

U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-110-2010-0089-EA

PROJECT NAME: 2010 Piceance-East Douglas Herd Management Area
Wild Horse Gather Plan and Selective Removal

LEGAL DESCRIPTION: Sixth Principle Meridian
T 1 N, R 97 W,
Sections 2 - 24
T 1 N, R 98 W,
Sections 1 - 36
T 1 N, R 99 W,
Sections 1 - 20, 30, 31
T 1 N, R 101 W,
Sections 1 - 36
T 2 N, R 97 W,
Sections 18 - 20, 28 - 34
T 2 N, R 98 W,
Sections 2 - 36
T 1 S, R 96 W,
Sections 5 - 10, 15 - 36
T 1 S, R 97 W,
Sections 1, 2, 10 - 13, 22 - 28, 31 - 36
T 1 S, R 98 W,
Sections 1 - 36
T 1 S, R 100 W,
Sections 19, 29 - 32
T 1 S, R 101 W,
Sections 1 - 4, 9 - 15, 22 - 26, 36
T 2 S, R 96 W,
Sections 1 - 21, 29 - 32
T 2 S, R 97 W,
Sections 1 - 4, 9 - 16, 22 - 26, 36
T 2 S, R 98 W,
Sections 1 - 36
T 2 S, R 99 W,
Sections 1 - 36
T 2 S, R 100 W,
Sections 1 - 36

APPLICANT: Bureau of Land Management; White River Field Office

INTRODUCTION

The Bureau of Land Management (BLM) White River Field Office (WRFO) has completed a thorough review of current monitoring data and recognizing wild horses are to be managed in thriving natural ecological balance with other multiple uses and resources. WRFO has determined the wild horse population in the Piceance-East Douglas Herd Management Area (PEDHMA) exceeds the Appropriate Management Level (AML) and is no longer in balance with other resources managed in the PEDHMA. In accordance with the Federal Land Policy and Management Act of 1976; the Wild & Free Roaming Horse and Burros Act of 1971; Title 43 Code of the Federal Regulation (CFR), Part 4720.1; and the White River Resource Management Plan (Record of Decision, July 1997).

The WRFO is proposing to remove all wild horses that have been determined to be excess and are located within the PEDHMA and adjacent lands in order to comply with existing Land Use Planning decisions set forth in the White River Resource Management Plan (Record of Decision, July 1997) and subsequent White River Field Office Wild Horse Program Analysis and Operational Plan (BLM, 1999).

BLM is preparing this Environmental Assessment (EA) to disclose and analyze the environmental consequences of gathering excess wild horses in the PEDHMA in compliance with the National Environmental Policy Act (NEPA). This EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the Proposed Action. This EA provides the information to the WRFO for project planning and ensuring compliance with NEPA, and in making a determination as to whether any “significant” impacts could result from the implementation of these actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence necessary to determine whether a significant impact exists. If the BLM determines that the proposal would result in a “significant” impact in the EA, then the BLM would prepare an Environmental Impact Statement (EIS) for the project. If the decision maker determines that this project does not have “significant” impacts following the analysis, then the BLM will prepare and sign a “Finding of No Significant Impact” and Decision Record which implements the agency’s selected alternative.

The PEDHMA encompasses approximately 158,281 acres of lands administered by the Bureau of Land Management (BLM), White River Field Office, Meeker, Colorado, as well as 31,741 acres of lands not managed by the BLM. The PEDHMA is located approximately 25 miles west of Meeker, Colorado and 60 miles northeast of Grand Junction, CO.

BACKGROUND

In 1975, BLM drafted a White River Resource Area (WRRRA), Management Framework Plan (MFP) based on the information developed in the 1975 Unit Resource Analysis (URA). The 1975 URA identified two wild horse herd units, the Douglas Creek Herd Unit and the Piceance Basin Herd Unit. The 1975 Unit Resource Analysis further identified wild horse utilization/distribution problems resulting from human development and human population increases projected for the future. Based on this analysis the decision of the 1975 Land Use Plan was to: 1) Remove wild horses west of Douglas Creek, 2) Retain Wild Horses East of Douglas Creek, 3) Construct a fence along the Douglas Creek road (State Highway 139) from Rangely up East Douglas Creek.”

From 1978 through 1980, another planning effort was undertaken to update the 1975 MFP. This update was driven by court ordered environmental impact statements requiring area specific analysis of the livestock grazing program. A 1980 URA again identified two wild horse herd units, the Douglas Creek Herd Unit and the Piceance Basin Herd Unit. Based on the 1980 URA the Piceance/East Douglas Area was selected for management of wild horses because of a “lower density of both developed and undeveloped energy resources than any other area within the two wild horse herd units” and, “[t]he topography of the proposed area is highly suited to the needs of wild horses... offers both summer and winter ranges and provides all other elements necessary for the survival of wild horses.”

In 1985, the WRRRA Piceance Basin Resource Management Plan (RMP) was developed for the Piceance Basin to analyze expected impacts resulting from oil shale development. Wild horse management would continue according to decisions approved in the 1981, Piceance-East Douglas Herd Management Area Plan.

The 1997 WRRRA, Resource Area Management Plan, approved by the State Director, July 1, 1997, is the current land use plan decision process for the WRRRA and the Record of Decision (ROD) for the WRRRA. The decision for horse management was to “[m]anage for a wild horse herd of 95 to 140 wild horses on 190,130 acres within the Piceance-East Douglas Herd Management Area (PEDHMA) so that a thriving ecological balance is maintained for plant and animal species on that range.” “The boundary of the PEDHMA will be expanded to include the Greasewood allotment (presently a part of the North Piceance Herd Area).” Management also concluded “[t]he North Piceance Herd Area [would] be managed in the short-term (0-10) years) to provide forage for a herd of 0 to 50 horses in [the] herd area. The long term objective (+10 years) will be to remove all wild horses from [this] area.”

In 1999, the BLM completed the White River Field Office Wild Horse Program Analysis and Operational Plan, which provided an updated analysis of the current situation of the Wild Horse Program. The 2002 Piceance-East Douglas Wild Horse Herd Management Area Gather Plan (CO-WRFO-02-49-EA) set the AML range of 135 to 235, which was based on range monitoring data indicating that, in conjunction with other authorized multiple uses, the PEDHMA will support an average of 165 wild horses over any extended period.

PURPOSE AND NEED

The WRFO has reviewed its current inventories, land use planning documents, any existing court ordered EIS's and other information in accordance with The Wild Free-Roaming Horses and Burros Act of 1971 and determined that overpopulation exists on the public lands within the PEDHMA.

The purpose of the proposed action is to remove excess wild horses in order to achieve and maintain the AML for the PEDHMA, reduce population growth rates, collect additional information on the herd's characteristics and determine the herd's health in accordance with the Wild and Free-Roaming Horses and Burros Act and the WRFO RMP.

The need for this action is to remove excess wild horses in order to establish, preserve and maintain a thriving natural ecological balance and multiple-use relationship within the PEDHMA in accordance with The Wild Free-Roaming Horses and Burros Act of 1971.¹

SCOPING AND PUBLIC INVOLVEMENT

BLM initiated public involvement on the PEDHMA in 1974 when BLM conducted a census of the wild horses existing in the WRFO's boundaries by the herd units as required by the 1971 Act and later identified in the WRRMP of 1997. Public involvement has continued through the planning efforts described in the background section above.

Scoping is an important part of the NEPA process and determines the scope of key issues related to a Proposed Action. Scoping can involve federal, state, and local government agencies, tribal governments, resource specialists, industry representatives, local interests groups, and other members of the public. Previous public scoping efforts identified nearly 9 issues during the development of 2006 Piceance-East Douglas Herd Management Area Wild Horse Removal Plan (CO-110-2006-030-EA).

This document (DOI/BLM/CO11020100089EA) was posted to the WRFO NEPA web log on February 23, 2010. In addition, BLM published the NEPA log in the Rio Blanco Herald Times on March 25 and April 1, 2010 to notify interested publics of the BLMs intent to develop the EA. The following are the issues which have been brought forward from previous scoping as well as those identified through the WRFO's internal scoping of the issues:

- **Range of Wild Horse Management Options and Statutory Requirements.** Have all reasonable management options been considered and analyzed? Do management alternatives meet statutory requirements? The designation of the PEDHMA was fully analyzed within the 1997 White River Resource Area Resource Management Plan/Record of Decision, which was completed in accordance with NEPA, FLMPA, and other federal regulations. Since the 1997 plan additional information and gather plans have been completed on the PEDHMA. In 1999, the WRFO completed the White River Field Office Wild Horse Program Analysis and Operational Plan, which

¹ 16 U.S.C. §1333(b)(2)

provided an updated analysis of the current situation of the Wild Horse Program. In the 2002 Piceance-East Douglas Wild Horse Herd Management Area Gather Plan (CO-WRFO-02-49-EA) WRFO set the AML range of 135 to 235, which was based on range monitoring data indicating that, in conjunction with other authorized multiple uses. This document is being prepared to address the site specific impacts resulting from the implementation of the 1997 plan and all subsequent documents. These documents addresses a full range of alternatives consistent with NEPA, FLPMA, and other regulations.

- **Concerns about the use of fertility control.** This comment was fully addressed in BLM's response to comments for the 2006 PEDHMA gather plan analysis. BLM utilizes PZP as a tool, with nearly 20 years of research, to expand the management options available to the BLM to effectively manage wild horses according to the Wild Free-Roaming Horse and Burro Act of 1971. It will help WRFO manage the number of wild horses in the PEDHMA to be consistent with management objectives outlined in the RMP for wild horses and other natural resources. This EA makes no commitment to long term use of fertility control.
- **Helicopter use for gather operations during hunting seasons could scare game away.** In the scope of this document, the Bureau has identified this as a feasible alternative; this issue will be addressed through mitigation within this document.
- **Placement of trap sites, Landing Zones, and other gather operations may impact cultural resource sites and artifacts.** This issue is addressed through mitigation within this document.
- **Continued overpopulation of wild horses will result in decreased rangeland health.** This issue is addressed within this document.
- **Gather operations may have adverse impacts on various wildlife and plant species.** These issues are addressed within this document.
- **The use of other gather techniques other than helicopters to gather excess wild horses.** BLM developed an alternative to address this issue and was dropped from detailed analysis.

The BLM will release this preliminary EA to the public and allow a 30 day comment period in accordance with Washington Office Instruction Memorandum 2010-130. Submitted comments will be addressed in the Final Environmental Assessment. In addition to providing actual notice to the known interested public, notice will be published in the local newspapers as well as on the WRFO's web site as follows: <http://www.blm.gov/co/st/en/fo/wrfo.html>.

Pursuant to 43 CFR §4740.2(b), a public hearing will be conducted to address the use of helicopters or other motorized vehicles in gathering excess animals.

All subsequent gather operations will be published in the local newspapers as well as on the WRFO's website as above.

RELATIONSHIP TO STATUTES, REGULATIONS, POLICIES, PLANS OR OTHER ENVIRONMENTAL ANALYSES

Statutes:

Section 3(a) of The Wild Free-Roaming Horses and Burros Act of 1971, 16 U.S.C. 1333(a) provides:

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.

Section 3(b)(2) of The Wild Free-Roaming Horses and Burros Act of 1971, 16 U.S.C. 1333(b)(2) provides:

Where the Secretary determines on the basis of . . . information contained in any land use planning completed pursuant to section 202 of the Federal Land Policy and Management Act of 1976 . . . 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.

Section 302(b) of The Federal Land Policy and Management Act of 1976, 43 U.S.C. 1732(b), provides:

In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.

Regulations:

Title 43 of the Code of Federal Regulations Section 4710.1 provides:

Management activities affecting wild horses and burros, including the establishment of herd management areas, shall be in accordance with approved land use plans prepared pursuant to part 1600 of this title.

Title 43 of the Code of Federal Regulations Section 4710.4 provides:

Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas. Management shall be at the minimum level necessary to attain the objectives identified in approved land use plans and herd management area plans.

Title 43 of the Code of Federal Regulations Section 4720.1 provides:

Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately....

Title 43 of the Code of Federal Regulations Section 4740.2(b) provides:

Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

Title 43 of the Code of Federal Regulations Section 4770.3(c) provides:

...the authorized officer may provide that decisions to remove wild horses or burros from public or private lands in situations where removal is required by applicable law or is necessary to preserve or maintain a thriving ecological balance and multiple use relationship shall be effective upon issuance or on a date established in the decision.

Plans:

The Proposed Action is subject to and in conformance with the following plan (43 CFR 1610.5-3(a), BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (WRRMP).

Date Approved: July 1, 1997

Decision Number/Page: Page 2-26, *Wild Horse Management*, “Manage for a wild horse herd within the Piceance-East Douglas Herd Management Area so that a thriving ecological balance is maintained for all plant and animal species on that range.”

Tiering and Incorporation by Reference:

This document is being tiered to the foregoing planning documents and associated NEPA analyses and are incorporated by reference.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Alternative A – Proposed Action:

WRFO’s objective for completion of the 2010 PEDHMA Gather are:

- Reach the lower end of AML.
- Manage the PEDHMA to achieve and maintain a thriving natural ecological balance and multiple-use relationship.

- Manage the PEDHMA population to preserve and enhance the historic physical and biological characteristics of the herd.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health of the PEDHMA.
- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the PEDHMA during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- Manage the PEDHMA wild horse herd as a self-sustaining population of healthy wild horses in balance with other uses and the productive capacity of their habitat.

The WRFO would bring the wild horse population to the low end of AML (135 wild horses) within the PEDHMA. Based upon the 2010 inventory, WRFO will attempt to gather the estimated 318 head of wild horses within the PEDHMA. WRFO plans to remove approximately 183 excess wild horses from within the PEDHMA which would bring the wild horse population down to the low end of AML.

The proposal also includes fertility control treatment and/or adjustment of the sex ratio to favor males (40% mares and 60% studs) through the selection of release wild horses, so as to decrease the future annual population growth. In order to apply fertility control to mares, and to treat a large enough portion of the wild horses capture and subsequently released, the gather operation would need to result in the capture of at least 85 to 90% of the current wild horse population both within and outside the PEDHMA. The procedure to be followed for the implementation of fertility control are detailed in Appendix C.

