

Resource Objectives and Planned Actions
Interpretation of the Pryor Mountain wild horses and their management will be pursued as a cooperative venture between the BLM; the U.S. Forest Service, and the NPS……some additional interpretation is possible dependent upon the outcome of the Pryor Mountain Wild Horse Herd management Area Plan……"

2. The Custer Forest Plan and Record of Decision states in pertinent part:

Wild Horse Management
The goal for the Wild Horse Territory *(Management Area Q)* is to, *"provide for improved habitat conditions, including range and watershed, and for a healthy viable wild horse population. "*

Management Standards (Management Area Q)

Wildlife and Fish
a. The Forest Service will coordinate with the BLM, and other Federal/state agencies to maintain or enhance wildlife habitat and population numbers in a manner which is compatible with wild horses and overall habitat conditions.

Range
a. No grazing of domestic livestock will be permitted in the area.
b. The Forest Service will cooperate with the BLM on scheduled monitoring items to determine carrying capacity and/or vegetative conditions and trends. Vegetation and climatological data will be collected to refine carrying capacity estimates and document vegetative condition and trends.
c. New range improvements may be constructed provided they do not attract horses into the proposed Lost Water Canyon Wilderness. However, the horse trap on Tillett Ridge and the two enclosures will be retained.

Fire Management
b. Prescribed Fire
Planned ignitions may be used with an approved plan coordinated with the Bureau of Land Management to enhance range conditions for wild horses.

3. Bighorn Canyon National Recreation Area

The National Park Service manages land in accordance with the 1916 Organic Act which necessitates management which will *" conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations*." The 1969 MOU between the BLM and NPS provides for BLM management of horses, and asserts that if such management effects land use options, then recreational use shall have priority. The National Park Service is deeply concerned about the poor and deteriorating condition of the range. NPS is working to improve range condition, prohibiting grazing by domestic stock, and using an active restoration program which includes the use of prescribed fire.

1.7 Relationship to Statutes, Regulations, or other Plans

The proposed action is consistent with the following (incorporated into the analysis by reference):

1971 Wild Free-Roaming Horse and Burro Act as Amended (PL 92-195). This act directs the BLM and Forest Service in the management of wild horses.

1976 Federal Land Management Policy Act (FLPMA)

1978 Federal Rangeland Improvement Act (PRIA)

36 CFR 222

43 CFR 4700

43 CFR 4100

Standards of Rangeland Health

1984 Billings Resource Management Plan and amendments

1987 Custer National Forest and Grassland Plan for Management

1.8 Identification of Issues

The Pryor Mountain Wild Horse Range (PMWHR) Draft Evaluation was issued for public participation on November 19, 2007. The Pryor Mountain Wild Horse Range Evaluation process did not establish new goals or objectives. The purpose of the evaluation was to measure if current uses were meeting existing decisions and objectives that were established in the Bureau of Land Management Billings Resource Management Plan (1984), Forest Plan (1987), Bighorn Canyon National Recreation Area laws and policies, and the Pryor Mountain Herd Management Area Plan (1984, 1992).

Interested parties were asked to review the document and provide additional relevant data, information, or analysis that could be used to measure objectives. Parties were also asked to provide technical recommendations to help meeting or making progress toward meeting decisions and objectives. Two parties provided data that was incorporated into the evaluation. Eighty seven parties provided comments and/or technical recommendations for management of the PMWHR. Four parties provided separate interpretations of the analysis for calculating the appropriate management level (AML). All parties who participated and their submissions were documented and incorporated into the Final Pryor Mountain Wild Horse Range Evaluation in February 2008.

The public comment and involvement in the PMWHR Evaluation was used to help identify issues that relate to the effects of the proposed action. An issue is an unresolved conflict or public concern over a potential effect on a physical, biological, social of economic resource as a result of the proposed action and alternatives to it. An issue is not an activity; rather, the projected effects of the proposed activity create the issue (cause and effect). The analysis team reviewed the scoping comments and categorized issues into two groups:

- **Issues studied in detail** – these are issues identified by the analysis team as important and within the scope of the project. These issues influence the analysis, suggest new alternatives, or require additional project design and mitigation features.

- **Issues not studied in detail** – these are issues considered, but were determined by the analysis team to be outside the scope of the project, requests for information, or resolved through existing law, regulation, or policy.

ISSUES STUDIED IN DETAIL

During the course of the evaluation process the following issues were identified and determined by the Responsible Official to be studied in detail and are addressed through the proposed action, alternatives to the proposed action and design criteria. An indicator for measuring each issue is presented and will be discussed in the analysis and used to compare the alternatives.

Ecological Condition

Deteriorating range and forest conditions associated with hands off type management practices has led to the current situation on the ground (2008 PMWHR Evaluation). The BLM and Forest Service are mandated to "protect the range from deterioration associated with overpopulation" (PL92-195 section 1333(b)(2)(iv)). The National Park Service is also mandated to manage sustainable lands. The proposed action and to a lesser extent the No Action Alternative is developed in order to rectify this deficiency and correct management inadequacies.

Appropriate Management Level (AML)

AML is based upon the carrying capacity of the habitat. The Wild and Free Roaming Horse and Burro Act (PL92-195 section 1333(a)) states "The Secretary shall manage wild free-roaming

horses and burros in a manner designed to achieve and maintain a thriving natural ecological balance on the public lands". The BLM and Forest Service authorities allow for AML to only be established based upon the carrying capacity of the land with consideration with preserving multiple-use relationships. The establishment of AML is not intended to be a onetime determination but rather a fluid process where adjustments are made based upon environmental changes and management needs. The Act mandates the BLM and Forest Service to "protect the range from the deterioration associated with overpopulation" (PL 92-195). The Interior Board of Land Appeals 109 IBLA 118 and 119 stated "We interpret the term AML within the context of the statute to mean that optimum number of wild horses which results in a thriving ecological balance and avoids deterioration of the range." Thus, the Proposed Action and to a lesser extent the No Action alternatives are designed to meet the absolute minimum of preventing deterioration, but not necessarily improvement.

Wilderness Study

There are structural improvements identified in the Proposed Action alternative that would be used to disperse horse use across the PMWHR. These improvements could affect the characteristics for which the Wilderness Study Area. 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. Project development within WSA's can only occur through analysis of the non-impairment criteria as described in the BLM Interim Management Plan for Lands Under Wilderness Review. Alternatives were developed in order to describe and conduct analysis on the best alternative for meeting non-impairment criteria.

Recreation

The public views wild horses and newborn foals, rides ATVs, camps, explores, caves, and hunts in the Pryor's. These uses create situations of competing interests. Providing access for recreational activities while protecting the land and wild horses from negative impacts associated with increased visitation is a balance of uses that requires intense management. Development of Alternatives would have an effect on recreational viewing of wild horses as each alternative would have a different distribution pattern of where wild horses are expected to reside. This document does not explicitly address recreation management, rather the impacts of the alternatives as it relates to wild horse management and recreational opportunities.

Genetic Viability

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

Minimum viable population (MVP) size is a moving target. Part of the hypothesis behind MVP is that populations aren't manipulated by human intervention and generally in a scope of 200 years (Singer 2004) before a population is at risk due to a loss of genetic variation. A minimum effective population size for mammals (Ne) is sometimes identified as one third of individuals within a population, but a true Ne is the total animals actually breeding. Increasing genetic

variation is designed within the proposed action to ensure wild horse health. Scribner, Meffe, and Groom in "Principles of Conservation Biology third edition 2006" state " while the loss of genetic diversity is a concern, it is important to recognize that the rate of loss is usually slower than the time frame in which management actions can occur."

Research with domestic breeding animals has shown that reduced genetic diversity and inbreeding may result when less than 50 breeding adults are contributing to the next generation (Soule, 1980). This effective genetic population size is a difficult number to determine. PMWHR baseline genetic diversity has been determined by the analysis of blood samples collected during gathers in 1991, 1994, 1997 and 2001. According to these studies (Cothran, 2002; Cothran and Singer, 2000), ***current levels of genetic diversity within the Pryor Mountain herd are relatively high for a wild horse population, are well above the mean for domestic breeds, and have been steady during the period of the studies (emphasis added)***. Any significant loss of diversity over time can be detected by evaluating an inbreeding coefficient which measures observed diversity in the herd in comparison to what might be expected. Presently, there is no evidence of inbreeding in the Pryor herd (Coates-Markle, 2006).

Small isolated populations tend to be at a higher level of risk associated with an environmental stochastic event. Habitat in poor ecological condition can place populations at higher risk due to the limited nutrition that allows animals to withstand these events. The Wild and Free Roaming Horse and Burro Act (PL92-195 section 1333(a)) states "The Secretary shall manage wild free-roaming horses and burros in a manner designed to achieve and maintain a thriving natural ecological balance on the public lands" and protect the range from the deterioration associated with overpopulation". AML is based upon the carrying capacity of the land.

ISSUES NOT STUDIED IN DETAIL

During the course of the evaluation process the following issues were identified and determined by the Responsible Official to not be studied in detail since the application of the law and decisions in land use plans resolves these issues.

Range Expansion

Wild horses can only be managed on areas of public lands where they were known to exist in 1971, at the time of the passage of the Act (herd areas and territories). Under section 1339 "Limitation of authority" the Wild Free-Roaming Horses and Burros Act of 1971 states ***"Nothing in this Act shall be construed to authorize the Secretary to relocate wild free-roaming horses or burros to areas of the public lands where they do not presently exist" (emphasis added).*** Boundaries of herd areas and territories, where wild horses will be managed, consistent with statutory and regulatory language, were identified in land use plans including the 1984 Resource Management Plan and 1987 Forest Plan. These land use planning processes look at a broader-scaled analysis than the HMAP analysis. As with the HMAP analysis, land use planning processes incorporate concepts and principles of sustainable natural resource stewardship and use of best available scientific knowledge for management choices, but land use planning considers multiple use management objectives and direction across the planning area with a broad array of interested citizens, other public servants, and governmental and private

entities. Range expansion onto other National Forest System lands raises issues regarding conflicts with other Forest Plan management areas, including potential conflicts to the ecological integrity of the Lost Water Canyon Research Natural Area (Management Area L) and Lost Water Canyon Recommended Wilderness (Management Areas H) (EA, 3.4.6), and wild horse competition for forage with permitted livestock in the nearby Crooked Creek Allotment (Management Area B). Land use plan changes, including changes to management areas and their goals and objectives, would greatly expand this proposal beyond the scope of the analysis and purpose and need. See Response to Comment #6.

There are some portions of the Herd Area currently closed to wild horse use that could potentially be opened in a resource management plan. These areas include the BLM Administrative Pastures and Crooked Creek Natural Area. The acquisition or lease of private lands could also be pursued and areas within Bighorn Canyon National Recreation Area could potentially be added to the PMWHR. However, there is no current proposal to open the Administrative Pastures or Crooked Creek Natural Area, although this would most likely be reviewed during the Billings RMP revision process. There is no proposal to acquire or lease additional private lands or to use additional areas within the BCNRA. Therefore, this issue is beyond the scope of the purpose and need and the decision to be made and will not be considered further in this analysis.

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Introduction

The range of alternatives for Alternative A - No Action and Alternative B - Proposed Action were developed to meet the purpose and need of the analysis. Alternative C - the Continuation of Existing Management was developed and analyzed in order to more clearly show a baseline against alternatives A and B.

2.2 Alternative A – No Action

The no action alternative would maintain the current management direction. The **current Herd Management Area Plan dated 1984 and subsequent revision of 1992 would be fully implemented. The action would manage for an appropriate management level of 95 plus or minus 10% or from 85 to 105 wild horses.** The herd would be managed for "improvement of size and conformation". No new water developments would be constructed. Fuels treatments, would not be proposed. The boundary fence would be reconstructed and wild horses would be limited to the boundaries of the PMWHR as much as feasible.

2.3 Alternative B – Proposed Action

The Proposed Action is designed to manage wild horses and resources within the PMWHR in order to preserve and maintain a thriving natural ecological balance and multiple use relationships. **This action would increase the appropriate management level from 85-105 wild horses to a population range of 90-120** wild horses (excluding the current years foal crop.) The population would be managed using a **combination of population control**

techniques including gathers, fertility control, natural means or a combination of prescriptions. The wild horses on the PMWHR would also be managed for a phenotype animal reminiscent of a "Colonial Spanish Mustang" as described by "Sponenberg North American Colonial Spanish Horses" while balancing colors, sex ratios and age structures. The action would also involve development of several guzzlers, 2 additional live water developments, 4 pothole enhancements, riparian protection and development, fuels reductions, integrated noxious weed treatment, range improvement, wildlife habitat enhancement, specific protections of sensitive plants, enhanced livestock trailing management, and reconstruction and extension of the north boundary fence. **The overall goal of this alternative is to manage for healthy wild horses within healthy productive habitats or rangelands.**

The proposed action would also implement the following actions and objectives to serve as the **Pryor Mountain Wild Horse Range Herd Management Area Plan**.

PRYOR MOUNTAIN WILD HORSE RANGE HERD MANAGEMENT AREA PLAN

A. Objectives brought forward from previous HMAP

Peregrine Falcon

Management Objective:
Provide protective measures for nesting peregrine falcons in the PMWHR to ensure continued falcon productivity. Protective measures would prohibit disturbance activities during the nesting period from February 1st through August 31st. This is according to U.S. Fish and Wildlife Service guidelines. Peregrine falcons are especially susceptible to aerial disturbance or activity above the nest site or eyrie. They actively defend their nest sites from activities above the eyrie that can cause mortality of eggs or young or nest abandonment. Due to the rugged location of the nest site little disturbance is expected from wild horses or human activities. The greatest potential for nest disturbance is from aircraft flying in close proximity to the nest site.
Monitoring:
Continue to monitor peregrine falcon productivity according to the U.S. Fish and Wildlife Service monitoring plan.
Desired Outcome:
Maintain or improve peregrine falcon productivity at one existing eyrie and monitor for other possible nest sites.

Predator Control

Management Objective:
Predator control actions within the PMWHR would not be taken at this time.
Monitoring:
None required.
Desired Outcome:

Maintain the natural balance between all levels of flora and fauna. Predator control efforts would not be requested or initiated. Additionally, the current policy would continue concerning the restriction on aerial gunning over the horse range.

Supplemental Feeding

Management Objective:
Supplemental feeding of the Pryor Mountain wild horse herd is a management tool which can be utilized in emergency situations.

1992 Amendment

Helicopters may be used to move and capture wild horses except during foaling period. Helicopters may be used to spot, monitor, and inventory horses at anytime of the year.

There would be no designation of a specific number of horses by herd area.

Tranquilizers may be used in special circumstances by qualified personnel when approved by the authorized officer.

B. Range/Forest/Habitat Management Objectives

1. Fundamentals of Rangeland Health Objective

Make significant progress towards meeting Standards of Rangeland Health (Appendix I).

> ***This would be accomplished by****:* Not allowing the range conditions to deteriorate below the 2004 and 2007 measured levels at key management areas, by limiting utilization levels on key forage plant species to 45 percent throughout the PMWHR and developing additional water sources and mineral supplementation in areas with slight use and encouraging more even distribution of wild horses.
>
> ***This would be measured by:*** Conducting at least one Rangeland Health Assessment within five years and using the rangeland health assessment to determine if progress is being made.

2. Range Condition Objective

Maintain the current range condition and/or improve range conditions.

> ***This would be accomplished by****:* Not allowing the range conditions to deteriorate below the 2004 and 2007 measured level at key management areas by limiting utilization levels on key forage plant species to no more than 45 percent use level throughout the PMWHR and maintaining the Appropriate Management Level. This would further be accomplished by distributing wild horse use to slightly used areas of the range through additional water development and placement of mineral supplements. This may also be

accomplished by allowing for aerial seeding of native grass species appropriate to the corresponding range site to supplement native forage species seed production.

This would be measured by: Conducting utilization studies and use pattern mapping on seasonal basis to determine forage off take of current year's production and tracking climate and precipitation data for the region. This would also be measured at the following Key Management Areas prior to the end of the lifespan of the plan:

Table 3 - Specific Desired Plant Community for each Key Management Area Objectives

Key Management Area C23 **NRCS Inventory Unit National Park Work sheet #3**	***Present Situation:*** **Ecological site: MLRA 32** Silty Limy droughty 10": **Site Index/Condition**-24% of HCPC or early-seral **Composition** by weight: Bluebunch wheatgrass 13% Needle and Thread grass 2% Red Three-awn 5% Winterfat 2% Broom Snakeweed 3% Perennial forbs 71% Other 4% **Cover :** Not measured **Frequency** Bluebunch Wheatgrass 44% Needle and Thread grass 12% Broom Snakeweed 35% Other 9%
	Measured by: Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: Maintain or increase the level (rooted frequency) of Bluebunch wheatgrass, Needle and Thread grass and other cool-season perennial grasses. No net increase in the occurrence of Three-awn, snakeweed or invasive annuals. Maintain or increase the composition and vigor of the perennial cool season grasses within the site by weight. This would be accomplished by an allowable use level of 45% utilization levels, through more even distribution of wild horses and by maintaining the AML.
Key Management Area C21 **NRCS Inventory Big Coulee Work sheet #30**	***Present Situation:*** **Ecological site:** MLRA 43A Shallow Limy Draughty **Site Index/Condition**-31% of HCPC or mid seral **Composition** by weight**:** Bluebunch wheatgrass 25% Junegrass 2% Bluegrass 1% Blacksage 3% Fringed Sage 1% Broom Snakeweed 1% Annual forbs 1% Perennial forbs 65% **Cover:** Not measured **Frequency** Bluebunch wheatgrass 46%

	Bluegrass and Junegrass 25% Sage 22% other 7%
	Measured by: Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: Maintain and or increase the rooted frequency of cool-season perennial forage species. Maintain or increase the composition of the perennial cool season grasses within the site. This would be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and by maintaining the AML
Key Management Area C20 **NRCS Inventory Unit Britton Springs Work sheet #19**	***Present Situation:*** **Ecological site**: MLRA 32 Shallow Gravelly-Limy 9" Draughty Basin **Site Index/Condition-**25% of HCPC early seral **Composition by weight :** Needle and Thread 12% Indian Ricegrass 1% Red Threeawn 12% Grama 4% Sand Dropseed 7% Sage 55% Other 9% **Cover basal:** all grasses 2% **Frequency:** Needle and Threadgrass 6% Grama 55% other 39%
	Measured by: Re-read and compare trend study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: Maintain or increase the current level (rooted frequency) of Needle and Thread grass and other cool-season perennial grass species. No net increase in occurrence of Three-awn, grama, snakeweed or invasive annuals such as cheatgrass and halogetan. Maintain or increase the composition and vigor of the perennial cool season grasses by weight and basal cover within the site This would be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and by maintaining the AML.
Key Management Area C19 **NRCS Inventory Unit Penn's Cabin Work sheet #2**	***Present Situation:*** **Ecological site**: MLRA 43A Silty 26 **Site Index/Condition** 31% of HCPC or mid seral **Composition by weight:** Idaho Fescue 3% Timber oatgrass 2% Junegrass 1% Other 1% Sedge 1% Lupine 54% PPFF 38 **Cover:** Grasses 16% PPFF 21%

	Litter 53% **Frequency:** Idaho Fescue 15% Mutton Fescue-5% Sedge53% Other27%
	Measured by: Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: The high elevation areas have the greatest potential for improvement due to precipitation levels. Increase the occurrence of cool season perennial forage species; reduce the occurrence of pincushion, poisonous plants such as death camas and lupine, increase the basal cover of Idaho Fescue and other cool season perennial grasses. This would be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses through more water developments and by maintaining the AML.
Key Management Area C18 **NRCS Inventory Unit Burnt Timber Work sheet #22**	***Present Situation*** **Ecological site:** MLRA 32 Silty Limy **Site Index/Condition** 16% of HCPC or early seral **Composition** by weight **:** Present lbs per acre Bluebunch wheatgrass 5% Bluegrass 1% Needle and Threadgrass 1% Big sage 5% Black Sage 31% PPFF 54% Other 8% **Cover: Not measured** **Frequency:** Bluebunch Wheatgrass 59% Other Cool Season Grasses 11% Big sage 7% other 13%
	Measured by: Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: Maintain Bluebunch wheatgrass and or increase the rooted frequency of other cool-season perennial forage species. Maintain or increase the composition of the perennial cool season bunchgrasses within the site This would be accomplished by an allowable use level of 45% utilization levels and through more even distribution of wild horses while maintaining the AML.
Key Management Area C17 **NRCS Inventory National Forest (BLM)** **No work sheet for that ecological site**	***Present Situation*** **Ecological site:** MLRA 43A Shallow Limy **Condition Overall** 45% of HCPC mid seral **Composition :** by weight **not measured** **Cover: not measured** **Frequency** of veg. Bluebunch wheatgrass 47% Other cool season grasses 5% Black sage 18 % other 30%
	Measured by: Re-read and compare Daubenmire study plots from 2007 and conduct production, cover, and ecological condition studies, and compare

	against the 2004 NRCS study to detect changes within ten years after management practices have changed.
	Objective: Maintain the 2007 level of Bluebunch wheatgrass; increase other cool-season perennial grasses. Maintain or increase the composition of the perennial cool season grasses within the site This would be accomplished by an allowable use level of 45% utilization levels through more even distribution of wild horses and maintaining the AML.

3. Sensitive Species Wildlife Habitat Objective

Priority for T & E species, agency sensitive species including peregrine falcon, bats, Yellowstone Cutthroat trout, and some passerine birds.

> ***This would be accomplished by****:* Identifying key areas with cooperators and repeat species surveys every 5 years
>
> ***This would be measured by:*** Monitoring species occurrence/abundance in key wildlife areas to establish baseline diversity

4. Forest Health/Habitat Objective

Promote forest stand conditions that trend toward the natural range of variability through the use of prescribed fire.

> ***This would be accomplished by****:* Using prescribed fire to bring forest stands within the natural range of variability for the existing forest types: Douglas fir, limber pine and sub alpine fir.
>
> ***This would be measured by:*** Assessing the general forest composition within five years.

5. Fuels Management Objective

Use prescribed fire in cooperation with the Forest Service and National Park Service, to move the area toward Condition Class I.

> ***This would be accomplished by****:* Reducing fuel loading and composition using prescribed fire to prevent the loss of timber resources to wild land fire.
>
> ***This would be measured by:*** Assessing the level of condition class over the entire Pryor Mountains in five-year intervals after a prescribed fire or fuels reduction plan is completed.

6. Riparian Objective

Manage for proper functioning condition on applicable riparian areas

This would be accomplished by: Treatment of specified riparian areas for invasive weeds and infrastructure development to protect riparian areas from grazing impacts.

This would be measured by: Conducting proper functioning condition assessments on all riparian areas within the PMWHR.

7. Invasive and Noxious Plants Objective

Treat all areas infested with noxious weeds and eradicate current infestations of noxious plants while continuing to monitor for new infestations. Contain the distribution of invasive species to areas where currently found and prevent new areas from being dominated by these species.

a. ***For Noxious plants this would be accomplished by:*** Immediately treating the spotted knapweed along the length of the Burnt Timber road and adjacent rangelands or any new infestations. Immediate treatment of tamarisk (salt cedar) along all the low elevation drainages and Cottonwood Spring area or any new infestations detected. Treatment of **all** other noxious plants that are detected including new plants that are identified on the annual state list for noxious plants during the lifespan of this plan.

b. ***For Invasive plants this would be accomplished by:*** Containing the distribution of invasive species (see map #9) and not allowing the ecological conditions to deteriorate below the 2004 and 2007 measured level at key management areas through limiting utilization levels on key forage plant species to no more than a 45% allowable use level throughout the PMWHR by maintaining the Appropriate Management Level. This would further be accomplished by distributing wild horse use to slightly used areas of the range made by wild horses through additional water developments. This may also be accomplished by allowing for aerial seeding of native grass species appropriate to the corresponding range site to supplement native forage species seed production.

This would be measured by: Monitoring treated areas for the recurrence of knapweed and tamarisk and continued monitoring for detection of new infestations of Noxious Plants. For invasive species this would be accomplished by comparing and monitoring current distribution of cheatgrass, halogeton, mustards, and other species classified as invasive against the distribution within ten years after a change in management practices.

C. Population Management Objectives

1. Appropriate Management Level Objective

Re-establish the AML **from 95 plus or minus 10% to a population range from 90 to 120 wild horses** (excluding current years foal crop) year round.

This would be accomplished by: Not allowing the population to exceed the capacity of the habitat to support healthy horses in a "thriving natural ecological balance" by maintaining the population within the "productive capacity of their habitat" and

"protecting the range from deteriorating associated with an overpopulation" of wild horses. Manage the herd within the AML either through removals, fertility control, natural means, or a combination of methods.

The AML is expressed as a population range with an upper and lower limit. During gather cycles reduce the herd to the low range of AML if fertility control is not utilized. Otherwise treat with fertility control to limit herd growth managing the herd for the upper level of AML over an extended period of time.

This would be measured by: Conducting helicopter census on a yearly basis as well as on the ground tracking through the use of BLM personnel and volunteers to monitor the population.

2. Herd Characteristics Objective

Manage the population for a phenotype reminiscent of a Colonial Spanish Type horse in order to prevent the loss "Spanish" characteristics.
Manage for a balanced sex ratio.
Manage for an age structure with the core breeding population primarily composed of 5-10 year old animals (bell curve).
Manage to maintain rare or unusual (for the Pryors) colors in order to prevent any one color becoming dominant or being eliminated.
Manage to prevent bloodlines from being eliminated while maintaining a core breeding population.

This would be accomplished by: Each active breeding mare would have at least one progeny to carry forward into the next generation. Animals that are no longer breeding or have contributed genetically would be removed unless needed to achieve AML

This would be measured by: Monitoring which animals are no longer contributing or have already contributed genetically. Keeping track of which foals are from the same sire and mare and have representation within the herd.

3. Selective Removal Considerations

Remove wild horses with the following considerations:
1. Horses not exhibiting phenotypic "Colonial Spanish Type" utilizing the Colonial Spanish Horse Type Matrix (Appendix X) which score 4 or 5
2. Horses that score 3 utilizing the Colonial Spanish Horse Type Matrix (Appendix X) which are genetically well represented on the range.
3. Animals under five years old which are genetically well represented on the range.
4. Animals between 11 and 15 years old which have contributed genetically and are not band Stallions.
5. Animals between 5-10 years old.
6. Animals 16 and over
7. No animals over 20

This would be accomplished by: Following the removal criteria.

This would be measured by: Determining which animals are off type by utilizing a scoring system developed by Dr. Philip Sponenberg (Appendix X). Monitor which animals are no longer contributing to breeding population and track which young animals are from the same sire and mare.

4. Genetic/Animal Health Objective

Maintain healthy horses in a healthy body condition with a high level of genetic variation within the population to prevent inbreeding depression or genetic drift.

This would be accomplished by: Maintaining and promoting the breeding core of the population of 5-10 year olds. Ground tracking of wild horse population demographics to monitor sex ratios, kinship and band size. Maintain a sex ratio of at least 50 percent stallions to mares and no more than 60 percent stallions to mares in any one year. An even to slightly higher level of stallions ensures that a higher level of genetic exchange occurs. Retaining a high level of genetic variability within a small population is paramount to the continued success of that population. An even or slightly higher male to female ratio also slows the recruitment rate of the population reducing the need for removals as often to maintain the AML.

This would be measured by: Genetic samples would be taken from animals at least every five years to measure the *Ho*. Taking genetic samples during every gather cycle or as necessary. A chart of kinship between animals will be developed in order to track relations between breeding animals. Animals would only be considered for augmentation if determined that inbreeding depression is occurring (See mitigation measure section 3.5)

a. Distribution

Limit wild horses to the PMWHR. Encourage use of areas (within the range) that are slightly used to limit animal competition for forage and resources while providing for greater nutritional opportunities for each animal

This would be accomplished by: Limiting wild horses to within the boundaries of the PMWHR as well as developing additional water sources to encourage more use within mid-slope areas on a more regular basis.

This would be measured by: Tracking wild horse movements and use patterns.

b. Body Condition

Manage wild horses in a manner that allows for a minimum of a Henneke Body Class Condition of 4 or greater under “normal” range conditions. (See Appendix VIII).

This would be accomplished by: Maintaining the AML, developing water sources in mid-slope areas of the range, conducting fuel treatments to provide additional areas of forage and aerial seeding of deteriorated areas of the range.

This would be measured by: Tracking wild horse movements and use patterns and Henneke body class condition, vegetation studies and project implementation log.

D. Other Resources

1. Cultural and Paleontological Resources Objective

Protect and enhance archaeological and paleontological resources in the PMWHR while supporting demand for administrative, commercial, and recreational use.

This would be accomplished by: Conducting inventories for proposed projects within the PMWHR, and monitoring, restoring, and repairing at-risk or threatened cultural or paleontological sites.

This would be measured by: Determining which resources are most at-risk or threatened and turning threats into opportunities for protection and enhancement.

2. Recreation Objective

Maintain and enhance a variety of recreational opportunities to meet public demand in the PMWHR.

This would be accomplished by: Developing a Recreation Management Plan for the range. This plan would provide management guidance for future recreation opportunities that work in harmony with the objectives for herd management.

This would be measured by: Monitoring visitor use and visitor contacts and changes in wild horse movements and use patterns.

3. Wilderness Study Areas Objective

Manage wilderness characteristics for non-impairment until designation or release from WSA status by congress.

4. Sensitive Species Objective

Manage to prevent sensitive species from being candidates for listing as federally threatened.

E. Other Objectives

1. Wild Horse Protection Objective

Protect wild horses from harassment, commercial exploitation and undue harm.

2. Wild Horse Interpretation Objective

Re-evaluate the current outreach practices in order to ensure the public has a clear and concise message as to the authorities, policies, practices and management limitations regarding the Pryor Mountain Wild Horse Range.

> ***This would be accomplished by:*** Developing and maintaining sites with pertinent information at all entrances and areas of interest on the wild horse range. This would be further accomplished by ensuring that each respective agency's authorities, policies, practices, and management limitations are provided at each entrance or public contact point.

3. Livestock Trailing Objective

Limit livestock trailing through the PMWHR to the Bad Pass route to avoid conflicts with wild horses.

F. Projects

Projects are listed in order of implementation needed to meet objectives.

1. North Boundary Fence. The existing north boundary fence would be repaired and maintained (~1.3 miles), with minor realignment out of heavy snow load area, and extended to the west (~0.5 miles) to allow for more effective management of wild horses within the PMWHR. Buck and rail / jack leg material would be used for longer-term maintenance design, and visual consideration for the adjacent Forest Service recommended wilderness area. Gates and ability to open fence panels would provide for additional management flexibility.

The mitigation measure of flagging new fences for at least a year and monitored for possible wild horse conflicts would be required (see EA mitigation measures section 3.5). The mitigation would be done to minimize hazards to horses as they got accustomed to the fence.

The extension and minor realignment would not change the decision relative to the Territory boundary. It just manages the area as it has been previously. It attempts to be as close to the boundary line, as much as feasible, and still within the Territory. The location of the extension was attempted to provide for effectiveness for overall management integrity of the PMWHR by avoiding areas where frequent maintenance is highly likely (i.e. heavy snow load areas). Given considerations of topography, and long-term maintenance, the fence extension and realignment location is very close to the boundary line. The proposed extension is located to avoid heavy snow load areas (draws) and to tie in with natural barrier rock features on the south end of the extension. If the extension followed the boundary, it would require difficult fence construction in steep draws which typically have heavy snow loads that would create higher and more frequent maintenance needs. The extension would reduce approximately 25 acres of suitable

range and 3 AUMs of forage and the minor realignment would gain approximately 25 acres of suitable range and 3 AUMs of forage. Therefore, changes in capacity are negligible and AML would not be affected by the change. The relationship of the north boundary fence to AML is not significant because AML would be increased from 85-105 to 90-120 under Alternative B.

Map 4 – North Boundary Fence

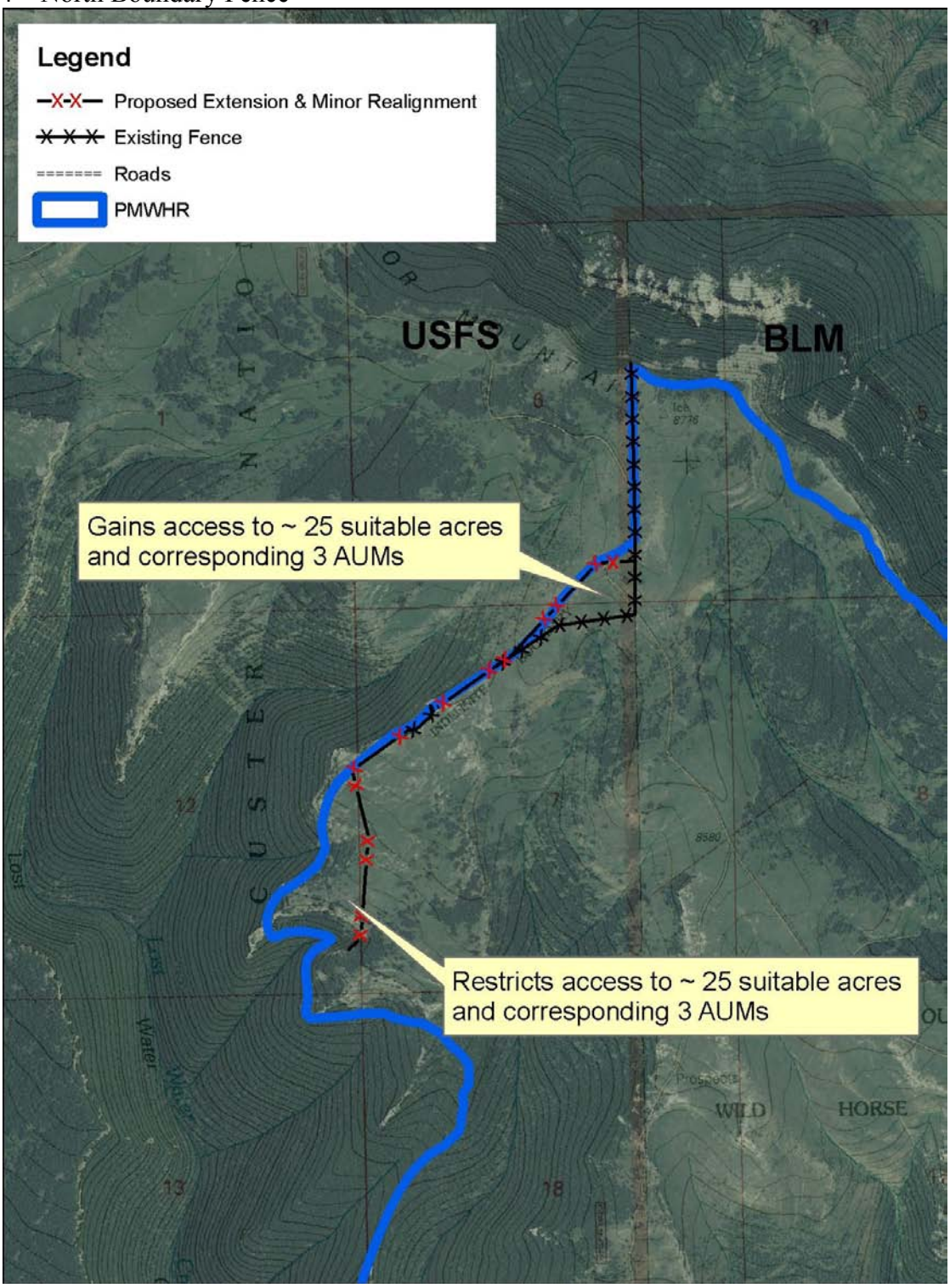


Photo 1 - North Boundary Fence maintenance and vegetative setting for minor realignment

Photo 2 – Vegetative Setting of the North Boundary Fence Extension area

2. Treat all noxious plant infestations immediately with a specific emphasis on the Burnt Timber Road due to the progression of knapweed and the large amount of vehicle traffic that can disperse the seeds.

3. Guzzler Developments outside WSA water catchments or wildlife guzzlers (see appendix 7) would be developed to act as additional watering points for wild horses and wildlife. The area of emphasis would be the mid-slope areas of the wild horse range to encourage more wild horse use where forage conditions are more favorable. Each guzzler would be developed with a fence around the apron either smooth cable or jack and leg fence with a fence that could be used to close off the water source if utilization of forage plants exceed allowable use levels.

4. Guzzler Developments within WSA water catchments or wildlife guzzlers would be developed and kept in place to act as additional watering points for wild horses and wildlife **only if the development and presence doesn't impair the "wilderness characteristics."(**see mitigation). The emphasis for development sites would be the mid-slope areas of the wild horse range to encourage more wild horse use where forage conditions are more favorable. Each

guzzler within WSAs would be developed with a fence around the apron of jack and leg fence with a fence that could be used to close off the water source if utilization of forage plants exceeds allowable use levels.

Guzzler development would consist of a Catchment Apron, 100' x 22.5' made of 40 mil think or better textured, high-density polyethylene liner, pre-welded with a 2.5" diameter pipe boot and clamps. A well screen, 2' long of four-inch diameter 20-slot stainless steel adapted with 2" ion pipe thread (IPT) 250' roll of 2" diameter, 160 PSI, SDR 11, HDPE Pipe one BOSS Complete Wildlife Water Catchment Tank (cross-linked polyethylene, 1800 gallons storage, with small animal ladder and 2" overflow adapter pre-installed).

The construction would consist of a small hole that is 12 to 18 inches deep by 6 feet wide and 16 feet long in order to place the unobtrusive style storage/drinker tank. The tank is an earth tone brown that is non-reflective. The soil from this tank placement would be saved on site and used for placement of the apron. An apron bed would be prepared by removing the vegetation and large stones from a 24 foot by 100 foot area and turning the soil for a bed. A small trench would be dug around the "bed" and soil from the trench and the tank placement would be used to create a 1 to 2 foot berm on the inside of the trench. The apron would be unrolled over the bed with the outside edges laid over the berm into the trench. The trench would be backfilled, the stones from the clearing would be placed on the apron and around the drinker part of the tank and an above ground poly pipe would run from the apron to the tank/drinker. A fence would be placed around the apron for protection, vegetation (primarily sage brush) would be scattered. All material within the WSA would be "slung" in by helicopters. No top soil would leave the site as it is being utilized under the apron and any disturbance would be seeded with species appropriate to the site.

Proposed Guzzler locations would consist of the following:

Horse Trap Guzzler would be located off Sykes Ridge at the Universal Trans Mercator location 12T 0711133 UTM 4997112 within the Pryor Mountain WSA. This site would consist of two tanks and aprons. The vegetation community is primarily low sage, bluebunch wheatgrass with an over story of stunted Douglas fir.

Photo 5 - Proposed Site of Horse Trap Guzzler

Mid-Ridge Guzzler would be located south of the Sykes Catchment in a small bowl visually screened by topography and a small stand of trees. The guzzler would consist of one tank and apron. The vegetation is primarily bluebunch wheatgrass. The location is at the Universal Trans Mercator location 12T 0711133 UTM 4993163 outside the WSA.

Photo 6 - Proposed site of Mid-Ridge Guzzler

Bat Guzzler would be located east of Four Eared Bat Cave. The guzzler would consist of one tank and apron and be visually screened within a stand of Junipers. The site is within a black sage bluebunch wheatgrass plant community. The location is at the Universal Trans Mercator location 12T 0713964 UTM 4985411within the Bighorn Tack-On WSA.

Photo 7 - Proposed site for Bat Guzzler

Mine Guzzler is located on Burnt Timber Ridge adjacent to a stand of junipers for visually screening. The site is black sage/bluebunch wheatgrass. The location is at Universal Trans Mercator location 12T 07098944 UTM 4991915. This site is within the Pryor Mountains WSA. This site would consist of one tank and one apron.

Photo 8 - Proposed Mine Guzzler site

Boundary Guzzler would consist of one tank and apron. The vegetation community is primarily low sage, Bluebunch wheatgrass with an over story of stunted Douglas fir and scattered juniper. This site is located at Universal Trans Mercator location 12 T 0708601 UTM 4995390 outside the Burnt Timber WSA.

Photo 9 - Proposed Boundary Guzzler site

Jacks Farm Guzzler would consist of two tanks and aprons. The site is visually screened within a stand of junipers. The vegetation community is composed of blacksage/bluebunch wheatgrass/Utah juniper. This site is within the Burnt Timber WSA. See proposed water development map.

Photo 10 - Proposed Site in the saddle for Jacks Farm Guzzler

Skyline Guzzler. This site would be comprised of two tanks and aprons. It is located above the Krueger Private Lands on BLM outside any WSA. See proposed water development map.

BCNRA Guzzler - the exact location would be determined at a later date. A subsequent analysis would be conducted by the NPS prior to installation. The general area is south of Mustang Flat along the KV power line road.

5. Water catchments/enhancing potholes. natural water catchments that could hold water with very little disturbance by developing small dams off of natural seasonal water flows and digging out and lining potholes and existing dirt water tanks. FS Snow water catchment would be fenced with jack and rail fence with water being gravity fed to an offsite tank through a short pipeline or would be fenced with a water gap, with the ability to be closed to control water use without piping to a tank. This would allow water to be closed off if utilization of forage plants exceed allowable use levels.

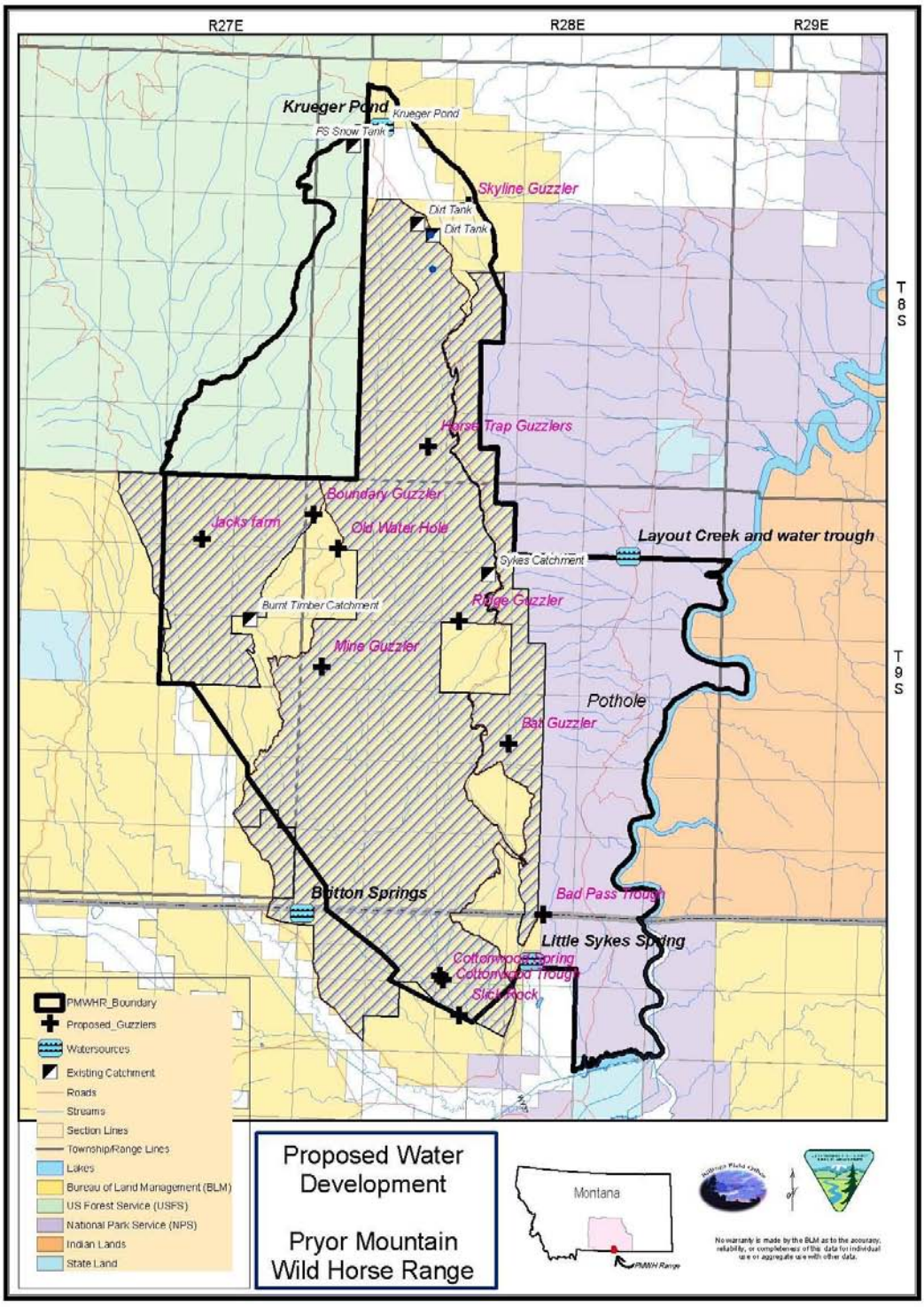
6. Cottonwood Spring Riparian Restoration and water development would be conducted if **impairment to the "wilderness characteristics" wouldn't occur.** The action would consist of treatment and removal of the salt cedar (tamarisk) and Russian olive. The old wild horse trap would be dismantled and the material used to make a riparian enclosure to rehabilitate and protect the riparian area. A small spring box and short pipeline down the active wash would be developed to allow wild horses to drink in a less environmentally sensitive area.

7. Seep to Bad Pass. A small spring box and short pipeline down the active wash would be developed with a trough to allow wild horses and wildlife to drink in an additional area. If a

spring box couldn't be developed an earthen dam would be constructed to create a more permanent water source for wild horses and wildlife.

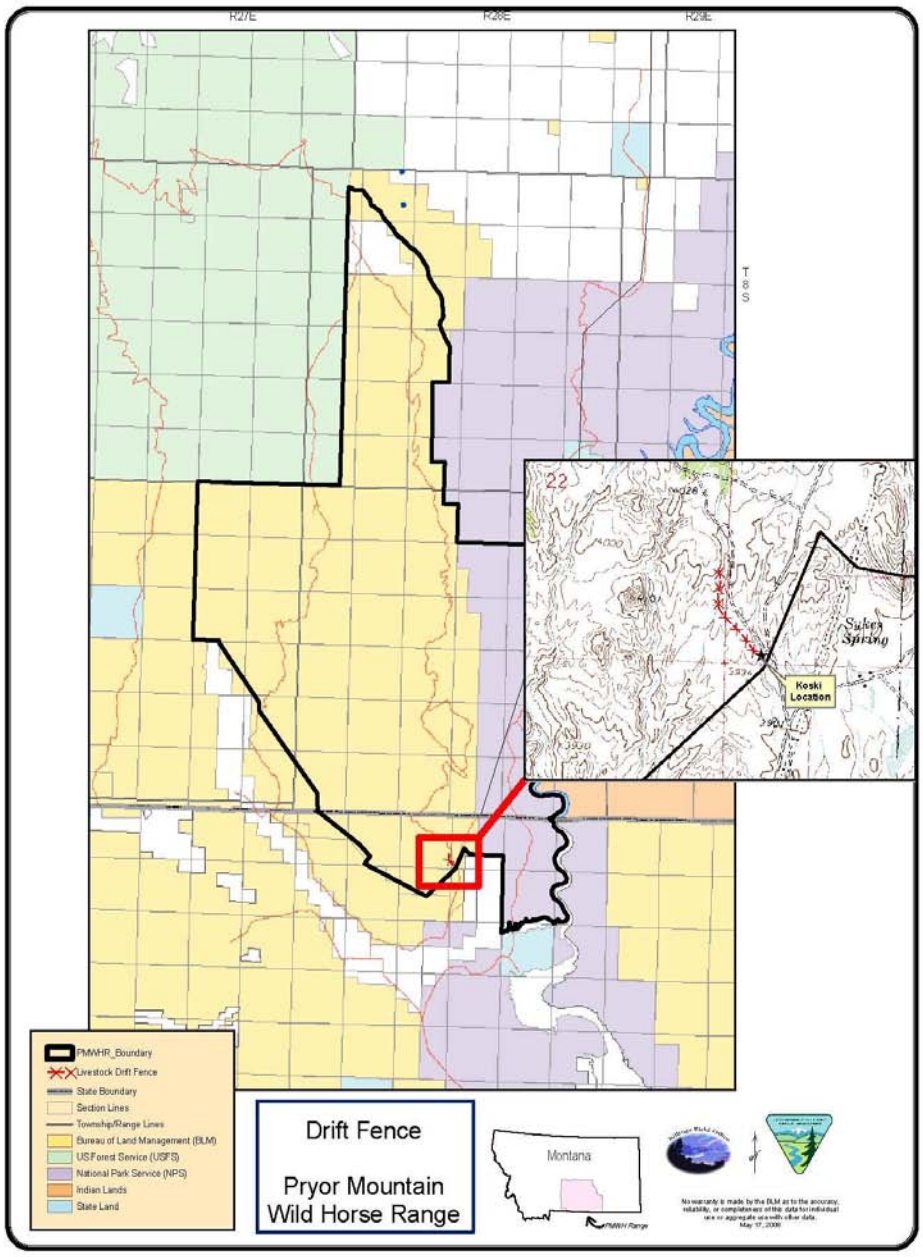
8. Little Sykes Spring. The riparian enclosure and water development would be maintained. Rehabilitation of the saline meadow at the old corral site would be accomplished using a mix of native species appropriate for the sight. A temporary fence of the site would be constructed to aid in the success of the rehabilitation.

Map 5 - Proposed Locations of Individual Water Developments



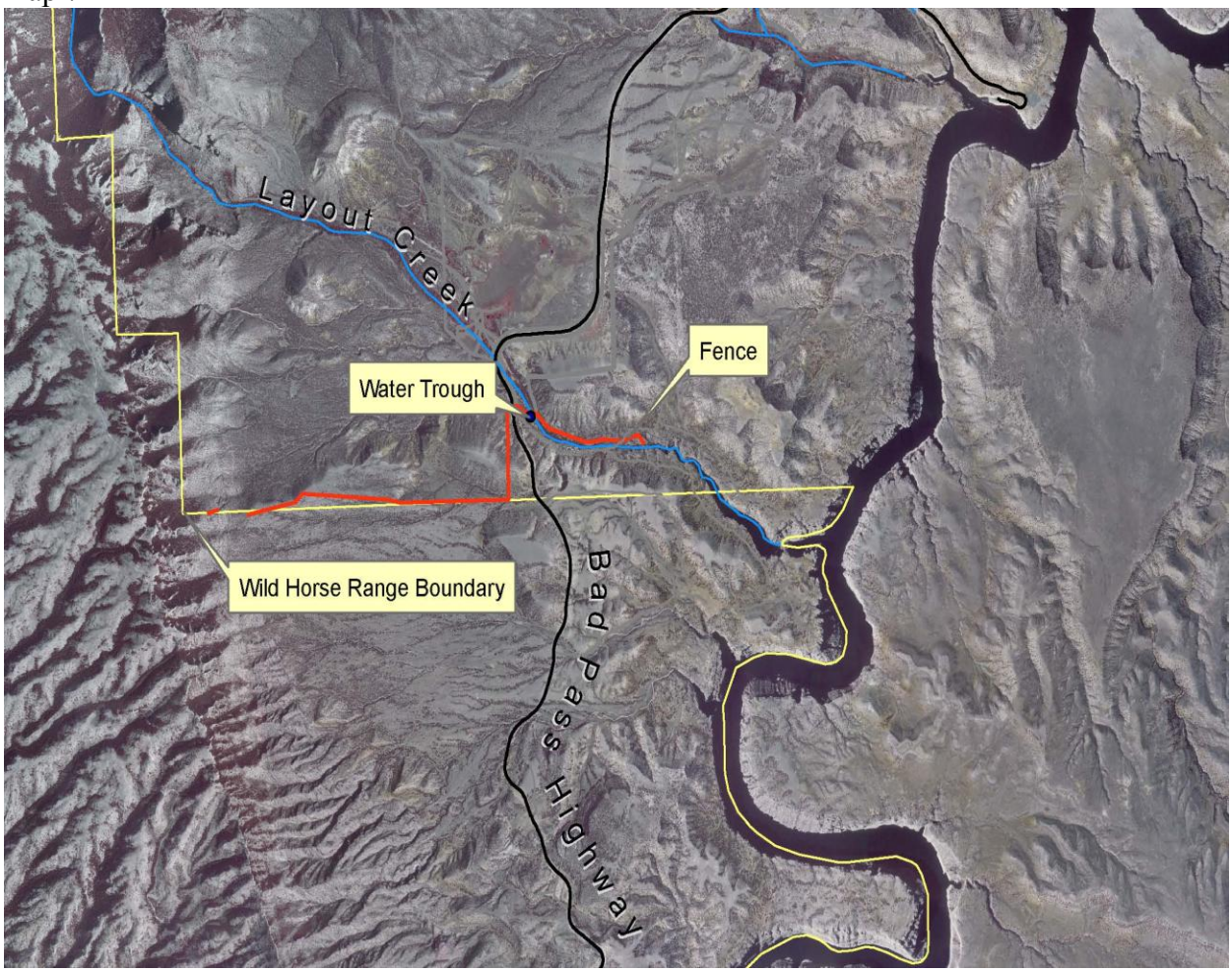
9. Drift Fence. South Entrance of the wild horse range near the Tillet Fish Hatchery. (See map) A short drift fence of ¼ to ½ mile consisting of steel posts and wire would be constructed. This would prevent livestock from wandering down the south boundary fence line onto the wild horse range. This fence line would act as a "wing" to catch livestock and direct them onto the county road. The drift fence would not preclude wild horses from utilizing all portions of the range. It would protect forage for wild horses.

Map 6



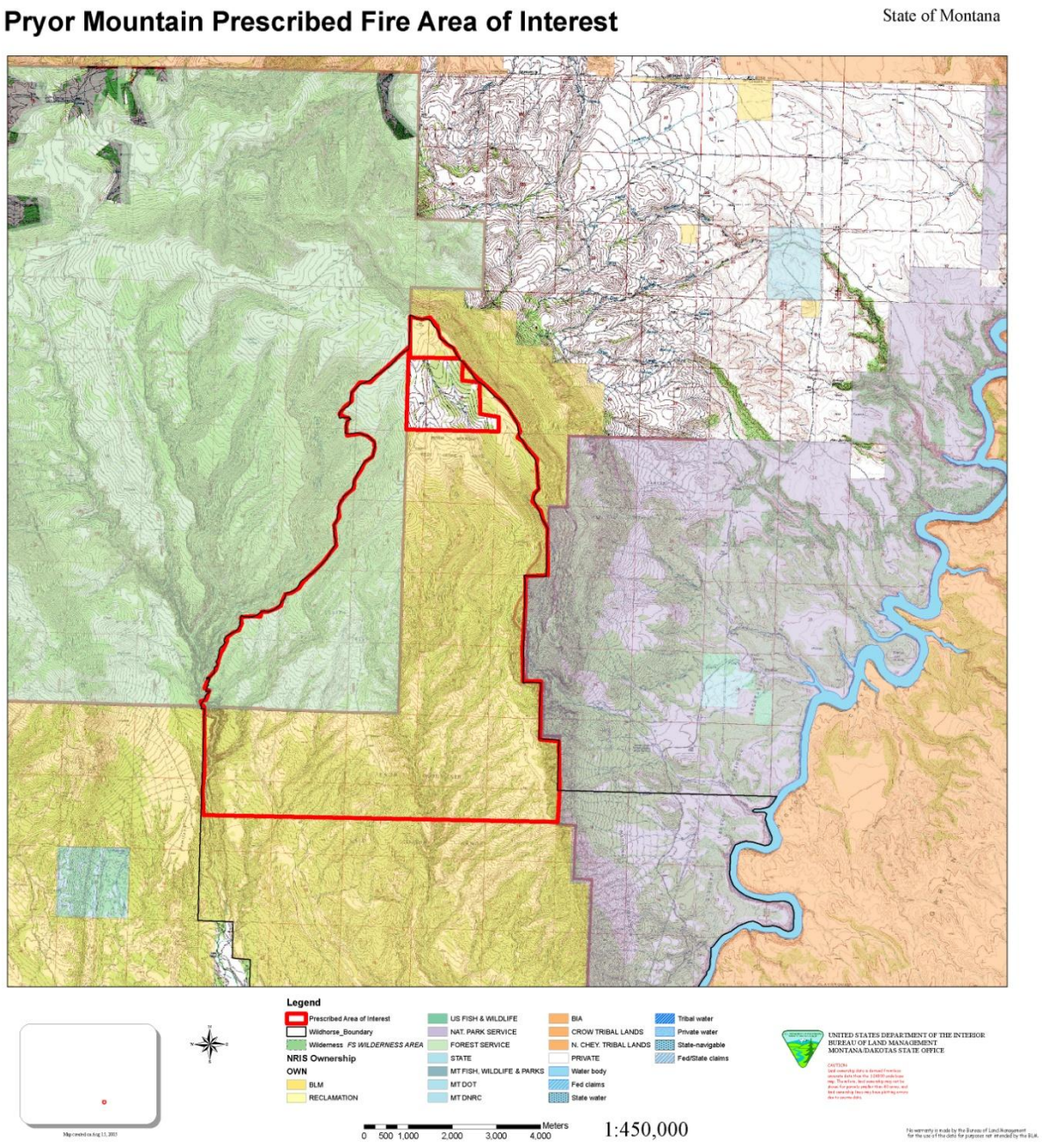
10. Layout Creek. Move northern Park Service horse range boundary fence closer to the horse range boundary. Currently, Layout Creek serves as the boundary, but is not the actual boundary. Moving the fence would allow improvement of range conditions by allowing control of access to water. Currently, horses have access to a trough, and to the creek. Rebuilding approximately 1 mile of fence to exclude the creek from wild horse use, and filling the trough for wild horses to drink would allow for better distribution of horses on the range. This project would require subsequent planning by the National Park Service.

Map 7



11. Prescribed Fire Habitat Enhancement. Prescribed fire for the enhancement of forest health, wildlife and wild horse habitat could occur primarily in the mapped area identified below. Subsequent planning and public involvement would need to occur in order to implement.

Map 8



12. Supplemental seeding. Aerial seeding with native species appropriate to the Pryor Mountain Wild Horse Range would be used to supplement seed source and attempt to improve ecological conditions. Seeding would occur in low elevations first, high elevation second and mid slopes last. In order to ensure non-impairment of wilderness characteristics until designation

or release from WSA status, any seeding would have to be completed non-mechanically (no ground disturbance) and seeds would have to be tested to ensure purity (see mitigating measures).

2.4 Alternative C – Continuation of Existing Management

The existing management alternative consists of managing the Pryor Mountain Wild Horse Range and areas adjacent to the PMWHR in their current state. Under this alternative wild horse numbers wouldn't necessarily be tied to the appropriate management level or the wild horse range. Remote darting of wild horses with Porca Zona Pellucida would remain the primary means of population management for an undetermined population objective. No new range improvement projects would be implemented. Without water improvements, opportunities for improved distribution would not be realized. Without fencing improvements, wild horse use outside of the PMWHR would continue. Without implementation of AML, range conditions would continue to deteriorate and the forage base, ecological condition would continue to be reduced, and carrying capacity of the range would continue to decline. Without authorization for fuels management, the PMWHR would continue to be at risk for catastrophic wildland fire placing the herd and lands at risk.

2.5 Alternatives Considered, but Eliminated from Further Analysis

2.5.1 Natural Management Alternative

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

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

2.5.2. Range Expansion Alternative

Another alternative considered was expansion of the wild horse range on BLM or National Forest System lands. This alternative is dismissed from detailed analysis since the BLM and Forest Service are prohibited by law from managing wild horses on public lands outside of areas where wild horses were documented as being "presently found" at the time of the passage of the Act in 1971 (herd areas and territories). Horses were in the Pryor Mountains historically, but by 1968 they were largely limited to the 1968 designated range due to the Forest Service/BLM boundary fence. Though there is much supposition as to the extent of wild horses in 1971,

comprehensive agency inventories, assessments, and public involvement (Hall, 1972 and BLM/USFS, 1974) provided the basis for Herd Area and Territory boundaries per the 1971 Act. Subsequent land use planning efforts in 1984 (BLM) and 1987 (USFS) validated the same areas as being wild horse herd management area and territory, respectively. These planning efforts included public involvement and opportunities for appeal. Herd management area or territory designation is determined during land use planning process in BLM resource management plans and forest plans. See Issues Not Studied in Detail in Section 1 of the EA and Response to Comment #6.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area and presented in Chapter 1 of this assessment.

This chapter also describes the changes to those resources that would occur if the No Action, Proposed Action, and Current Situation Alternative were implemented and the potential Cumulative Impact to that resource.

3.2 Critical Elements of the Human Environment

The affected environment of each alternative was considered and analyzed by a multi-disciplinary team as documented in the List of Preparers. 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 4 - Critical Elements

CRITICAL ELEMENTS		
Determi-nation*	**Resource**	**Rationale for Determination**
PI	Air Quality	This action would allow for the use of fuels reductions through fire. Smoke in the air could potentially affect the air quality on short term basis, subsequent analysis would have to be completed to conduct a fuels reduction treatment.
NI	Areas of Critical Environmental Concern	The East Pryor Mountains were designated as an ACEC in March 1999 to conserve the area for wild horses, paleontological values, recreational use, and fish and wildlife habitat The proposed action would have no impact on these values.
NI	Cultural Resources	See analysis below
NP	Environmental Justice	The proposed action would have no effect on minority or economically disadvantaged people or populations

CRITICAL ELEMENTS		
Determi-nation*	**Resource**	**Rationale for Determination**
NP	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the area.
NP	Floodplains	There are no floodplains within the area.
PI	Invasive, Non-native Species	Tamarisk (saltcedar) occurs sporadically in the low elevation areas of the range. All coulees in the low elevation have tamarisk as well as Cottonwood spring. Knapweed is along the entire stretch of Burnt Timber (Tillet Ridge) road. Cheatgrass is widespread in the low elevation areas especially Big Coulee and along Sykes ridge with sporadic occurrences on Burnt Timber. Halogeton is very common along the south entrance of the horse range and adjacent range lands. Mustards are wide spread in the low elevation areas. Russian Olive occurs at Cottonwood spring.
NP	Native American Religious Concerns	Although some contemporary traditional cultural use areas occur within the project area no Native American Religious Concerns are known in the area, and none have been noted by Tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.
NP	Threatened, Endangered or Candidate Plant Species	Only Bureau and USFS sensitive species present, see impacts/mitigation
NI	Threatened, Endangered or Candidate Animal Species	On Forest Service portions of the range formerly unoccupied habitat has been designated for the Canada Lynx. Proposed activities are not likely to impact this identified "unoccupied" habitat. State and Agency Sensitive Species are Present on BLM portions of the range–see Impacts/ Mitigation
NP	Wastes (hazardous or solid)	There are no hazardous or solid wastes located within the planning area.
NP	Water Quality (drinking/ground)	The proposed action would have no affect on ground or drinking water.
PI	Wetlands/Riparian Zones	Crooked Creek is within the planning area and could be affected by the proposed action. Cottonwood Spring would be affected and Krueger pond would be affected. See analysis below.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers located within the project area.
NI	Wilderness	The BLM is prohibited from taking any actions within or adjacent to Wilderness Study Areas that would impair the wilderness characteristics or prevent an area from potentially being designated 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.