In addition, to comply with 43 CFR 4710.4, all wild horses located outside the boundaries of the PEDHMA, approximately 138 head, will be gathered and removed unless during the selection process it is determined that a specific wild horses could be returned to the PEDHMA.

This proposed gather will take place between October 1, 2010 and February 28, 2011 and the National Contracted gather is tentatively scheduled for October 11 – 22, 2010. The excess wild horses will be transported to the BLM Canon City wild horse holding facility. The BLM will remove wild horses in accordance with the current age selective removal policy (Washington Office IM-2010-135). This policy identified the following priorities for removal: 1) 4 years old or younger, 2) 11 to 19 year olds, 3) 5 to 10 years old, and 4) 20 years of age or older.

WRFO will release wild horses back to the PEDHMA upon reaching the low end of AML. Releases will occur upon completion of gather operations. The BLM attempts to return wild horses to the general vicinity from which they were gathered. Wild horses determined unable to withstand the stress associated with capture, handling and transport will be returned to the PEDHMA at the earliest possible opportunity. If the Proposed Action is fully successful the PEDHMA will consist of approximately 135 wild horses; the lower range of the appropriate management level of 135 to 235 head of wild horses. Of the 135 wild horses returned to the

PEDHMA, approximately 10% will be yearlings or approximately 13 head (7 studs and 6 mares). Of the remaining 122 wild horses returned to the PEDHMA, approximately 60% (72) would be studs and 40% (50) mares. All of the mares older than 2 years of age would be treated with PZP. Released wild horses would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).

Due to terrain, cover, and potential for storm conditions, gather efficiency may be less than optimal. In order to implement the use of fertility control, the WRFO anticipates that it will need to gather more than 80% of the inventoried population (i.e. 254 wild horses out of the 318), otherwise an insufficient number of wild horse mares would be gathered to implement fertility control (28 mares). If the gather resulted in a 55% efficiency (i.e. 50% of the current population of 318 inside or 175 wild horses gathered) potentially none of the gathered wild horses would not be returned to the PEDHMA.

The project will be completed by a BLM Wild Horse and Burro (WH&B) National Program Contractor and/or BLM personnel. The four gather methods of trapping include: 1) Helicopter drive-trapping which is the primary method used to capture wild horses. Helicopter drive-trapping involves using a helicopter to spot and then herd wild horses towards a pre-constructed trap; 2) helicopter assisted roping which to capture individual wild horses that have been herded by the helicopter towards ropers who rope the wild horse(s). Once roped, another rider rides alongside the roped wild horse and roper, helping to haze, or herd, the roped wild horse either towards the trap or towards a stock trailer; 3) water trapping is a trap constructed of portable, round-pipe steel panels. Funnel-shaped traps are built which allows wild horses to get deep into the trap so that the gate release mechanism allows time for the gate to close located at a specific water source; or 4) bait trapping is a trap constructed of portable, round-pipe steel panels. Funnel-shaped traps are built which allows wild horses to get deep into the trap so that the gate release mechanism allows time for the gate to close and will be located so that wild horses may make use of the provided forage. For a detailed description of the gather methods associated with this proposed action refer to Appendix A Standard Operating Procedures and Appendix B WO IM 2010-135 including new Standard Operating Procedures.

An Animal and Plant Inspection Service (APHIS) veterinarian may be on-site, as needed, to examine wild horse and make recommendations to BLM for care and treatment. All euthanasia will be in accordance with Washington Office (WO) Instruction Memorandum (IM) No. 2009-041 and Instruction Memorandum No. 2009-041, Change 1:

http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html

http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2009-041_ch1.html

Gathered wild horses will be trucked to the Yellow Creek Corral holding facility or a contractor holding facility where they will receive appropriate food and water. They will be paint-marked to identify the location from which they were gathered, aged, sorted into stud pens, dry mare pens, and mare/foal pens. They will be held at the holding facility until they are further trucked

to the BLM wild horse permanent holding facilities located in Canon City, Colorado, or released back into the PEDHMA. There is no proposal to hold a wild horse adoption at the Yellow Creek Corrals upon completion of the gather because of the current market conditions. However, if determined that an adoption is warranted BLM may hold an adoption offering approximately 12 head of wild horses with that date to be decided upon and advertised.

WRFO will carry out all phases of the gather, holding, adoption preparation and transport according to Bureau policy with the intent of conducting a safe, humane operation. If conditions warrant, or if animal health and welfare is in jeopardy at any time, gather operations will be delayed, or halted. The following design features and mitigation measures have been incorporated, and will be adhered to by Wild Horse and Burro (WH&B) National Program Contractor and/or BLM personnel.

1. Liquid nitrogen will be kept in an approved container and in the care of the BLM personnel.
2. All refueling would occur on existing roads, or an approved staging area. Use of absorbent pads while refueling will limit the potential of fuel spills. In the event of a spill of lubricants, hydraulic fluid, or any other hydrocarbon during activities, the Contractor would immediately contain and clean up the affected area. Any contaminated vegetation and soil would be removed and disposed of in an approved waste disposal facility. The Contractor would have absorbents onsite for spill containment. After cleanup is complete, the spilt substance(s) and materials used for cleanup would be removed from the project area and disposed of at an approved disposal facility. All spills would be immediately reported to the appropriate surface management agency.
3. Helicopter fuel storage and fueling stations shall be sited a minimum of 200 feet from riparian vegetation or drainages that have potential to directly contribute contaminants to systems that support riparian resources. Refer to the mitigation listed in the Wastes, Hazardous or Solid section regarding spills.
4. Any discovery of hazardous or potentially hazardous materials will be reported to BLM hazardous materials coordinator and Law Enforcement for investigation.
5. Any hay fed at trap sites or holding facilities, on BLM, will be certified as weed free. Any noxious weeds that establish as a result of the proposed action will be controlled by the BLM. All of the trap locations will be monitored for up to three years for weed species infestation. If discovered, BLM will treat these locations based on either the weed species that may be discovered, i.e. pesticide treatment, at any of the trap locations. It is estimated that less than 10 acres total will be affected. Generally, the impacts are concentrated at the trap location and this concentration varies depending on the number of wild horses that are gathered at each trap location.
6. WRFO staff will complete surveys of suitable raptor nesting habitat on trap sites proposed for use or development prior to August 15. In the event an active raptor nest is found in the vicinity of trapping operations, these nest sites will be afforded a buffer in accordance with

the WRRMP (2-30) and any subsequent documents, to effectively isolate nesting activity from disruptions generated from wild horse trapping operations.

7. Trap locations and holding areas will be sited to avoid archaeological and cultural resources. In areas with acceptable levels of inventory no additional field work should be necessary except to ensure that sites in the near vicinity can be adequately avoided by drive lines, wing fences and traps. In areas where inadequate inventory data exists an inventory will be conducted to ensure that any resources present are avoided.
8. Known and reported fossil localities will be avoided when locating trap sites and associated wing fences and holding facilities. Sites without adequate inventory data will need to be examined for the presence of fossils during trap site selection activities. Trap facilities will be modified to avoid impacting identified fossil resources.
9. Public notice will be given through various media outlets starting in August. The main access roads leading into gather areas will be signed informing the public of potential gather operations. Areas being utilized for the gather including helicopter ground operations, gather sites and temporary holding facilities could be restricted and/or closed for administrative use only for the safety of the public, the gather personnel and the wild horses. Sites should be set up for media, 1st Amendment, and the general public wishing to view the gather operations. Rules would need to be established and posted for site visitation. Increased law enforcement personnel would be necessary to meet the increased patrol needs.
10. Avoid, if at all possible, helicopter gather operations from late-August through November for high public use during big game hunting seasons.
11. In the event helicopter activity cannot be avoided during annual dates that correspond with CDOW's big game seasons, CDOW staff will be contacted to coordinate gather in an effort to develop mutually compatible strategies that may reduce the intensity and localize the expanse of helicopter-related disturbances. BLM would attempt to provide CDOW gather details that involve potential disruption of trophy deer hunting seasons early enough for this information to be published in the current year hunting regulation brochure.
12. All of the trap locations will be monitored for up to three years for vegetation recovery. If problems with vegetation establishment are discovered, BLM will treat these locations based on the aid in vegetation recovery that may be necessary, i.e. broadcast seeding, at the trap locations. It is estimated that less than 10 acres total will be affected. Generally, the impacts are concentrated at the trap location and this concentration varies depending on the number of wild horses that are gathered at each trap location.

Alternative B – Gather and Removal of Excess Wild Horses Only: This alternative mirrors the Proposed Action with the exceptions that the selected mares will not be treated with the immunocontraception (fertility) drugs and there will be a 50/50 sex ratio.

Alternative C - No-Action Alternative Defer gather and removal: Under this alternative, no gather operation would be conducted and the wild horses would be allowed to expand at the

existing rate of 20+% annually until a gather could be conducted. The wild horse population would be approximately 318 by October 2010 (February/March 2010 inventory counted 265 wild horses within the PEDHMA) and would expect 382 wild horses in the year 2011 and would continue to expand at a rate of approximately 20% every year. Excess wild horses outside of the PEDHMA boundaries would also continue to increase in number, with a projected population of 166 head of wild horses located outside the PEDHMA by 2011.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:

- **Gathers between the dates of March through June:** This alternative was not carried forward since the time period corresponds with peak foaling periods, resulting in the increased separation of foals from their mare during herding operations, increased stress on mares resulting in increased abortion rates, mares abandoning foals and increased orphan foals.
- **Exclusive Use of Bait and/or Water Trapping:** An alternative considered but not carried forward for detailed analysis was the use of bait and/or water trapping (without the use of helicopter) as the exclusive gather method. This alternative was dismissed from detailed study for the following reasons: (1) the size of the area is too large to the use this method; (2) the presence of water sources on both private and public lands inside and outside the PEDHMA boundary would make it difficult to restrict wild horse access to selected water trap sites, and would extend the time required to remove excess wild horses; and (3) the aforementioned logistic difficulties and increased cost of this alternative would make it ineffective in meeting the purpose and need. The large geographic area involved and the extended time necessary for this alternative would result in a significant increase in gather cost and would make it difficult to limit the gather to the preferred time frame. Given the impracticalities of implementation, this alternative was eliminated from detailed analysis.
- **Gather to the High End of AML:** This alternative was not carried forward since reducing the population to the high end of AML would not be consistent with the current purpose and need. Under this alternative the gather would mirror the gather operations of the Alternative B; however, BLM would only remove 83 excess wild horses. Under this alternative the population the year following, at a 20% growth rate, would be at 282, which would result in a population that would not maintain a thriving, natural, ecological balance with other resources, and then would require additional gather operations to comply with the Wild Horse and Burro Act of 1971 and the WRRMP. Under the current four year, gather schedule the estimated population would be approximately 487 wild horses. For these reasons, this alternative was eliminated from further consideration.
- **Other alternative capture techniques instead of helicopter assisted techniques:** This alternative would be used as capture methods other than helicopters to gather excess wild horses, which were suggested through previous public reviews. As no specific alternative methods were suggested, the BLM identified chemical immobilization, net

gunning, and wrangler/horseback drive trapping as potential methods for gathering wild horses. Net gunning techniques normally used to capture big game also rely on helicopters. Chemical immobilization is a very specialized technique and strictly regulated. Currently, the BLM does not have sufficient expertise to implement this method and it would be impractical to use given the size of the PEDHMA, access limitations and the approachability of the wild horses. Use of wrangler on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale but due to number of excess wild horses to be removed, the large geographic size of the PEDHMA and approachability of the wild horses this technique would be ineffective and impractical to meet the purpose and need. Horseback drive-trapping is also very labor intensive and can be very harmful to the domestic horses and wranglers during the gather operations. For these reasons, this alternative was eliminated from further consideration.

If any of the above identified alternatives are considered in future gather operations separate analysis will be done at that time.

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES

STANDARDS FOR PUBLIC LAND HEALTH: In January 1997, Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below.

NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

WILD HORSES

Affected Environment: 1) Wild Horse Herd Distribution: The PEDHMA is comprised of six geographic regions (Map 1). These geographic regions correspond with areas of preferred habitat that form distinct home ranges. These distinct home ranges are terrain and vegetation driven and an asset because they promote good distribution in the PEDHMA. Wild horse movement in the PEDHMA is apparent through trails and seasonal variation in distribution. However, some of the wild horse bands have home ranges and rarely venture beyond these ranges. WRFO recognizes that the AML for the wild horses in the PEDHMA is that of a genetically diverse population. Additionally, these wild horses have opportunity to interact with each other between home ranges within the PEDHMA, and that interaction should ensure genetic variability. While the home ranges of all six groups overlap, particularly among wild horses using adjacent geographical regions, each geographic region hosts a herd with a unique habitat use pattern.