3.3 Scope of Cumulative Effects Analysis

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

The area identified for the cumulative effects analysis is the PMWHR and adjacent lands within the Pryor Mountains managed by the BLM, Custer National Forest, BCNRA, State and private lands. The reason for this area being selected is that the land unit is considered an island of forested/montane grassland landscape in the larger prairie-grassland and semi-desert ecosystems in which the three agencies have substantial influence in the area's management. Surrounding lands are primarily private lands managed for livestock use, with the Crow reservation to the north, and will not be considered in detail in this analysis.

The temporal scale (time limits for past activities) selected for this project is from the early 1900s to the present. This temporal timeframe captures shifts on the landscape due to uranium mining and reductions in the levels of livestock grazing. This mining and grazing era had impact on the project area and the subsequent management activities that resulted from these activities are within a timeframe where the impacts can overlap with wild horse management.

In order to conduct a cumulative effects analysis, the alternatives considered under this Environmental Assessment must be considered in light of past, present, and reasonably foreseeable future projects (40 CFR 1500 and 36 CFR 1508.6). According to the BLM handbook *Guidelines for Assessing and Documenting Cumulative Impacts* the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance.

Past Actions

During the 1500s the Spanish explorers brought the modern horse with them from Spain and the rest of Europe. Many of these animals became feral and roamed the grassland of the plains, as well as isolated mountain ranges of the west where the Spanish had explored or settled. As the horse became more prevalent native peoples began using the horse and by the early 1700s the Plains Indian was using the horse as regular part of their existence. In the Pryor Mountains the Crow and Eastern Shoshone were using the area on a regular basis. As additional settlers arrived in the western United States, they brought many breeds of horses with them; each breed was developed for unique tasks or purposes. As these settlers passed through Montana and Wyoming or settled, some of these horses became feral or were purposely turned loose on the range and used as a commodity. By the early 1900s thousands of horses were running free throughout the Bighorn Basin and the Crow Reservation.

From the late 1800s until the 1930s, many horses were produced on the range for use in the Calvary remount program. Many Arabian and thoroughbred stallions were released on the range to reproduce with wild mares in order to obtain progeny that had endurance and other characteristics required by the military. Wild horses on the rangelands were periodically gathered

by private individuals. The young wild horses were sold to the military, and the undesirable stallions and mares were destroyed to eliminate their characteristics from the gene pool. After the end of the Calvary remount program, many wild horses were captured to be sold for rendering profits. Wild horses were viewed as a nuisance and/or commodity. Many "mustangers" operated in the Bighorn Basin, capturing wild horses and selling them for slaughter, or keeping a few for personal use.

In 1934 Congress passed the Taylor Grazing Act establishing grazing districts and the Grazing Service. This act was the first step in regulation of grazing use on the public lands. In 1946 the Grazing Service was merged with the General Land Office and the BLM was formed. Local ranchers were permitted to run horses on public lands under their grazing permit. Wild horses were not federally protected and individuals that claimed ownership or mustangers with permission from the BLM continued to capture unbranded horses and use the wild horses for commercial purposes.

Similarly, the Forest Service authorized local ranchers to run livestock by permit during the early years. Non-permitted horse use occurred amid permitted livestock use in the Pryor Mountains. By the 1920s, the Forest Service began an extensive effort to curtail non-permitted horse use in order to minimize competition with permitted livestock for forage. In 1935, the Pryor Division of the Custer National Forest was closed to all horses by Secretarial Order. By the 1940s the concerted efforts to remove horses from Forest Lands and the construction of the southern boundary fences pushed most of the horses to the public domain to the south, east and west of the National Forest (Brownell, 1999).

Post World War II demand for Uranium for the nuclear age was generated. Due to this climate it leads to the mining and exploration activities within the Pryors. The road systems and trails are a direct result of this activity.

In 1959 Congress passed the Wild Horse Annie Act. This act protected wild horses from being captured, harassed or chased with motorized vehicles.

By 1968, most horses were largely concentrated on the landscape east/southeast of Forest Service lands due to the USFS/BLM boundary fence and previous actions (Brownell, 1999). This general area ended up being the lands designated as the PMWHR originally created by order of the Secretary of the Interior, Stewart L. Udall on September 9, 1968. This was the first such designation in the United States. At the time the 1968 PMWHR encompassed 33,600 acres of public land in Montana and Wyoming. In 1969 an adjustment occurred, adding lands administered within Wyoming.

In December 1971, the Wild Free-Roaming Horse and Burro Act was signed into law. The management and protection of all unclaimed wild horses and burros was delegated to the Secretaries of the Interior and Agriculture through their agencies of the Bureau of Land Management and Forest Service as outlined in Section 2 of said Act (as the act was at that time). The BLM Herd Area and Forest Service Territory were identified pursuant to the 1971 Act as areas occupied by wild horses at the time of the passage of the Act.

Comprehensive agency inventories (including aerial census before and after the passage of the Act) and assessments between 1971 and 1974, and public involvement provided the basis for expanding the 1968/1969 range to the present day Herd Area and Territory boundaries per the 1971 Act. The joint Forest Service and BLM decision reached in the 1974 *Pryor Mountain Complex Land Use Decisions*, allowed horse use (beyond the 1968/1969 range) in Lost Water Canyon area (Forest Plan Management Area Q), the Mystic Allotment area, Lower Crooked Creek and Upper Crooked Creek (BLM) per the 1971 Act. Subsequent land use planning efforts in 1984 (BLM) and 1987 (USFS) validated the same wild horse herd management area and territory as being designated land uses. These land use planning efforts again included public involvement. Adjustment to the range occurred in 1984 with the temporary inclusion of the Sorenson Extension, (using two five year special use permits) from the BCNRA, and the Mystic (Kruger) Allotment and land lease. In 1990 the last adjustment occurred when the Sorenson Extension was not re-authorized by BCNRA and resulted in present boundary encompassing over 38,000 acres of lands.

Until 1976, the 1971 Act provided protection but no authority for appropriations for the management of wild horses. The Federal Land Policy and Management Act (FLPMA) of 1976 (also known as BLM's organic act) amended the Act. This approved appropriations for the management of wild horses, allowed the use of motorized equipment in the management of wild horses and burros and directed the BLM to maintain an inventory of wild horses. Section 603 of FLPMA directed the Secretary of the Interior to review areas of 5,000 acres or more of the public lands determined to have wilderness characteristics and to report to the president his recommendations as to the suitability of each such area for preservation as wilderness. FLPMA not only changed the direction wild horses were to be managed but changed the mission of the BLM as an agency.

The 1971 Wild and Free-Roaming Horse and Burro Act was amended in 1978 through the Public Range Improvement Act, by allowing the Secretary to place excess wild horses into private ownership or adopt these animals to the citizenry of the United States in order to improve the condition of the public lands through wild horse removals where AMLs have been established.

In 1991 the Wilderness Study Areas (WSA) Record of Decision was issued by the Secretary of the Interior. This document finalized the WSA recommendations to Congress. This document adjusted the original recommendations for the Pryor Mountain WSA by recommending 12,575 acres and adjusting boundaries and the Bighorn Tack-on WSA by recommending 2,470 acres and adjusting the boundary. The Burnt Timber WSA did not change.

In 1998 the Final Wilderness Environmental Impact Statement for the Billings Resource Area was issued. Three wilderness study areas (WSA) were recommended within and adjacent to the PMWHR. These WSAs are the Pryor Mountain consisting of 16,927 acres of land, the Burnt Timber canyon consisting of 3,430 acres of land and the Bighorn Tack-on consisting of 2,550 acres of land. These lands were to be managed for non-impairment of wilderness values as not to impair the possibility of congress designating the area as wilderness as identified under FLPMA.

Due to these laws and subsequent court decisions, integrated wild horse management and removals have occurred periodically within the PMWHR. Wild horses have been removed when over-populated and horse health and rangeland health has reached a point where a gather was justified to return the range to a thriving natural ecological balance. Since the establishment of the PMWHR 608 wild horses have been removed to improve range condition.

Past Distribution Shifts

For a variety of reasons, wild horse distribution has shifted over time where areas outside of the PMWHR are being used. The area outside of the PMWHR is near Dryhead Overlook and Tony Island, with some use occurring on the adjacent Crooked Creek cattle allotment, Dryhead Overlook contemporary traditional cultural use area, Lost Water recommended wilderness, and Lost Water research natural area. Horse use in this "unauthorized" area has grown substantially in the past 15 years from about 5 - 8 head to about 40 head, and occassionally higher numbers.

This shift in distribution corresponds with the 1980's BLM hazing of horses to the upper elevations and the 1990 National Park Service removal of the Sorenson Ranch Extension from use by the herd. Horses that once were associated with the yearlong low elevation range of the "Dryhead Unit" (located within the Bighorn Canyon NRA), including the Sorenson Extension, have been moving westward into the lands which tend to be used as seasonal ranges from lower elevation to higher elevation. Higher forage quality is also a factor contributing to horse distribution shifts due to poorer rangeland conditions within the PMWHR.

A change in distribution pattern has occurred where there is moderate to high use in the subalpine meadows and minimal use throughout the mid slopes which were at one time receiving the heavier use prior to the hazing of horses into the upper elevations of the range and mid-slope water sources being shut-down (guzzlers) or obliterated (mining-related water sources).

All of these factors have created more bands moving seasonally up to the mountain summer range of the Forest Service and BLM and in turn creating more pressure on the north boundary fence and those higher elevation rangelands. In addition, poor fence condition, design, and location does not provide an effective barrier to the increased pressure and wild horses are entering areas outside the PMWHR consisting of a proposed wilderness area, a research natural area, tribal religious area, and an adjacent cattle allotment.

Present Actions

Past actions regarding the management of wild horses within the PMWHR have resulted in the current wild horse population being considered in this EA. Wild horse management has contributed to the present resource condition and wild horse herd structure and distribution. Cumulatively, under all of the alternatives, the PMWHR would be primarily administered for the protection and management of wild horses, thriving natural ecological condition, wildlife, watershed, recreation, cultural, and scenic values.

The PMWHR is primarily managed for wild horses, archeological, recreation, wildlife and scenic values.

There is an estimated population of 170 wild horses, with 40 horses residing outside the range. Resource damage is occurring in the high and low elevation areas of the PMWHR and wild horses are moving from the PMWHR to outside the area due in part to excess animals and in part to missing yearlong habitat components necessary to sustain a population of 170 animals.

Current mandates prohibit the destruction of healthy animals that are removed or deemed to be excess. Currently, only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method. Wild horses over the age of ten years old or an animal unsuccessfully offered for adoption three times are to be sold without limitation and instantly titled. If not sold these animals are sent to long term holding.

Demands for recreational opportunities within the Pryor Mountains continue to increase. More people than ever are visiting the PMWHR not only for easy wild horse viewing opportunities but to enjoy other recreational opportunities as well. Motorized use is continually increasing, along with camping, hunting (especially bear hunting), hiking, sight-seeing, amateur botany, as well as just the experience of visiting open country.

Non-impairment of Wilderness Study Areas due to management activities is currently ongoing along with monitoring of roads and trails to ensure this is achieved.

A hand off the land approach to vegetation management is the primary management tool in the area due to the presence of WSAs, ACEC, and the Crooked Creek Natural Area.

Reasonably Foreseeable Future Actions

The BLM would manage wild horses within a population range for future established AMLs, while maintaining genetic diversity, age structure, and sex ratios. Natural selection may not be the preferred method for managing wild horses in the future. Wild horse AML would most likely be expressed as a range in the future as a result balancing a population with its environment. Wild horses would continue to be a component of the Pryor Mountains managed within the wild horse range.

There could be amendments to the Act that would change the way wild horses could be managed on the public lands. If changes in the Act that relate to the disposal of excess wild horses or sanctuaries outside of the United States are authorized, gathers and removals should become more predictable due to availability of funding. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles, reducing the need to remove as many wild horses. If there are no future amendments to the Act, and no changes in funding levels for the wild horse program, then slower changes in on-the-ground management would occur.

It is not anticipated that a lands bill would be sponsored through congress designating wilderness or releasing wilderness study areas. Management for non-impairment is expected to continue with few if any changes with some use of prescribed fire in the timbered areas.

Travel management and recreation management are high priorities for the area. Seasonal use periods for motorized vehicles and management of recreational use of the PMWHR can be expected to occur (i.e., restrictions during foaling season). As more people discover the Pryor Mountains more impacts escalate and traditional uses of the area need closer management in order to preserve the area for future generations.

Table 5 - Cumulative Effects

Past	Present	Reasonably Foreseeable
Wild horse grazing within cumulative impact analysis area at varied locations over time.	Wild horse grazing limited to the PMWHR and a few adjacent areas within the cumulative impact analysis area	Wild horse grazing within the PMWHR. No wild horse grazing outside of the PMWHR
Permitted Livestock Grazing (within cumulative impact analysis area at varied locations over time).	No permitted livestock grazing within the PMWHR with the exception of a BCNRA trailing permit. Livestock grazing on adjacent lands ongoing.	No permitted livestock grazing within the PMWHR with the exception of a BCNRA trailing permit. Livestock grazing on adjacent lands ongoing.
Dispersed recreation within cumulative impact analysis area. Developed recreation (USFS Big Ice Cave and Sage Creek Campground; BCNRA developed sites)	Dispersed recreation within cumulative impact analysis area. Developed recreation (Outside of PMWHR - USFS Big Ice Cave and Sage Creek Campground; Within and out of PMWHR - BCNRA developed sites)	Dispersed recreation within cumulative impact analysis area ongoing. Developed recreation ongoing (Outside of PMWHR - USFS Big Ice Cave and Sage Creek Campground; Within and out of PMWHR - BCNRA developed sites)
Uranium mining exploration within cumulative impact analysis area	No mining or exploration within cumulative impact analysis area	No mining or exploration within cumulative impact analysis area
Deer and Bighorn sheep have historically occupied areas within and adjacent to the PMWHR.	Deer and Bighorn sheep presently occupy areas within and adjacent to the PMWHR.	Red Pryor Bighorn sheep transplant (Outside of PMWHR – BLM)
Post and Pole Cutting (USFS adjacent to PMWHR).	No Post and Pole Cutting within the PMWHR occurring. Post and Pole cutting on USFS outside of PMWHR.	Post and Pole Cutting within and adjacent to the PMWHR ongoing.
Timber Management (USFS)	No Timber Management within PMWHR occurring. Timber management on USFS outside of PMWHR	Timber Management within PMWHR possible in the future, but not reasonably foreseeable. Timber management on USFS outside of PMWHR ongoing.
Prescribed Fire / Fuels Management Applications (USFS)	No Prescribed Fire / Fuels Management Applications within PMWHR. Prescribed Fire / Fuels Management on USFS outside of PMWHR.	Prescribed Fire / Fuels Management Applications within PMWHR possible in the future, but not reasonably foreseeable. Prescribed Fire / Fuels Management Applications on USFS outside of PMWHR ongoing.
1974 Joint BLM/USFS resource plan within the BLM and USFS portions of the cumulative impact analysis area.	Activities for the management of the Pryor Mountains are governed by the Billings RMP, Custer Forest Plan	Revision of Custer National Forest is pending, but not reasonably foreseeable and revision of the Billings Resource Area Resource Management Plan is in the beginning stages for revision.

3.4 Affected Resources Brought Forward for Analysis

3.4.1 Wild Horses

3.4.1.1 Affected Environment

The origin of the wild horses within the PMWHR is not entirely known. Many claim the horses are descendents of animals the Crow Indians obtained from the Spanish or other tribes in contact with the Spanish. The Crow Indians were known to have horses by the 1700s and to inhabit the Pryor Mountains before European settlement. Others claim the horses have been there forever. The trapper William Hamilton explored the Pryor Mountains in 1848 and did not describe the presence of wild horses. By the early 1900s wild horses within the Bighorn basin were well documented. Most likely the wild free-roaming horses inhabiting the PMWHR are descendents of numerous founding stocks. The most recent genetic tests conducted by Dr. Gus Cothran concluded the Pryor horses are descendents of New World "Spanish" breeds (saddle type horses) and related to European "Spanish" breeds. Some of the Pryor horses carry a rare allele variant Qac that is traced back to original New World "Spanish" type horses that were developed from the original Spanish and Portuguese (Iberian) horses that were brought to the Americas, conversely these horses carry no genetic markers other horse breeds don't have.

Photo 11 - Pryor Mountain Wild Horse

3.4.1.2 Impacts

Assumptions for Analysis

The analysis assumes the lifespan of the HMAP or proposed action is for 5-10 years. Wild horses would be hazed back to the wild horse range under alternatives A and B by the BLM regardless of agency jurisdiction. The population model (Appendix 2) is for illustration purposes and alternative comparison and may not necessarily reflect actual growth rates or outcomes of management actions.

Alternative A – No Action

The existing Herd Management Area Plan as amended would be fully implemented. Wild Horses would be managed for the current appropriate management level AML of 85-105 wild horses. The population would be managed for the various colors and animals selected for retention based upon better conformation so as to gradually improve the quality of horses. The population would be managed through removal of young horses and the sex ratio would be managed from 50% to 62% male to female. Every horse from 1 to 5 years old would be removed in order to maintain the AML. The population model indicates the average population would be 134 wild horses with a growth rate of less than 1%. Since horses are a long lived species, over a ten year period the population could stay at this level with a portion or all young removed depending on foal crops.

Under this alternative range/forestry/habitat enhancement would not occur. Noxious weeds would continue to be treated, current water developments would be maintained, and the north boundary fence would be maintained where it currently is located and in kind (buck and rail). Fencing would not be effective and use outside of the PMWHR would likely continue. Wild horses would be hazed immediately upon detection back to the wild horse range by the BLM regardless of agency jurisdictions.

Alternative B – Proposed Action

The proposed action is to manage wild horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships, through the implementation of the proposed Herd Management Area Plan. **This action would include increasing the appropriate management level from 85-105 wild horses to a population range of 90-120 wild horses (excluding the current years foal crop).** The population would be managed for a phenotype animal reminiscent of a "Colonial Spanish Mustang" as described by Sponenberg. The population would be managed in a manner designed to preserve genetic traits, blood lines and ensure maximum genetic variation within a small population while managing for healthy rangelands. The wild horses would be managed for an even sex ratio as well as age classes. Emphasis would be placed on retention and increasing the number of 5-10 year old animals as the core breeding population.. The alternative should result in a higher level of genetic exchange and variation than the No Action and Current Situation Alternatives.

Conflicts between stallions competing for mares could increase as well as injuries due to fighting. Bands (harems) would be expected to be smaller than present with a shift in the social structure of the individual bands. The population model indicates the average herd size would be

134 wild horses and the growth rate would be negative 0.3 % or no population growth during the life of the plan in essence the foal crop equals the death loss.

By managing for AML under this alternative and range deterioration would be halted and ecological conditions would be stabilized. Wild horses would be healthier than present and the forage base would be ensured for the long term.

The proposed action would involve development of additional waters, riparian protection and enhancement, fuels reductions, integrated noxious weed treatment, range improvement, wildlife habitat enhancement, specific protections of sensitive plants, enhanced livestock trailing management, and north boundary fence maintenance, extension and minor realignment.

The mitigation measure (EA, 3.5) of flagging new fences for at least a year will be done to minimize injury or hazards to horses as they are getting use to the fence being effective and in good repair. The north boundary fence extension and minor realignment does not change the Territory boundary. It attempts to be as close to the boundary line, as much as feasible, and still within the Territory (EA, section F). Given considerations of topography and long-term maintenance, the fence extension and realignment location is very close to the boundary line. The extension would reduce approximately 25 acres of suitable range and 3 AUMs of forage and the minor realignment would gain approximately 25 acres of suitable range and 3 AUMs of forage. Therefore, changes in capacity are negligible and AML would not be affected by the change. The relationship of the north boundary fence to AML is not significant because AML would be increased from 85-105 to 90-120 under Alternative B.

The analysis shows that for the past several years, the numbers of horses have substantially exceeded current AML of 85 to 105 wild horses and use of National Forest System lands beyond the designated boundary contributed to the forage used that was beyond AML capacity (EA, 1.5, and EA 1.5 Tables 1 and 2). AML is not determined for lands outside of the designated PMWHR. Maintenance, minor realignment, and extension of the north boundary fence would not have an adverse effect on Alternative B AML of 90 to 120 wild horses since Alternative B AML is determined for current capacity within the designated PMWHR and is higher than current AML (PMWHR Evaluation 2008). By regaining management integrity through effective fencing and enhanced water development, historic excess beyond AML would be realigned with managing for AML.

Under Alternative B, there would be little or no handling (moving) of wild horses back to the PMWHR associated with an ineffective north boundary.

Alternative C – Continuation of Existing Management

The current situation alternative consists of managing the Pryor Mountain Wild Horse Range and areas adjacent to the PMWHR in its current state. Under this alternative wild horse numbers wouldn't necessarily be tied to the appropriate management level or confined to the wild horse range. Remote darting of wild horses with Porca Zona Pellucida would remain the primary means of population management for an undetermined population objective. Wild horses selected for removal and retention would be based upon "favorites" status. Wild horses that are

well known or favorites of groups or individuals (especially stallions) would be retained regardless of genetic contribution or overall health of the herd. Other stallions that directly compete with these "favorite" animals would continue to be removed. Bands (harems) of the "favorites" would continue to be artificially enhanced with abnormally large bands (harems) through a lack of competition due to removal of competing stallions. Mares would be retained regardless of how many progeny they have successfully produced or level of genetic representation on the range.

Although the population is managed at a higher level overall, the genetic diversity is reduced and would continue to be reduced since the majority of the breeding is being conducted by fewer stallions and the average age of the mares continues to rise. Under this alternative the age classes of 5-10 years old which is the core breeding group and ensures "genetic variation" of a healthy wild horse herd, would continue to be the smallest age class until finally nearly eliminated as fewer young animals are left to replace this group. This alternative was not modeled as management practices have varied too extensively to model.

No new range improvement projects would be implemented. Effective fencing would not be done and use outside of the PMWHR would likely continue. Adjacent livestock permittees would likely have conflicts with horses competing for forage and potential for requested early removal of livestock due to the competition for typically the same forage species. Range conditions would continue to deteriorate and the forage base and ecological condition would continue to be reduced, thus reducing the health of the animals as well. Range conditions in neighboring areas outside the range would likely deteriorate (NRCS, 2006). More and more wild horses would be placed at risk of complete removal as they continue to leave the wild horse range as forage conditions are fair to poor for their sustainability. The carrying capacity of the range would continue to provide for fewer animals. The PMWHR would continue to be at risk for catastrophic wildland fire placing the herd at risk as well.

Cumulative

Under Alternative A, wild horses would be managed within the capacity of the habitat except areas with limited water sources would continue to experience impacts and some continued deterioration. Wild horse use outside of the PMWHR would likely continue but not to the extent that it currently does. Conflict with adjacent permitted livestock users would continue since effective fencing would not be done. Wild horse demographics and overall health to the herd would be at a greater risk since in essence a gate cut gather of all younger horses would need to occur to achieve AML and manage within the current 1984 HMAP and 1992 revision.

Alternative B would manage for a thriving natural ecological balance while maximizing genetic exchange, shifting demographics to a healthier herd and minimizing wild horse management actions to a three to four year cycle. A more effective north boundary barrier would minimize conflicts with adjacent permitted livestock uses.

Under Alternative C, wild horses would continue to exceed the capacity of their habitat. The population would be at a greater risk of "bottlenecking" due to fewer males breeding more mares. The population would be at a greater risk of the effects of an environmental stochastic

event as forage conditions continue to deteriorate. Wild horse use outside of the PMWHR would likely continue Under Alternatives A and C, use outside of the PMWHR would likely continue and conflict with forage availability for permitted livestock grazing use on the Crooked Creek Allotment since effective fencing would not be done. Alternative B would create a more effective north boundary barrier and substantially minimize conflicts with available forage for permitted livestock.

3.4.2 Standards for Rangeland Health/Vegetation/Soils

3.4.2.1 Affected Environment

The PMWHR is located in the southeastern portion of Carbon County, Montana, and northern Big Horn County, Wyoming. The area is high in diversity and complex in nature. Elevations range from 3,850 feet to 8,750 feet above sea level. Annual precipitation varies with elevation with six inches of precipitation in the lower elevations to upwards of twenty inches in the alpine high elevation. Plant communities also vary with elevation and precipitation from cold desert shrub to sub-alpine forests and meadows. Soils vary in depth from shallow (less than ten inches) to 20-40 inches deep depending on site locations and position on the landscape. Water is limited as there are five perennial water sources within the PMWHR.

The PMWHR is within two Major Land Resource Areas (MLRA) MLRA 32 Northern Intermountain Desertic Basins and MLRA 43A Northern Rocky Mountains (Natural Resource Conservation Service, 2006). The average annual precipitation in most parts of the basins is 6 to 12 inches. It is as high as 22 inches in the higher elevation areas within the basins. The maximum precipitation from frontal storms occurs in spring and fall. The surrounding mountain ranges block many of the regional precipitation events. The average annual temperature is 39 to 48 degrees F. The temperature can vary widely within short periods because of drainage of cooler mountain air into the basins. The freeze-free period averages 145 days and ranges from 110 to 180 days.

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

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

Low elevation areas of the PMWHR have a measured a downward trend in ecological condition most likely due to an excess of wild horses during drought years beyond the capacity of the habitat in balance with available resources that ensures healthy rangelands. The PMWHR Evaluation documented this measured trend primarily in the low elevation desert areas of the wild horse range. Also the mountain meadows are in poor ecological condition with an inverse proportion of forbs to grasses. Drought coupled with a wild horse population above the AML magnified the range deterioration. Conversely, areas within the wild horse range that have very

little water and received very little use had a measured upward trend during this same timeframe.

Photo 12 - Turkey Flat Early Seral Ecological Condition with Heavy Utilization

Photo 13 - Penn's Meadow in Early Seral Ecological Condition with Heavy Utilization

3.4.2.2 Impacts

Assumptions for Analysis

The analysis also assumes the lifespan of the HMAP is being developed for 5-10 years. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

Alternative A – No Action

Under this alternative ecological condition would stabilize in the low elevation desert areas and high elevation mountain meadows. The mid-elevation would be expected to stay relatively the static with perhaps a continued upward trend of ecological condition. Forested areas would continue to deteriorate and fuels buildup would continue to be excessive for the site. The risk of high intensity wildland fire that would change the vegetation composition would be expected to occur.

Soils would be expected to stabilize after vegetation has stabilized itself with the wild horses managed at 85-105. Rill erosion, wind erosion, and duning would also be expected to decrease as well. Soils within forested areas would continue to experience rill erosion as the present state would not change and there would be little understory to hold top soil in place. There would be a greater risk of soil loss due to the potential for catastrophic wildland fire. Range improvement maintenance (i.e. north boundary fence and water developments) would have little to no effect on vegetation and soil resources. There would be no impacts from new rangeland developments since none are proposed under this alternative.

Standards for rangeland health would be expected to be partially met under this alternative.

Alternative B – Proposed Action

Under this alternative ecological condition would stabilize in the low elevation desert areas and the high elevation mountain meadows. The mid-elevation would be expected to stay relatively static with perhaps a continued upward trend of ecological condition. Forested areas would slowly recover as fuels would be treated to reduce excessive fuel loads. The risk of high intensity wildland fire and shift in the vegetation composition from decadent stands of timber to invasive weeds (cheatgrass, mustards) would not be expected to occur if management action could occur quickly. Hazardous fuels reductions would add resiliency to the ecosystem and forested areas.

Soils would be expected to stabilize after vegetation has stabilized itself with the wild horses managed within a population range from 90-120 wild horses (if low AML is achieved and the population is allowed to slowly increase to the high AML). Rill erosion, wind erosion, and duning would be expected to decrease. Soils within forested areas would continue to experience rill erosion but to a lesser extent after fuel reductions and fire are brought back to the ecosystem, and an understory is established to hold top soil in place. Range improvement maintenance (i.e. north boundary fence and water developments) would have little to no effect on vegetation and soil resources. There would be small-scale temporary impacts from new rangeland developments (i.e. north boundary fence extension and minor realignment, and new water guzzlers). North boundary fence extension and minor realignment would consist of buck and rail fence material, where wood jack legs rest above the ground. Cattleguard replacement associated with the minor realignment would be within the already disturbed prism of the road. Water developments with fencing proposed around them will only have temporary short-term minor

impacts from posts entering the ground. Impacts of new rangeland improvements are short-term since any site disturbance will recover to ensure native vegetation cover for the long-term.

Under the proposed action, making significant progress toward meeting standards for rangeland health has the greatest potential. Management actions are focused on treatment areas that are in poor to fair ecological condition and promote the even use of areas that are more resilient and in better condition.

Photo 14 - Key Area C-21 on Sykes Ridge mid-slope in upward trend and Mid Seral Ecological Condition

Alternative C – Continuation of Existing Management

Photo 15 - Severe utilization in March of 2008

Under this alternative ecological condition would continue to deteriorate in the low elevation desert areas as well as the high elevation mountain meadows. The mid-elevation would be expected to stay relatively the same with perhaps with a continued upward trend of ecological condition. Forested areas would continue to deteriorate and fuels buildup would continue to be excessive for the site. High intensity wildland fire changing the vegetation composition outside the management capability of the agencies would be expected to occur.

Soil loss within ecological sites would be expected to continue to since vegetation would not stabilize itself with the wild horses managed at levels beyond the capacity of the habitat. Rill erosion, wind erosion, and duning would be expected to increase as well. Soils within forested areas would continue to experience rill erosion as the present state would not change with little understory to hold top soil in place. Soil loss would be at a greater risk through the continued risk of severe wildland fire.

Cumulative

In general, livestock grazing historically occurred in the past in portions of the PMWHR up until the early 1960s. Historic overgrazing in these areas contributed to the rangeland conditions presently found. Permitted livestock grazing is not authorized or planned in the PMWHR, with exception of livestock trailing through Bad Pass to access rangelands outside of the PMWHR. In areas adjacent to the PMWHR, permitted livestock grazing is likely to continue, but not likely to

contribute to cumulative impacts to ecological conditions since recent stocking rate reductions were implemented.

Implementation of the Proposed Action or Alternative B would reduce the existing wild horse population to AML, and this would help promote a thriving natural ecological balance. The achievement and maintenance of AML would maintain or increase vegetation density, vigor, reproduction, productivity, diversity, and forage availability and help achieve standards for rangeland health. Maintenance of AML would sustain animal populations in a thriving natural ecological balance.

Present ecological conditions within the PMWHR, in combination with actions under Alternatives A and B, would stabilize and not have cumulative impacts. However, ecological condition on portions of the PMWHR would not likely improve due to past overgrazing history in portions of the PMWHR. Alternative C would likely produce cumulative impacts to existing poor condition rangelands by not controlling the numbers of wild horses.

Alternatives A and B would address ecological condition and appropriate management levels within the PMWHR, but only Alternative B would address risks to ecological conditions in the areas outside of the PMWHR. Under Alternatives A and C, horse use would likely occur on adjacent lands outside the PMWHR and in time would likely compromise the ecological conditions of those lands and associated Forest Service Lost Water recommended wilderness and Lost Water Canyon Research Natural Area ecological values (NRCS, 2004, p. 3). The associated subalpine lands are difficult to recover from grazing impacts. Competition for forage on the nearby Crooked Creek Allotment would continue to be a conflict under Alternatives A and C. Alternative B would reduce or halt the competition and conflict.

Implementation of Alternative B would result in disturbance of small quantities of native vegetation and soils immediately in and around water developments, cattleguards, and fencing. Impacts created by vehicle traffic during project implementation, and hoof action of horses near water developments and fences, can be severe in the immediate vicinity of these facilities. Since most water developments receive recurring wild horse use, any impacts would remain site specific and isolated in nature. Based on past experience, these impacts are inconspicuous within several years.

Under Alternatives A and B the removal of animals and the subsequent maintenance of AML would allow reduced utilization of riparian and upland habitats on a year-long basis. This management would result in improved rangeland health.

Under Alternative C, cumulative impact of large numbers of wild horses exceeding the carrying capacity of the PMWHR would continue. These impacts would affect all of the resources that depend on stable soils and intact vegetative communities, including wildlife viewing and hunting, wilderness, cultural resources, water quality, and . The HMAP objectives and Rangeland Health Standards cannot be met under Alternative C.

Uranium development occurred across this area in the past, but is not presently occurring nor is reasonably foreseeable into the future. The surface disturbance to vegetation and soils of these

past actions have been reclaimed and in combination with proposed vegetation and soil disturbance in any Alternative would not likely produce cumulative impacts.

Cumulative effects to surface water resources could result from increases in the amount of impervious surfaces that in turn could alter the amount and quality of drainage to area creeks and other water features. However, because the proposed projects are sufficiently distant from each other and are located in different tributary watersheds, there would not be combined effects from multiple projects on the same stream. The minor, localized effects of each project would occur within the drainages of minor tributaries to Crooked Creek and the Bighorn River and at a distance of at least several miles upstream from either river.

Under Alternative B, cultural, forage, fire management, special designations, special status species, travel, visual resource, wild horses, wildlife, fire / fuels, and forestry decisions would cause beneficial or minimal cumulative effects to soil and water resources from all alternatives as compared to Alternatives A and C.

The Billings Field Office would continue to identify any adverse impacts as they occur, and mitigate them as needed on a project specific basis to maintain habitat and herd quality. The Proposed Action would contribute to the cumulative impacts of future actions by maintaining the herd at AML, and establishing a process whereby biological and/or genetic issues associated with herd or habitat fragmentation would become apparent sooner and mitigating measures implemented more quickly.

3.4.3 Noxious and Invasive Plants

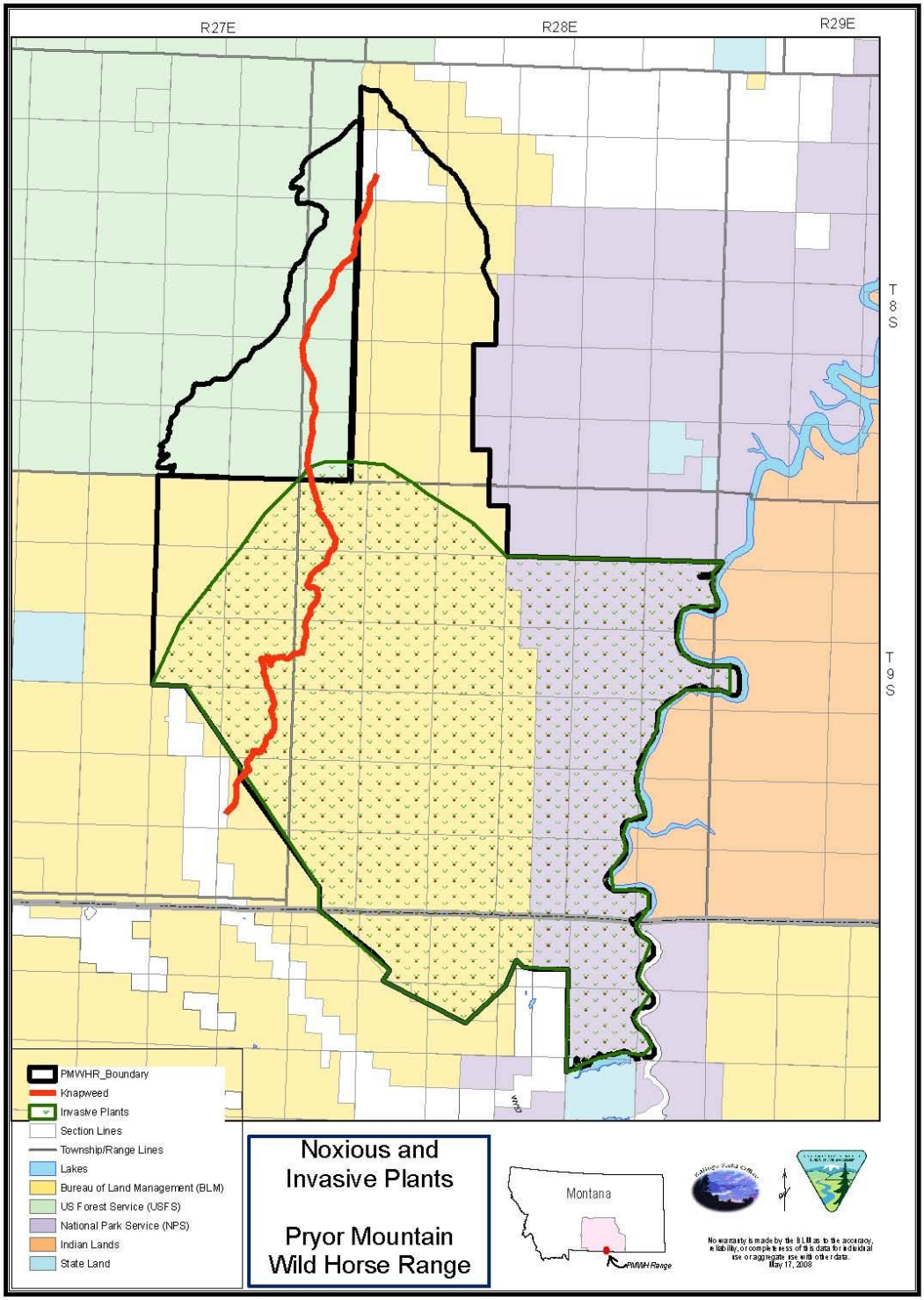
3.4.3.1 Affected Environment

The affected environment is the same as Standards for Rangeland Health, Vegetation and Soils.

Photo 16 - Big Coulee cheatgrass understory

Photo 17 - Cottonwood Spring Tamarisk

Map 9 - Approximate Distributions of Noxious and Invasive Plants



3.4.3.2 Impacts

Assumptions for Analysis

Noxious plants would be treated regardless of alternative or management situation on the PMWHR.

Alternative A – No Action

Under this alternative ecological condition would stabilize in the low elevation desert areas and the high elevation mountain meadows. The mid-elevation would be expected to stay relatively static with perhaps a continued upward trend of ecological condition. All Noxious plants would be treated regardless. Invasive species such as cheatgrass, halogeton, mustards, etc. would be confined to the extent those species are currently found. Forested areas would be at risk of large scale noxious and invasive species establishment due to the risk of high intensity wildland fire.

Alternative B – Proposed Action

Under this alternative ecological condition would stabilize in the low elevation desert areas and the high elevation mountain meadows. The mid-elevation would be expected to stay relatively static with perhaps a continued upward trend of ecological condition. All noxious plants would be treated. Invasive species such as cheatgrass, halogeton, mustards, etc. would be confined to the extent those species are currently found. Forested areas would be less likely to be invaded by noxious and invasive plants if treatments are conducted to reduce excessive fuel loads. The risk of high intensity wildland fire and changing the vegetation composition would not be expected to occur if management action could occur quickly. Prescribed fire would add resiliency to the ecosystem and forested areas, precluding establishment of invasive and large scale noxious plants that would occur following a severe wildland fire.

Alternative C – Continuation of Existing Management

Under this alternative, ecological condition would continue to deteriorate in the low elevation desert areas and high elevation mountain meadows. The mid-elevation would be expected to stay relatively static with perhaps a continued upward trend of ecological condition. All noxious weeds would be treated. Invasive species such as cheatgrass, halogeton, mustards, etc. would expand into more areas beyond where currently found. Forested areas would be at risk of large scale noxious and invasive species establishment due to the risk of high intensity wildland fire.

Cumulative

Cumulative impacts under Noxious and Invasive are the same as under Standards for Rangeland Health, Vegetation and Soils.

3.4.4 Cultural

3.4.4.1 Affected Environment

The Pryor Mountains contain a rich prehistoric and historic archaeological record. The prehistoric archaeological sites located in the Pryor Mountains include, but are not limited to: quarry sites, rock art sites, rockshelter/cave sites, vision quest sites, lithic scatters, rock cairns/rock alignments, tipi rings, drive sites, wooden structure habitation sites, occupation sites, and hunting related sites. The historic archaeological sites located in the Pryor Mountains include, but are not limited to: rail lines, lime kilns, ranching related sites, wooden structure habitation sites (cabins), historic trails, horse traps, homesteads, etc. Contemporary traditional cultural use areas are found throughout the area. The Dryhead Overlook and Sykes Ridge are the primary areas of use within the affected environment. These areas have been used for generations by Crow tribal members for traditional uses, ceremonies and vision quest sites.

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

3.4.4.2 Environmental Impacts

Alternative A – No Action

There would be no impacts to cultural resources due to project implementation as no projects would occur within the PMWHR. However, the direct and indirect impacts to cultural resources described above could occur. Under this alternative, there is a higher risk of catastrophic wildland fire, which could adversely impact cultural resources.

Alternative B – Proposed Action

There would be no impacts to cultural resources as cultural inventories would occur prior to implementation of any proposed surface disturbing project related to the PMWHR HMAP and EA. If cultural resources are located during an inventory, avoidance of the site(s) is preferred. If the cultural resources cannot be avoided then impacts to the site(s) would be mitigated. Under Alternative B, the direct and indirect impacts described above would be lessened (more dispersed) as the proposed projects would disperse wild horse use over the PMWHR. The north boundary fence extension and minor realignment have been inventoried and the fence location avoids cultural sites.

Alternative C – Continuation of Existing Management

There would be no impacts to cultural resources due to project implementation as no projects would occur within the PRWHR. However, the direct and indirect impacts to cultural resources described above could occur. Under this alternative, there is a higher risk of catastrophic wildland fire, which could adversely impact cultural resources.

Cumulative

The proposed projects would result in ground disturbance that could potentially impact identified and unidentified prehistoric and/or historic sites, as well as cause impacts on contemporary traditional cultural use areas. Cultural resource surveys of project areas will have surveys conducted and no direct impacts to cultural resource sites are anticipated.

Resource decisions from this assessment could combine with other past, present, and reasonably foreseeable actions to produce cumulative impacts to cultural resources and resources of religious or traditional importance to Native American tribes associated with the area. Reasonably foreseeable planning projects in the region include the Billings Field Office BLM RMP and the Custer National Forest Management Plan. Resource decisions would likely result in few cumulative effects to cultural resources within the project area as cultural resources are stationary entities. Planning decisions related to the Billings Field Office and the Custer National Forest are also subject to federal cultural resource laws and application of the Section 106 process of the NHPA. Further, general planning decisions of these two entities in relation to land uses and management that has the potential to impact cultural resources on adjacent lands within the project area (i.e., fire fuels reduction, erosion reduction through effective vegetation management, etc.) would generally have a positive effect on cultural resources within the project area.

Many decisions related to visual resource management, special designations, and design criteria on surface disturbance have the potential to provide a net positive benefit to cultural resources within the project area. These decisions would reduce or control the frequency and extent of ground disturbing activities that present the greatest threat to maintaining the use values of cultural resources. In general, all recreation decisions under all alternatives have the potential to increase or at least maintain current levels of adverse impacts to cultural resources. Decisions for recreation generally increase or maintain current levels of surface and subsurface disturbance and have as an indirect effect an increase in human activity within those areas of recreational use. Increased human activity tends to equate with increased adverse impacts to cultural resources.

In general, implementation of the array of resource decisions under Alternative B would have the lowest degree of potential negative impact on cultural resources within the project area, and in many cases Alternative B has the highest overall benefit for cultural resources. Overall, fewer acres of land would be open for ground disturbing activities under this alternative than under any other alternative. Although no direct correlation exists between acres of surface disturbance and numbers of cultural resources impacted, this general trend holds true. By comparison, Alternative A and Alternative C have the potential for roughly comparable levels of potential

adverse impact to cultural resources. Decisions under Alternative C have the greatest potential for adverse impacts.

Under all alternatives, specific undertakings that could result in surface disturbance and have the potential to impact cultural resources are subject to the Section 106 process of the NHPA which calls for the identification of historic properties (i.e., National Register listed sites or sites determined eligible for listing on the National Register) within the area of potential effects and the consideration of alternatives to the planned undertaking that could avoid impacts to said properties. In the event that avoidance is not possible, mitigation of the impacts is to be considered.

Wild horse viewing visitation near Dryhead Overlook contemporary traditional cultural use area would likely continue or increase under Alternatives A and C with potentially less visitation under alternative B. Wild horse viewing visitation has potential to conflict with traditional tribal uses of the Dryhead Overlook area.

3.4.5 Recreation

3.4.5.1 Affected Environment

Recreation related visitation has been increasing in the Pryor Mountains over the last several years and that trend is expected to continue. The area is composed of the Custer National Forest, BLM and NPS lands. Visitor logs maintained at Penn's Cabin, located on the top of East Pryor Mountain, indicate an increase in visitor use both foreign and domestic especially in the past 5 years. Wild horses can often be seen near the cabin in the summer through early fall.

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

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

3.4.5.2 Impacts

Assumptions for Analysis

The analysis assumes that the demand for the types of recreation opportunities available in the Pryor Mountain complex will continue to increase.

Alternative A – No Action

Opportunities to view and photograph wild horses would be affected as more wild horses would be confined to the range. Fewer wild horses would be outside of the range, and when they do stray, they would be quickly hazed back. Opportunities from other recreation activities are expected to stay the same.

Alternative B – Proposed Action

Under this alternative visitors could have more opportunities to view the horses in more areas of the PMWHR. Additional guzzler installations could alter herd movements, which could result in more frequent viewing in remote areas. Fewer horses would be expected to be seen as easily along the primary access roads as use patterns shift and wild horses are maintained at a level of 90-120 animals. Other recreational activities shouldn't be affected.

Alternative C – Continuation of Existing Management

There would be no impacts to recreation under this alternative. Opportunities to view the horse herd and conduct other recreation would remain the same.

Cumulative

Past and present wild horse distribution influences wild horse viewing under Alternatives A and C. These alternatives would have a similar wild horse distribution pattern of where wild horse viewing within and outside of the PMWHR. Alternative B would have an effect on recreational viewing of wild horses due to a different distribution pattern of where wild horses are expected to occur. The wild horses would be confined to the PMWHR and viewing opportunities of horses near Dryhead Overlook, Tony Island, and Commissary Ridge would not be available. Other viewing opportunities exist within the PMWHR along a variety of route types such as paved, two-wheel drive, and 4-wheel drive.

Cumulative impacts from the implementation of other resource decisions outside of the project area would be minimal with the exception of OHV decisions. OHV activity could result in impacts to resource values in some areas.

Because recreation use in the project area and adjacent areas of BLM, Forest Service, and National Park Service, plans for recreation (i.e. 2001 Tri-State OHV Plan, and 2008 Beartooth District Travel Management Plan) could have a cumulative impact on the availability of recreational opportunities in the region. OHV management decisions from areas neighboring BLM, Park Service, and National Forests (i.e. the 2006 Gallatin National Forest Travel Management Plan and the 2007 Lewis and Clark Travel Management Plan) could also affect the availability and quality of recreation in the region. Travel Management Plans as well as over-reaching direction in how travel management is conducted through a RMP revision for the BLM Billings Field Office is reasonably foreseeable and could also influence availability and quality of recreation in the area.

3.4.6 Wilderness/Visual Resource Management

3.4.6.1 Affected Environment

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

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

Burnt Timber Canyon WSA exhibits unique outstanding geologic and scenic values. The major canyon and rugged side canyons cut through several hundred feet to the Pryor Mountain limestone strata. These deep canyons contain numerous caves, rock overhangs, and natural alcoves that provide ample opportunities for exploration.

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

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

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

A portion of the WSA, the Demi-John Flat Archeological District, is noted for its numerous stone rings and rock cairn alignments, the Tillet Petroglyph site (which has been evaluated as

having outstanding interpretive potential) and picturesque geologic formations created by the Crooked Creek drainage.

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

The Pryor Mountain WSA, 12,575 acres, includes 4352 acres in Wyoming. This WSA contains some of the most rugged, isolated portions of the Pryor Mountain Range. The wide expanses and topographic screening in this area offer outstanding wilderness values. This unit is in the heart of the PMWHR, and the supplemental attribute of the free-roaming wild horse herd enhance the wilderness characteristics of the area. Human activity is well distributed throughout the WSA. Vegetation and topographic screening significantly limit any detraction from the WSA's extensive natural setting.

Topographic features are rough, broken and highly varied and provide excellent opportunities for isolation ad solitude. Elevation changes rapidly within the WSA, dropping from 8,400 to 3,800 feet in less than 13 miles. The southern aspect provides a vast panorama.

Opportunities for nature photography, rock climbing, hiking, backpacking, nature study, and viewing a variety of multicolored erosional geologic features are outstanding. The WSA contains a wide spectrum of geologic and biotic features, ranging from elements typical of desert environments to those found only in sub-alpine mountainous settings.

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

The Big Horn Tack-On WSA and Bighorn Canyon National Recreation Management Area WSA includes a narrow strip of land averaging 9 miles in length and less than one to two mile a in width. It is located between the Sykes Ridge Road on the west and the Bighorn Canyon National Recreation Area powerline access road to the east. On BLM, the area is 2,470 acres in size, including 353 acres in Wyoming; on the BCNRA the area is 8,101 acres of which less than half is within the PMWHR.

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

3.4.6.2 Impacts

Assumptions for Analysis

The analysis assumes the wilderness study areas would continue to be partially impaired under alternatives A and C. Alternative B would provide the best opportunity to manage to not impair wilderness values as outlined in section 603 of FLPMA, the Interim Management Policy for Lands Under Wilderness Review H-8550-1, and the Wilderness Act of 1964. The area would be managed for VRM class I regardless of alternative.

Alternative A – No Action

Under this alternative, with the exception of Noxious weed treatment, no direct management actions would occur within any of the WSAs. There would be no possibility for impairment to wilderness values from projects such as guzzlers, pothole reconstruction, riparian protection, or hazardous fuels reductions through prescribed fire. However, impairment of wilderness values due to over utilization of forage species and poor ecological conditions from wild horse grazing in high elevation meadows, and low elevation desert areas would occur due to limited watering sources. Otherwise no impacts from wild horse management would be expected to occur in the remainder of the PMWHR.

Alternative B – Proposed Action

Management actions under the proposed action have the greatest potential to impair wilderness values. Wild horses would be managed in a population range if fertility control is not used and managed for the high end of AML if fertility control is used.

Guzzlers (see photo 18 and Appendix VII) proposed for installations within WSAs are needed to meet management objectives. The specific sites proposed were selected to ensure guzzler placement is discrete and not easily discernable and to increase the likelihood that wild horses and wildlife would begin using the areas if water is more readily available. Guzzlers would be less than a ¼ acre in size. Guzzlers within WSAs would be constructed with hand tools and the apron would be protected with a buck and rail fence.

These guzzlers would enhance wilderness values and experience as wild horses and bighorn sheep (which are identified as supplemental wilderness values in the Billings Resource Area Wilderness EIS) would benefit from additional water. Wild horses and wildlife would start to utilize areas that are rarely used now. The opportunity to view and see wild horses in the most remote areas of the wild horse range would add to the mystique and romance of the wild horse. Dispersed wild horse use would also result in stabilization and possible recovery of range conditions in the high elevation meadows and low desert areas as wild horses would have more options for water and grazeable areas. It is expected trampling would occur adjacent to the guzzlers and trails would develop over time. The guzzler is not designed for yearlong use as the tanks hold 1800 gallons when completely full. A wild horse typically needs approximately 10 gallons of water a day, thus if an average band size is six horses a guzzler should last 30 days

once the dry season starts. Wild horses would rotate themselves to other areas. Allowing for a good possibility overgrazing would not occur.

In accordance with the *2004 Revision and Clarifications to H-8550-1, Interim Management Policy for Lands Under Wilderness Review*: Guzzlers would be placed in sites that are visually unnoticeable across the landscape topographically and vegetatively screened not only due to site selection but also because the design is made to be unobtrusive. These guzzlers could be easily removed (in less than a day) and top soil stays on site, thus no permanent impact. Guzzlers would not be proposed to be placed near other pre-existing facilities limiting the cumulative impact. The design does not require wheeled vehicular use for access or maintenance, especially since this is a low maintenance design.

Photo 18- Guzzler Tanks

Lining the two dirt tanks and constructing a jack leg fence around the water near Penn's Cabin to control grazing pressure on the meadows and attract animals from Krueger pond would serve to enhance wilderness values by limiting utilization levels and distributing use of wild horses. These dirt tanks are pre-existing to FLPMA and therefore would not be new disturbance.

Seep development would occur off of Bad Pass (although this is not in the WSA it is adjacent to it). Development of this water source would help with recovery of the area around Little Sykes

Spring. Also, an additional reliable water source that has no riparian values would help with distribution of wild horses, thus non-directly enhancing wilderness values.

Development of a short wire or wooden drift fence to control livestock trailing and prevent livestock from trespassing onto areas of the PMWHR adjacent to Bad Pass would not only prevent deterioration of range resources, but also protect wilderness values. Having livestock in wilderness study areas after an area has been closed to cattle for nearly 40 years detracts from the wilderness experience and particular values of the Pryor Mountain WSA. The fence would skirt along the edge of the WSA boundary and be open ended to allow wild horses to have free-roaming behavior. The fence would act as a "wing", catching all livestock as they go through the gate onto the county road by the Tillet Fish Hatchery. This would prevent livestock trespass onto the horse range and WSA's. The fence would not impair wilderness values as the Sykes Ridge Road, Bad Pass Road, County Road, and a boundary fence are adjacent and visually present. Livestock trailing is a permitted and traditional use of Bad Pass and preventing livestock from going into the WSA would enhance wilderness values.

Cottonwood Spring riparian protection would consist of utilizing material on site to develop riparian protection. The water trap acted as a de-facto riparian protection for many years. This development existed prior to the passage of FLPMA and was used for wild horse management, thus it is consistent with Wild Horse and Burro Management on page 42 and 43 of H-8550-1, Interim Management Policy for Lands Under Wilderness Review.

Photo 19 - Cottonwood Spring Horse Trap

Photo 20 - Cottonwood Spring

The north boundary fence extension adjacent to Forest Service recommended wilderness is less than ½ mile and consists of visually aesthetic wood fence material and of buck and rail design. The materials and design was used specifically in consideration of its proximity to wilderness values that the adjacent area provides. Design of the fence for this alternative was specifically provided to minimize impacts to visual values. Impacts to visual values is expected to be short-lived as visitors to this remote area might not be used to seeing a structure in a location where there had not been in the past.

Hazardous fuels reductions would enhance wilderness values by serving two purposes. It would reduce a dangerous fuel load that could result in catastrophic wild fire permanently changing the vegetative community. Secondly, it would serve as a fire break in order to ensure any fire would

be limited in size and scope. Adding resiliency to the forests would enhance the wilderness values by mimicking a more natural state for forest ecology, thus preserving the wilderness characteristics.

Alternative C – Continuation of Existing Management

Under this alternative with the exception of noxious weed treatment, no direct management actions would occur within any of the WSA's. There would be no possibility for impairment to wilderness values from projects such as guzzlers, pothole reconstruction, riparian protection, or hazardous fuels reductions through prescribed fire. However, impairment of wilderness values due to over utilization of forage species and poor ecological conditions from wild horse grazing in high elevation meadows, and low elevation desert areas would occur to a greater extent than in Alternative A or B because there would be more wild horses than the habitat can support in a thriving natural ecological balance. In addition grazing would be concentrated because of limited watering sources. Under this alternative, management actions would not be in conformance with the Interim Management Policy for Lands Under Wilderness Review H-8550-1 page 42 and 43 section E which mandates that "wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological balance."

Cumulative

Alternative A would not have the potential for impairment of Wilderness values from wildlife and riparian protection projects, but has a high potential for impairment due to current forest health conditions and concentrated areas of wild horse grazing.

Alternative B should result in non-impairment and would most likely enhance wilderness values. Preventing the range from experiencing deterioration along with easily removable guzzler designs and repairing pre-existing FLPMA projects would meet non-impairment criteria for management of land under wilderness review.

Alternative C would continue with impairment from overuse by wild horses. The potential for impairment of Wilderness Values from wildlife and riparian protection projects would not exist. High potential for impairment due to current forest health conditions would continue.

3.4.7 Forestry


Photos 21 and 22

3.4.7.1 Affected Environment

Forest and fuels composition was inventoried by the Bureau of Land Management (Pryor Mountain Fuels Inventory, Erin Riley) in 2001. This inventory chronicled tree densities ranging from 500-8,900 stems/acre with basal areas (BA) ranging from 89.8 (BA) to 362.2(BA). Crown structure and forest composition favors high intensity/high severity wildland fires. Insects have invaded the Pryor Mountain Horse Range leaving extensive areas with dead and dying trees. The insect infestation has subsided to a great extent however the potential for loss of more forested area to new activity is present. The douglas fir and douglas fir/limber pine forested areas on the mid to upper elevation slopes are mature and are becoming decadent and unproductive.


Photo 23 - Closed Canopy Forest Structure

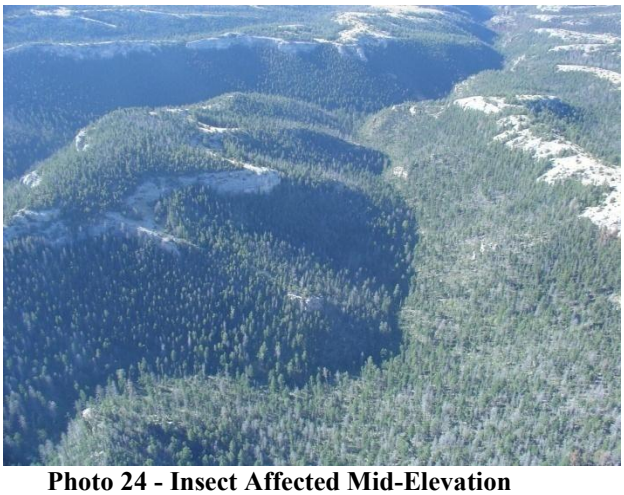


Photo 24 - Insect Affected Mid-Elevation

3.4.7.2 Impacts

Assumptions for Analysis

The proposed action would allow the use of prescribed fire for forest health, wildlife and wild horse habitat enhancement. Subsequent site specific environmental analysis would be required before the use of prescribed fire. The analysis also assumes the lifespan of the HMAP is being developed for a 5-10 years, and no major legislation will occur that would affect the on the ground management of the PMWHR. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

Much of the Pryor Mountain Horse Range classified as a Wilderness Study Area (WSA). Under the current interpretations of the Non-Impairment Standards for Wilderness Study Areas, use of mechanized equipment to implement forest management strategies is not permitted. Impact analysis is based on the premise that fire is a natural agent in the ecosystem and prescribed fire is an acceptable tool for vegetation management.

Alternative A – No Action and **Alternative C – Continuation of Existing Management**

Both of these alternatives will result in the same affect on forest health. Under these alternatives, no actions would be undertaken and forest health and composition would continue to trend toward more decadence and heavier fuel loadings, until affected by wildland fire. Wildland fire would spread over the forested portions of the Wild Horse Range. Rugged terrain, high fuel densities, and the predicted fire behavior make suppression difficult and wildland fire would likely spill onto adjacent lands. Forest loss could be severe and dry moisture/soil conditions would retard or limit regeneration of burned forested areas.

Alternative B – Proposed Action

Under this alternative, prescribed fire would be used to manage for forest health and to provide for vegetation diversity, both in composition and structure. The use of prescribed fire would be based on providing the best benefit to natural resources and strategically placed to limit the spread of wildland fire. Proper placement would reduce the potential for a severe stand replacing event. Strategically placed prescribed fire would allow wildland fire to play a more of a natural role and function in the ecosystem. Historically, naturally occurring wildland fire maintained diversity in the forest, promoted vigor, and improved forest health.

Cumulative

Timber Management for commercial purposes within PMWHR is possible in the future, but not reasonably foreseeable. Direct Timber Management within and adjacent to the PMWHR is not likely to have any cumulative impacts conversely under alternatives A and C timbered areas would continue to degrade due to beetle infestations and overcrowding of stands. The potential cumulative effect of Alternatives A and C would be changes in the species composition and complete stand replacement from a high intensity wild fire event. Post and pole cutting within and adjacent to the PMWHR is not likely to contribute to cumulative impacts. Timber

management on USFS outside of PMWHR is ongoing and should have cumulative effect on timber within the PMWHR.

3.4.8 Prescribed Fire

Photo 25 - RedWaffle Fire 2002

3.4.8.1 Affected Environment

Historic wildland fire occurrence has been documented in a preliminary study: *Fire History Study: Pryor Mountain Wild Horse Range, Eastern Montana, Prescott College, Paul Sneed & Mark Winterowd, March 2006.* This study, while not extensive enough to develop a picture of wildland fire history over the entire Pryor Mountains, gives insight into the historic role of fire in the Pryor Mountain Horse Range ecosystem.

This study characterizes the high altitude subalpine fir habitat types as functioning within a normal range of variability exhibiting a low frequency, high severity fire regime. The douglas fir stands indicate a moderately frequent, mixed fire regime. Limber pine stands are characterized as having a frequent, low intensity fire regime. The Mean Fire Intervals (MFI) were determined to be 7 to 17 years as subdivided between pre-1900 and post-1900. Fire scar study (Snead & Winterwood, 2006, p 58) indicates that most wildland fires in the post-1900 era, occurred before 1957, suggesting that most surface fires after this date were probably quickly and effectively suppressed."

Photo 26 - Ladder fuels

The mid to upper level of Douglas fir/limber pine forested areas have developed a closed canopy, ladder fuels, dead and down material with interspersed bare rocky areas. Fire modeling and historical evidence indicates that wildland fires are of two types: slow spreading ground fire, and high intensity fast, moving crown fires. Recent experience (2002 Red Waffle Fire) demonstrated that existing forest conditions allow fast moving severe fires to occur in similar forested areas under hot dry summer conditions. The loss of habitat and affects to fisheries was substantial during this wildland fire.