- The *Greasewood wild horses*' summer on Calamity Ridge at the head of Greasewood Creek and use the lower reaches and part of the Barcus-Pinto region in the winter, fall and spring.
- The *Rocky Ridge wild horses*' utilize a range centered on Black Mountain which includes lower Yellow Creek, Barcus Creek, and lower Greasewood. Their home range and preferred forage use area overlaps with that of the Barcus-Pinto herd principally in the Barcus and Yellow Creek drainages.
- The *Barcus-Pinto wild horses*' core distribution area is Pinto Mesa, the area between Barcus Creek and Pinto Gulch. This range extends over into Barcus Creek proper which is used extensively for forage, particularly in the summer months. The lower reaches of Barcus Creek are particularly vulnerable to overgrazing when wild horse numbers exceed the AML range. The herd's affinity for Pinto Mesa is the result of a nearly ideal mixture of habitat features including thermal cover, large open foraging areas and proximity to reliable water sources. Pinto Mesa's prime habitat and central location within the Piceance Portion of the PEDHMA, makes it the area with the most overlap among the geographic regions of the PEDHMA. Wild horses from the Greasewood, Rocky Ridge, Barcus Pinto and Boxelder herds all use this area. At proper stocking levels, the area serves as valuable fall, winter and early spring range, but most wild horses leave the area for the growing season. When numbers exceed the Appropriate Management Level the summer range becomes limiting and bands from Greasewood, Rocky Ridge and Barcus-Pinto tend to remain in the area during the entire growing season.
- The *Boxelder wild horses*' home range includes a rectangular block of rangeland with prime summer habitat on the Cathedral Bluffs to the west and lower elevation habitat for the other seasons to the east. On 84 Mesa, at the east end of the region, the Boxelder herd overlaps with the Barcus-Pinto herd. The key winter use area of this sub-unit is the south exposures of Dry Gulch and, to a lesser extent, the south slope of Corral Gulch below its junction with Water Gulch. The herd's summer use area features the upper reaches of Boxelder and Corral Gulch on the Cathedral bluffs, due to the favorable mix of water and foraging habitat. The key summer forage habitats are the dry exposure and loamy slope range sites. On Cathedral Bluffs the Boxelder herd intermingles with the wild horses from the Square S, Pasture C, and East Douglas herds.
- The *Square S, Pasture C wild horses*' home range coincides with a pasture in the Square S grazing allotment that is fenced on three sides. The Pasture C herd winters on the south slopes along the lower reaches of Stake Springs. When the snow melts, the bands move south and west to the upper elevation ridges to preferred foraging habitat on the Cathedral Bluffs. The ridgetop grasslands that are their primary habitat are the Dry Exposure and Loamy Slopes range sites. Pasture C wild horses sometimes move west into the East Douglas portion of the PEDHMA. Gates on the fenceline between Pasture C and the Boxelder Region are commonly left open when not needed for livestock management, so the Boxelder and Pasture C wild horses interchange frequently.

- The *East Douglas wild horses* focus on the rugged west face of the Cathedral Bluffs. Some of these wild horses summer on the top of the bluffs in the vicinity of Tommy’s Draw, where they overlap with the Boxelder and Square S, Pasture C herds. The WRFO’s 2010 inventory found only 9 head of the wild horses within the boundaries of the East Douglas portion of the PEDHMA. BLM inventoried an additional 29 head of wild horses located just south of the PEDHMA boundary within the Cathedral Creek pasture of the Cathedral Bluffs allotment. BLM believes these wild horses to be part of the East Douglas group because of the lack of a boundary fence for this section of the PEDHMA bringing the number in this home range to 38 head of wild horses.

Table 1. Provides the inventoried locations of wild horses to be removed and the intended wild horses to be released back in to the PEDHMA by estimated numbers/populations based on 2010 inventory and locations.

AREA	2010 INVENTORY DATA	PROJECTED POPULATION AUGUST 2010	WILD HORSES TO BE REMOVED UNDER THE PROPOSED ACTION	PROPOSED POST GATHER POPULATION
East Douglas	38 ¹	46	21	25
Greasewood/Barcus/Pinto	138	166	133	33
Rocky Ridge	17 ²	20 ¹	0 ¹	23 ¹
Boxelder	55	66	37	29
Square S, Pasture C	46	55	30	25
North Piceance HA	49	59	59	0
Magnolia Bench	9	11	11	0
Adjoining Allotments	28	37	37	0

¹Inventory shows 9 head of wild horses counted inside the PEDHMA while 29 head of wild horses were counted just outside the PEDHMA boundary but still on the East Douglas side so the inventory data is included in the East Douglas geographic region and not in the adjoining allotments data.

²WRFO believes that it was possible that a band of seven wild horses were missed during the inventory and that the number of wild horses within the Rocky Ridge geographic area is around 29 head of wild horses which would mean that we may potentially remove up to five head from this area.

2) Herd Genetics and Population History: Wild horses in the Piceance-East Douglas herd possess balanced conformation and somewhat refined features. The majority of the wild horses stand between 14.2 and 15 hands and weigh between 800 and 1,000 lbs. In 1995, E. Gus Cothran, the Director of the Equine Blood Typing Research Laboratory at the University of Kentucky, evaluated the genetic makeup of the Piceance-East Douglas herd. Cothran’s report stated, in part: “The primary conclusions from the analysis of genetic variability of the [WRRRA] horse herd are that significant genetic subdivision of the herd exists and that, in general, genetic variation within subdivisions is relatively low. Within the PEDHMA genetic diversity is fairly high. From a management standpoint, this is almost ideal situation. Population subdivision with limited inbreeding within subdivisions and occasional exchange of individuals among subdivisions is one of the best strategies for the long term maintenance of genetic variability. The subdivision of the PEDHMA population with levels of dispersal that now appear to exist should be sufficient to maintain genetic variation within the area for many generations even if relatively small numbers are maintained within subdivisions. If additional interchange of individuals appears to be needed in the future, transfer of one or two year old females every three to five years would be the most efficient strategy.”

Genetic sampling was also conducted during the 2002 gather, when 30 samples were submitted for analysis from the Barcus Creek, 84 Mesa, and Spring Creek areas. The report states: “Overall, little has changed since 1995. . . . The population subdivision exhibited in the WRRRA is a good way to maintain variation in the long term. Allelic diversity appears to be as high or higher than 10 years ago which is likely due to the subdivision with limited migration among groups.”

The report goes on further: “This herd area should be closely monitored. Variation levels are low overall and are below presumed critical levels for some herds. . . . Also, because all subpopulations appear to have a common origin, the subdivision with occasional migration will not completely eliminate the threat of inbreeding. This herd should be watched for possible evidence of inbreeding depression such as common physical defects or low reproduction. If such evidence is observed, importation of wild horses from another HMA should be considered. The Little Bookcliffs area would be a good source of wild horses.”

During the 2006 gather, genetic samples from 32 wild horses were collected, this time specifically from those wild horses gathered from the East Douglas portion of the PEDHMA. The report states: “Genetic variability of this herd is somewhat low but not yet at a critical level to cause concern. . . . Current variability levels warrant monitoring of this population. Although variation levels are not yet at a critical level the risk of additional loss of diversity exists in <part> due to small population size. If population size cannot be increased an introduction of wild horses from another area may need to be considered.”

Cothran’s studies determined the herd shows the closest similarity to the North American breeds, as well as to the Thoroughbred, Arabian and draft horse groups. The Piceance-East Douglas herd has the closest relationship to Colorado’s Little Book Cliffs wild horse herd.

The first census of this herd was completed in 1974 with 139 wild horses recorded during the flight. Since 1974 herd population has been recorded during census as high as 389 in 1995 and as low as 93 wild horses in 1985 (probable mortality resulting from severe winter weather conditions.) The following table shows the population history in the PEDHMA determined through census and expected herd recruitment. However, it should be noted that since the establishment of AML through EA # CO-110-2002-049-EA the population in the PEDHMA has never been below 200.

Table 2. Provides the history of previous inventories and wild horses removed during previous gathers.

YEAR	INVENTORY DATA – PEDHMA PORTION ONLY	ESTIMATED POST-FOAL POPULATION	NUMBER OF WILD HORSES REMOVED
1974	139	167	---
1979	283	340	---
1980	194	233	133
1981	225	270	185
1982	207	248	---
1983	---	---	54
1984	---	---	10
1985	93	112	7

YEAR	INVENTORY DATA – PEDHMA PORTION ONLY	ESTIMATED POST-FOAL POPULATION	NUMBER OF WILD HORSES REMOVED
1991	272	326	21
1992	---	---	75
1993	215	---	58
1994	---	---	103
1995	389	466	---
1996	---	---	239
1997	286	343	135
1999	242	290	92
2002	294	353	151
2006	363	436	212
2010	265	318	Scheduled

The WRFO conducted an inventory for wild horses in the areas of PEDHMA, North Piceance Herd Area, as well as locations outside of these areas. The inventory started February 2, 2010 and concluded on March 17, 2010. Summary of this report is as follows: 46.3 hours of flight time logged, approximately 534,272 acres inventoried.

INVENTORY COUNT

29 head Just south and east of the East Douglas portion of PEDHMA
3 head East of Ryan Gulch
4 head Yellow Creek Jeep Trail/County Road #5
3 head 300 yards into Yellow Creek drainage bottom
3 head 250 yards north of Intersection at County Roads #88, #20, #83
15 head Doughnut Hole (3 bands: 7 head; 6 head; 2 head)
9 head Magnolia Bench, east of Piceance Creek
49 head North Piceance Herd Area
265 head Inside PEDHMA

A copy of the full inventory report is available upon request.

3) Herd Age, Sex and Color Ratio: Herd age and sex data collected during 6 gathers between 1980 and 2002 were compared to determine any notable changes in age, sex or color structure within the herd over a 22 year time span.

Table 3. Age Distribution Percent by Gather Year

AGE	GATHER YEAR							
	1980	1983	1994	1996	1997	1999	2002	2006
Foals	23	21	20	23	23	21	21	23
1	20	2	2	8	5	1	13	19
2	11	12	7	20	7	14	13	10
3	7	23	34	11	9	12	8	9
4	8	2	11	4	9	5	5	5
5	3	3	none	3	3	4	3	5
6	3	11	none	5	5	3	3	2
7	5	5	7	4	6	4	5	3
8	3	8	5	5	5	10	5	2
9	3	2	1	1	5	2	5	1
10	2	2	3	*	2	1	2	3
11	2	3	4	*	3	2	6	3

AGE	GATHER YEAR							
	1980	1983	1994	1996	1997	1999	2002	2006
12	4	3	5	*	3	1	5	3
13	5	3	none	*	2	3	T	T
14	1	1	none	*	2	1	T	0
15	1	3	1	*	3	5	3	1
16	none	trace	none	*	1	none	1	0
17	none	none	none	*	1	none	T	2
18	none	none	none	*	2	none	1	2
19	none	none	none	*	1	1	0	0
20	none	none	none	*	2	2	1	0
+20	1	trace	none	*	2	2	T	4

*Note that in 1996 of the 87 head of wild horses returned to the PEDHMA 77 head of the wild horses were 10+ years but specific ages were not identified on the records.

A typical age structure for hoofed, wild ungulates (which includes wild horses) is pyramid in shape with the majority of wild horses included in the youngest age categories. A comparison of herd age structure based on 6 gathers between 1980 and 2006 suggest the Piceance-East Douglas herd retains a sound, varied age structure with the majority of wild horses within the younger age classes.

The herd's foal crop fluctuates between 20% and 24% of the population and averages at 22% of the herd. The one discrepancy in the herd's age structure is seen in the yearling age class. In 1980 20% of the wild horses gathered were recorded as yearlings. This percent drops notably in the other 4 years of data, ranging between 1% and 5%. Human error may have resulted in the aging of wild horses since figures support an average population increase of 22%. Garrott (1990), in his doctorate paper on the demography of wild horses completed in 1990 analyzed 60,116 samples and found a frequent misclassification of yearling wild horses as two-year olds. The error was due to wild horses being classified as two-year olds because the incisors had fully erupted. Even though a sizeable number of yearlings have erupted incisors they are not in contact, thus the discrepancy. The possibility of human error accounting for the low number of yearlings recorded in these gathers is supported by comparing the number of yearlings recorded in 1994 (2%) with the number of four-year old wild horses gathered in 1997 (9%).

The proportion of older (over 10 years of age) wild horses increased somewhat between 1997 and 1999. This increase is likely the result of the program's age selective gather policy that went into effect in 1994 and resulted in older wild horses being returned to the range. To date, age gather operations do not appear to have negatively affected the Piceance-East Douglas herd's age structure; the herd remains primarily composed of wild horses under 10 years of age. During the 2002 gather and removal operation wild horses over the age of 10 were removed from the area and placed in BLM facilities. Of the 27 mares and 31 studs gathered 12 mares and 6 studs were released back into the PEDHMA therefore it is believed that the population will not increase in older (over 10 years of age) but perhaps realize a more diverse spread in age classes.

The WRFO recorded a filly: colt ratio of 50:50 during two of the eight (8) gathers (Table 4). The remaining gathers suggest a normal fluctuation in the filly: colt ratio with fillies varying between 40% and 60% of the wild horses gathered.

The herd's adult sex ratio appears to favor females over males. Females meet or exceed 50% of the gathered population in 5 of the 8 years of data collection. The reason for a higher proportion of adult females in the herd is most likely the result of human manipulation as well as natural selection. To date, male wild horses have been favored for removal by the BLM during removal projects. Research suggests that natural selection in wild horse herds favors females over males. Garrott (1990) concluded "foal sex ratios tend to be close to parity while there is a trend towards a preponderance of females in the adult segment of the populations." "The tendency toward a skewed adult sex ratio [towards females] therefore is not the result of a skewed ratio at birth but reflects either a disparity in survival rates between males and females or differential probability of capture." To date, while the Piceance-East Douglas herd sex ratio appears to favor females, the ratio does not notably lean towards one sex over another. Variations can likely be attributed to normal fluctuations.

Table 4. Provides the sex ratio data collected during the previous eight (8) gathers from those wild horses gathered:

YEAR	FILLY %	COLT %	MARE %	STUD %
1980	50	50	53	47
1983	50	50	47	53
1985	40	60	52	48
1996	59	41	61	39
1997	47	53	50	50
1999	56	44	54	46
2002	45	55	58	42
2006	53	47	56	44

Herd color composition data collected during gathers between 1980 and 2006 were compared to determine any notable changes in color structure within the herd over a 26 year time span.