In the study: *Fire History Study: Pryor Mountain Wild Horse Range, Eastern Montana, Prescott College, Paul Sneed & Mark Winterowd, March 2006*, 16 recommendations were made for the Pryor Mountain Wild Horse Range. Those recommendations include:

1. Reduce the threat of large crown fires, except in forest types where this is normal (e.g., subalpine high severity fire regimes).
2. Prioritize and strategically target treatment areas.
3. Develop site-specific reference conditions.
4. Implement incremental, multiple conservative interventions.
5. Utilize existing forest structure rather than reconstructed tree positions.
6. Restore forest ecosystem composition.
7. Retain trees of significant size or age (will vary with forest habitat type).
8. Consider demographic processes (retain some 20th cent. regeneration pulses).
9. Integrate process and structure (restore fire as a keystone process).
10. Control and avoid using exotic species in restoration.
11. Foster regional heterogeneity at all spatial scales.
12. Protect sensitive communities (e.g., riparian areas).
13. Assess cumulative effects of restoration work.
14. Protect from overgrazing where appropriate (to restore herbaceous understory in forest types with frequent, low severity fire regimes).
15. Establish monitoring and research programs.
16. Implement adaptive management.

3.4.8.2 Impacts

Assumptions for Analysis

The proposed action would allow the use of prescribed fire for forest health, wildlife and wild horse habitat enhancement. Subsequent site specific environmental analysis would be required before the use of prescribed fire. The analysis also assumes the lifespan of the HMAP is being developed for 5-10 years, and no major legislation will occur that would affect the use of prescribed fire within the PMWHR. The analysis assumes no major shift in climate outside of average variances would occur during the lifespan of the plan altering vegetation communities.

Much of the Pryor Mountain Horse Range is classified as a Wilderness Study Area (WSA). Under the current interpretations of the Non-Impairment Standards for Wilderness Study Areas, use of mechanized equipment to implement forest management strategies is not permitted.

Impact analysis assumes that fire is a natural agent in the ecosystem. Prescribed fire is an acceptable tool for vegetation management.

Alternative A – No Action and **Alternative C –Continuation of Existing Management**

Both Alternatives A and C have the same effect on wildland events. Under either alternative, wildland fire would be expected to exhibit a moderate frequency mixed fire regime, with substantial risk of severe fire occurring in the Big Coulee drainage, where insect damage, fuel accumulations, and slope conditions favor stand replacement fire. Wildland fire severity would compromise firefighter, public and wild horse safety, limiting suppression effectiveness. Wildland fire would impact the majority of the mid to upper elevations, significantly reducing forage for wildlife and wild horses for the short term. Favorable precipitation could increase forage availability as grasses and forbs colonize the areas that were deforested by fire. Forest regeneration would be slow influenced by fire intensity and precipitation.

Photos 27 and 28 - First Order Fire Effects RedWaffle 2002

Alternative B – Proposed Action

Prescribed fire would be used to reduce the loss of existing habitat types to wildland fire. Prescribed fire would increase the available forage for wild life and wild horses and increase available suitable big horn sheep habitat.

The use of prescribed fire would include the development of a prescribed fire prescription designed with regard to site characteristics and reproductive potential of the plants species on the site. Prescribed fire would be based on providing the best benefit to natural resources and strategically placed on the landscape to reduce the risk of stand replacement wildland fire and over the entire extent of the Wild Horse Range. Prescribed fire would set the stage for fire to return to a more natural function in the landscape. Returning a more natural historic type of fire to the ecosystem would reduce the loss of forested areas to a high intensity fire. Soil loss is inevitable when any type of fire occurs, however the loss of soil is expected to be significantly less due to prescribed fire than after a severe high intensity wildland fire. Low intensity managed fire would encourage diversity in forest structure and composition and reduce insect infestation. The use of prescribed fire is consistent with the 16 recommendations given in the: “Fire History

Study: Pryor Mountain Wild Horse Range, Eastern Montana," Prescott College, Paul Sneed & Mark Winterowd, March 2006, p. 59, described above.

Cumulative

It is reasonable foreseeable that revision could be made to the Billings BLM Field Office and Custer Forest Resource Management Plans. Depending upon on the decision, various actions could affect fire management within the PMWHR. Based on the impetus that the federal fire management agencies are placing on implementing the Federal Wildland Fire Policy, it is likely that these revisions would include vegetation management to decrease fuel loading, and consequently, decreased fire risk.

3.4.9 Wildlife

3.4.9.1 Affected Environment

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

Mountain lions are also observed on the PMWHR. Montana Fish, Wildlife, and Parks hunting quotas for mountain lions are frequently not achieved due to the rugged terrain that makes pursuit by either foot or horseback very difficult. Mountain lion hunters usually prefer more accessible terrain.

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

Neotropical migratory bird use is heaviest during spring and summer months. Nesting usually occurs in late May, June, and early July depending on elevation.

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

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

3.4.9.2 Impacts

Alternative A – No Action

Wildlife impacts would be short term disturbance and displacement during horse gather operations. Wildlife habitat would remain the same for lower and upper elevations for species requiring grass and forb forage and cover as ecological condition stabilizes. Cover and forage conditions may improve slightly in mid-elevation areas as vegetation composition and overall health are maintained.

Alternative B – Proposed Action

Wildlife impacts would be disturbance and short term displacement during horse gather operations. Wildlife habitat conditions would improve for species dependent on grass forage and cover for habitat such as some big game and birds. Habitat conditions for these species would remain static at lower and upper elevations with a slight improvement at mid-elevations. Wildlife species would definitely benefit from riparian habitat improvement by increases in cover, health, and abundance of herbaceous riparian habitats. Improved riparian conditions would benefit bats because they require open water sources for foraging and water. Prescribed fire would improve grass/forb production which would benefit grazing species and species dependent on grass/forb forage and cover. Bighorn sheep would also benefit from increase availability of open travel corridors and open habitat versus timbered habitat. Bighorn sheep, particularly ewes and lambs, prefer open habitat to avoid predators.

Alternative C – Continuation of Existing Management

Wildlife impacts would be the same as Alternative A. In addition, wildlife habitat conditions at lower and upper elevations would decline due to the decline in ecological condition. Wildlife habitat conditions would remain static at mid-elevations due to unchanged forage and cover conditions.

Cumulative

Deer and bighorn sheep have historically occupied areas within and adjacent to the PMWHR. Studies conducted in 1999 indicate conflict with dietary and spatial overlap between bighorn sheep and wild horses is minimal given current distribution and herd size. There is potential for a proposed bighorn sheep transplant in the reasonably foreseeable future near Red Pryor Mountain. This transplant would augment bighorn sheep already occurring in East Pryor and Crooked Creek areas. Under any alternative there is potential for dietary or spatial overlap of bighorn sheep and wild horses and competition for forage. There is more potential for this cumulative impact under Alternative C due to a higher number of wild horses and a limited amount of forage, especially near key use areas.

Proposed actions would result in minor disturbance or displacement impacts on riparian zones in the project area. Projects are not proposed in streams with a fishery and direct impacts on fish resources from this project are expected to be negligible or nonexistent. The effects of the

projects would not extend to downstream waters, therefore there would not be a potential for significant cumulative effects on fishery resources.

Monitoring of wild horse populations and habitat use will continue to ensure that unacceptable adverse affects are not occurring to the bighorn sheep and deer populations from wild horse use.

3.4.10 Threatened and Endangered Animal Species

Timbered areas within the National Forest boundary in the Pryor Mountains are designated as unoccupied Canada lynx habitat. The Pryor Mountains are not within designated or proposed lynx critical habitat. There are no known T&E species or their habitat in the Pryor Mountains. Recently, the peregrine falcon has been delisted from T&E species status.

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

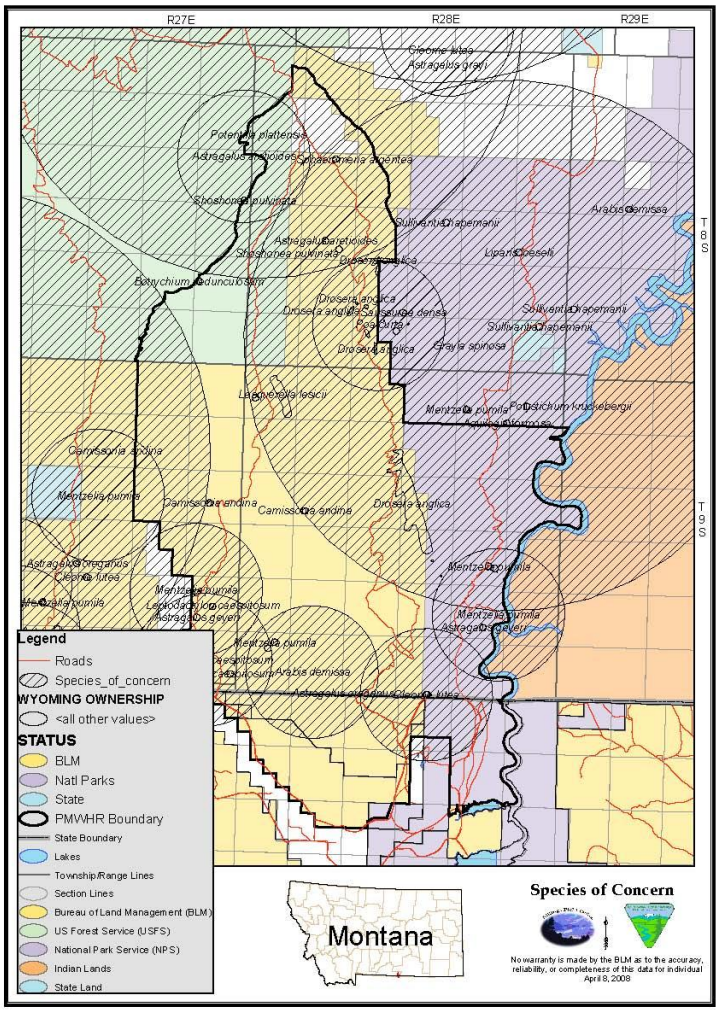
Resource decisions from this project, in combination with other past, present, and reasonably foreseeable actions to produce cumulative impacts to threatened, endangered, or sensitive wildlife species are not likely to result in any direct, indirect, or cumulative impacts to Threatened, Endangered, or Sensitive Species.

3.4.11 Special Status Plant Species

3.4.11.1 Affected Environment

There are fifteen special status species plants (see map 10 and Appendix V) known to occur in the PMWHR. All are categorized as Bureau Sensitive species and one as both BLM and F.S. sensitive (Shoshonea). There are no known or suspected federally listed plant species in the horse range. The majority of the species are found in the Pryor Mountain foothills with only five of the species occurring in the higher elevations of the horse range.

Map 10: Plant Species of Concern



Information from the Montana Natural Heritage Program identifies potential threat from wild horses for three of the species, sweetwater milkvetch (*Astragalus aretioides*), spiny hopsage (*Grayia spinosa*), and Lesica's bladderpod (*Lesquerella lesicii*). (MNHP, 2006). Lesica (1993) indicated wild horses as a potential threat to Shoshenea (Shoshonea pulvinata). Information on Shoshonea from 1999 Trend Report for BLM (Heidel, 2001) indicated there was sufficient data or observations to support or refute impacts occurring from wild horses. No direct evidence of grazing was observed. The study documents the relative stability of the species in a range of settings on two transects in the PMWHR.

3.4.11.2 Impacts

Alternative A – No Action

Under the existing herd management plan there is no management identified to address conflicts with special status plants. Conflicts that have been identified would continue. Wild horse trails through population sites have been identified for sweetwater milkvetch and Lesica's bladderpod, and winter grazing of spiny hopsage has been observed.

Alternative B – Proposed Action

Under the proposed action, horse distribution would be improved and ecological condition is expected to improve which will reduce adverse impacts to the special status plants. Improved ecological condition will reduce grazing of the spiny hopsage and distribution changes should reduce the trailing conflicts.

Alternative C – Continuation of Existing Management

Existing conflicts from trailing and grazing would continue at the existing level or increase under the current situation. Declining ecological conditions would be expected to cause an increase in grazing pressure on the spiny hopsage.

Cumulative

Implementation of any of the alternatives considered in this Environmental Assessment would not be expected to contribute to significant cumulative effects on sensitive plant species or result in leading to threatened status.

Identified sensitive plant species within the project area inhabit sites that have experienced little activity in the past, whether the activity is logging, mining, grazing, recreation, prescribed burning and other activities. Bighorn sheep transplant might occur in the reasonably foreseeable future but impacts are generally well distributed, minimizing jeopardy to populations.

Other activities affecting sensitive plants include ongoing livestock grazing on several allotments within the cumulative impact analysis area. Additionally, ongoing and planned prescribed fires could impact sensitive plants. These impacts should not be significant due to the types of habitats in which sensitive plants are located these areas would not be affected to a great degree by the project activities. The distribution of these plants is known and mitigating measures are in place as well as management direction for their protection. Ongoing range use by livestock and wild horse use has the greatest likelihood of cumulative impacts on any sensitive plant resource growing near water sources. Ongoing recreational use such as hunting, wood cutting and camping would not have any cumulative effects on sensitive plants.

3.4.12 Riparian

3.4.12.1 Affected Environment

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

3.4.12.2 Impacts

Alternative A – No Action

Under the existing herd management plan there is no specific management identified to address conflicts with riparian areas. Little Sykes Spring would continue to be protected and Crooked Creek would most likely continue to be in properly functioning condition. Cottonwood Spring would continue to be impacted by wild horse use and the Seep off of Bad Pass would continue in the current condition with perhaps some slight recovery due to wild horse numbers managed at 95. Layout Creek and Crooked Creek Bay would continue to be utilized the same as they are now with perhaps fewer animals.

Alternative B – Proposed Action

Under the proposed action, horse distribution would be improved and ecological condition is expected to improve which will reduce adverse impacts Cottonwood Spring, and reduce pressure on all riparian areas. Riparian areas would be protected from excessive wild horse use while at the same time providing water for their use.

Alternative C – Continuation of Existing Management

Under this alternative; riparian areas would continue to be impacted as described in the affected environment.

Cumulative

See discussion of impacts under the Rangeland Health/Vegetation/Soils section.

3.4.13 Conformance with Public Land Laws, Regulations, Policy, and Land Use Plans

In consideration of the past, present, and reasonably foreseeable future actions, Alternative A would be in partial conformance with the 1971 Act within the PMWHR by stabilizing the health of most of the rangelands only in the PMWHR, but not necessarily outside of the PMWHR, and increasing individual wild horse health, but not necessarily the population as a whole.

Alternative A would not be conforming to land use plans to manage horses within their designated range and territory since wild horses would also likely occur outside the PMWHR.

Alternative B, would be in conformance with public land laws, regulations, policy, and land use plans, as well as increasing the health of rangelands (both in and out of the PMWHR) and individual and population wide wild horse health. While the overall number of wild horses would be reduced from the current populations, the remaining wild horses would be managed at a population level that is appropriate for the productivity of the habitat, for greater genetic exchange while maintaining all mandates and multiple-use relationships.

Alternative C would not be in conformance with public land laws, regulations, policy, and land use plans since wild horses would not be confined to the PMWHR and would likely lead to deteriorating rangeland, both in an out of the PMWHR. Wild horse health would be expected to decline as over grazing of their habitat continues and fewer animals are doing the majority of the breeding (especially stallions).

3.5 Mitigation Measures

Mitigation measures for the proposed action would be incorporated as part of the Pryor Mountain Wild Horse Range Herd Management Area Plan.

Augmentation: Only mares would be used for augmentation **if needed**. Untitled Pryor horses would be sought first; then only if unavailable mares from similar genetic stock of other wild horse herds would be utilized.

Cultural: All projects would be inventoried for cultural resources by an archaeologist. Adverse effects to cultural resources would be avoided, reduced or mitigated.

Special Status Species: All projects would be cleared for the presence of special status species to prevent adverse impacts. This includes assessing the project area for the presence of special status plants in immediate vicinity of proposed projects as well as analyzing changes to trailing activities that projects might cause.

Water: Water sources that the agencies have direct control could be used to control wild horse use in specific areas.

Fences: All new fences would be flagged for at least one year after construction and monitored for possible wild horse conflicts. All fences around guzzlers would be built with an escape or "finger gate" to allow animals that may get in the enclosures to have a means of escaping. Existing enclosures would be retrofitted with finger gates or removed if deemed no longer necessary for study purposes. Guzzlers developed in WSAs would use buck and rail or jack leg fence.

Guzzlers within WSA's: Removal of a guzzler would occur: 1. If the development leads to uncontrollable noxious weed infestation 2. Excessive trampling trail development in adjacent rangelands: 3. after installation it is determined to result in non-conformance with the interim Management Plan for Lands Under Wilderness Review.

Mineral Supplements: No mineral supplements would be placed on bare ground, within known sensitive plant populations, or adjacent to live water sources.

Supplemental Seeding: All seed would be tested for purity prior to dispersion onto the range.

3.6 Monitoring

All monitoring identified under the proposed action would be conducted and recorded in the maintenance log as completed. If within the life of the plan, the affected environment changes, revision to the plan may be warranted. The type of foreseeable actions that could dictate a revision would include the following but not necessarily be limited to what is identified or in the order listed:

- Legislative Actions including but not limited to allowing for expansion of the wild horse range, land tenure changes, laws, etc.
- Additional private lands become available for wild horse use
- Changes in the current land use plans
- Full implementation of the Herd Management Area Plan
- Shift in use patterns of wild horses
- Overall change in the natural environment that prohibits implementation of the plan

3.7 Opportunities

Although not part of this analysis, the following longer-term opportunities would also help serve management needs for the Pryor Mountain Wild Horse Range. They include: 1) working with the landowner of Krueger pond for opportunities to rehabilitate the area around the pond and potential agreement for piping of water; 2) seeding the Administrative Pasture and Turkey Flat if these locations are released from wilderness study by Congress; 3) consider adding BLM Administrative Pasture and Crooked Creek Natural Area (within 1971 Herd Area) to the range during the land use planning process; and 4) pursuing acquisition of other state or private land (long-term lease or purchase).

4.0 CONSULTATION AND COORDINATION

4.1 Persons, Groups, and Agencies Consulted

November 2007 the Draft Pryor Mountain Wild Horse Range Evaluation was made available to the public. The public was invited any additional data information or analysis that they may have.

January 2008, the BLM mailed out notices asking people to respond by February 1, 2008 regarding their desire to be included in the annual Montana wild horse and burro mailing list for participation in wild horse management activities. A lack of response did not preclude any interested party from being added at a later date. Interested parties are added throughout the year per request.

February 2008, The Pryor Mountain Wild Horse Range Evaluation was finalized.

June 2008, The Pryor Mountain Wild Horse Range Draft Herd Management Area Plan and Preliminary Environmental Assessment were issued for public comment and review. The BLM received letters, e-mails, phone calls, one appeal and a petition not to euthanize wild horses. 37 individual letters were received that entailed individual substantive comments on the Pryor Mountain Wild Horse Range Draft Herd Management Area Plan. Several parties provided the Cloud Foundations talking points.

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

Comment 1: Work to expand the legal wild horse range boundaries to include the historic use areas in the Custer National Forest. This will allow for a truly viable herd of 200-300 mustangs. ***The Cloud Foundation talking points, Julianne French***

Response to Comment 1: Please refer to issues not studied in detail of this document (EA, 1.8 and EA 4.1) response to comment #6. This section already addressed the issue.

Comment 2: Keep the population at a viable number of at least 150 adults until range expansion is achieved. This will allow for the preservation of the rare Spanish genetics of the herd. Bringing in horses from other herds is ill advised, unnecessary and costly. ***The Cloud Foundation talking points, Julianne French***

Response to Comment 2: Please refer to issues studied in detail of this document. This section already addressed the issue. BLM is not aware of legal precedence to manage outside of an AML based solely on genetic viability. Managing in excess of AML is not consistent with the 1971 Act which directs that management should ensure a thriving natural ecological balance.

There has been no information provided to the BLM directly from expert equine geneticists or studies provide that have been conducted by expert equine geneticists that identify 150 adults (wild horses) as ensuring genetic diversity. Further, the BLM is not aware of the Cloud Foundation being recognized expert equine geneticists. The current AML for the PMWHR is established at 95 plus or minus 10%. BLM is concerned about inbreeding depression and the health of a small isolated herd, but is not aware of any absolute scientific agreement on what constitutes a minimum viable population. As always, BLM is asking for any additional data, analysis or information. However BLM cannot consider second or third hand information or supposition about Dr. Gus Cothran's expert opinion; rather BLM needs direct information developed, produced or authored by or directly from Dr. Cothran in order to be able to consider it in formulating management decisions. BLM has a Wild Horse and Burro Advisory Board that is comprised of individuals with special knowledge pertaining to public land management of wild horses. Please refer to the mitigating measures section it clearly states what the criteria for introduction of animals would be. Not that it would absolutely happen.

Comment 3: Work to protect the mountain lions that have kept the herd at zero population growth in years past. This is natural management and should be the goal. ***The Cloud Foundation talking points, Julianne French***

Response to Comment 3: The Wild and Free Roaming Horse and Burro Act (PL92-195 section 1333(a)) states "The Secretary shall manage wild free-roaming horses and burros in a manner designed to achieve and maintain a thriving natural ecological balance on the public lands." Appropriate Management Level is supposed to be maintained in order to meet congresses mandate. Regardless of how the population is managed either through natural means, removal or fertility control BLM and Forest Service would be remiss not to manage for AML. Further, BLM and Forest Service have no jurisdiction over wildlife; therefore mountain lion management is outside our authorities. Please refer to the proposed action Natural means is part of the proposal.

Comment 4: Avoid manipulating the population to favor males 60-40% over females. This ratio would increase stallion competition for mares, putting more stress on all horses. ***The Cloud Foundation talking points, Julianne French***

Response to Comment 4: Please refer to the proposed action under Genetic/Animal Health. This clearly states: "Maintain a sex ratio of at least 50 percent stallions to mares and no more than 60 percent stallions to mares in any one year. A slightly higher level of stallions ensures that a higher level of genetic exchange occurs."

Comment 5: Stop field darting mares with infertility drugs that have resulted in abcesses and out-of-season births on the Pryors. ***The Cloud Foundation talking points, Julianne French***

Response to Comment 5: Field darting is not identified in the proposed action, but the use of fertility control is part of the proposed action.

Comment 6: Don't rebuild the north boundary fence … allow expansion. ***The Cloud Foundation, Pryor Mountain Wild Mustang Center, John T Nickle, Julianne French***

Response to Comment 6: As outlined in Issues Not Studied in Detail section of this document (EA, 1.8) expansion, outside of the herd area and territory outlined in land use plans, including the 1984 and 1987 land use decisions, is beyond the scope of the analysis and purpose and need. Wild horses can only be managed on areas of public lands where they were known to exist in 1971, at the time of the passage of the Act (herd areas and territories). Boundaries of herd areas and territories, where wild horses will be managed, consistent with statutory and regulatory language, were identified in land use plans including the 1984 Resource Management Plan and 1987 Forest Plan. These land use planning processes look at a broader-scaled analysis than the HMAP analysis. As with the HMAP analysis, land use planning processes incorporates concepts and principles of sustainable natural resource stewardship and use of best available scientific knowledge for management choices, but land use planning considers multiple use management objectives and direction across the planning area with a broad array of interested citizens, other public servants, and governmental and private entities. Range expansion onto other National Forest System lands raises issues regarding conflicts with other Forest Plan management areas, including potential conflicts to the ecological integrity of the Lost Water Canyon Research Natural Area (Management Area L) and Lost Water Canyon Recommended Wilderness (Management Areas H) (EA, 3.4.2.2), and wild horse competition for forage with permitted livestock in the nearby Crooked Creek Allotment (Management Area B) (EA, 3.4.2.2). Land use plan changes, including changes to management areas and their goals and objectives, would greatly expand this proposal beyond the scope of the analysis and purpose and need.

Wild horses can only be managed on areas of public lands where they were known to exist in 1971, at the time of the passage of the Act which is described and mapped by the BLM and Forest Service as herd areas and territories, respectively. Under section 1339 "Limitation of authority" the Wild Free-Roaming Horses and Burros Act of 1971 states *"Nothing in this Act shall be construed to authorize the Secretary to relocate wild free-roaming horses or burros to areas of the public lands where they do not presently exist".* Until a change in the law allows for expansion of the horse range onto additional Forest Service and BLM lands that are outside of the Herd Area and Territory, the agencies have a legal obligation to follow the law to the greatest extent possible. If opportunities for private land purchase or lease present themselves, the agencies would consider them, especially if they involve winter range. Winter range is recognized by both agencies as being the limiting factor for overall population size.

Although expansion is outside the scope of the analysis, the following provides background relative to the reasoned approach used during the time of the 1971 Act to determine the BLM herd area and Forest Service Territory.

The legislative history of the 1971 Act depicted a variety of opinions on how territories/herd areas should be established. They include 1) Designate based on where Secretaries deem animals are worthy of protection or where capable of protection; 2) Designate a minimum number of ranges with ability to use lands outside of inhabited areas: 3) Designate a minimum number of ranges only within inhabited areas; 4) Designate ranges with ability to use most desirable lands or case-by-case basis; and 5) Designate where horses are presently found (House

of Representatives Hearings, 1971). As a result of the testimony and discussions during the hearings, the 1971 Act and subsequent regulations, directs that the Secretaries consider wild horses "where presently found" at the time of the passage of the Act.

The 1974 joint BLM and USFS assessment and land use decision, which originally determined where horses were to be managed per the 1971 Act, was based on public involvement (BLM/USFS, 1974), comprehensive inventories and recommendations from agency specialists (Hall, 1972 and BLM/USFS, 1974). Hall's 1971/1972 assessment was prepared for the BLM/Forest Service joint land use planning process (Hall, 1972, URA Step 4, I. B.7. and preamble) and determined where wild horses were specifically found at the time of the passage of the 1971 Act (Hall, 1972, URA Step 3, III; B.11.a-h.; URA Step 4, I. A.; I.B.1-4.; and Appendix #8 Map Hall report). The 1974 joint decision determined that wild horses were to be managed not only within the 1968/1969 Refuge area, but also Hall's recommended Lost Water Canyon area (Forest Plan Management Area Q), the Mystic Allotment area, Lower Crooked Creek and Upper Crooked Creek areas (BLM). In each of these areas, Hall specifically identified the number of horses, their location, and the season of year (summer/winter) in which they were observed, and locations were mapped (Hall, 1972, URA Step 3, III; B.11.a-h.; URA Step 4, I. A.; I.B.1-4.; and Appendix #8 Map Hall report). Subsequent agency land use planning, public involvement and resulting decisions (BLM, 1984 and USFS, 1987) reaffirmed the same BLM herd area and Forest Service territory boundaries as originally assessed and outlined in 1974.

Hall's comprehensive study of wild horses on BLM, Forest Service, and National Park Service lands in the Pryor Mountains was conducted during the time of the 1971 Act and was a reasoned approach for determining where horses occurred at the time of the passage of the Act. Wildlife biologist Ron Hall conducted the study. He worked for the BLM Billings Field Office from 1968 through 1973. The 1972 Hall assessment was based on one year of observations of distribution and behavior (Hall, 1972, Abstract) and was able to provide seasonal use information (i.e., summer/winter use). One of the objectives was to determine wild horse distribution pursuant to the 1971 Act (Hall, 1972, URA Step 4, I. A.). Distribution was recorded and certain bands were identified for specific distribution and determination of home ranges. Four-wheel drive vehicles, snowmobiles, and saddle horses were used with the aid of a spotting scope. In addition, a fixed wing aircraft was used regularly and a helicopter was used occasionally (Hall, 1972, Step 3. IV. A.) Census inventories were conducted at different times of the year, different times of the day, and with different observers (Hall, 1972, URA Step 3, III.B.12.).

The 117 page comprehensive assessment addressed history and uses of the study area; vegetation and soil conditions, trends and potential; water sources; infrastructure (fences, corrals, watering facilities, roads), recreation, mining, wildlife, archeology, and livestock; influences of past decisions; and November 1971 roundup methods. Additional emphasis was placed on biology of wild horses (breeding, age class, sex ratios, physical stature, stud piles, ancestry, behavior, stud groups, harem organization, instincts, food habits, home ranges, distribution of horses by each season, and population counts - Hall, 1972, URA Step 3, III; B.10-11 and Appendices #4 and #13 Maps Hall report); capabilities and opportunities for development for wild horses (potential habitat expansion per the 1971 Act (Hall, 1972, URA Step 3, III; B.11.a-h; URA Step 4, I. B.1-4

and Appendix #8 Map Hall report), land trade opportunities, influence of people on wild horse behavior); and management opportunities (population management and enhancement, carrying capacity, type of animal for removals, physical appearance, sex ratios, methods of reduction, disposal of animals, distribution of grazing pressure, introduction of new blood; Advisory Committee Recommendations, and future possibilities).

Relative to the North boundary and Forest Service Territory determination, Hall indicated that 8 head wintered and 5 head summered in "Lost Water Canyon" area on National Forest System lands beyond the 1968 wild horse refuge boundary (Hall, 1972, URA Step 3, III; B.11.h; URA Step 4, I. B.2. and Appendix #8 Map). Areas outside of the 1971 Territory were not identified as having been used in 1971. The 1975 Forest Service Wild Horse Territory Report for Montana (in which the Pryor Mountain territory is the only FS Territory in MT) indicated 5+ head estimate on NFS lands in November 1971, and 8 head inventoried during both 1974 and 1975. This coincides with Hall's observations and indicates a very small variance in census during the time and close to the passage of the Act.

Fences influenced wild horse distribution at the time of the 1971 Act. According to extensive research2 (Brownell, 1999 pp. 36-37) on horse distribution in the Pryor Mountains preceding the creation of the wild horse range, a boundary fence between Forest Service and BLM was constructed during the 1940s, and horse distribution ended up on public domain rangelands to the south, east and west of the National Forest System lands. By 1968, when the Pryor Mountain Wild Horse Refuge was established by Secretarial Order, most horses were concentrated on lands east and southeast of National Forest System lands (Brownell, 1999). Feist testified at the 1971 House hearings that he "lived with and studied" the Pryor herd for his master's thesis between May 1 and November 1, 1970 and stated that fences were completely around the 1968 Refuge (House of Representative Hearings, 1971 pp. 161, 170). Hall's 1972 comprehensive assessment also referenced the boundary fence (between BLM and Forest Service) that largely suppressed horse distribution to lands east and southeast of National Forest System lands (Hall, 1972, URA Hall, 1972, URA Step 3, III; B.11.h).

Water also influences wild horse distribution (Hall, 1972, URA Step 3, 2.B.4.). Hall indicates that the NFS Lost Water area was limited by water and if it were to be used as summer range, it would need a watering facility constructed somewhere in Section 25, T. 8 S., R. 27 E., preferably in the NE ¼. (Hall, 1972, URA Step 4, I. B.2). This corresponds with the southernmost portion of Forest Service Territory (located at about the 6000 foot level).

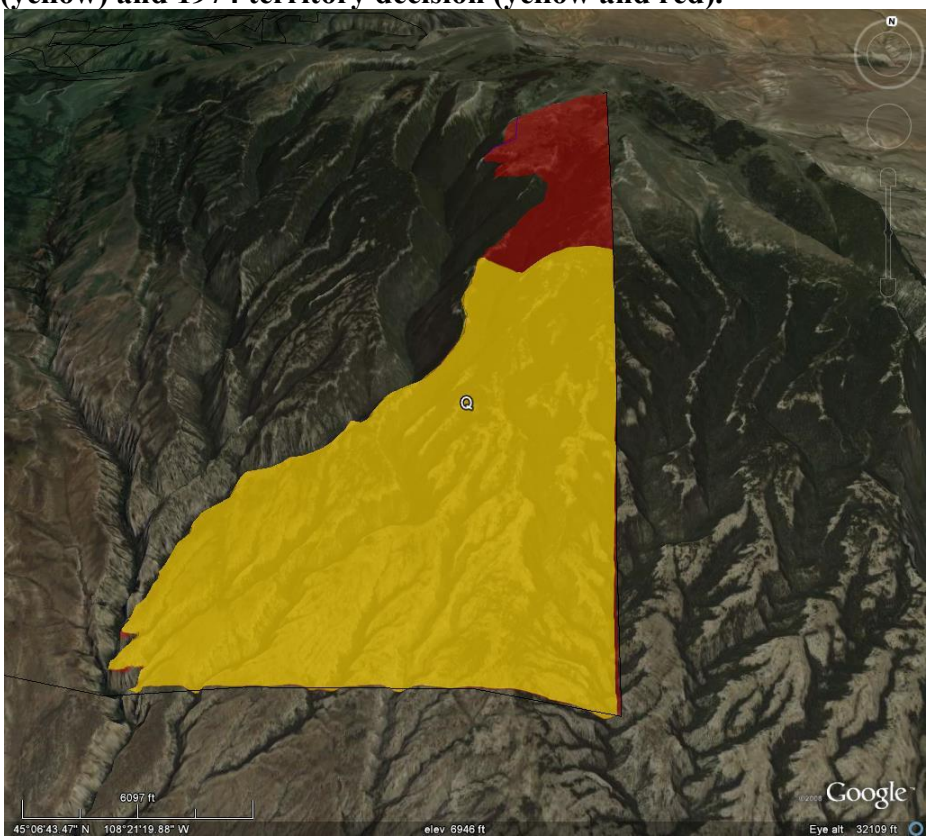
During a September 27-29, 1971 meeting, the Special Advisory Committee, for the 1968 PMWHR, recommended that the BLM explore the possibility of expanding the horse range to include areas where some horse use was distributed -- the Sorensen Allotment (State Section 36),

2 Brownell's study on *Horse Distribution in the Pryor Mountains Region Preceding the Creation of the Pryor Mountain Wild Horse Range* (1999) was based on materials reviewed at numerous repositories. This included materials at the National Archives in Washington, D.C., Rocky Mountain Region, Denver, Colorado and Pacific-Alaska Region, Seattle, Washington. Montana repositories visited included the Montana Historical Society Library and Archives, Helena, Montana; the Burton K. Wheeler Archives, Montana State university-Bozeman, Bozeman, Montana; the Montana State University-Billings Library and Special Collections, Billings, Montana; Rocky Mountain College, Billings, Montana, and the Parmly Billings Library, Billings, Montana. In Red Lodge, Montana, materials at the Carbon County Historical Society Archives, the Carbon County Courthouse and the Beartooth Ranger District office of the Custer National Forest were reviewed. Materials at the Supervisor Office of the Custer National Forest were also investigated. In Wyoming, the Bighorn Canyon Recreation Area and the Lovell Public Libraries were visited.

1,000 acres of usable range in the National Forest Lost Water area (the southern portion of current Territory - Forest Plan Management Area Q) and the Tillett-Sykes Spring land (Hall, 1972, Appendix 15 *Report of the PMWH Advisory Committee Meeting of Sept. 27-29, 1971, to the Director of the BLM*). This indicates that the local advisory committee near the time of the 1971 Act identified areas to include as part of the wild horse range. Areas outside of the 1971 Territory were not identified.

The Pryor Mountain wild horse herd had been highly scrutinized and studied during the previous year's leading to the 1971 Act. The 1968 Refuge was the first of two in the nation at the time and was the subject by many of those testifying at the 1971 House of Representatives wild horse hearings leading to the December 1971 Act. Based on this, Pryor Mountain wild horse management, studies, and observations were not new to the Pryor Mountain agency experts by the time the 1971 Act was passed.

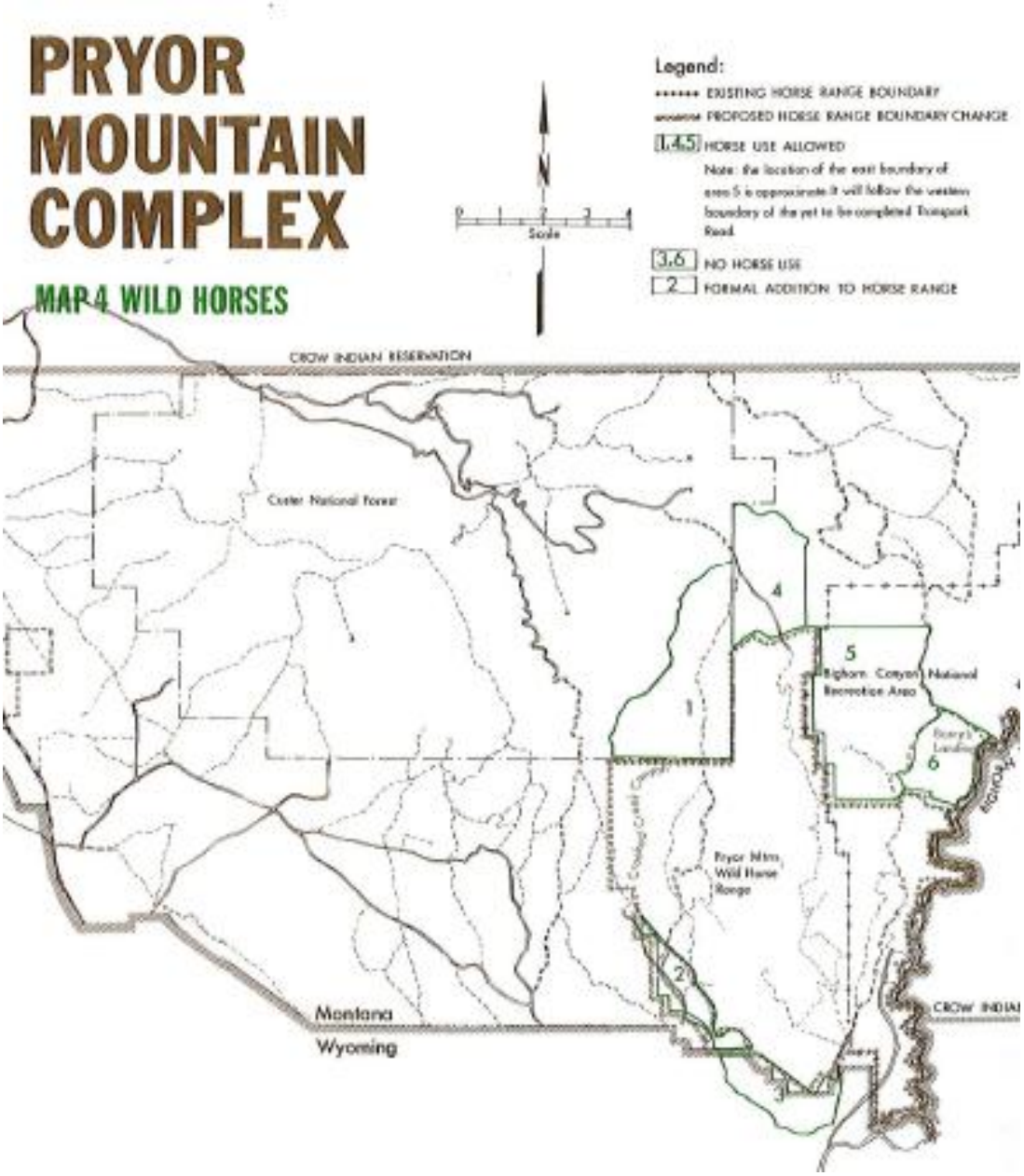
Map 11. Forest Service Territory – 1971/1972 Recommended USFS wild horse area (yellow) and 1974 territory decision (yellow and red).



Yellow indicates NFS lands recommended by Hall (1972) pursuant to the 1971 Act and Wild Horse Advisory Committee (1971) for addition to the 1968/1969 Refuge.

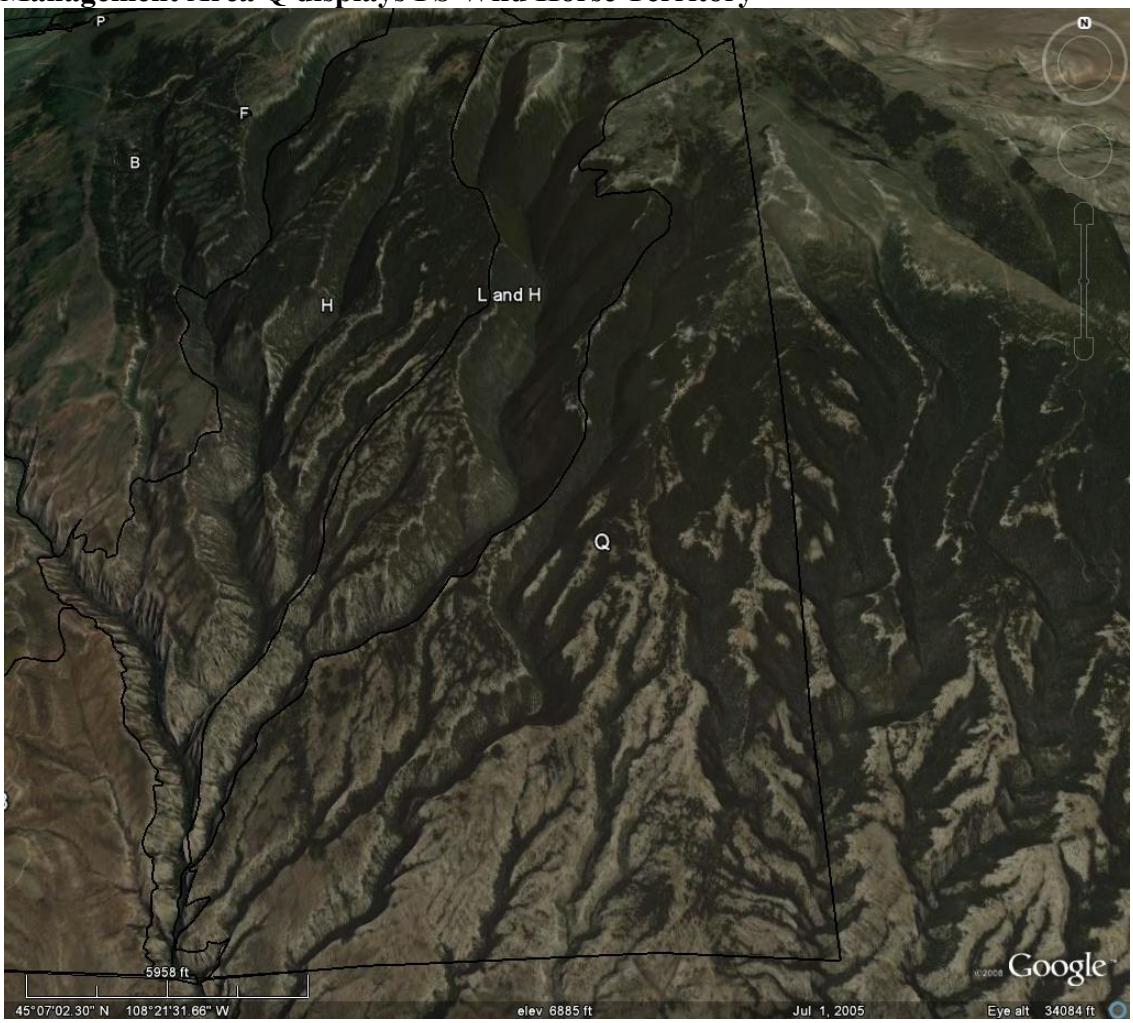
Red and Yellow. Red indicates lands incorporated into Hall's recommendation to accommodate logical placement of a boundary fence (utilizing topographic features and minimizing costs and maintenance) tying in with Hall's recommended Area 4-Mystic Allotment. Both yellow and red indicate NFS lands outlined in 1974 Interagency Decisions for the Pryor Mountains as lands where wild horses were to be managed on NFS lands. This area corresponds with the 1986 Forest Plan decision for Wild Horse Territory Management Area Q.

Map 12 - 1974 Interagency Land Use Plan Decision – Area 1 displays FS Wild Horse Territory



*Note – the above areas correspond to areas recommended by Hall in 1972 as having horses at the time of the passage of the Act. However, the numbers in the map units above are not the same numbers used in Hall's report.

Map 13 - 1987 Custer Forest Plan Decision –
Management Area Q displays FS Wild Horse Territory



The above discussion indicates that the agencies took a reasoned and documented approach in determining the herd area and territory at the time of the passage of the Act. The 1974 decision was legitimately supported by the record and corresponds with the purposes of the 1971 Act. Surveys, methods, mapping, and scientific / technical judgments were within the scope of agency expertise and conducted at the time of the Act. Other information presented above supports Hall's information as well. In addition, all three land use planning assessments conducted since the 1971 Act was enacted included public involvement and appeal opportunities (BLM/USFS, 1974; BLM, 1984; and USFS, 1987). The 1984 and 1987 land use plans reaffirmed the herd area and territory (Management Area Q) delineation, as determined in 1974 with the use of Hall's 1972 recommendations.

Some commenter's submitted anecdotal information relative to wild horse occurrence outside the Territory on NFS lands around the 1971 time period. Although expansion is outside the scope of the project, information submitted was reviewed. Some commenter's stated, through personal knowledge and/or other generational knowledge, that there were scattered numbers of wild horses on the Pryor Mountain Forest Service lands, including East Pryor, Big Pryor, Red Pryor,

Commissary Ridge, Tony Island, and Dryhead Overlook areas in history. By 1968 when the original refuge was ordered wild horses were largely suppressed to "Refuge" lands delineated by the 1968 Secretarial Order (Brownell, 1999).

Per the 1971 Act, the Forest Service was to consider wild horse territory on NFS lands which were habitat of wild free-roaming horses at the time of the passage of the Act (PL 95-195 and 36 CFR 222.20 (b) (15). Both BLM and FS interpret this to mean where horses geographically occurred in 1971, at the time of the passage of the Act. This does not mean lands used historically previous to 1971.

Information asserting where horses occurred in 1971 was provided during the comment period. Caution has to be used with anecdotal information as it can be unreliable for various reasons. Stories are prone to contamination by beliefs, later experiences, feedback, selective attention to details, etc. Many stories can get distorted in the telling and the retelling. Events can get exaggerated. Time sequences can get confused. Details can get confused. Memories are imperfect and can be selective. It is now about 38 years since the 1971 Act was enacted. In short, anecdotal information is inherently problematic and is usually difficult to impossible to test for accuracy. Anecdotal information is different than the in-depth review and documentation done at the time of the passage of the Act.

The documented comprehensive agency inventories during the time of the passage of the Act (Hall, 1972) provide a reasoned approach and give weight to evidence of where horses were found in 1971. Agency subject experts, at the time of the passage of the Act, conducted comprehensive inventories in which the Territory delineation was based (Hall, 1972, URA Step 3, III; B.11.h; URA Step 4, I. B.2. and Appendix #8 Map). The observations were documented and based on several ground and aerial inventories during the Hall 1971/1972 study. The information in this paragraph is incorporated by reference as part of the response to each of the following comments in this Response to Comment #6 section.

The Cloud Foundation submitted the following information for consideration relative to wild horse territory bounds. Given that the agencies considers herd areas and territories as lands where horses were in 1971, at the time of the passage of the Act, the following are responses to each Cloud Foundation comment.

> **Comment 6A**: *First-hand observations of Gail Tillett Goode (Exhibit 8—Tillett Goode letter), Hope Ryden (Exhibit 9—Ryden letter/photograph) Reverend Floyd Schweiger (Exhibit 10— Schweiger Video Interview May 23, 2005), Ferrill Mangus, Garrett Despain, John Nickle and others attest to the presence of horses west of the designated range in the Custer National Forest and BLM lands, during and after passage of the Wild Horse and Burro Act of 1971. Photographic evidence of horses in the FS around the 1971 date also exists. (Exhibit 9).*
>
> **Response**: *Exhibit 8* is a letter, dated in 2006, from Gail Tillett Good. Ms. Good comments that she observed wild horses in several places during 1969-1972 while riding the East and West Pryor Mountain foothills for a livestock permittee (grandfather in-law). Ms. Good describes having seen horses in 1971 "above the road at Demijohn Hollow and

in the bottom near Crooked Creek and Wyoming Creek confluence. The following week she describes seeing mustangs on Tie Camp Flat above the road at Tibbs Hollow. Ms. Good's comments appear to be made from memory from about 35 years since she wrote her 2006 letter and are considered anecdotal information. It is difficult to tell if this information is an accurate / reliable 35 year old memory. Memory can be so impressionable that one should be very cautious in claiming certainty about any given memory without corroborative evidence. Testing this information's reliability by objective independent assessment would be difficult, if not impossible.

Exhibit 9 displays a photographed horse. This information does not provide evidence of habitat use specifically in 1971, during the time of the Act. The exhibit asserted that the National Geographic stamped and dated June 1970 on the slide that was copied for Exhibit 9. Supposition is used as to whether the horse was in an undetermined area (in or out of the PMWHR) in 1970. There are areas within and outside of the PMWHR on Forest Service lands in which Big Pryor (mountain in the background of the submitted photo) can be viewed. For example, elevation range on the Tony Island ridge (outside the range) is between 7800 and 8200 feet while the elevation range on the west ridge within the Forest Service territory, overlooking Lost Water Canyon, ranges between 8000 and 8600 feet in which Big Pryor Mountain can be viewed from either location.

Exhibit 10 describes wild horses in various places in the Pryor Mountains in history. The question posed to Rev. Schwieger was *"in 1968 the range was created and in 1971 the Wild Horse and Burro Act was passed. During that period specifically, were the horses present atop the horse range proper and into the area known as Tony Island?"* His response was, *"they were always up there"*. This response does not substantiate where horses were specifically in 1971. It was a generalized statement. This is information passed along by memory and submitted about 38 years after the passage of the 1971 Act. There is no ability to test for verification under neutral conditions.

Comment 6B: *Hermann Krueger who addressed a group at the Pryor Mountain Complex Meeting in Red Lodge, MT on July 11, 1973 mentioned the presence of wild horses in the undesignated range. His statement from that meeting appears on page 21 of the May 23, 1974 Pryor Mountain Complex Land Use Decisions:* "Tony Island (on the Custer National Forest) was the principal hangout for range horses as there was water there, as well as grass. If any place could have been classed as prime horse range on Pryor Mountain that was it and that is where they were in number." *(Exhibit 11 page 21 Pryor Mountain Complex Land Use Decisions)*

Response: *Exhibit 11* does not provide evidence of habitat use specifically in 1971, during the time of the Act. It is a generalized statement about horse distribution in history.

Comment 6C: Big Pryor in the FS was also used by the wild horses as reported in David Harvey's history of the range: A General Historical Survey of the Pryor Mountains page 20. *"Jim Donley of Cowley used to round up horses during the forties and fifties on Big Pryor. . ."* (Exhibit 12 page 20 Harvey History 1974)

Response: *Exhibit 12* does not provide evidence of habitat use specifically in 1971, during the time of the Act. It is a generalized statement about horse distribution in history.

Comment 6D: Francis Singer, PhD in the Manager's Summary: Ecological Studies of the Pryor Mountain Wild Horse Range 1992-1997, p. 76) writes that *"the population was much larger prior to 1971 (n= 270 horses), although completion of the PMWHR boundary fence in 1970, which excluded 40 horses and a large winter kill and starvation losses (51%) in 1977-78 reduced the herd."* Note that 40 horses were outside the boundary fence in 1970 on the undesignated forest service lands. (Exhibit 13 Dr. Singer Ecology Study)

Response: *Exhibit 11* does not provide evidence of habitat use specifically in 1971, during the time of the Act. It is a generalized statement about horse distribution in history. The commenter has taken Singer's notation out of context. Singer was simply stating that adjustments to herd size, for a variety of reasons, had occurred between 1970 and 1986. In addition, NFS lands were already fenced off during this time period from previous administrative boundary fencing done in the 1940s. The fence being discussed was the completion of the 1968 Refuge fence.

The cited publication does not state the location or land ownership in which 40 head were excluded, nor does it address the ambiguity of some of the unknowns of what happened to the horses. For example, 30 head of branded horses were removed for claim by owners after the 1968 Refuge was designated (House of Representatives Hearings, 1971, pp. 51 and 152). According to Feist, 40 head were reported to have been fenced out during the summer of 1970 in the sourtheast corner of the Refuge along the national park boundary land and touched on the Tillett Ranch land (House of Representatives Hearings, 1971, p. 162). If these are the 40 horses that Singer mentions, they are not near Forest Service lands and the commenter has improperly used Singer's citation by claiming the 40 head were on National Forest.

Comment 6E: *Ron Hall, who conducted a 1971 survey of the area and compiled his data in Wild Horse Biology and Alternatives for Management, mentions on page 53 the presence of wild horses on Demi John Flat which could easily be used for an expanded wild horse range. He also mentions how this area could be used by the public to view the horses. We wholeheartedly agree. The Crooked Creek road does not require a four wheel drive vehicle and the "excellent forage conditions" Ron mentions as well as the scenic vistas would make this a popular viewing spot for the public and for the horses in an expanded range. Ron on page 54 mentions that "All of the Custer National Forest is also potential wild horse range."(Exhibit 14 pages 53-54 Hall report)*

Response: *Exhibit 14* does not provide evidence of habitat use specifically in 1971, during the time of the Act. The commenter is taking the information out of context. The commenter is referencing areas labeled by Hall's 1972 assessment as Areas 5 (Demijohn) and Area 7 (all Custer National Forest and other BLM lands) (Hall, 1972, URA Step 4,

I.B.5. and 7.). Area 5 was indicated as being used by horses in history, but that they were not known to be using the area during the time of the Act. Areas 5 was also not depicted in Appendix 8# map of areas for consideration under the Act. Area 7 states that "Wild horses can feasibly occupy any area within the joint planning unit" (all BLM/USFS lands in the Pryor Mountains) indicating areas with suitable habitat components. The narrative for Area 7 does not indicate wild horse use during the time of the Act. Are as 7 was also not depicted in Appendix 8# map of areas for consideration under the Act. Appendix #8 map did not include Areas 5-7. In comparison, each Area 1 through 4 correlated to Appendix #8 map potential expansion areas to be considered under the Act and further identified specific numbers of horses known to occur during the time of the passage of the Act, their location, season in which they were observed, acreage, and carrying capacity (Hall, 1972, URA Step 4, I.B.1-4. and Appendix #8).

Comment 6F: *Hall in an Email to Patricia Fazio in 2003 indicated that "Horse use was present on the old „Mystic Allotment' or Herman Kruger Allotment on the top of the mountain. The area over towards the Dryhead Overlook was not used much by horses but there was an occasional horse in these areas on top of the mountain." Ron does not say in which season the flights were made which could affect the number of horses he saw in this area. (Exhibit 15 Hall email)*

Response: *Exhibit 15* does not provide evidence of habitat use specifically in 1971, during the time of the Act. It is a generalized statement about Hall's observations that could have been any time during his BLM tenure between 1968 and 1973. Hall did not recognize Dryhead Overlook area as areas to be considered under the 1971 Act but he did recognize BLM Mystic Allotment Area which is part of the herd area (Hall, 1972, URA Step 4, I.B.1-7. and Appendix #8).

The Pryor Mountain Wild Mustang Center submitted the following information for consideration relative to wild horse territory bounds.

Comment 6G: *The photograph below is part of a series taken by Hope Ryden in June 1970. The series shows a small harem led by a black stallion. The series seems to have been taken somewhere west of Tony Island, which is well outside the current Pryor Mountain Wild Horse Range boundaries… The photograph below was taken in June 2008 from an area northwest of Tony Island. To achieve the photographic angle in the Hope Ryden photograph, it seems that one would need to be more southwest of where the June 2008 photograph was taken… Because this photographic evidence from 1970 does exist, this has raised the question of horses being present in the same area in 1971.*

Response. See response to *Exhibit 9* above. This information does not provide evidence of where horses occurred in 1971, during the time of the Act. Supposition is used as to whether a horse was in an undetermined area (in or out of the PMWHR) in 1970. There are areas within and outside of the PMWHR on Forest Service system lands in which Big Pryor (mountain in the background of the submitted photo) can be viewed. For example, elevation range on the Tony Island ridge (outside the range) is between 7800 and 8200 feet while the elevation range on the west ridge within the Forest Service territory,

overlooking Lost Water Canyon, ranges between 8000 and 8600 feet in which Big Pryor Mountain can be viewed from either location. The submitted 2008 photograph taken northwest of Tony Island is not a match to the 1970 photo.

Comment 7: BLM regulations and policy state that wild horses and burros shall be managed as viable, self-sustaining populations of healthy animals in balance with other multiple uses and the productive capacity of their habitat. CFR 4700-6. ***Animal Welfare Institute***

Response to Comment 7： **CFR**. 4700.0-6 Policy (a) states" Wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat. Nowhere is the term viable used.

Comment 8: AWI is dismayed by the BLM's careless attention to the issue of genetic viability. ***Animal Welfare Institute***

Response to Comment 8: Please refer to the issues section specifically the BLM and Forest Service limitations in determining an AML.

Comment 9: The EA/DHAMP does not offer scientific support for its herd characteristic objective. ***Animal Welfare Institute***

Response to Comment 9: Please refer to section 2.3 Alternative B-Proposed Action it clearly states "The wild horses on the PMWHR would also be managed for a phenotype animal reminiscent of a "Colonial Spanish Mustang"as described by "Sponenberg North American Colonial Spanish Horses." Sponenberg is recognized as the foremost scientific expert on Colonial Spanish Horses. In order to maintain the "Spanish Type" horse of the Pryors this is the best reference and scientific data to follow.

Comment 10: When the BLM insists on managing wild horses at such low population targets, it runs the risk of catastrophic die-off due to any number of natural factors. ***Animal Welfare Institute***

Response to Comment 10: Natural management is consistent with the Act. Further BLM does not have the authority to manage for a population beyond the capacity of the habitat please refer to issues section. A wild population's ability to withstand an environmental stochastic event is directly correlated to the condition of the habitat.

Comment 11: The EA/DHMAP must include a discussion of the current population of wild horses and burros in holding facilities and an assessment of short and long term holding facility space and costs at the projected time of any removals. ***Animal Welfare Institute***

Response to Comment 11: The HMAP is not a removal. Holding of animals is not part of this proposal; therefore this comment is out of scope of the analysis.

Comment 12: The BLM should review and analyze the PMWHR for inclusion on the National Register of Historic Places. ***Animal Welfare Institute***

Response to Comment 12: This comment is outside the scope of the analysis.

Comment 13: I am in favor of the proposed management outlined under "Alternative B." This is a forward-thinking proposal to assure the genetic integrity of the Pryor Mountain horses as a unique genetic resource. The "Population Management Objectives" all appear logical, and will assure success in the stated goal. These are succinct and easily understood, although a few will require resolute action in order to be successfully accomplished.

I am taking the liberty of including a score-sheet that I developed at the urging of Chuck Reed. He had a great idea in doing this, and it can be helpful to people in the Colonial Spanish type. ***D. Phillip Sponenberg, DVM, PHD Professor, Pathology and Genetics Virginia Tech***

Response to Comment 13: Thank you for your endorsement, the score-sheet is being incorporated as an additional appendix in the HMAP, the proposed action has been refined as well.

Comment 14: We are in favor of managing wild horse at AML. ***Foundation for North American Wild Sheep***

Response to Comment 14: Thank you for your comment.

Comment 15: The proposed plan has three fatal flaws. 1. It does not address animal health of the horses which is a major problem and continues to worsen. 2. Genetics and Genetic management, at best the plan is sketchy and vague with no solutions. 3. There is no attempt to resolve the nutritional deficiencies that exist within the wild horses. ***Martin R. Connell, D.V.M, C.A,C.***

Response to Comment 15: Under Genetic/Animal Health Section Objective it clearly states that the prevention of inbreeding depression is a stated goal as well as how the goal is to the measure through monitoring of the heterozygosity of the herd. This is also consistent with the Strategic Research Plan (BLM et al, 2005) The HMAP is designed to provide the necessary on-the-ground improvements to help make areas that lack water but have very good forage production more available for wild horses due to development of these water sources. Wild horses are "wild" and therefore nutritionally dependent on the forage that the range they live on provides. The comment submitted had no specifics about exactly what genetic management consideration need to be included in the plan or exact animal health and nutritional requirements are missing. BLM cannot adjust the plan without specific information or data.

Comment 16: Why is the plan calling for such a drastic reduction? ***Hilary Thomas, Nancy Drewes, Cynthia Smoot Weller, Michael Collie***

Response to Comment 16: Many people have been misinformed. The current appropriate management level (AML) is 95 plus or minus 10%. That means no more that 105 wild horses are legally supposed to be on the wild horse range under the existing HMAP 1992 amendment. The Draft HMAP identified that up to 120 wild horses could be sustained and therefore proposed change in the AML.

Comment 17: BLM has published no data supporting the assessment that the range is stressed to a level justifying this action. ***Michael Collie, TCF***

Response to Comment 17: BLM did present the summary and interpretation of the data in the PMWHR Evaluation. The evaluation summarized the data from 1995 through 2007 or 12 years worth of studies. The data sheets have always been available to the public and have been provided to interested public upon request.

Comment 18: Give a high priority to developing the new water catchments. ***John T. Nickle, Pryor mountain Wild Mustang Center***

Response to Comment 18: BLM, USFS, and NPS agree that developing new water sources is the key to the long term health of the horses and range as well as the potential to increase the AML in the future.

Comment 19: The 60 male 40 female ratio is better for overall herd genetics. ***John T. Nickle, Pryor mountain Wild Mustang Center***

Response to Comment 19: We agree a more even sex ratio and favoring stallions in any one year would encourage more genetic exchange.

Comment 20: A more realistic AML target should be 120-140. ***John T. Nickle, Pryor Mountain Wild Mustang Center***

Response to Comment 20: Thank you for your comment. The development of the AML is based upon a review and calculation utilizing all the data in order to avoid being arbitrary.

Comment 21: Any range expansion should be supported by the BLM. ***John T. Nickle***

Response to Comment 21: Thank you for your comment please refer to 3.7 opportunities.

Comment 22: Any removal should closely follow the recommendations sent in by the Pryor Mountain Wild Mustang Center. ***John T. Nickle***

Response to Comment 22: The HMAP is designed to identify criteria for removal as well as management of the horses and their habitat. Thus, the HMAP is not a gather plan.

Comment 23: We recommend no increase in the AML rather maintain the current AML of 85-105 wild horses due to the poor range conditions. ***Wyoming Game and Fish Department***

Response to Comment 23: Thank you for your comment. The development of the AML is based upon a review and calculation utilizing all the data in order to avoid being arbitrary.

Comment 24: We are in support of several aspects of the proposed action. ***Conservation Congress***

Response to Comment 24: Thank you for your comment.