Table 5. PEDHMA Color Composition by Gather Year

Color	Gather Year						
	% 1980	% 1983	% 1994	% 1997	% 1999	% 2002	% 2006
Bay	19	25	60	52	18	33	43
Gray	10	11	15	10	25	26	12
Red Roan	9	1	0	0	5	2	2
Sorrel	23	15	4	9	10	10	15
Blue Roan	5	3	0	0	1	0.5	1
Brown	10	13	7	5	16	11	9
Black	14	19	10	23	23	8	13
Pinto	0	2	1	1	T	1	1
White	0	0	0	0	0	0	0
Buckskin	3	3	1	0	0	4	0
Palomino	2	3	0	0	0	0.5	T
Chestnut	5	1	1	T	0	3	T
Cremello	0	0	0	0	0	1	0

As evidenced from the table above, diversity in herd color does not appear to have changed appreciably between 1980 and 2006. Rarer colors accounted for a combined 16% of the wild horses gathered in 1980; 11% in 1983; and 5% in 1994. These colors were absent in 1997 and in 1999. The decrease in herd color variation is most likely partially attributable to human manipulation and partially due to unknown internal factors. Both Bay and gray wild horses

possess a varied range of color diversity and have increased in the herd. Preserving what color is left in this herd and possibly introducing wild horses with more unusual color into the herd could be expected to increase herd color variation over time. Uniquely colored wild horses stand out and can be used as 'marker' wild horses during monitoring and gather projects.

4) Natural Population Controls: Throughout the PEDHMA few predators exist to control wild horse populations. Some mountain lion and bear predation may occur, but does not appear to be substantial. Coyote are not prone to prey on wild horses unless young, or extremely weak. Other predators such as wolves do not exist.

5) Effect of the Human Activities: Oil and gas development on approximately 280 well pad locations (approximately 300 wells) have been developed since around the 1950's. The East Douglas portion of the PEDHMA saw the most development around the 1960's where approximately 60% of the well pad locations are located. Another 10% of the well pad locations are in the north eastern portion of the area known as Rocky Ridge and were developed around 1955. The remaining 30% of the development, and most of the activity within the last 5-10 years, has occurred within the interior of the PEDHMA on roughly 84 well pad locations. Potential disturbance is estimated at approximately 10 acres per well pad for a total of 2,800 acres. The well locations and associated oil and gas facilities are in various stages of development (i.e. drilling, interim reclamation, and final abandonment). WRFO obtained this information from the Colorado Oil and Gas Conservation Commission (COGCC) website dated February 8, 2010. Surface stipulations applicable to all surface disturbing activities were included for wild horses and can be found on page A-23 in the WRRMP.

The potential for wild horse collisions with vehicles exists from traffic on existing transportation infrastructure within the PEDHMA. In addition, wild horses mortality has resulted from either accidental or intentional shootings that were investigated by BLM law enforcement personnel.

Environmental Consequences of Alternative A-Proposed Action: Impacts to wild horses under Alternative A would be both direct and indirect, occurring on both individuals and populations as a whole. Disturbance of wild horses by activities associated with any gather are unavoidable. Wild horses must travel over varying terrain to the trap locations. There is always the possibility that wild horses will be injured or killed during any phase of the gather and removal operation. Methods and procedures have been identified and refined throughout the western states to minimize stress and impacts to wild horses during implementation of wild horse gathers. The SOPs outlined in Appendixes A and B would be implemented to ensure a safe and humane gather occurs and would minimize potential stress and injury to wild horses.

Each released mare would receive a single-dose of the two-year PZP contraceptive vaccine. When injected, PZP (Antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's own eggs, and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible.

The highest success for fertility control has been achieved when applied during the timeframe of November through March. Refer to Appendix C for more information about fertility control research procedures. The efficacy for the application of the two-year PZP vaccine based on winter application is as follows:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Normal	94%	82%	68%

This one time application, applied at the capture site, would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effects on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in 2011 (year 1).

The injection would be controlled, handled, and administered by a trained BLM employee. Mares receiving the inoculation would experience slightly increased stress levels from increased handling while being inoculated and freeze branded. Injection site injury associated with fertility control treatments is extremely rare in treated mares, and may be related to experience of the administrator. Any direct impacts associated with fertility control would be minor in nature and of short duration. The mares would quickly recover once released back to the PEDHMA.

The use of fertility control would allow select wild horse mares an opportunity to achieve improved body condition until their next foaling and realize a greater life span on their home range within the PEDHMA Area due to fewer gather operations based on herd recruitment.

Refer to Appendix D for results of fertility control treatment from the WinEquus horse population modeling program.

Alternative A would involve the release of some captured wild horses back into the PEDHMA to achieve a post-gather population of 60% studs and 40% mares. Under this alternative bands size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Conversely, a selection criterion, which leaves more mares than studs, would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, lengthening of the time after birth when individual mares begin actively reproducing, and larger band sizes. Modification of sex ratios for a post-gather population favoring studs would further reduce growth rates in combination with fertility control.

All wild horses will experience varying levels of stress during herding, gathering, handling and holding. Stress levels, and the potential for injury, will be highest immediately following gather, when wild horses are moved through the chutes in preparation for adoption and when wild horses are being transported between the Yellow Creek Corrals and the BLM Canon City holding facility. Confinement of wild horses at the temporary holding facility and during transport may increase the likelihood of injury, and stress/confinement related illness. Some

young foals may become separated from their mothers while being herded by the helicopter to trap locations. Some of the mares will be pregnant and could abort as a result of the stress imposed by gather activities.

Individual, direct impacts to wild horses include handling stress associated with the gather, capture, sorting, handling, and transportation. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. The wild horse is an adaptable animal and would assimilate into the environment. Observations made through completion of gathers shows that capture wild horses acclimate quickly to the holding corral situation, becoming accustomed to water tanks and hay, as well as human presence. For the WRFO, see April's 2001 Western Horseman, article and photographs by Temple Grandin, Ph.D. "Handling Mustangs" which features the Yellow Creek Corrals and discusses the handling of mustangs by the helicopter pilot as well as at the facility.

Well-constructed traps, safety-conscious corral construction at the holding facility, well-maintained equipment, and additional pens for wild horses determined best kept separate from other wild horses will decrease stress, and the potential for injury and illness. Experienced BLM personnel will be on-site during all phases of the operation. A contract or APHIS veterinarian will be either on-site or on-call at all times during the operation. To minimize the level of activity, address health and safety of observers, and reduce stress to wild horses, BLM will ask observers remain some distance from the wild horses during all phases of the gather, holding and preparation.

Wild horses will be handled only to the extent necessary. Wild horses identified for relocation will be released with minimal handling in an expedient time frame. Injured wild horses will be examined and, when necessary, treated by a qualified veterinarian, and separated from other gathered wild horses. Wild horses determined by the veterinarian as not treatable, or determined that treatment would be less humane than destruction, or will be humanely destroyed by the veterinarian, contractor, or by qualified agency personnel.

Injuries sustained by wild horses during gathers include nicks and scrapes to legs, face, or body from brush or tree limbs while being herded to the trap corrals by the helicopter. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are not fatal and are treated with medical spray at the holding corrals until a veterinarian can examine the wild horse.

Most injuries are sustained once the wild horse has been captured and is either within the trap corral or holding corral, or during transport between the facilities and during sorting. These injuries result from kicks and bites, and from wild horses making contact with corral panels or gates. Transporting and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and move the wild horses into the large holding pens to settle in with hay and water. Injuries received during transport and sorting consist of superficial wounds of the rump, face, or legs. Despite precautions, occasionally a wild horse will rear up or make contact with panels hard enough to sustain a fatal neck break, though such incidents are rare. There is no way to reasonably predict any of these injuries. On many gathers, no wild horses are injured or

die. On some gathers, due to the genetic background of the wild horses they are not as calm and injuries are more frequent.

WRFO has gathered nearly 1,500 excess wild horses over the years. Of these, mortality has averaged less than 1% which is considered low when handling wild animals. Of the wild horses that are captured but humanely euthanized due to a pre-existing condition the average is less than 0.5% and in accordance with BLM policy. This data affirms that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses from the public lands. WRFO also avoids gathering wild horses prior to or during the peak foaling season and does not conduct helicopter removals of wild horses during March 1 through June 30.

Though some members of the public have expressed the view that helicopter gathers are not humane, most injuries occur once the wild horses are captured, and similar injuries would also be sustained if wild horses were captured through bait trapping, as the wild horses would still need to be sorted, aged, transported and otherwise handled. During the actual herding of wild horses with a helicopter, injuries are rare, and consist of scrapes and scratches from brush, or occasionally broken legs from wild horses stepping into holes.

Indirect individual impacts are those impacts which occur to individual wild horses after the initial stress event, and may include spontaneous abortions in mares, and increased social displacement and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs with old studs following sorting and release into the stud pen which lasts less than minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises, which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortion events among mares following capture is also rare.

A few foals may be orphaned during gathers. This may occur due to:

- The mare rejects the foal once captured. This occurs most often with younger mothers or very young foals,
- The foal and mother become separated during sorting and cannot be matched,
- The mare dies or must be humanely euthanized during the gather operation,
- The foal is ill, weak or needs immediate special care that requires removal from the mother,
- The mother does not produce enough milk to support the foal.

It is possible that foals are gathered that were already orphans on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized.

Under the Proposed Action nearly all foals gathered would be approximately five months of age or older and may be ready for weaning from their mothers. Fall and winter time-frames are

much less stressful to foals than summer gathers. Not only are young foals in summer months more prone to dehydration and complications from heat stress, the handling, sorting and transport is a stress to the young wild horses and increases the chance for them to be rejected by their mothers. By gathering wild horses during the fall and winter, stress associated with summer gathers is avoided. In private industry, domestic horses are generally weaned between four and six months of age.

Gathers pose increased risk of heat stress especially in older and weaker wild horses. Adherence to the SOPs as well as the techniques utilized by the gather contractor minimizes heat stress. BLM routinely administers electrolytes to the drinking water during gathers that involve wild horses in weakened conditions or during summer gathers. Heat stress does not occur often, but if it does, death can result.

To date WRFO has not conducted any winter time gathers, however, other BLM agencies prefer winter gathers particularly due to terrain and elevations which make it difficult to gather wild horses from the higher elevations during summer months. During winter gathers BLM has experienced fewer injuries to hooves and legs and less stress to wild horses as the cold and snow does not affect wild horses to the degree that heat and dust does during summer gathers. Water intake requirements are less during winter months, making this timeframe less apt to cause distress from heat exhaustion.

Through the capture and sorting process, wild horses are examined for health, injury and any defects. Decisions to humanely euthanize wild horses in the field situations would be made in conformance with BLM policy. BLM Euthanasia Policy WO IM 2009-041 is used as a guide to determine if wild horses meet the criteria and should be euthanized (refer to SOPs, Appendixes A and B). Wild horses that are euthanized for non-gathered related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain body condition; old animals that have lived successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical effects such as club foot, or sway back and would not be successfully adopted, or should not be returned to the range.

The wild horses that are not captured may be temporarily disturbed and move into another area during the gather operations. With the exception of changes to herd demographics, direct population wide impacts have proven, over the last several years and gather occurrences, to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

Population-wide direct impacts can occur during or immediately following a gather and include band displacement, modification of herd demographics, and the separation of members of individual bands of wild horses. With the exception of changes to herd demographics, direct population wide impacts have proven to be temporary in nature with most, if not all impacts disappearing within hours to several days of release. The one observable effect associated with gather activities is the herd's heightened awareness of human presence, helicopters and motorized equipment following gather activities.

A result of lower density of wild horses across the PEDHMA, competition for resources would be reduced, allowing wild horses to utilize preferred, quality habitat. Confrontations between stallions would also become less frequent, as would fighting among bands at water sources. The removal of excess wild horses would help sustain a longer-term productivity of the rangeland resources on the public lands that wild horses depend.

The primary effects to the wild horse population that would be directly related to this proposed or alternative actions would be to herd population dynamics, age structure or sex ratio, and subsequently to the growth rates and population size over time.

The primary benefit of achieving and maintaining the established AML within the PEDHMA would be to the health and sustainability of habitat attributes. Forage and water resources would be allowed to improve in quality and quantity. Improved range condition and increased forage availability would promote healthy viable, self-sustaining populations of wild horses. A thriving natural ecological balance between wild horses and other resource values would be met throughout the PEDHMA, and future deterioration of the range from an over population of wild horses would be avoided. Managing wild horse populations in balance with the habitat and other multiple uses would ensure that the populations are less affected by drought or other climate fluctuations, and that emergency gathers are either avoided or minimized, thus reducing stress to the wild horses, and increasing the long-term success of the herd.

BLM will compare and analyze herd demographic data with data collected from previous gathers and compare with data during future gather plans. BLM will weigh the effects of age and sex selection in the Piceance-East Douglas herd with WRFO's Land Use Plan objectives, as well as, objectives in the WRFO Wild Horse Program Analysis and Operational Plan.

Transport, Short Term Holding, Long-term Pastures, and Adoption (or Sale) Preparation All excess wild horses would be removed and transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s). From there, they are made available for adoption or sale to qualified individuals or to long-term pastures (LTPs).

Wild horses selected for removal from the range are transported to the receiving short-term holding facility in a straight deck semi-trailers or goose-neck stock trailers. Vehicles are inspected by the BLM COR or PI prior to use to ensure wild horses can be safely transported and that the interior of the vehicle is in a sanitary condition. Wild horses are segregated by age and sex and loaded into separate compartments. A small number of mares may be shipped with foals. Transportation of recently captured wild horses is limited to a maximum of 8 hours. During transport, potential impacts to individual wild horses can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to be seriously injured or die during transport.

Upon arrival at the short term holding facility, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are fed good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. Any

animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club feet, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA). Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to hay. Some of these animals are in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some mares may abort. Every effort is taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freeze-marking the animals with a unique identification number, drawing a blood sample to test for equine infections anemia, vaccination against common diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses are similar to those that can occur during handling and transportation. Serious injuries and deaths from injuries during the preparation process are rare, but can occur.

At short-term corral facilities, a minimum of 400 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% per year (GAO 2008), and includes animals euthanized due to a pre-existing condition; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation.

Adoption or Sale with Limitations, and Long Term Pastures - Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall for wild horses over 18 months of age. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the wild horse for one year and most of the wild horses and the facilities are inspected to assure the adopter is complying with the BLM's requirements. After one year, the adopter may apply for title to the wild horse after an inspection from a humane official, veterinarian, or other individual approved by the authorized officer, at which point the wild horse becomes the property of the adopter. Adoptions are conducted in accordance with 43 CFR 5750.