Comment 25: We are not in support of the portion of the proposed action to reduce herd size through birth control and round ups. The BLM continually seeks to reduce the wild horse populations against the will of the majority of the public. We offer that livestock allotments could be eliminated and those lands used for wild horses: used to expand the range. ***Conservation Congress***

Response to Comment 25: BLM welcomes your opinion but the comment period is designed to help us identify other **legal** alternatives, refinement or flesh out errors in application of the law. Currently, BLM and Forest Service are prohibited from managing wild horses on public lands where they did not exist in 1971.

Comment 26: We can't support the proposed alternative in its entirety because it is so manipulative of the herd population. . ***Conservation Congress***

Response to Comment 26: The proposed action is designed to manage wild horses in a finite area while attempting to prevent inbreeding depression and meeting our congressional mandates for protection of the range and wild horses. BLM welcomes any other legal alternatives that can be provided.

Comment 27: The entire reason for the EA is an alleged overpopulation problem. It is certainly within the scope of the problem to consider range expansion. ***Conservation Congress***

Response to Comment 27: The development of the EA is not to address an overpopulation problem. AML has been established since 1992, and the AML is only one consideration in the HMAP. The EA clearly states what the purpose of the HMAP. The BLM and Forest can only manage wild horses where they were known to exist in 1971. These areas are known as Herd Areas. From Herd Areas, Herd Management Areas or Wild Horse Ranges are developed. These areas may be developed from all or portions of the Herd Area. These designations can only be done in Land Use Plan EIS level analysis. Thus an activity level plan is outside the scope of range expansion.

Comment 28: We are in support of limiting wild horses to the wild horse range, maintain the AML and reconstruction of the north boundary fence. ***Eastern Wildlands Chapter Montana Wilderness Association***

Response to Comment 28: Thank you for your comment.

Comment 29: Removals and contraception should be part of a ten year plan. It is a waste of energy and money to process a NEPA document each and every time removals or administrations of contraceptives have to be done. . ***Eastern Wildlands Chapter Montana Wilderness Association***

Response to Comment 29: Given current BLM direction, gathers require separate NEPA analysis tiered from an HMAP or Land Use Plan. Also, BLM direction is to utilize (when possible) the 22 month version of the PZP vaccine. This version of the vaccine can only be administered directly not remotely at this time, thus initial fertility control needs to be in conjunction with a gather.

Comment 30: The agencies should make it clear in the HMAP whether prescribed burns are being planned during the next five years or not. ***Eastern Wildlands Chapter Montana Wilderness Association***

Response to Comment 30: The current HMAP (1984, 1992) does not allow for the use of prescribed fire or any vegetation treatment of the forested areas of the wild horse range. The Draft HMAP is proposing a decision to lift that ban. Subsequent to that, a separate analysis to implement a prescribed fire or burn plan will need to be conducted.

Comment 31: We would like to insist new water sources be inspected at least twice yearly followed by appropriate treatment to eradicate the weed infestation before it progresses. We would like to the plan to include some bench marks that would trigger removal of the guzzlers. ***Eastern Wildlands Chapter Montana Wilderness Association, Clayton McCracken***

Response to Comment 31: We agree these are reasonable and responsible management actions. The Monitoring Log has been changed to reflect the recommendation. Mitigating measures have been added that would allow for exactly when a guzzler needs to be removed.

Comment 32: Recommend management concerns should not cause a degradation of genetic variability, the herd be managed for its Colonial Spanish Heritage, core breeding population be 5-10 year olds, manage for a 60% male to 40% female, focus on decreasing the female population, fertility control programs be carefully implemented mares brought into the program that are genetically represented, DNA sampling be obtained from all horses, establish new water sources, do not close Layout Creek, pursue prescribed fire, construct livestock drift fence at Sykes Ridge, control noxious and invasive weeds, parts of the range be reseeded. ***Pryor Mountain Wild Mustang Center***

Response to Comment 32: Thank you for your comments, refinements has been made in the EA based upon your comments. The Colonial Spanish Horse Matrix score-sheet is being incorporated as an additional appendix in the HMAP.

Comment 33: Recommend the North Boundary Fence not be constructed at this time, range improvements should not exclude the administrative pasture area. ***Pryor Mountain Wild Mustang Center***

Response to Comment 33: Until a change in the law allows for expansion of the horse range onto additional Forest Service and BLM lands that are outside of the Original Herd Area and Territory, the agencies have a legal obligation to follow the law to the greatest extent possible.

Comment 34 Management responsibility for the PMWHR is the BLM's, Not the Custer National Forest or the National Park Service. ***Joey Deeg***

Response to Comment 34: Section 1332 defines Secretary as Interior and Agriculture for the BLM and Forest Service. A copy of the Act as amended has been added as an appendix to prevent any confusion as to what the law states. BLM is the lead agency for management of the PMWHR.

Comment 35: Proposed Forest Service Line will present danger to the wild horses, no prescribed burns, barriers to waters should be removed, independent range study must be conducted, control domestic livestock, ATVs, bicycles ASAP, No camping no hiking or firearms or weapons allowed, Fertility control monitored. ***Joey Deeg***

Response to Comment 35: Thank you for your opinion.

Comment 36: It is impossible when reading through the Draft HMAP to tell which portions of the EA actually constitute "decisions of the Forest Service," as opposed to decisions BLM is making. ***Law Office of Valerie Stanley***

Response to Comment 36: Decisions are not made in EA's; further the Decision Record is when decisions by the agencies are made. Section 1.4 of the EA describes decision authorities and associated maps in Section 2.3, part F of the EA display proposed projects by ownership.

Comment 37: An HMAP is not an activity level plan, tantamount to a Land Use Plan. ***Law Office of Valerie Stanley***

Response to Comment 37: The Land Use Plan for the Billings Field Office is the Billings RMP and the Forest Plan for the Forest Service, thus any activity that implements that plan is an activity plan such as a herd management area plan.

Comment 38: Wild Horses are Native American Wildlife; statements are made that the origin of the Pryor Mountain wild horses is unknown. This statement is factually inaccurate and adherence to it ignores the scientific evidence of their origin, as explained in Kirkpatrick and Fazio, "Wild Horses as Native American Wildlife" ***Law Office of Valerie Stanley***

Response to Comment 38: Nowhere in Kirkpatrick and Fazio's "Wild Horses as Native American Wildlife" does it say the Pryor horses evolved in the Pryor Mountains and are a different species horse or a relic ice age population. Exactly how long or when the horses in the Pryors came to be no one has provided documentation to support a date, therefore the statement is accurate.

Comment 39: Wild horses occupied areas of the Forest Service Lands before and at the passage of the Wild and Free Roaming Horses and Burros Act and therefore the range expansion alternative should not be eliminated. ***Law Office of Valerie Stanley***

Response to Comment 39: This comment is responded to under comment number 6.

Comment 40: BLM's Proposed Appropriate Management Level (AML) Range for Wild Horses is Lower than that recognized by BLM to constitute "dangerously minimal levels." ***Law Office of Valerie Stanley,***

Comment 40AThe HMAP recommends that only 90 horses can live on the range, creating a non-viable herd according to the studies and comments of various genetics experts and BLM Field Manager Sandra Brooks ***The Cloud Foundation***

Response to Comment 40 and 40A: The HMAP is designed to maximize genetic exchange within the population. Encouraging the population to more freely interchange should result in more genetic variation. The HMAP is designed for a 5-10 year period, which is shorter than the 200 years (page 109 Managers Summary-Ecological Studies of the Pryor Mountain Wild Horse Range, 1992-1997) genetics experts believe it would take for the population to encounter inbreeding depression. Although the BLM recognizes the more individuals a population has the greater chance for higher genetic variation, BLM also recognizes the demographics of the population are just as or more important than pure numbers in maintaining genetic variation.

Comment 41: BLM should hold off finalizing of this HMAP in abeyance until it concludes the other planning efforts pertinent to the Range and it should include wild horse planning in the Billings RMP. ***Law Office of Valerie Stanley***

Response to Comment 41: Thank you for your opinion.

Comment 42: Issues studied in detail under sub-heading Ecological Condition you state "The BLM and Forest Service are prohibited from allowing a "deterioration of the range associated with an over population wild horses" (PL 92-195). PL92-195 is the Wild and Free-roaming Horse and Burro Act .....The wording is not found in the Act. ***The Cloud Foundation***

Response to Comment 42: You are correct the wording is not found in the act. That wording is from 118 IBLA 75 and is misattributed to the wild and Free-Roaming Horse and Burro Act. The quote has been changed to reflect what the Act states, thank you for pointing this out.

Comment 43: Under the sub-heading entitled ***Appropriate Management Level*** **(AML) you state that: AML as "identified by the wild and Free Roaming Horse and Burro Act <u>AML was not mentioned or discussed in the 1971 Act.</u> You go on to state that "The Act mandates to „protect the range from the deterioration associated with overpopulation' (PL-92-195). <u>This wording does not appear in the act either.</u>** ***The Cloud Foundation***

Response to Comment 43: We encourage you to please revisit the Act and the Draft HMAP. The act does direct the BLM and Forest Service to determine appropriate management levels and to achieve appropriate management levels this is under section 1340 (b) (1). The document is misquoted in your comments. The documents states "The Act mandates to "protect the range from the deterioration associated with overpopulation" (PL 92-195). This is in the Act please refer to section 1340 (b) (2) (iv) of said act (see Appendix VIIII).

Comment 44: Under the sub-heading *Genetic Viability* you state that "managing wild horses in a manner designed to maintain a thriving natural ecological balance within the productive capacity of the habitat is mandated by the act." The act does not state this. What it does state is that "The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on public lands." *The Cloud Foundation*

Response to Comment 44: You are correct the Act does not say to manage wild horses in a manner designed to maintain a thriving natural ecological balance within the productive capacity of the habitat. This is not a quote of the act, nor did the document use this as a quote. In order to be absolutely sure there will be no confusion anything that was paraphrased was changed to direct quotes.

Comment 45: This is not the first time the BLM has either accidentally or intentionally misled the public by creating language that simply does not appear in the Wild Horse and Burro Act when it appears to suit their desires. It brings into question the accuracy of the rest of the document in areas not so easily cross-reference. *The Cloud Foundation*

Response to Comment 45: This is a serious accusation. One quote was inadvertently attributed to the Act instead of the IBLA case it came from, but as far as the agencies are aware of other quotes are accurate. The BLM appreciates that The Cloud Foundation provided a copy of the Wild Free-Roaming Horse and Burro Act; however it is an outdated copy without many of the amendments, therefore to reduce any confusion as to what the Act states, an appendix has been added with the Act as amended.

Comment 46: The selection for type does add more potential to lower genetic variation. *The Cloud Foundation*

Response to Comment 46: If selection for a Colonial Spanish type was the only criteria for management then there would be more of a concern for lowering genetic variation. However, managing for an even to slightly higher male to female sex ratio along with 5-10 year olds as the primary breeding animals in the population as well as tracking the number of progeny each animal is producing helps ensure genetic variation within the population.

Comment 47: TCF ET. AL. does not support any periodic augmentation of the Pryor Mountain horse herd through the importation of wild horses from other herds or from

untitled animals that have been in captivity. The BLM is required to maintain the herd at sustainable levels. ***The Cloud Foundation***

Response to Comment 47: The BLM is required to manage wild horses within a thriving natural ecological balance by managing within AML. To provide a thriving natural ecological balance, and to avoid inbreeding depression, augmentation is an available management tool. Augmentation is identified in the Draft HMAP as mitigation to possible management outcomes, and not as part of the regular management and only to prevent possible inbreeding depression.

Comment 48: BLM justifies drastically reducing the Pryor Herd to 90 citing "deteriorating range and forest conditions" in basically two years, the high mountain meadows and the Turkey Flat area in the low country. No substantive data was supplied, however. And when we were able to acquire data from other sources, we found that the 2007 measurements were from 6 "key area sites". Consider that the Pryor range is around 39,000 acres. 6 sites cannot adequately represent an area this large and diverse.

We ask for an independent range assessment to be conducted before you make any drastic reductions in the herd. ***The Cloud Foundation, Makindra Solverman***

Response to Comment 48: The HMAP proposes to change the current AML of 95 plus or minus 10% (85 to 105) to a population range of 90 to 120. Maintenance of AML is not a reduction in the herd nor is an HMAP a gather plan. Range Condition or more precisely ecological condition was determined by the 2004 NRCS Survey and Assessment. The trend measured at the key areas was from 1996 to 2007 an eleven year period not two years. The key area concept is an accepted tenant of Range Management. Based upon the use patterns of the wild horses and the highly representative ecological sites the key areas are established on, the data is highly reflective of the situation on the ground. An independent range inventory assessment has already occurred.

Comment 49: This HMAP disregards obvious noninvasive and cost effective solutions to maintain a viable herd on the Pryor Mountains. The Cloud Foundation recommends that BLM put a major effort into expanding the PMWHR into historic wild horse use areas in the Custer National Forest. ***The Cloud Foundation***

Response to Comment 49: Thank you for your opinion. Please refer to Issues Studied in Detail and response to comment 6. BLM and Forest Service authorities are limited by the Wild Free-Roaming Horse and Burro Act which only allows for management of wild horses on public lands where they were "presently" found at the passage of the Act. Though historically wild horses were known to be in other areas congress limited our authorities of where wild horses can and cannot be managed see section 1339 of the Act Limitation of Authority of the Wild and Free-Roaming Horse and Burro Act.

Comment 50: The Cloud Foundation recommends that BLM implement <u>a natural management strategy.</u> ***The Cloud Foundation***

Response to Comment 50: Natural management was an alternative considered, but dismissed from further analysis (EA, section 2.5). However, some natural management is part of the proposed action, please re-read the proposed action. If predators can maintain the AML, BLM has no issues with allowing natural management as one of many tools.

Comment 51: TCF ET. AL. recommends that the BLM assist in the funding of a mountain lion research project, does not recommend the creation of satellite herds, recommend that "population control" be limited to periodic helicopter gathers only when the wild horses pose a threat to themselves and their environment, we do not recommend the use of bait trapping, any wild horses removed during a gather be offered at the base of the mountain through competitive bid, do not support the use of PZP, recommend no fences, using tax dollars for improvements, ban off road vehicle-use, license ATV use, BLM set up self pay stations, speed limits be implemented, no main roads be close, conduct minimal road improvement, have more volunteers. ***The Cloud Foundation, Makindra Silverman***

Response to Comment 51: Thank you for your comments, many of these are outside the scope of this analysis and BLM authorities.

Comment 52: After reviewing both the PMWHR Draft Range Evaluation and the PMWHR HMAP I believe the HMAP plan to remove almost half a herd of wild horses from the range is inadequately substantiated. The conclusions reached in the range evaluation are not statistically valid because too few data points data points for 39,000 acres. ***Jeff Powell, PhD, CRMC, CPRM RLS International.***

Response to Comment 52: The HMAP is not a plan to remove wild horses. The Evaluation calculated a carrying capacity to revisit the existing AML. The current AML calculated in 1992 is established at 95 plus or minus 10%. The Evaluation looked to refine this stocking rate. The PMWHR has been over-stocked for more than a decade. It is an erroneous statement "removal of almost half a herd of wild horses from the range is inadequately substantiated" when the carrying capacity has been established since 1992 and maintenance of the AML has not occurred. The 2004 NRCS study (which the evaluation summarized) measured ecological condition on nearly every ecological site within the PMWHR. In addition, climate data, use levels and patterns, and measured trend were evaluated to determine AML.

Comment 53: Concern is much of the range data is averaged together in the evaluation. ***Jeff Powell, PhD, CRMC, CPRM RLS International.***

Response to Comment 53: The data is summarized in the evaluation. The data is not averaged together. However the NRCS 2004 Survey and Assessment did provide an overall Site Index for each of the survey units within the survey and assessment. However, each Daubenmire plot is within its own individual ecological site and does not measure ecological condition. Determination of ecological condition or historic climax plant community (HCPC) at key areas, as well as the entire range was incorporated from the NRCS study.

Comment 54: It is unfortunate trend data was presented for only 1996 and 2007 when 2002-2003 data from NRCS (2004) report are available. I assume the Evaluation did not

ignore the rather comprehensive survey conducted by the NRCS and is now using the same transects points used by the NRCS. ***Jeff Powell, PhD, CRMC, CPRM RLS International.***

Response to Comment 54: The BLM is unaware of any methodology that utilizes two different studies to determine a measured trend. The NRCS study assessed apparent trend which does not evaluate measurements between two points in time. The NRCS study determined HCPC or ecological condition while the Daubenmire plots were used to detect a measured trend because there was data for at least two points in time. Measured trend provides a more accurate view of trend over apparent trend. The PMWHR Evaluation summarized the NRCS study as well as incorporated its findings along with numerous research studies and BLMs own range monitoring data.

Comment 55: In this document „key area' is used to mean those areas most likely to be overgrazed or else the entire range is being over grazed. ***Jeff Powell, PhD, CRMC, CPRM RLS International***

Response to Comment 55: The key areas were established due to the existing study's already being established, the studies' were completely within the one ecological site (not on an ecotone) and the historical grazing patterns of the wild horses. Key areas were not established to mean areas most likely to be overgrazed.

Comment 56: The BLM, FS and NPS failed to take a "hard look" at the environmental consequences of the proposed action. ***Roberta L. Ringstrom Environmental Scientists***

Response to Comment 56: Thank you for your comment.

Comment 57: The Agencies also fail to adequately consider the impact of the proposed EA/HMAP on the Human Environment. ***Roberta L. Ringstrom Environmental Scientists***

Response to Comment 57: The DHAMP/Preliminary EA was a draft document for public comment not a decision enacted by the agencies. A Finding of No Significant Impact (FONSI) was not issued with the draft.

Comment 58: Since the passage of the 1971 Act, the BLM has failed to manage wild horses as mandated by congress. ***Roberta L. Ringstrom Environmental Scientists***

Response to Comment 58: Thank you for your comment.

Comment 58: The proposed action will violate the law by destroying the rare genetics of the Pryor Mountain wild horse herd. ***Roberta L. Ringstrom Environmental Scientists***

Response to Comment 58: Thank you for your comment.

Comment 59: The Proposed Action requires the BLM to prepare an Environmental Impact Statement (EIS). ***Roberta L. Ringstrom Environmental Scientists,The Humane Society of The United States***

Response to Comment 59: Please refer to the section 1.6 of this document. The Management of the PMWHR already occurs under the analysis of two EIS's through the Billings Resource Management Plan and Custer Forest Plan. The development of an EA is to determine if there is a level of significance met that would require an EIS. A preliminary EA is not the time to determine if significance is met or not, that is determined after the analysis has been completed. Consultation with the public is part of that process.

Comment 60: Select the No Action Alternative, Jodi Bauter, Susan Sutherland

Response to Comment 60: Thank you for your comment.

Comment 61: BLM Failed to Consider the Use of PZP as the Primary Management Tool. ***Humane Society of The United States***

Response to Comment 61: The DHMAP does not identify any one primary tool for population management. Please re-read the proposed action it identifies a combination of methods including fertility control.

Comment 62: BLM is jumping ahead to say that by putting guzzlers at mid-slope, the agency can keep the number of horses at 120. ***Clayton McCracken***

Response to Comment 62: The number of 120 was derived from the carrying capacity calculation in the PMWHR evaluation and based on past and current use patterns. The number is not based upon the hopes of being able to place water developments in the mid-slope.

Comment 63: Should not the age distribution be pyramidal? ***Clayton McCracken***

Response to Comment 63: Yes BLM agrees and is our intent to have the 5-10 year olds represent the peak of the population structure. We have refined the objectives based on your comment.

Comment 63: Suggest placement of mineral supplement on mid-slope areas to attract wild horses. ***Clayton McCracken***

Response to Comment 63: BLM agrees this could be a useful tool and has incorporated it into the plan.

Comment 64: Would a better criteria (for baseline) be the Historic Climax Plant Community? ***Clayton McCracken***

Response to Comment 64: The arid and semi-arid nature of the PMWHR along with the poor ecological condition of the majority of the low elevation areas unfortunately preclude any chance of ever returning to an HCPC without intense mechanical treatment and a little luck. If adequate rest from grazing could be obtained the high elevation meadows have the best chance of returning to HCPC due to the level of annual precipitation. Since the HMAP is designed for a 5-

10 year period it is too short a timeframe to have a real chance of improving ecological condition. The agencies believe the current objective of not allowing for deterioration is attainable considering the timeframe of the plan, and meets our legal obligations. The agencies do agree, over the long term, improving the ecological condition is a fine objective.

Comment 65: Shutting off subalpine water sources is not feasible until Kreuger pond can be fenced. ***Clayton McCracken***

Response to Comment 65: You are correct.

Comment 66: The fence should have a wide gate suitable for driving horses through the fence line. ***Clayton McCracken***

Response to Comment 66: In response to the comment, the EA description of the proposed north boundary fence maintenance, extension, and minor realignment incorporates fence opening considerations. Gates and ability to open fence panels will accommodate wild horse management needs.

4.2 List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Jared Bybee (Bureau of Land Management)	Rangeland Management Specialist (State Wild Horse and Burro Specialist)	Wild Horses, Vegetation, Soils/Rangeland Health
Jay Parks (Bureau of Land Management)	Wildlife Biologist	Wildlife, T & E, and Riparian
Carolyn Sherve-Bybee (Bureau of Land Management)	Archaeologist	Cultural & Paleontological Resource, Native American Concerns
Melissa Half (Bureau of Land Management)	Natural Resource Specialist	Noxious/Invasive Plants
Bob Meidinger (Bureau of Land Management)	Fuels Specialist	Fuels/Forestry
Lynn Hardy (Bureau of Land Management)	Recreation Specialist	Recreation/Wilderness
Nora Taylor (Bureau of Land Management)	Botanist	Special Status Plants
Kim Reid (Custer	Rangeland	Wild Horse Management, Vegetation,

National Forest)	Management Specialist (Wild Horse Coordinator)	Soils/Rangeland Health, Botany, Noxious/Invasive Plants)
Mark Slacks (Custer National Forest)	Custer NEPA Coordinator	NEPA Review
Barb Pitman (Beartooth Ranger District, Custer National Forest)	Wildlife Biologist	Wildlife, T&E
Terry Jones (Beartooth Ranger District, Custer National Forest)	Rangeland Management Specialist	Rangeland Health
Halcyon LaPoint (Custer National Forest)	Archeologist	Heritage Resources, Native American Concerns
Cassity Bromely (Bighorn Canyon National Recreation Area)	Natural Resource Specialist	Wild Horse Management

5.0 APPENDICES

APPENDIX I

Standards for Rangeland Health for Public Lands Administered by the Bureau of Land Management for Montana and the Dakotas

Miles City STANDARD #1: Uplands are in proper functioning condition.
This means that soils are stable and provide for the capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rocks/gravel) for identified ecological site(s) or soil plant associations is appropriate for soil stability. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site.
• As indicated by:
Physical Environment
- erosional flow patterns; - surface litter; - soil movement by water and wind; - infiltration; - soil crusting and surface sealing; - compaction layer; - rills; - gullies; - cover amount; and - cover distribution.
Biotic Environment
- community diversity; - community structure; - exotic plants; - photosynthesis activity; - plant status; - seed production; - recruitment; and - nutrient cycle.

Miles City STANDARD #2: Riparian areas and wetlands are in proper functioning condition.
This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water, and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid flood plain development; improve flood water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.
The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water to reduce stream temperature in the summer and provide thermal protection in the winter, stabilizing shorelines, filtering sediment, aiding flood plain development, dissipating energy, delaying floodwater, and increasing recharge of ground water where appropriate to landform. The stream channels and flood plain dissipate the energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and storing water for later release. Stream channels are not entrenching and water levels maintain appropriate riparian/wetland species.
Riparian Areas are defined as an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites a ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.
• Proper functioning condition of riparian areas are Indicated by:
Hydrologic
- flood plain inundated in relatively frequent events; - amount of altered streambanks; - sinuosity, width/depth ratio, and gradient are in-balance with the landscape setting (i.e., landform, geology, and

bioclimatic region); - riparian zone width; and - upland watershed not contributing to riparian degradation.
Erosion Deposition
- flood plain and channel characteristics, i.e., rocks, coarse and/or woody debris adequate to dissipate energy; - point bars are vegetating; - lateral stream movement is associated with natural sinuosity; - system is vertically stable; - stream is in-balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition); and - bare ground.
Vegetation

- reproduction and diverse age structure of vegetation; - diverse composition of vegetation; - species present indicate maintenance of riparian soil moisture characteristics; - streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events; - utilization of trees and shrubs; - healthy riparian plants; and - adequate vegetative cover present to protect banks and dissipate energy during high flows.

Miles City STANDARD #3: Water quality meets Montana State standards.
This means that surface and ground water on public lands fully support designated beneficial uses described in the Montana Water Quality Standards.
• As indicated by:
- dissolved oxygen concentration; - pH; - turbidity; - temperature; - fecal coliform; - sediment; - color; - toxins; and - others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

Miles City STANDARD #4: Air quality meets Montana State standards.
This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Control Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or non-point sources.
Bureau of Land Management management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class areas.
• As indicated by:
Section 176(c) Clean Air Act which states that activities of all Federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:
- cause or contribute to any violations of ambient air quality standards; - increase the frequency of any existing violations; and - impede the State's progress in meeting their air quality goals.

Miles City STANDARD #5: Habitats are provided for healthy, productive, and diverse native plant and animal populations and communities. Habitats are improved or maintained for special status species (federally threatened, endangered, candidate or Montana species of special concern).
This means that native plant communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant life forms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for native vegetation is a management priority. Ecological processes including hydrologic cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. The environment contains all the necessary components to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species.
• As indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily, noxious weeds are absent or insignificant in the overall plant community; - an effective weed management program is in place; - spatial distribution of species is suitable to ensure reproductive capability and recovery; - a variety of age classes are present (at least two age classes); - connectivity of habitat or presence of corridors prevents habitat fragmentation - diversity of species (including plants, animals, insects and microbes) are represented; and - plant communities in a variety of successional stages are represented across the landscape.

APPENDIX II

POPULATION MODEL

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

Interpretation of the Model

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

Population Modeling Criteria

The following summarizes the population modeling criteria:

- Starting Year: 2009
- Initial gather year: 2009
- Gather interval: regular interval of four years
- Sex ratio at birth: 50% female-50% male
- Percent of the population that can be gathered: 100%
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each
- Fertility control is estimated to be 94% effective in year 1 and 82% effective in year 2 68% effective in year three with 90% effective in subsequent years due to boosters.

Population Modeling tables and graph

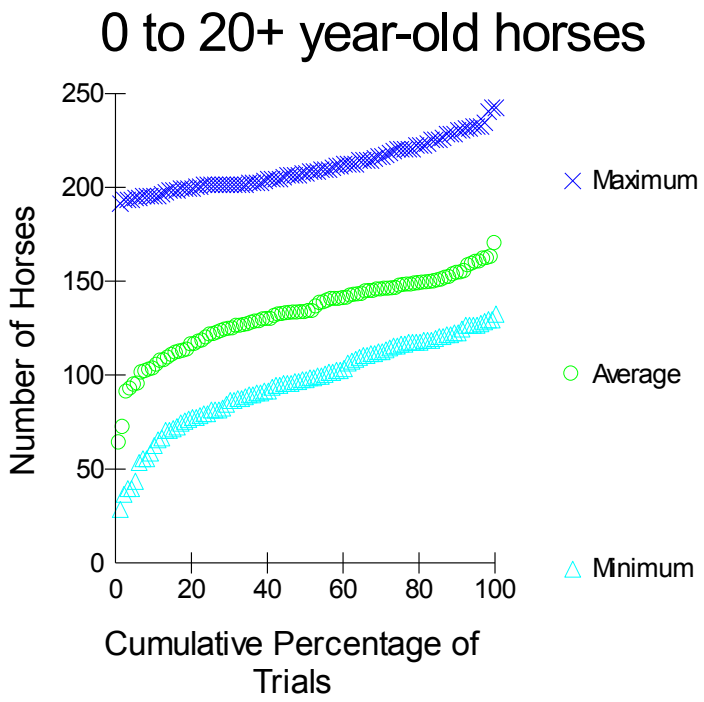
This table compares the projected population size and growth rate for the Herd Management Area Plan during a ten-year simulation to represent the life of the HMAP. The population averages are across all 100 trials.

The average median population is modeled to be 134 wild horses with a growth rate of -0.3 or recruitment would be even with die-off, 95 mares would be treated over ten years and 63 horse would need to be removed in ten years or 6 animals per year.

Population Sizes in 11 Years*

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

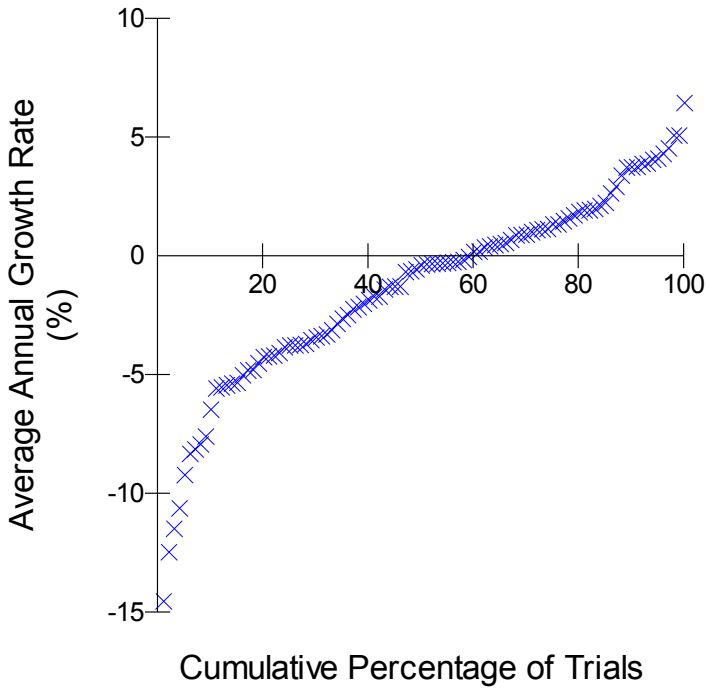
* 0 to 20+ year-old horses



The average median growth rate is modeled to be -0.3 or no population growth

Average Growth Rate in 10 Years

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



Totals in 11 Years*

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

* 0 to 20+ year-old horses

APPENDIX III

GLOSSARY

Act means the Wild and Free-Roaming Horse and Burro Act of December 15, 1971, as amended (16 U.S.C. 1331-1340), commonly referred to as the Wild Free-Roaming Horse and Burro Act

Activity plan means a plan for managing a resource use or value to achieve specific objectives. For example, a herd management area management plan (HMAP) is an activity plan for managing wild horses use to improve or maintain rangeland conditions, and wild horse health.

Actual use means where, how many, what kind of wild horses, and how long grazing on the PMWHR, or on a portion or pasture of the PMWHR.

Animal unit month (AUM) means the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (one horse, five sheep). It is recognized that there are differing agency definitions for AUMs and associated animal conversion factors. For purposes of this evaluation, an AUM equates to one adult horse for a period of 1 month.

Appropriate Management Level means the maximum number of wild horses or burros excluding the current years foal crop that can be maintained within an area without causing deterioration of rangeland resources**.**

Augment means to supplement the current population.

Authorized Officer means any employee of the Bureau of Land Management to whom has been delegated the authority to perform the duties described therein.

Authorized officer means any person authorized by the Secretary to administer regulations in this part.

Carrying Capacity means the maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year to year on the same area due to fluctuating forage production.

Commercial exploitation means using a wild horse or burro because of its characteristics of wildness for direct or indirect financial gain. Characteristics of wildness include the rebellious and feisty nature of such animals and their defiance of man as exhibited in their undomesticated and untamed state.

Crop Yield means the effective precipitation that is utilized by forage plants in order to produce biomass.

District means the specific area of public lands administered by a Field Manager.

Executive Order means a directive given to employee's of the executive branch in order to fulfill the wishes of the President or their authorized delegated representative

Genetic Drift means the process of change in allele frequencies that occurs entirely from chance (or **allelic drift**) is the evolutionary process of change in the allele frequencies (or gene frequencies) of a population from one generation to the next due to the phenomena of probability in which purely chance events determine which alleles (variants of a gene) within a reproductive population will be carried forward while others disappear.

Genetic Fitness means the capability of an individual of certain genotype to reproduce, and usually is equal to the proportion of the individual's genes in all the genes of the next generation. If differences in individual genotypes affect fitness, then the frequencies of the genotypes will change over generations; the genotypes with higher fitness become more common.

Genetic Diversity means level of diversity that refers to the total number of genetic characteristics in the genetic makeup of a species.

Herd Area means the geographic area identified as having been used by a herd as its habitat in December 1971.

Herd Management Area means an area established for the maintenance of wild horse and burro herds.

Herd Area Management Plan (HMAP)" means a documented program developed as an activity plan, that focuses on, and contains the necessary instructions for the management of wild horses on specified public lands to meet, wild horse health, resource condition, sustained yield, multiple use, economic and other objectives.

Ho, means heterozygosity

He means expected heterozygosity

Heterozygosity refers to the state of being a heterozygote. Heterozygosity can also refer to the fraction of loci within an individual that are heterozygous. In population genetics, it is commonly extended to refer to the population as a whole, i.e. the fraction of individuals in a population that are heterozygous for a particular locus (genetic marker).

Interested public means an individual, group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of wild horses or other public lands or has submitted written comments to the authorized officer regarding the management of public land on a specific area.

Key Management Area (KMA): a relatively small portion of a range selected because of its location, use or grazing value as a monitoring point for grazing. It is assumed that key areas, if properly selected, will reflect the overall acceptability of current grazing management over the range.

Key Species: forage species whose use serves as an indicator to the degree of use of associated species. Those species which must, because of their importance, be considered in the management program.

Land use plan means a resource management plan, developed under the provisions of 43 CFR part 1600, 36 CFR part 219, or management framework plan. These plans are developed through public participation in accordance with the provisions of from the Federal Land Policy and Management Act of 1976 public land laws, rules, regulations, and policies, and establish management direction for resource uses of public lands.

Monitoring means the periodic observation and orderly collection of data to evaluate:
(1) Effects of management actions; and
(2) Effectiveness of actions in meeting management objectives.

Minimum Viable Population means the lower bound on the population of a species, such that it can survive in the wild. This term is used in the fields of biology, ecology and conservation biology. More specifically MVP is the smallest possible size at which a biological population can exist without facing extinction from natural disasters or demographic, environmental, or genetic stochasity.

Ne means effective breeding size or the number of individuals within a population that are making genetic contributions to the next generation.

Precipitation Index the amount of precipitation that is proportional to the long term average.

Phenotype The observable physical or biochemical characteristics of an organism, as determined by both genetic makeup and environmental influences. The expression of a specific trait such as stature or blood type and based on genetic and environmental influences.

Pryor Mountain Wild Horse Range (PMWHR). The combination of agency and private rangelands authorized for use by wild horses. Not to be confused with *Wild Horse Range* (see definition below) which is a special designation which only the BLM portion of the PMWHR has this status.

Public lands means any land or land interest owned by the federal government within the 50 states, not including offshore federal lands or lands held in trust for Native American groups

Public lands for BLM means any land and interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, except lands held for the benefit of American Indians.

Range improvement means an authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. The term

includes, but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

Rangeland studies means any study methods accepted by the authorized officer for collecting data on actual use, utilization, climatic conditions, other special events, and trend to determine if management objectives are being met.

Range Readiness means the timing in a forage plants growth cycle when it is "ready" for grazing use without causing deleterious effects.

Secretary means the Secretary of the Interior, Secretary of Agriculture or his authorized officer.

Service area means the area that can be properly grazed by watering at a certain water source.

State Director means the State Director, Bureau of Land Management, or his or her authorized representative.

Territory means the USFS geographic area identified as having been used by a herd as its habitat in 1971 at the passage of the Wild Free Roaming Horse and Burro Act (PL 92-195) as amended.

Trend means the direction of change over time, either toward or away from desired management objectives.

Utilization means the percentage of forage that has been consumed by livestock, wild horses and burros, wildlife and insects during a specified period. The term is also used to refer to the pattern of such use.

Use means the current use, including wild horse grazing.

Wild Horse Range means an area of land designated from a herd management area to be managed principally but not necessarily exclusively, for wild horse or burro herds

Yield Index The amount of forage that is actually produced in any given year.

APPENDIX IV

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APPENDIX V

Special Status Plants known to occur in the PMWHR

Common Name	Scientific Name	Status	Habitat
Daggett Rockcress	Arabis demissa	BS	Canyon bottoms and outwash plains with dry, stony soils. Juniper woodland to limber pine woodlands and sagebrush steppe.
Sweetwater Milkvetch	Astragalus aretioides	BS	Exposed ridges and slopes in thin soil in foothills and montane zone and in opening of Douglas fir.
Geyer's milkvetch	Astragalus geyeri	BS	Loose sandy soils on alluvial plains and terraces.
Wind River milkvetch	Astragalus oreganus	BS	Sandy soil in the Chugwater formation.
Obscure evening-primrose	Camissonia andina	BS	Exposed sandy soil of dry prairie slopes, flats and depressions, moist swales on south-facing hillsides and in sagebrush.
Small camissonia	Camissonia parvula	BS	Sandy soils in ecotones between sagebrush steppe and juniper woodland.
Yellow bee plant	Cleome lutea	BS	Open, often sandy soil of sagebrush steppe in the valleys.
Smooth buckwheat	Eriogonum salsuginosum	BS	On bentonite in dry, open slopes of breaklands.
Spiny hopsage	Grayia spinosa	BS	Dry shrublands in valleys and foothills on sandy-textured alkaline soils.
Leptodactylon	Leptodactylon caespitosum	BS	Foothills on north- or east-facing slopes in dry, open sandy breaks on Chugwater sandstone.
Lesica's bladderpod	Lesquerella lesicii	BS	Woodlands with a sparse overstory of Ricky Mountain juniper and mountain mahogany and scattered Douglas fir or bluebunch wheatgrass-cushion plant fellfields.
Dwarf mentzelia	Mentzelia pumila	BS	Open, usually sandy soil in desert shrubland and woodlands in the valley and foothill zones.
Short-leaved bluegrass	Poa curta	BS	Sparsely vegetated soil of Douglas fir forest floor in the montane zone.
Platte cinquefoil	Potentilla plattensis	BS	Grasslands and sagebrush steppe in the valley and montane zones.
Shoshonea	Shoshonea pulvinata	BS	Open, exposed limestone outcrops, ridgetops, and canyon rims, in thin rocky soils.
		BS=Bureau Sensitive	

APPENDIX VI

Monitoring Log

Habitat Management

Study	Month/Year read	Location	Results

Population Management monitoring

Study	Month/Year read	Location	Results

Study	Month/Year read	Location	Results

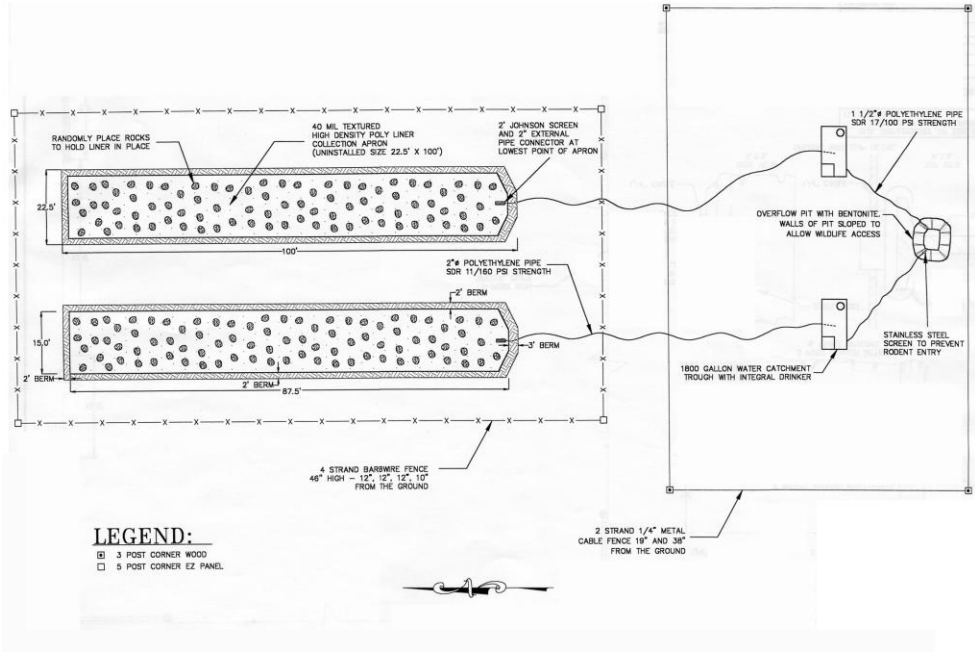
Project Implementation Log

Project	Date	Location	Maintenance

APPENDIX VII

Guzzler Design Schematic

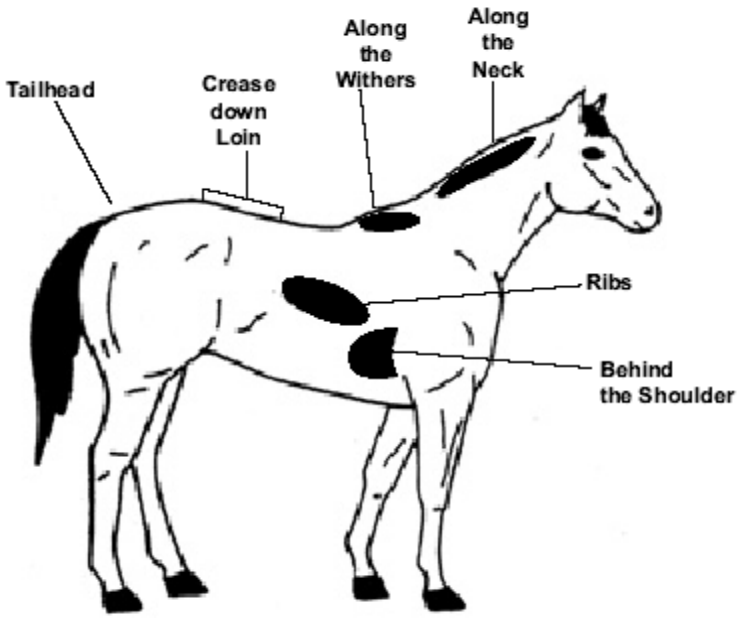
This schematic shows two guzzlers side by side. The guzzlers proposed would not have the Storage/drinker tank arranged like the schematic but rather the tanks would be closer to the apron without the overflow pond.



APPENDIX VIII

Henneke Body Condition Scoring System

Six Body Points to Check



HENNEKE SCORING REPORT

Note: scores can be measured to 1/4 point accuracy, such as 5.25. This allows for uneven fat deposit on some horses' bodies, so score each element separately (neck, loin, etc), add the scores and divide by 6, then round to the nearest quarter point.

Condition	Neck	Withers	Loin	Tailhead	Ribs	Shoulder
1 Poor	Bone structure easily noticeable	Bone structure easily noticeable	Spinous processes project prominently	Tailhead (pinbones) and hook bones projecting prominently	Ribs projecting prominently	Bone structure easily noticeable
		Animal extremely emaciated; no fatty tissue				
2 Very Thin	Faintly discernible	Faintly discernible	Slight fat covering overbase of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent.	Tailhead prominent	Ribs prominent	Faintly discernible
3 Thin	Neck accentuated	Withers accentuated	Fat buildup halfway on spinous processes	Tailhead prominent but individual vertebrae cannot be	Slight fat cover over ribs. Ribs easily	Shoulder accentuated.

Condition	Neck	Withers	Loin	Tailhead	Ribs	Shoulder
			but easily discernible. Transverse processes cannot be felt.	visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable.	discernible.	
4 Moderately Thin	Neck not obviously thin	Withers not obviously thin	Negative crease along back	Prominence depends on conformation; fat can be felt. Hook bones not discernible	Faint outline discernible	Shoulder not obviously thin
5 Moderate	Neck blends smoothly into body	Withers rounded over spinous processes	Back level	Fat around tailhead beginning to feel spongy	Ribs cannot be visually distinguished but can be easily felt	Shoulder blends smoothly into body
6 Moderately Fleshy	Fat beginning to be deposited	Fat beginning to be deposited	May have slight positive crease down back	Fat around tailhead feels soft	Fat over ribs feels spongy	Fat beginning to be deposited
7 Fleshy	Fat deposited along neck	Fat deposited along withers	May have positive crease down back	Fat around tailhead is soft	Individual ribs can be felt, but noticeable filling between ribs with fat	Fat deposited behind shoulder
8 Fat	Noticeable thickening of neck	Area along withers filled with fat	Positive crease down back	Tailhead fat very soft	Difficult to feel ribs	Area behind shoulder filled in flush with body
		Fat deposited along inner buttocks				
9 Extremely Fat	Bulging fat	Bulging fat	Obvious positive crease down back	Building fat around tailhead	Patchy fat appearing over ribs	Bulging fat
		Fat along inner buttocks may rub together. Flank filled in flush				

APPENDIX IX

Note: the text of the Wild Free-Roaming Horses and Burros Act of 1971, as amended by Congress since that time, has been compiled, organized, and reproduced below by the Bureau of Land Management as of January 2006

The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) was amended as follows: Sections 1332 and 1333 were modified by the Public Rangelands Improvement Act of 1978 (Public Law 95-514); Section 1338 was modified by the Federal Land Policy and Management Act of 1976 (Public Law 94-579); the Omnibus Parks and Public Lands Management Act of 1996 (Public Law 104-333) added Section 1338a.; and Section 1333 was again modified by the Fiscal Year 2005 Omnibus Appropriations Act (Public Law 108-447)

THE WILD FREE-ROAMING HORSES AND BURROS ACT OF 1971 (PUBLIC LAW 92-195)

§1331. Congressional findings and declaration of policy

Congress finds and declares that wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene. It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands.

§1332. Definitions

As used in this Act-

(a) "Secretary" means the Secretary of the Interior when used in connection with public lands administered by him through the Bureau of Land Management and the Secretary of Agriculture in connection with public lands administered by him through the Forest Service;

(b) "wild free-roaming horses and burros" means all unbranded and unclaimed horses and burros on public lands of the United States;

(c) "range" means the amount of land necessary to sustain an existing herd or herds of wild free-roaming horses and burros, which does not exceed their known territorial limits, and which is devoted principally but not necessarily exclusively to their welfare in keeping with the multiple-use management concept for the public lands;

(d) "herd" means one or more stallions and his mares; and

(e) "public lands" means any lands administered by the Secretary of the Interior through the Bureau of Land Management or by the Secretary of Agriculture through the Forest Service.

(f) "excess animals" means wild free-roaming horses or burros

(1) which have been removed from an area by the Secretary pursuant to application law or,

(2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.

§1333. Powers and duties of Secretary

(a) Jurisdiction; management; ranges; ecological balance objectives; scientific recommendations; forage allocations adjustments

All wild free-roaming horses and burros are hereby declared to be under the jurisdiction of the Secretary for the purpose of management and protection in accordance with the provisions of this Act. The Secretary is authorized and directed to protect and manage wild free-roaming horses and burros as components of the public lands, and he may designate and maintain specific ranges on public lands as sanctuaries for their protection and preservation, where the Secretary after consultation with the wildlife agency of the State wherein any such range is proposed and with the Advisory Board established in section 1337 of this Act deems such action desirable. The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology, some of whom shall be independent of both Federal and State agencies and may include members of the Advisory Board established in section 1337 of this Act. All management activities shall be at the minimal feasible level and shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration the needs of other wildlife species which inhabit such lands.
(b) Inventory and determinations; consultations; overpopulations; research study; submittal to Congress

(1) The Secretary shall maintain a current inventory of wild free-roaming horses and burros on given areas of the public lands. The purpose of such inventory shall be to: make determinations as to whether and where an overpopulation exists and whether action should be taken to remove excess animals; determine appropriate management levels of wild free-roaming horses and burros on these areas of the 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). In making such determinations the Secretary shall consult with the United States Fish and Wildlife Service, wildlife agencies of the State or States wherein wild free-roaming horses and burros are located, such individuals independent of Federal and State government as have been recommended by the National Academy of Sciences, and such other individuals whom he determines have scientific expertise and special knowledge of wild horse and burro protection, wild-life management and animal husbandry as related to rangeland management.

(2) Where the Secretary determines on the basis of:

(i) the current inventory of lands within his jurisdiction;

(ii) information contained in any land use planning completed pursuant to section 1712 of title 43;

(iii) information contained in court ordered environmental impact statements as defined in section 1902 of title 43; and

(iv) such additional information as becomes available to him from time to time, including that information developed in the research study mandated by this section, or in the absence of the information contained in (i-iv) above on the basis of all information currently available to him, that an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken, in the following order and priority, until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation.

(A) The Secretary shall order old, sick, or lame animals to be destroyed in the most humane manner possible;

(B) The Secretary shall cause such number of additional excess wild free- roaming horses and burros to be humanely captured and removed for private maintenance and care for which he determines an adoption demand exists by qualified individuals, and for which he determines he can assure humane treatment and care (including proper transportation, feeding, and handling): Provided, that, not more than four animals may be adopted per year by any individual unless the Secretary determines in writing that such individual is capable of humanely caring for more than four animals, including the transportation of such animals by the adopting party. (C) The Secretary shall cause additional excess wild free-roaming horses and burros for which an adoption demand by qualified individuals does not exist to be destroyed in the most humane and cost efficient manner possible.

(3) For the purpose of furthering knowledge of wild horse and burro population dynamics and their interrelationship with wildlife, forage and water resources, and assisting him in making his determination as to what constitutes excess animals, the Secretary shall contract for a research study of such animals with such individuals independent of Federal and State government as may be recommended by the National Academy of Sciences for having scientific expertise and special knowledge of wild horse and burro protection, wildlife management and animal husbandry as related to rangeland management. The terms and outline of such research study shall be determined by a research design panel to be appointed by the President of the National Academy of Sciences. Such study shall be completed and submitted by the Secretary to the Senate and House of Representatives on or before January 1, 1983.

(c) Title of transferee to limited number of excess animals adopted for requisite period;

Where excess animals have been transferred to a qualified individual for adoption and private maintenance pursuant to this Act and the Secretary determines that such individual has provided humane conditions, treatment and care for such animal or animals for a period of one year, the Secretary is authorized upon application by the transferee to grant title to not more than four animals to the transferee at the end of the one-year period.

(d) Loss of status as wild free-roaming horses and burros; exclusion from coverage

Wild free-roaming horses and burros or their remains shall lose their status as wild free-roaming horses or burros and shall no longer be considered as falling within the purview of this Act-

(1) upon passage of title pursuant to subsection (c) except for the limitation of subsection (c)(1) of this section, or

(2) if they have been transferred for private maintenance or adoption pursuant to this Act and die of natural causes before passage of title; or

(3) upon destruction by the Secretary or his designee pursuant to subsection (b) of this section; or

(4) if they die of natural causes on the public lands or on private lands where maintained thereon pursuant to section 4 and disposal is authorized by the Secretary or his designee; or
(5) upon destruction or death for purposes of or incident to the program authorized in this section.
(e) Sale of excess animals;
(1) In general. Any excess animal or the remains of an excess animal shall be sold if-
(A) the excess animals is more than 10 years old; or
(B) the excess animal has been offered unsuccessfully for adoption at least 3 times.
(2) Method of sale
An excess animal that meets either of the criteria in paragraph (1) shall be made available for sale without limitation, including through auction to the highest bidder, at local sale yards or other convenient livestock selling facilities, until such time as-
(A) all excess animals offered for sale are sold: or
(B) the appropriate management level, as determined by the Secretary is attained in all areas occupied by wild free-roaming horses and burros.
(3) Disposition of funds
Funds generated from the sale of excess animals under this subsection shall be-
(A) credited as an offsetting collection to the Management of Lands and Resources appropriation for the Bureau of Land Management; and
(B) used for the costs relating to the adoption of wild free-roaming horses and burros, including the costs of marketing such adoptions.
(4) Effect of sale. Any excess animal sold under this provision shall no longer be considered to be a wild free-roaming horse or burro for purposes of this Act.

§ 1334. Private maintenance; numerical approximation; strays on private lands; removal; destruction by agents

If wild free-roaming horses or burros stray from public lands onto privately owned land, the owners of such land may inform the nearest Federal marshal or agent of the Secretary, who shall arrange to have the animals removed. In no event shall such wild free-roaming horses and burros be destroyed except by the agents of the Secretary. Nothing in this section shall be construed to prohibit a private landowner from maintaining wild free-roaming horses or burros on his private lands, or lands leased from the Government, if he does so in a manner that protects them from harassment, and if the animals were not willfully removed or enticed from the public lands. Any individuals who maintain such wild free-roaming horses or burros on their private lands or lands leased from the Government shall notify the appropriate agent of the Secretary and supply him with a reasonable approximation of the number of animals so maintained.

§ 1335. Recovery rights

A person claiming ownership of a horse or burro on the public lands shall be entitled to recover it only if recovery is permissible under the branding and estray laws of the State in which the animal is found.

§ 1336. Cooperative agreements; regulations

The Secretary is authorized to enter into cooperative agreements with other landowners and with the State and local governmental agencies and may issue such regulations as he deems necessary for the furtherance of the purposes of this Act.

§ 1337. Joint advisory board; appointment; membership; functions; qualifications; reimbursement limitations

The Secretary of the Interior and the Secretary of Agriculture are authorized and directed to appoint a joint advisory board of not more than nine members to advise them on any matter relating to wild free-roaming horses and burros and their management and protection. They shall select as advisers persons who are not employees of the Federal or State Governments and whom they deem to have special knowledge about protection of horses and burros, management of wildlife, animal husbandry, or natural resources management. Members of the board shall not receive reimbursement except for travel and other expenditures necessary in connection with their services.

§1338. Criminal provisions

(a) Violations; penalties; trial.

Any person who-

(1) willfully removes or attempts to remove a wild free-roaming horse or burro from the public lands, without authority from the Secretary, or

(2) converts a wild free-roaming horse or burro to private use, without authority from the Secretary, or

(3) maliciously causes the death or harassment of any wild free-roaming horse or burro, or
(4) except as provided in section 1333 (e), processes or permits to be processed into commercial products the remains of a wild free-roaming horse or burro, or

(5) sells, directly or indirectly, a wild free-roaming horse or burro maintained on private or leased land pursuant to section 1334 of this Act, or the remains thereof, or

(6) willfully violates a regulation issued pursuant to this Act, shall be subject to a fine of not more than $2,000, or imprisonment for not more than one year, or both. Any person so charged with such violation by the Secretary may be tried and sentenced by any United States commissioner or magistrate designated for that purpose by the court by which he was appointed, in the same manner and subject to the same conditions as provided for in section 3401, title 18.

(b) Arrest; appearance for examination or trial; warrants; issuance and execution.

Any employee designated by the Secretary of the Interior or the Secretary of Agriculture shall have power, without warrant, to arrest any person committing in the presence of such employee a violation of this Act or any regulation made pursuant thereto, and to take such person immediately for examination or trial before an officer or court of competent jurisdiction, and shall have power to execute any warrant or other process issued by an officer or court of competent jurisdiction to enforce the provisions of this Act or regulations made pursuant thereto. Any judge of a court established under the laws of the United States, or any United States magistrate may, within his respective jurisdiction, upon proper oath or affirmation showing probable cause, issue warrants in all such cases.

§ 1338a. Transportation of captured animals; procedures and prohibitions applicable
In administering this Act, the Secretary may use or contract for the use of helicopters or, for the purpose of transporting captured animals, motor vehicles. Such use shall be undertaken only after a public hearing and under the direct supervision of the Secretary or of a duly authorized official or employee of the Department. The provisions of section 47 (a) of title 18 shall not be applicable to such use. Such use shall be in accordance with humane procedures prescribed by the Secretary. Nothing in this Act shall be deemed to limit the authority of the Secretary in the management of units of the National Park System, and the Secretary may, without regard either to the provisions of this Act, or provisions of section 47 (a) of title 18, use motor vehicles, fixed-wing aircraft, or helicopters, or to contract for such use, in furtherance of the management of the National Park System, and section 47 (a) of title 18 shall be applicable to such use.

§ 1339. Limitation of authority Nothing in this Act shall be construed to authorize the Secretary to relocate wild free-roaming horses or burros to areas of the public lands where they do not presently exist.

§ 1340. Joint report to Congress; consultation and coordination of implementation, enforcement, and departmental activities; studies
After the expiration of thirty calendar months following the date of enactment of this Act, and every twenty-four calendar months thereafter, the Secretaries of the Interior and Agriculture will submit to Congress a joint report on the administration of this Act, including a summary of enforcement and/or other actions taken thereunder, costs, and such recommendations for legislative or other actions he might deem appropriate.

The Secretary of the Interior and the Secretary of Agriculture shall consult with respect to the implementation and enforcement of this Act and to the maximum feasible extent coordinate the activities of their respective departments and in the implementation and enforcement of this Act. The Secretaries are authorized and directed to undertake those studies of the habits of wild free-roaming horses and burros that they may deem necessary in order to carry out the provisions of this Act.

APPENDIX X

Colonial Spanish Horse Type Matrix

D. P. Sponenberg, Chuck Reed

A matrix of characters can be used to effectively evaluate horses for their relative consistency with Spanish type conformation. All horses vary, as do all populations. This matrix scores a variety of conformational traits related to Colonial Spanish Horse type. A score near 1 for each trait is most consistent with an Iberian origin, those with a score near 5 are much less typical.

When evaluating individual horses it is possible for a non-Iberian horse to be fairly low-scoring. This is much less likely when entire populations are scored, so that it is recommended that the matrix be used on populations rather than on individual horses. Populations that have over 80% low-scoring horses are likely to be Iberian in origin, and those with over 90% low scoring horses are nearly always proven to have had an Iberian origin. Those with 50% or fewer Iberian type horses are unlikely to prove out to be Iberian in origin.

On every horse, however many of these characteristics that can be observed should be scored. Add up the total score, and then divide that total by the number of items scored. A score of 1 is a very typey horse, a score of 2 an acceptable horse, a score of 3 a marginal horse. Scores of 4 and 5 deviate significantly from Spanish type. In a population of purely Spanish origin the scores should cluster strongly in categories 1 and 2, with very few in 4 and none in 5.

most typical – score 1	not typical - score 5
HEAD PROFILE	
either 1. concave/flat on forehead and then convex from top of nasal area to top of upper lip (subconvex) 2. uniformly slightly convex from poll to muzzle 3. straight	1. dished as in Arabian. 2. markedly convex.
HEAD FROM FRONT VIEW	
Wide between eyes (cranial portion) but tapering and “chiseled” in nasal/facial portion. This is a very important indicator, and width between eyes with sculpted taper to fine muzzle is very typical.	Wide and fleshy throughout head from cranial portion to muzzle.
NOSTRILS	
Small, thin, and crescent-shaped. Flare larger when excited or exerting.	Large, round, and open at rest.
EARS	
Small to medium length, with distinctive notch or inward point at tips	Long, straight, with no inward point at tip. Thick, wide, or boxy.

EYES	
Vary from large to small (pig eyes). Usually fairly high on head	Large and bold, low on head.
MUZZLE PROFILE	
Refined, usually with the top lip longer than the bottom lip	coarse and thick with lower lip loose, large, and projecting beyond upper lip.
MUZZLE FRONT VIEW	
Fine taper down face to nostrils, slight outward flare, and then inward delicate curve to small, fine muzzle that is narrower than region between nostrils.	Coarse and rounded, or heavy and somewhat square as the Quarter Horses, rather than having the tapering curves of the typical muzzle.
NECK	
Wide from side, sometimes ewe-necked, attached low on chest	Thin, long, and set high on chest.
HEIGHT	
Usually 13.2 to 14.2 hands high. Horses over 15 hands are not typical	Under 13 hands or over 15 hands is not typical
WITHERS	
Pronounced and obvious. “sharp”	Low, thick, and meaty.
BACK	
Short, strong.	Long, weak, and plain.
CROUP PROFILE	
angled from top to tail. Usually a 30 degree slope, some are steeper	flat or high
TAIL SET	
Low, tail follows the croup angle so that tail “falls off” the croup.	High, tail up above the angle of the croup.
SHOULDER	
Should be long, and 45 to 55 degrees	Short, and steeper than 55 degrees
CHEST SIDE VIEW	
Deep, usually accounting for half of height	Shallow, less than half of height
CHEST FRONT VIEW	
Narrow, and “pointed” in an “A” shape.	Broad, with chest flat across.
CHESTNUTS	
Small, frequently absent on rear, and flat rather than thick	Large, and thick
COLOR	
Any color. In populations the black-based colors are relatively common. No bonus points for any color, no suspicion of impurity on any color	No color is penalized
REAR LIMBS FROM REAR VIEW	
Straight along whole length, or inward to have close hocks and then straight to ground (“close hocks”), or slightly turned out from hocks to	Excessive “cow hocks.” Heavy, bunchy gaskin muscle, tight tendons.

ground (“cow hocks”) but not extreme. Legs very flexible. At trot the hind track often lands past the front track.	
FEATHERING ON LEGS	
Absent to light fetlock feathering, though some have long silky hair above ergot and a “comb” of curled hair up back of cannon. Some horses from mountain areas have more feathering than typical of others, and lose this after moving to other environments.	Coarse, abundant feathering as is seen in some draft horse breeds.
REAR	
Contour from top of croup to gaskin has a “break” in line at the point of the butt.	Contour from top of croup to gaskin is full and round “apple butt” with no break at the point of the butt.
HIP FROM REAR	
Spine higher than hip, resulting in “rafter” hip. Usually no crease from heavy muscling	Thickly muscled with a distinct crease down the rear.
HIP FROM SIDE	
Long and sloping, well angled, and not heavy.	Short, poorly angled.
MUSCLING	
Long and tapered	Short and thick “bunchy”
FRONT CANNON BONES	
Cross-section is round. Best to palpate this below the splint bones.	Cross section is flat across the rear of the bone.

Date:

location, owner, origin:

Horse Identification:

trait	score	comment
head profile		
head front view		
nostrils		
ears		
eyes		
muzzle profile		
muzzle front view		
neck		
height		
withers		
back		
croup profile		
tail set		
shoulder		
chest side view		
chest front view		
chestnuts		
color		
rear, rear view.		
feathering on legs		
rear		
hip from rear		
hip from side		
muscling		
cannon bones		