Potential buyers must fill out an application and be pre-approved before they may buy a wild horse. A sale-eligible wild horse is any animal that is more than 10 years old; or has been offered unsuccessfully for adoption three times. The application also specifies that all buyers are not to re-sell the animal to slaughter buyers or anyone who would sell the animal to a commercial processing plant. Sales of wild horses are conducted in accordance with Bureau policy.

Between 2007 and 2009, nearly 62% of the excess wild horses or burros removed were adopted and about 8% were sold with limitation (to good homes) to qualified individuals. Most wild horses 5 years of age and older are transported to LTPs. Each LTP is subject to a separate environmental analysis and decision making process. Animals in LTPs remain available for adoption or sale to individuals interested in acquiring a larger number of animals and can provide the animals with a good home. The BLM has maintained LTPs in the Midwest for over 20 years.

Potential impacts to wild horses from transport to adoption, sale and/or LTP are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or LTP, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18-24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and good quality hay with adequate space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested.

LTPs are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. There wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 22,700 wild horses, that are in excess of the existing adoption or sale demand (because of age or other factors), are currently located on private land pastures in Iowa, Kansas, Oklahoma, and South Dakota. Located in mid or tall grass prairie regions of the United States, these LTP are highly productive grasslands as compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 8-10 acres per animal).

Mares and castrated stallions (geldings) are segregated into separate pastures except one facility where geldings and mares coexist. No reproduction occurs in the long-term grassland pastures, but foals born to mares that are pregnant when they were removed from the range are gathered and weaned when they reach about 8-10 months of age and are then shipped to short-term facilities where they are made available for adoption. Handling by humans is minimized to the extent possible although regular on-the-ground observation and weekly counts of the wild horses to ascertain their numbers, well-being, and safety are conducted. A very small percentage of the animals may be humanely euthanized if they are in very thin condition and are not expected to improve to a Body Condition Score (BCS) of 3 or greater (base on the Henneke Scoring System) due to age or other factors, see IM 2009-041. Natural mortality of wild horses in LTP averages approximately 8% per year, but can be higher or lower depending on the average age of the wild horses pastured there (GAO-09-77, Page 52). The savings to the American taxpayer which results from contracting for LTP averages about \$4.45 per wild horse per day as compared with maintaining the animals in short-term holding facilities.

Euthanasia and Sale without Limitation - While humane euthanasia and sale without limitation of healthy wild horses for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004 and again in 2010 for this purpose. It is unknown if a similar limitation will be placed on the use of FY2011 appropriated funds.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Under Alternative B, BLM would not conduct fertility control, and the post-gather sex ratio is anticipated to be approximately 50:50. Population growth would remain constant at 20% increase and would maintain the current frequency of gathers currently being implemented. Impacts resulting from this alternative are essentially the same as those of the proposed alternative with the exception that mares would not undergo the additional stress of receiving fertility control injections and freeze branding. Population modeling shows that the average

number of animals needing to be removed over the modeling period is about 10 percent less under the Proposed Action than Alternative B due to the application of fertility control treatment and the modified sex ratios. The herd growth rates under this alternative would be approximately 30% higher than those under the Proposed Action. This would result in a gather schedule to maintain a wild horse population within AML every 3 years. Neither the Proposed Action nor Alternative B resulted in crashes to the population according to the modeling results. Refer to the discussion below and Appendix C for more detail.

Environmental Consequence of Alternative C - No-Action Alternative Defer gather and removal: Under this alternative, wild horses would not experience the stress associated with gathering, removal or adoption. The current population of wild horses would continue to increase at a rate of 20% annually, and exceed the carrying capacity of the range. Table 6 provides the projected population increase over the next 5 years based upon the 2010 inventory and 20% growth rates. BLM currently estimates that every four years the wild horse population would double. Though it may require many years for the population to reach catastrophic levels, this alternative poses the greatest risk to the health and viability of the wild horse population, wildlife populations, water resources, and the vegetative resources.

Table 6 – Current and Projected Estimated Populations Thru 2014

Year	Estimated Population	Recruitment Rate	New Population Estimate	Forage Utilization by AUMs
2010	265 ¹	20%	318	4,770
2011	318	20%	382	5,730
2012	382	20%	458	6,870
2013	458	20%	550	8,250
2014	550	20%	660	9,900

¹ Initial population estimate from aerial inventory done in 2010 only within the PEDHMA only.

Under the No Action Alternative, AML would not be achieved within the PEDHMA and wild horses would not be removed from wild horse free areas outside of the boundaries of the designated PEDHMA. There would be no active management to control the size of the population at this time, and wild horse populations would continue to increase at an average rate of 20% per year. Without a gather and removal now, the wild horse population in the PEDHMA would be expected to exceed 659 head within four years based on population annual rate estimates and that would be for those wild horses located within the PEDHMA or five times the low end of AML. Further, for those excess wild horses located outside the PEDHMA boundary the population would exceed 286 head within four years. According to the population modeling results, the average population within the PEDHMA over 11 years would approximate 845 wild horses, with a highest average population reflecting up to 1,224 wild horses. The current estimated wild horse population of 318 wild horses equates to 4,770 AUMs within the PEDHMA and the current wild horse population of 138 outside equate to 2,070 AUMs, which exceeds the carrying capacity for wild horses. Refer to the Range Management and Vegetation sections for additional information.

AML is the maximum population at which a thriving natural ecological balance would be maintained and to avoid deterioration of the rangeland. The increasing population of wild horse in excess of AML would over-extend and deplete water and forage resources. Excessive

utilization, trampling, and trailing by wild horses would further degrade the vegetation, prevent improvement of range that is already in less than desirable or degraded condition, would degrade currently healthy rangelands, and would not allow for sufficient availability of forage and water for either wild horses or other ungulates, especially during drought years or severe winter conditions, and large wildland fires are always a concern within the PEDHMA. Wild horses are congregating in high densities within portions of the PEDHMA, which will be further aggravated if excess wild horses are not removed.

There would be uncontrolled increases in the wild horse population, depletion of forage and water resources and degradation of plant communities would result in decline of the body condition, and health of the wild horse population, ultimately resulting in catastrophic losses to the herd. Wild horses are not self-regulating species and would continue to reproduce until their habitat can no longer support them. Usually the habitat is severely damaged before the wild horse population is abruptly impacted and experiences substantial death loss. Significant loss of the wild horses in the PEDHMA due to starvation or lack of water would have obvious consequences to the long-term viability of the herd. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have impacts to the future of the PEDHMA and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands that would allow for the management of healthy, self-sustaining wild horse population, and would not promote a thriving natural ecological balance.

While some members of the public have advocated “letting nature take its course”, allowing wild horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses. The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau to “*protect the range from the deterioration associated with overpopulation*”, “*remove excess animals from the range so as to achieve appropriate management levels*”, and “*to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area*”.

The Federal regulation at 43 CFR 4700.0-6(a) states “*Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*” (emphasis added). Allowing excess wild horses to remain ungathered would be inconsistent with the mandates of the WFRMHBA and implementing regulations.

Mitigation: Refer to Appendix A and B (Standard Operating Procedures) of this document for mitigation included with implementation of the Proposed Action or the Alternative B which is to reduce the herd to low end of AML range but not to implement Fertility Control on select mares.

Reference Appendix C for the Fertility Control Treatment method proposed under this environmental assessment.

Cumulative Analysis Area and Impacts: The cumulative analysis area (CAA) for wild horses includes the PEDHMA and areas immediately surrounding the areas including the North

Piceance Herd Area. Further the area locally known as Magnolia Bench, located east of Piceance Creek, is included in the CAA which is beyond the PEDHMA and the immediate surrounding area. The most important past, present and reasonably foreseeable future actions that affect the wild horse herd and health include drought, competition with wildlife and livestock for forage and water, oil and gas exploration and development, and wildfire.

Cumulative Impacts common to Alternatives A and B include impacts resulting from previous, current, and future gathers to maintain wild horse populations within the identified AML and continue to maintain thriving natural ecological balance. Over time, as the excess wild horse population is removed, a regulated population is obtained, and wild horses no longer gain access beyond the PEDHMA boundary. Effects that may result would include continued improvement of the range and riparian-wetland condition. The opportunity for beneficial effects would be realized under Alternatives A and B.

Other cumulative impacts to wild horses would include prolonged periods of drought, competition for limited water and forage, wildfire, and continued oil and gas development. By maintaining wild horse populations within the range of AML the impacts to wild horses resulting from these cumulative impacts would be reduced due to the lower number of wild horses. AML was set to address these types of impacts to wild horses and would maintain thriving natural ecological balance within the PEDHMA.

Under Alternative C, the population of wild horses would continue to grow until a gather could be completed to bring the population back to within AML. Wild horse populations are not self regulating and would grow at a 20% rate until their habitat would no longer support the population. Habitat impacts could be exacerbated in the event of prolonged periods of drought, the competition for limited water and forage, wildfire, and continued oil and gas development could create conditions that could lead to high levels of mortality or morbidity caused by adverse conditions resulting from excess wild horse numbers on the range. This in turn may require an emergency gather to alleviate wild horse suffering and/or mortality. In general, adverse cumulative impacts for the no action alternative would include continued over utilization of vegetative and water resources.

VEGETATION (includes a finding on Standard 3)

Affected Environment: Extensive information regarding the vegetation resource is available for review in the WRRMP. Vegetation in the project area is dominated by pinyon-juniper woodland sites. At the higher elevations the pinyon/juniper community is replaced by a mountain shrub type of mountain big sagebrush, serviceberry, chokecherry and snowberry, with pockets of aspen and subalpine fir on the north facing slopes. The top of the Cathedral Bluffs and the head of Greasewood feature a grassland community favored by wild horses for summer range. At the lowest elevations Wyoming big sagebrush and basin big sagebrush/greasewood communities predominate. An Ecological Site Inventory (ESI) of the entire PEDHMA was completed from 1991-1993. An ESI was completed for the Greasewood portion of the PEDHMA in 1997. The ecological sites are: Foothill Swale, Rolling Loam, Stony Foothills, Clayey Slopes, Loamy Slopes, Alkaline Slopes, Clayey Foothills, Brushy Loam, Mountain

Loam, Dry Exposure and Mountain Swale. A complete description of these ecological sites, their physical, climatic, soil and vegetation components is available at the WRFO.

Monitoring Studies: Rangeland monitoring, utilization, focused on the Barcus –Pinto Unit of the PEDHMA primarily because of the fact that when the Piceance part of the PEDHMA is overpopulated, wild horses tend to use this unit on a continuous rather than seasonal basis. This monitoring continues to show wild horse utilization in excess of prescribed levels both on a seasonal and yearlong basis. Utilization studies were conducted using the Key Forage Plant method.

Table 7. Piceance Portion PEDHMA Wild Horse Utilization Summary 2003-2005

Key Area	Season of Use				% Utilization By Species						
	Spring	Summer	Fall	Winter	Indian Rice Grass	Western Wheat Grass	Bluebunch Wheat Grass	Blue Grass (mutton sandberg)	Thick spike Wheat grass	Needle and Thread	Winter fat
2003											
Pinto Mesa		X			63	50		60			63
Pinto Gulch			X		70	44		60		62	
Pinto Gulch			X			70	50			61	
Pinto Mesa			X			55	70	70		66	
Pinto Mesa			X			60		60		69	
2004											
Middle Barcus				X	56		66				
Middle Barcus				X			50	23			68
North Barcus				X	56		64		54		
North Barcus				X	64		70		57		
Pinto Mesa	X					35		50		45	
Pinto Mesa	X							50		44	
Pinto Mesa	X				50		54			49	
Pinto Mesa	X				68		53			50	
Pinto Mesa	X					45				59	
2005											
North Barcus				X	85		84		81		
North Barcus				X	76		78		76		
North Barcus	X				66	43	64				
Pinto Mesa	X				60		64			50	
Pinto Mesa	X					35	63			56	
Pinto Mesa	X				63		70				

Table 7. Piceance Portion PEDHMA Wild Horse Utilization Summary 2003-2005

Key Area	Season of Use				% Utilization By Species						
	Spring	Summer	Fall	Winter	Indian Rice Grass	Western Wheat Grass	Bluebunch Wheat Grass	Blue Grass (mutton sandberg)	Thick spike Wheat grass	Needle and Thread	Winter fat
Pinto Mesa		X			70	59				60	

Table 8. East Douglas Portion PEDHMA Wild Horse Utilization Summary 2001, 2005

Year	Key Area	Season of Use C-Cattle H-Horses				% Utilization By Species						
		Spring	Summer	Fall	Winter	Western Wheat Grass	Crested Wheat grass	Pubescent wheatgrasses	Orchard grass	Bluebunch wheatgrass	Carex	
2001	Willow Cr Fire	C,H	H	C,H	H		37	47	90			
2001	Tommy's Uplands	C,H	H	C,H	H	43				43		
2001	Tommy's Bottom	C,H	H	C,H	H	70						
2001	Tommy's Pipeline	C,H	H	C,H	H			70				
2001	Wild Rose	C,H	H	C,H	H	42						
2001	Horse Pasture	C,H	H	C,H	H	50						
2005	Willow Cr Fire	C,H	H	C,H	H		Not Found	84	Not Found			
2005	Tommy's Uplands	C,H	H	C,H	H	50					50	
2005	Tommy's Bottom	C,H	H	C,H	H		90	90				
2005	Tommy's Pipeline	C,H	H	C,H	H			90				
2005	Wild Rose	C,H	H	C,H	H	40						
2005	Horse Pasture	C,H	H	C,H	H			70				

Studies continue to show that utilization of the forage resource exceeds both the WRRMP and Herd Management Area Plan limits both on a seasonal and yearly basis. The immediate past and current levels of forage utilization coupled with the severity of the drought conditions from 2001-2004 continues to negatively impact rangelands throughout the PEDHMA.

Rangeland trend studies set up to monitor the success of fire rehabilitation projects in Barcus Creek, North Barcus and East Greasewood have also documented the ongoing negative impact that the overpopulation of wild horses is having on desirable plant species in these areas.

BLM utilized monitoring data accumulated between 1981 and 2002 that indicated the PEDHMA will support AML range of 135 to 235 wild horses over any extended period. Historically, the WRFO has not been able to maintain the population of wild horses within the range of AML. Therefore, WRFO anticipates that existing impacts resulting from wild horse utilization would be similar to those identified during the monitoring data.

For further detailed vegetation data and analysis, Appendix E , the 2002 PEDHMA EA/Gather Plan, WR-02-049 (pg 29), and the 2006 PEDHMA EA/Gather Plan, EA # CO-110-2006-030 (pgs. 18 to 22).

Environmental Consequence of Alternative A, Proposed Action: During gather operations, vegetation would be disturbed at the location of trap sites and holding facilities due to congregation and trampling by wild horses. The amount of vegetation that would be disturbed or destroyed is dependent on the number of wild horses that are gathered at a specific site and the duration those wild horses remain at the trap site/holding facility. Vegetation disturbance will be short term, and is expected that plant communities will recover from disturbance within three years.

During the analysis of the 2006 document the PEDHMA population inventory indicated approximately 436 wild horses would be captured. The 2010 inventory indicates the current population during the gather would be approximately 318 wild horses. The difference in these two population estimates would be approximately 118 fewer wild horses currently utilizing the range year round. Since the 2006 gather and removal, did not meet WRFO's objective it is estimated that vegetative resources would not have recovered from the overpopulation. Therefore, BLM anticipates that impacts to vegetative resources would continue at levels monitored from 1981-2005, which indicate that the resource is not achieving thriving, natural, ecologic balance.

Removal of approximately 183 excess wild horses from the PEDHMA and 138 excess wild horses from areas outside the PEDHMA will decrease use in these areas by 4,815 AUMs. In addition, WRFO anticipates a reduction in year-long grazing by wild horses until the population reaches the high range of AML, with the expected result that plant communities will recover while the wild horse population is within the range of AML.

In the case of the wild horses released back into PEDHMA applying immunocontraception and adjusting sex ratio, is expected to result in a lower population growth. WRFO expects the lower population growth will reduce utilization of vegetation species by wild horses, extending the period between gathers, and stay within AML.

Rangeland monitoring studies support the need for a reduction in the population of excess wild horses in the PEDHMA so that rangeland recovery may take place. Should the proposed action be fully implemented and the wild horse population managed in the future within the prescribed AML range, then it is reasonable to expect that rangeland vegetation would experience both a short and long term recovery in cover and production. The WRFO will continue to collect additional rangeland monitoring data between gathers to document the long and short term recovery of vegetative resources within the PEDHMA.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Gathering and removal of excess wild horses down to the low end of the AML without fertility control and adjusting the sex ration will mean that by the next scheduled gather in approximately 2014 (4 year cycle), the adult population will have exceeded the high end of the

AML by at approximately 46 head of wild horses. This overpopulation is not compatible with maintaining and improving rangeland conditions as prescribed in the WRRMP.

Environmental Consequence of Alternative C - No-Action Alternative Defer gather and removal: Under this alternative vegetative resources would not be disturbed in association with gather operations.

Deferring gather operations and removal of excess wild horses will result in increased numbers of wild horses by approximately 20% each year and 100% in four years. Increased utilization on those sites showing heavy or severe rates would be expected to contribute to declining vegetative resource values. Those resource values would be anticipated to continue to decline to a point where vegetative resources would no longer support wild horse populations or wild horses would need to range further to acquire forage. As the wild horses range out further in search of forage, utilization in terms of both intensity and duration will increase. The end result will be degradation of these vegetation communities in composition, productivity, and vigor which will require the wild horses to continue their search for forage. Based upon the current 2010 inventory and the vegetative monitoring that has been completed this may account for some of the wild horses that were located outside of the PEDHMA boundary.

Cumulative Impacts Analysis Area and Impacts: The CAA for vegetative resources would include the lower end of the White River watershed, which includes the East Douglas, Piceance, Yellow and Spring Creek drainages. Reasonably foreseeable activities affecting vegetation include oil and gas exploration, livestock grazing, and recreation. It is expected that there will be an increase of oil and gas activity within this area. There is existing infrastructure associated with oil and gas exploration including well pads, pipelines, roads, and compressor stations. As these disturbed lands are reclaimed, WRFO expects that health of vegetation communities will begin to improve. Livestock grazing results in removal of forage, however the number of animals, season of use, duration, and species of grazing animal can be controlled to avoid long term degradation of vegetation. In the event of drought or wildfire livestock can be removed from the range to prevent damage. In addition, wild fire and drought may result in temporary reduction in the availability of vegetation for wild horse use.

Under both Alternatives A & B, there would be no cumulative impacts related to the gather operation. The minimal disturbance associated with trapping wild horses would not be additive with other surface uses in the area. A trap location may be used repeatedly but the timeframe between gathers would allow complete recovery of the site.

Under Alternative C, wild horse numbers would increase at an exponential rate per year placing additional demands on limited vegetation resource. Additional wild horse use could cumulatively degrade plant communities, cover, composition, productivity, and vigor. Wild horses are expected to continue to be displaced outside the PEDHMA with negative impacts to vegetation and plant communities in those areas.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): Vegetation disturbed by the Alternative A and B would not be meeting public land health standards however, this disturbance is localized and will be short term, vegetation would be expected to recover and again be meeting standards within three years.

Under Alternative C, overutilization of vegetation will increase exponentially as the population of wild horses increases, resulting in increased acres of degraded rangelands where vegetation communities would not meet land health standards.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Noxious weeds and their continued encroachment on BLM lands represent a serious threat to the continued productivity, diversified use and aesthetic value of WRFO's public lands. BLM currently has an active noxious weed management program which emphasizes cooperation with Rio Blanco County, private landowners and BLM permitted land users. The WRFO weed management program is based in part on the 1990 White River Resource Area Noxious Weed Management Plan, the priorities established by the *Record of Decision, Vegetation Treatment on BLM Lands, 13 Western States* (BLM 1991), the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement*. (BLM, 2007a), and the White River Field Office Integrated Weed Management Plan, DOI-BLM-CO-110-2010-0005-EA.

The current program uses an integrated management approach using: (1) chemical control using BLM approved chemicals, (2) biological control insect releases focused on leafy spurge, musk and Canada thistles, (3) mechanical control primarily digging of initial infestations of biennial noxious weed species, and (4) management to maintain competitive vegetation to prevent noxious weed invasion and spread. All aspects of this program have been effective where they have been applied.

Within the PEDHMA there have been a number of outbreaks of noxious weeds. Noxious weeds of concern include cheatgrass, thistles (bull, musk, scotch and Canada), knapweeds (spotted, diffuse and Russian), burdock, hoary cress, mullein, black henbane and houndstongue. On those noxious weed species which are controlled by direct control methods, there has been good success at containing the initial outbreaks.

Environmental Consequence of Alternative A, Proposed Action: Wild horse gather activities would disturb soils in localized areas, primarily associated with traps and holding pens. Follow-up inspections by BLM of these sites and treatment of any noxious weeds would prevent noxious weeds from invading and dominating adjacent native plant communities. Hay utilized at trap sites or holding facilities could be a source of noxious weeds.

BLM anticipates that the removal of wild horses over time would decrease overall impacts of wild horse use and proliferation of invasive, non-native species.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts from soil disturbance associated with gather activities under this alternative would be similar to those impacts identified under Alternative A.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, wild horses would not be gathered and removed from the PEDHMA and outside. There would be no impacts associated with gather operations. Failure to reduce wild horses in these areas would continue to degrade plant communities as the wild horse population increases. Readily available native rangeland forage will continue to decrease as the wild horses are expected to expand their range in search of forage. Degraded plant communities would be expected to increase, these weakened plant communities would be susceptible to weed invasion.

Cumulative Analysis Area and Impacts: The CAA for Invasive, Non-Native species is the PEDHMA, and the adjacent lands where wild horses have relocated. Past, present, and reasonable foreseeable activities which also affect the proliferation of invasive, and non-native species include: wild horse, livestock and wildlife grazing use, recreation, and oil and gas activity.

Over utilization by grazing animals can degrade native vegetation communities which can become susceptible to invasion by invasive species, these animals can act as vectors to spread invasive species by transporting seeds.

Recreation activities which disturb soils, such as unauthorized off-road travel can create disturbed areas which non native species readily invade. Vehicles used by recreationists can also transport and introduce weed seed into areas that are previously free on invasive non native species.

Activities associated with oil and gas exploration and development may provide a vector for spread of invasive species.

Foreseeable impacts from Alternatives A and B are short term, since BLM will be monitoring and treating disturbed areas for invasive species, when these populations are discovered and treated in the early stages of establishment, they can generally be eradicated with greater success. Potential impacts from the no action alternative would be considered long term, as the population of wild horses increases, native vegetation will be substantially over utilized resulting in large areas susceptible to invasion by non native species.

Under Alternative C, potential impacts would be considered long term, as the population of wild horses increases native vegetation will be substantially over utilized resulting in large areas susceptible to invasion by noxious and invasive species.

Mitigation: Mitigation has been incorporated into the Proposed Action. No additional mitigation identified.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: Wildlife inhabiting the project area, and upon which management emphasis is placed, include: big game (mule deer and elk), blue grouse, and special status nongame species (e.g. raptors).

Big game: The project area encompasses the seasonal ranges of both mule deer and elk associated with Game Management Units (GMU) 21 (Douglas/Evacuation Creek watersheds) and 22 (Piceance/Yellow Creek watersheds).

The Colorado Division of Wildlife (CDOW) recently revised its big game range mapping for Game Management Units (GMU) 21 and 22. The coincidence of wild horse distribution relative to seasonal big game range by GMU is presented in the table below, both for current distribution (project area) and that encompassed within the authorized PEDHMA.

Table 9. Relative extent (%) of Game Management Unit seasonal big game ranges within the project area and within PEDHMA.

Seasonal Ranges	Deer		Elk	
	GMU 22	GMU 21	GMU 22	GMU 21
Summer Range	26 (13)	11 (3)	37 (17)	7 (0)
All Winter Ranges	53 (22)	30 (13)	47 (18)	32 (10)
Severe Winter Range	79 (25)	18 (17)	36 (0)	100 (0)
Critical Winter Range	39 (36)	47 (13)	--	--
Winter Concentration Area	7 (0)	23 (3)	24 (1)	38 (0)

Presently, about 62,000 deer make up the White River deer herd, which includes the Piceance Basin (GMU 22). This figure is about 10% lower than CDOW's long-term population objective. In the project area, summer use is relegated to higher elevation pinyon-juniper woodlands, mixed and mountain shrub communities, and aspen woodlands above 7600' along the Cathedral Rim, Calamity Ridge and Magnolia. In September and October, deer begin moving into interior pinyon-juniper woodlands and mixed shrub and sagebrush shrublands below 7600' and by February gravitate to lower elevation late winter ranges along Piceance Creek (below ~6500'). GMU 21 is associated with the Douglas Pass (Bookcliff) deer herd. Deer in GMU 21 have seasonal use patterns similar to that described above; the majority of range encompassed by the project area fulfills winter range functions. This herd is currently at the upper end of the desired population objective of 10,000-12,000 deer.

The mid to late winter/early spring period (December to early May) presents the greatest nutritional challenge for deer, in part, because the quantity and accessibility of forage is constrained by snow accumulations and the nutritional properties of available forage are low. Adequate forage volume and quality are essential for avoiding excessive and irreversible weight loss that results in excessive winter mortality and inadequate fetal development. Under heavy snow conditions and under normal circumstances by February, deer are often relegated to south facing slopes on late winter ranges (i.e. severe winter ranges) which offer moderated daytime temperatures and snow depth. Although forage volume is small, south-facing slopes promote early herbaceous emergence and minimal constraint in accessing forage. Severe winter ranges are those that by virtue of elevation and aspect moderate the effects of snow depth and

temperatures during winters of heavy snowfall and extreme cold. They are specifically defined as that part of the winter range where 90% of the animals are located when snowpacks are maximum in the worst two years out of 10, but receive consistent annual use by large numbers of animals in the late winter and early spring months. Critical winter ranges are severe winter ranges that overlap those portions of the winter range that tend to assume animal densities double those of surrounding winter ranges.

In March and April, deer seek and make increasing use of emerging herbaceous forage (up to 40% grasses). Early spring (April-May) forage supplies and availability are essential for increasing the physical condition of deer recuperating from winter deficiencies in preparation for spring movements, accelerated fetal growth and development, and subsequent lactation. Summer diets (June-August) involve 60-90% herbaceous forage, primarily forbs. As forbs progress toward dormancy with the onset of warmer and drier summer conditions, their nutritional value declines, and management that prolongs the availability of succulent, high quality forage is of great advantage. As the sites producing fresh herbaceous material decline through late fall, browse begins to assume a dominant and nutritionally superior dietary fraction. Throughout this period (August through December), deer must assimilate nutrients and energy in excess of need, thereby allowing for the production and storage of fat and protein reserves in preparation for winter. Nutritional assimilation is strongly enhanced by a diverse diet, regardless of season. There are indications that periodically depressed deer production and low winter fawn survival in the Piceance and Douglas populations are indicative of forage-related deficiencies on ranges occupied outside the late winter season (i.e. spring and early winter). CDOW has responded to this issue, in part, by reducing herd objectives in the Douglas and Piceance basins and adopting a management strategy of maintaining smaller, more resilient herds with enhanced productivity and reduced winter carryover. DOW is also continuing to curb/reduce the rate of elk expansion in Piceance and Douglas basins through regulated harvest.

Elk in GMUs 21 and 22 generally use much of the project area on a year-round basis follow, but follow seasonal use patterns similar to deer. Elk populations associated with these GMUs are within the desired range of CDOW's long-term population objectives. CDOW intends on continuing to manage for stable numbers of elk at newly established population levels. Elk diets tend to be dominated by grasses throughout the year.

Dusky (formerly blue) grouse: Higher elevation shrubland (above 7200') and forest communities along Calamity Ridge and the Cathedral Rim provide year-long dusky grouse habitats. Nesting, brood-rearing, and general summer and fall use functions involve mixed shrub, aspen, and higher elevation big sagebrush habitats. The project area range encompasses roughly 20 and 30% of the potential dusky grouse habitat available in Game Management Unit (GMU) 21 and 22, respectively. The PEDHMA itself encompasses about 4 and 10 percent of their habitat in GMU 21 and 22, respectively.

Mixed shrub communities on mild slopes offer habitat best suited for dusky grouse nesting and early brood rearing functions, whose timeframes closely parallel that of sage-grouse (see Threatened and Endangered Animal section). Heavier deciduous shrub canopies and steeper slopes are used more often as broods mature. The height and density of the herbaceous understory is an important factor in the suitability of dusky grouse nest and brood-rearing

habitats. Well developed herbaceous understories are thought to provide scent, visual and physical barriers to potential predators and provide microclimatic conditions conducive to improved hatching success. Diets of grouse chicks are comprised almost exclusively of forbs and invertebrates. After the first snows (~by mid-October), blue grouse distribution is strongly associated with mature douglas-fir stands.

Raptors/Nongame: Raptor nesting activities (i.e. hawks, eagles, and owls) are dispersed throughout the project area in pinyon-juniper woodlands (e.g. Cooper's hawk, long-eared owl) and on rock outcrops (e.g. red-tailed hawk, golden eagle). The bulk of nest activities are normally complete by early August, but late attempts or re-nesting can lapse through the first two weeks of August. Although limited, nesting records for all potentially affected species indicate that virtually all *buteo* hawks, eagles, and owls would successfully fledge young by late July. Conversely, about 15% of accipitrine hawk nesting attempts (i.e., sharp-shinned and Cooper's hawks) would not have fledged young by early August. The maintenance of raptor populations (production and recruitment) is largely dependent on its small mammal and bird prey base.

The wide variety of habitats encompassed by the project area and PEDHMA support a broad array of nongame birds (also discussed in *Migratory Bird* section) and mammals that are typical of the region's woodland and shrubland communities. The non-game bird community throughout the project area's uplands is considered representative and complete with no obvious deficiencies in composition. Limited information exists on small mammal use and distribution within the project area; however most of the nongame species using these habitats are widely distributed in extensive like-habitats across the Resource Area and northwest Colorado. Similar to migratory birds, the allotment's varied vegetation communities and elevational range allow the support a rich small mammal community, including a minimum 14 terrestrial small mammals and 12 species of bat. Eight of the terrestrial small mammals and most of the bats are closely associated with mature pinyon-juniper woodlands. Although several abundant and more generalized species dominate the community, several are considered obligate, including pinyon mouse, bushy-tailed woodrat, and Hopi chipmunk, a species with limited national and state distribution. The various shrubland complexes possess communities less rich, but mirror the trend of having several dominant species with relatively rare species representing definitive obligate members. Of particular importance are the species that rely on well developed herbaceous understories, namely the 3 species of vole. Considerable attention has been directed at the sagebrush vole, whose abundance may serve as an indicator of well managed shrub-steppe habitats. This species tends to favor upland sagebrush and mixed shrub communities.

Non-game bird and small mammal communities generally respond positively to increasing vegetation diversity, volume, and structural complexity. Particularly in the case of small mammals and shrub and ground-nesting passerine birds, increasing height and density of persistent herbaceous ground cover as a source of cover, forage (e.g., herbage, seed), and forage substrate (e.g., invertebrates) can be expected to allow for more continuously and extensively occupied habitat, increased density of breeding pairs, improved reproductive performance, and enhanced over winter survival (mammals). Non-game populations associated with the upland communities, particularly pinyon-juniper woodlands and dense mountain shrub slopes that retain more fully developed understories, likely occur at densities that approach habitat potential. Community diversity and breeding densities, especially in early-seral (cheatgrass dominated)

bottomland communities are likely strongly suppressed and considerably below their potential. The abundance of non-game animals associated with gentle gradient upland shrub types where the ecological status of herbaceous ground cover is generally in mid-seral conditions are likely suppressed to some degree, but population viability probably remains relatively intact.

Environmental Consequence of Alternative A, Proposed Action: Big game: Although it is recognized that both deer and elk populations are important considerations in the project area, discussion concerning the effects of the Proposed Action will concentrate on mule deer as the species more vulnerable to direct and indirect grazing-related effects.

Extensive and potentially disruptive helicopter operations would occur in the Piceance and East Douglas areas throughout the fall and winter months. Helicopter herding represents a high-intensity, but transient source of disturbance that would become increasingly concentrated and more frequent near the trap-site. Based on winter 2010 wild horse distribution, helicopter herding may occur across 2 and 10% of the general winter ranges in GMU 21 and 22, respectively, and between 10-15% of their severe or critical winter ranges. At any given time, less than 2% of winter ranges would be subject to active helicopter herding operations, and more concentrated gather facility activity would represent less than 1% of the winter range available in either GMU. It is doubtful that dispersed helicopter herding and the initially intense, but short-term and relatively predictable gathering/holding activities would contribute significantly to deterioration in animal fitness at the population level, but big game would tend to avoid or be displaced from areas within 0.5 to 1 mile of this activity (500-2000 acres). It is anticipated that displaced animals would return, more or less, to pre-disturbance distribution soon after gather operations at an individual site were complete. Water or bait trapping operations involves the ground-based capture of individual animals. Although these capture techniques may be used during big game occupation, they represent very localized and short-term points of potential disturbance that would have no substantive adverse influence on animal distribution or energetics.

In general, the seasonal ranges of wild horses are not as spatially distinct as big game and their continuous, yearlong pattern of occupation tends to largely coincide with traditional big game transition and winter ranges. This distribution pattern appears to be exaggerated at higher wild horse densities similar to present. The effects of wild horse removal on big game habitats involves the incremental (and locally substantive, e.g., lower Yellow Creek drainage) reduction in the rate, persistence, and ultimate degree of herbaceous and woody plant material removed by large grazers within and surrounding the PEDHMA. Forage-related impacts between wild horses and big game are additive to and similar in nature to livestock and inter-specific big game competition. Although wild horses compete with big game for forage resources, authorized forage use within the PEDHMA has been integrated in a multiple use context. Under the proposed action, reducing the overall grazing load through wild horse reduction or removal would provide both immediate and longer-term indirect improvement in big game forage conditions throughout the year. Present wild horse use within the PEDHMA is over double that currently authorized, and reductions of wild horses from within the PEDHMA would reduce overall grazing use attributable to livestock and wild horses on herbaceous and woody forage within the PEDHMA by about 23%. Grazing management which moderates or defers use of mutually preferred forages would increase herbaceous forage availability, reduce reliance on

alternate woody forage by livestock and wild horses or inappropriate seasonal use by big game (as a winter forage base for deer), and maintain or enhance plant diversity and vigor in the mixed shrub and sagebrush communities (promoting divergent forage selection and enhancing animal nutrition, especially on late summer through early winter ranges).

Removal of wild horses from areas outside the PEDHMA boundary would eliminate competitive interactions of wild horses from about 13% of the Piceance Basin's deer summer range extent and 8% of the Douglas basin's deer summer ranges. Competitive interaction among wild horses and big game during the summer occurs when wild horses make prolonged growing season use of higher elevation sagebrush and mixed shrub communities, especially in close proximity to Piceance Basin's relatively limited aspen habitats. Favored fawn and calf-rearing habitat along the Cathedral Rim is best represented by aspen woodlands and surrounding mixed shrub communities within 1 mile of free water. Considering the attraction of water for all summer/fall grazers, these areas are frequently subjected to heavy use of herbaceous growth. Declining availability in preferred forb forage, both through grazing use and a decline in conditions amenable to soil moisture retention (i.e., standing crop and litter), reduces the prospects of deer or elk maintaining favorable nutritional status through the fawn or calf-rearing period. It is anticipated that overall grazing use by wild horses and livestock would be reduced by 50-60% with the proposed removal of about 50% of the wild horses in the East Douglas, Boxelder, and Square S areas.

Wild horses have expanded their range to include large expanses of important big game winter habitats outside the PEDHMA (see table in Affected Environment) and presently cohabit 60,000 to 70,000 acres of special value winter ranges outside the PEDHMA in GMU 21 and 22, respectively. Removal of wild horses from areas outside the PEDHMA boundary would eliminate competitive interactions of wild horses from about 30% of the deer winter ranges in the Basin, including 54% of its severe winter range habitats. Similarly, wild horse removal would remove forage competition attributable to wild horses on about 17% of its winter ranges, including 34% of its critical winter range and 20% of its winter concentration areas. In situations where herbaceous forage is limited (i.e. excessive grazing use in preferred use areas, declining range condition, or limited site potential) wild horses make increasing use of woody forages relied upon by wintering deer. Forage competition is exaggerated with coincident use of southerly exposures during the winter use period by deer and wild horses. Wild horses, by virtue of behavior and physique, are capable of seeking new range when forage supplies are exhausted, whereas deer, because of strong and rigid fidelity to traditional seasonal home ranges, will remain on discrete winter range parcels depleted of forage by transient groups of wild horses.

Although it is improbable that substantive disruption of big game distribution would occur in the project area, CDOW relies on annual big game harvest to maintain herds at desired population levels and it is important to minimize, where practicable, inadvertent disruption of sport hunting for big game in GMUs 22 and 21. In the event helicopter activity is anticipated from mid-August through 31 December 2010, it is recommended that gather planning be coordinated with local CDOW staff in an effort to develop mutually compatible strategies that may reduce the intensity and localize the expanse of helicopter-related disturbances.

Dusky grouse: Gather operations would take place outside the dusky grouse reproductive period when broods would be closely associated with heavy coniferous forest cover and relatively isolated from helicopter-based operations. Gather operations would remove wild horses from dusky grouse habitat associated with the Magnolia area (16,000 acres), the Cathedral Bluffs on the Ryan/Black Sulphur drainages (17,000 acres), and along the length of Calamity Ridge (34,000 acres), thereby reducing coincident occupation of wild horses in dusky grouse habitat in GMUs 21 and 22 by 65%. Wild horses remaining within the PEDHMA's suitable and occupied sage-grouse habitats (~37,000 acres in the Square S, Boxelder, East Douglas areas) would be reduced to half their current numbers. Reductions and removals within and outside the PEDHMA, respectively, would reduce overall grazing intensity by cattle and wild horses on favored ridgeline and basin positions, as well as season-long use attributable to wild horses (who begin use on these habitats by March) by 50-60% -- levels that would contribute substantially to the development and effectiveness of herbaceous ground cover through the nest and brood rearing periods.

Raptors and non-game wildlife: Gather operations associated with the Proposed Action would be confined to timeframes outside the reproductive period of virtually all nongame birds and mammals (i.e., October-February) and would, therefore, have no potential to directly influence these activities.

In the short term, grazing influences would be primarily confined to increased herbaceous expression as forage and cover available in ridgeline, bottomland, and basin mixed-shrub and big sagebrush communities. Presently, about 48% (about 123,000 acres) of the big sagebrush and mixed shrub communities in GMUs 21 and 22 are encompassed by pastures occupied by wild horses and are subject to their grazing-related contributions. Removal of wild horses outside the PEDHMA would reduce overall shrubland involvement by 60% and confine potential influences to about 19% of those types within the Douglas and Piceance basins (49,000 acres). It is unlikely that proposed wild horse reductions and removals would influence the character of the project area's woodlands and densely vegetated mountain shrub slopes as nongame habitat.

Although local changes in ground cover would be highly variable across the project area, overall 23% reductions in livestock and wild horse grazing intensity within the PEDHMA would be substantial, with notably higher reductions in favored use areas, such as 50-60% reductions in overall livestock/wild horse use in higher-elevation mixed shrub habitats along the Cathedral Bluffs and 80% reduction in season-long grazing use in the lower Yellow Creek valley. Reducing excess grazing influences on herbaceous understory expression would help prompt widespread enhancement and development of herbaceous ground cover throughout the project area's shrubland habitats, as a key determinant in the capacity of habitats to support raptors and their small mammal and nongame bird prey. It is expected that reductions in the duration and intensity of use on shrub-steppe habitats within the PEDHMA and similar situations outside the PEDHMA (up to 48% of those types in the WRF south of the White River) would be capable of increasing the density of virtually all nongame members and promoting more continuous distribution of those species requiring better developed herbaceous understories.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Gather strategies associated with this alternative would have the same grazing-

related influences on terrestrial wildlife groups and habitats as the Proposed Action, but without contraceptive use, gather operations would need to be scheduled more frequently (e.g., every fourth year). Alternative B, then, would tend to abbreviate grazing effects associated with consecutive years at the higher end of AML (e.g., exceeding the AML midpoint of 185 head: 2 years at 20% rate of herd increase versus 4 years at 10% rate of increase), but with higher recruitment rates and the need for more frequent gathers, Alternative B may be expected to remain prone to less reliable gather regimens and more intense and widespread grazing effects attributable to instances when wild horses disperse beyond the PEDHMA and/or exceed AML within the PEDHMA.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Exponential increases in wild horse populations would be sustained in the short term both inside and outside the PEDHMA. Total forage use attributable to current wild horse numbers (5,600 AUMs) would increase at an average annual rate of about 24% through 2014 (i.e., total use 2.4 times that of 2010 pre-gather). Wild horse contributions to the overall livestock/ wild horse grazing load in the PEDHMA would increase from about 40% presently to about 58% by 2014 (average annual increase of 10%). Similar effects would take place on those ranges occupied by wild horses outside the PEDHMA (264,000 acres). Broad and expansive overlap of wild horses on important seasonal big game ranges would also continue, including 25-40% of big game summer range and up to 80% of deer severe winter ranges in the Piceance Basin, and 40-50 % of deer critical winter range in each of GMU 21 and 22 (see table in Affected Environment). Direct and indirect competitive interactions between wild horse and big game would become more extensive and intense over time, particularly on summer ranges in close proximity to water, south-facing slopes on severe and critical winter ranges, and lower-elevation sagebrush/greasewood parks and bottoms used in spring as big game follow receding snowpacks to summer range.

Wildlife-related consequences of season-long grazing practices attributable to higher density wild horse populations are addressed elsewhere in this section (Environmental Consequences of Alternative A, Big game), the *Threatened, Endangered, and Sensitive Animal Species* section (Environmental Consequences of Alternative C, Aquatic species), and *Migratory Bird* section (Environmental Consequences of Alternative C). The implications of protracted season-long grazing use on forage conditions for big game are especially pertinent on big game summer ranges and those lower elevation sagebrush park and bottomlands on big game winter ranges that are used to procure emerging growth in spring for winter recovery and gaining a nutritional status adequate for successful gestation (see discussion in Affected Environment, Big game). As wild horse populations grow and forage conditions on preferred use and concentration areas decline, the cumulative acreage that would become subjected to concentrated season-long grazing use from wild horses or exaggerated seasonal use by coincident livestock and big game, are likely to become evident across up to 75,000 acres of big sagebrush and mixed shrub habitats outside the PEDHMA and about 50,000 acres inside the PEDHMA, accounting for about 50% of the these shrubland types in the WRFO south of the White River. To accommodate wild horse increases alone, those areas subjected to heavy or further season-long grazing use would need to expand at a calculated average rate of about 30% per year to meet the annual increase in forage demand. An example of this trend is provided by the 29 wild horses establishing use in the Cathedral Creek pasture of the Cathedral Bluffs allotment. This dispersal from the East Douglas

portion of the PEDHMA presently exposes an additional 12,500 acres of big game summer range to the influence of season-long wild horse use.

Direct and indirect forage competition effects are expected to become locally severe during the winter use period as well. Based on wild horse distribution in March 2010, wild horse use of deer severe winter ranges in the North Piceance removal area was roughly comparable to wild horse abundance and distribution on adjacent winter ranges in the lower Yellow Creek basin where 80% reductions in wild horses are considered necessary (i.e., Greasewood, Barcus/Pinto) to maintain rangeland integrity. Wild horse populations in these situations would be expected to double in abundance and extent by 2014. During the subsequent growing season, these harsh sites are not capable of quickly recovering from episodes of heavy collective ungulate use (e.g., use that exceeds current annual growth) and, with continued use by deer in following years, acreage depleted of woody forage would accumulate rapidly and persist in the long term. Deer, by nature, do not have a strong tendency to rapidly pioneer new ranges and sources of forage and diminished availability of woody forage would be expected, in the short term, to measurably influence the weight and nutritional regimes of affected groups of deer. By 2014, AUMs attributable to overall wild horse and livestock use in the Yellow Creek allotment (associated with Barcus-Pinto winter ranges) are expected to increase by 60% with wild horses accounting for 75% of this use (60% currently). As a point of comparison, wild horse-related grazing use on these big game winter ranges by 2014 would be 5-10 times that associated with the authorized AML range for this complex of wild horses.

Dusky grouse: In the short term (through 2014), wild horses would continue to occupy and incrementally intensify their influence on about 20 to 30% of the overall dusky grouse range associated with the Douglas and Piceance Creek basins (GMU 21 and 22), respectively. Overall grazing load by livestock and wild horses during the spring through fall months would increase on favored ridgeline sagebrush and mixed shrub reproductive habitats within the PEDHMA by an average 12% annually, reaching levels about 60% higher than current use by 2014, or about double the overall levels achieved at the higher end of AML. Wild horses would persist in occupying about 67,000 acres of dusky grouse overall range outside the PEDHMA (~10-20% of dusky grouse range in GMUs 21 and 22, respectively). Annual increases in grazing use intensity on mutually preferred ridgeline habitats would be comparable to levels within the PEDHMA, with increasingly strong reductions in ground cover expected to adversely affect nest and brood-rearing habitats associated with the Magnolia area, the southern Cathedral Bluffs, and the entire length of Calamity Ridge. Progressive increases in grazing use, beginning in March and persisting through fall, concentrated on narrow stringers of suitable ridgeline and basin habitat would be expected to rapidly reduce the density and height of concealing interstitial cover before the onset of nesting (mid-April-early May), and in combination with livestock turnout later in the nesting cycle, with increasingly severe reductions through the entire brood period. Prior to 5 weeks of age (about late July), grouse broods are most reliant on effective ground cover to reduce their vulnerability to exposure and predation, and are not sufficiently mobile to relocate widely in search of more adequate cover. Failure to gather excess wild horses would, by 2014, deeply compromise the utility of favored nest and early brood habitat and contribute to reductions in annual reproductive performance and recruitment across 25% of the dusky grouse habitat available in the Douglas and Piceance Basins.

Raptors and non-game wildlife: It is believed that increasing intensity and duration of yearlong, and particularly growing season-long, grazing use attributable to increasingly large and expansive wild horse populations would, by 2015, result in the widespread deterioration of ground cover conditions across 40-50% of the sagebrush and mixed shrub habitats available in the WRFO south of the White River (26% of those available in GMU 21 and 60% of those in GMU 22). The consequence of these effects on non-game bird and small mammal habitats and populations with an affinity for well developed herbaceous understories, including their indirect role in maintaining associated raptor populations, would be identical to the discussions for Alternative C in the *Migratory Bird and Threatened, Endangered, and Sensitive Animal* (i.e., Brewer's sparrow and sagebrush vole) sections.

Under this alternative, because no gather would take place there would be no impacts to wildlife as a result of gather operations.

Cumulative Analysis Area and Impacts: The CAA for terrestrial wildlife encompasses the Piceance and Douglas/Evacuation Creek watersheds within Colorado. Alternative A and B would provide broad relief from inappropriate levels, duration, and timing of forage use by excess numbers of wild horses, as well as the progressive and long-term deterioration of native ground cover as important forage and cover constituents of shrub-steppe wildlife habitats. The contribution of wild horse-related grazing effects at post-gather populations on herbaceous forage and cover conditions would be integral with those effects attributable to other wild and domestic ungulates. Collective ungulate grazing-related effects on native vegetation communities would be additive with vegetation clearing and occupation associated with past and ongoing mineral development and the proliferation of invasive and noxious weeds in the Piceance and Douglas/Evacuation Creek basins within Colorado.

Cumulative impacts associated with Alternative C include the direct and indirect consequences of wild horse-related grazing effects on the availability and composition of big game forage and non-game forage and cover would represent strong additions to collective ungulate grazing-related effects on native vegetation communities and contribute widely to vegetation clearing and occupation associated with past and ongoing mineral development and the proliferation of invasive and noxious weeds in the Piceance and Douglas/Evacuation Creek basins within Colorado.

Mitigation: Mitigation has been incorporated into the Proposed Action and Alternative B. Selection of Alternative C may require additional analyses and supplemental BLM planning, and as such, no additional mitigation was prepared for Alternative C.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): On a landscape scale, the project area and its encompassing watersheds generally meet the land health standard in providing for viable native animal communities commensurate with habitat potential. As conditioned, behavioral disruption of wildlife generated by proposed helicopter herding, gather/holding operations, or water/hay trapping would remain localized and transient and would have no effective influence on continued meeting of the land health standard. The Proposed Action and Alternative B are consistent with management of wild horse-related influences that generally allow for the

maintenance and incremental improvement in rangeland conditions as wildlife habitat. Alternative C would fail to rectify exponential increases in the distribution and abundance of wild horses as sources of heavy, season-long grazing use that would continue to have severe and long-term consequences on the integrity and quality of, especially, up to 50% of the sagebrush and mixed shrub habitats available in the Piceance and Douglas Creek watersheds of the WRFO. Implementation of Alternative C would contribute to widespread failures of virtually every indicator associated with Land Health Standard 3 on a landscape scale.

RANGELAND MANAGEMENT

Affected Environment: : BLM organizes the descriptions for grazing management into four allotments within this analysis area: Yellow Creek, Square S – Pasture C, Cathedral Bluffs, and Greasewood Allotments which account for 166,888 acres within the PEDHMA. Table 10 below shows the livestock grazing administration within the PEDHMA.

Table 10. Grazing Allotments within the PEDHMA.

Allotment	Acres	BLM Preference
Yellow Creek	63,191*	2,725
Square S, Pasture C	18,126*	289
Cathedral Bluffs	57,761	2,597
Greasewood	27,810*	1,567
PEDHMA Total	166,888	7,178

* BLM acres only.

BLM has previously described site specific impacts on vegetation in key areas in the documents referenced above. In general, maintenance of wild horses at current population levels is causing an accelerated decline in desirable vegetation. Utilization, trend and precipitation monitoring data clearly substantiate the need for the proposed action in order to effect a significant positive change in vegetation within the PEDHMA. Cheatgrass (*Bromus tectorum*) continues to occur in virtually all key areas. The only way to avoid increases in cheatgrass composition or affect its actual decline as a component of the vegetation on a given site is to manage to maximize the vigor and productivity of desirable native plant species so that there is no niche (opportunity) for the invasion or proliferation of cheatgrass. However, providing for the plant growth requirements of preferred species is most attainable with stocking of wild horses commensurate with the planned forage allocation.

Table 11. Livestock use on the Yellow Creek allotment for the period 1996- 2009.

YEAR	AUMS	YEAR	AUMS
1996	1692	2003	1689
1997	2186	2004	1503
1998	2186	2005	1649
1999	2186	2006	1543
2000	2157	2007	1550
2001	2157	2008	1933
2002	1394	2009	1933
		YEARS	AUMS
Mean Use		1996-2001	2139
Average Use		1981-1995	2104

Table 11. Livestock use on the Yellow Creek allotment for the period 1996- 2009.

YEAR	AUMS	YEAR	AUMS
Average Use		1996-2005	1907
Average Use		2001-2005	1678
Average Use		2006-2009	1740

Livestock use on the Yellow Creek allotment from 1996 - 2001 was essentially identical to the level analyzed in the 1996 Rangeland Evaluation. Livestock use from 2002-2005 on the Yellow Creek allotment has been less than the level analyzed in the 1996 Rangeland Evaluation.

Precipitation in the PEDHMA ranges from over 20 inches per year at highest elevations on the Cathedral Bluffs to less than 10 inches at the lower elevations. Precipitation in the region is relatively evenly distributed throughout the year with no notable wet or dry periods. The table below shows the growing season precipitation from the Pinto Mesa Remote Access weather station (April through October), and yearlong data taken from the Weather Station in Rangely, Colorado.

Table 12. Precipitation Rates from Pinto Mesa and Rangely, CO Weather Stations.

Year	Growing Season Precipitation (Inches) Pinto Mesa Remote Access Weather Station	Annual Precipitation (Inches) in Rangely, CO
1996	3.80	14.42
1997	13.61	13.84
1998	6.24	11.06
1999	8.05	8.55
2000	6.51	10.40
2001	4.06	11.34
2002	4.36	6.73 ^X
2003	4.28	6.51
2004	6.03	8.84 ^X
2005	9.93	12.15 ^M
2006	4.96	10.36
2007	7.04	9.66
2008	5.05	9.87
2009	5.48	9.34
Average	6.38	10.21

^M Used to indicate data element missing. No December recording for 2005.

^X Totals based on incomplete time series. 1 to 9 days are missing.

The Society for Range Management defines drought as “prolonged dry weather, generally when precipitation is less than three-quarters of the average annual amount.” The conventional wisdom is that it would take several years of precipitation above the mean to “break” a period of drought. The period of 1995- 2005 is best characterized as a drought period and this period is likely just part of a long term warmer drier period in terms of geologic time, an altithermal. In fact, drought is more the norm than the exception in this region.

Correlation of precipitation with wild horse use: For the period of 1998-2009, which has been drier than normal (or a drought), we have had a wild horse population that has been consistently above the AML for the PEDHMA (135-235). Often the population has been more than double the AML. Heavy season long use of rangeland grasses has resulted in marked decreases in grass

plant cover, production and ultimately in plant mortality. An extended period of normal precipitation in combination with maintenance of wild horse populations within the AML will be necessary for rangeland recovery if BLM is to be in compliance with the Standards for Rangeland Health.

The East Douglas Portion of the PEDHMA is located in the Cathedral Bluffs grazing allotment. The PEDHMA portion, of this allotment, is used by livestock during the fall, winter and spring months. There are two pastures Hogan Draw and Tommy’s Draw. Hogan Draw pasture contains 30,659 acres of public land. Tommy’s Draw pasture contains 27,109 acres of public land.

Hogan Draw pasture: Annual precipitation is 10 inches to 12 inches. This pasture is characterized by deeply dissected drainages. The vegetation in this area is mostly hillside bunchgrass with ridgetop pinyon-juniper stands and greasewood bottoms. The livestock grazing program for the Hogan Draw pasture, defers grazing every year allowing forage plants the complete growing season for growth and reproduction. Wild horse use on this pasture is related to the availability of water. Very few wild horses remain in the Hogan Draw pasture since moving onto the Spring Creek allotment. The lack of perennial water on the Hogan Draw pasture limits the number of wild horses. Hogan Draw pasture is grazed by livestock during the winter and spring, 12/1 to 3/31. On wet years where the main stem of Douglas Creek continues to flow, wild horses have adequate water. During dry years wild horses migrate south to the Tommy’s Draw pasture, or if gates are left open, the wild horses move into Spring Creek.

Tommy’s Draw pasture: Annual precipitation is 12 inches to 15 inches. This pasture is characterized by deeply dissected drainages running up to the Cathedral Bluffs. The vegetation in this pasture is sage/western wheatgrass bottoms, south hillsides with bunchgrass association, north hillsides are pinyon/juniper grading into a mountain browse type at the upper elevations. Water sources include East and main stem of Douglas Creek and Tommy’s Draw, all of which are perennial through this pasture. There are also numerous springs along the base of the Cathedral Bluffs of which few can be considered reliable. There are scattered stock ponds which generally are dry during the summer months. Tommy’s Draw Pasture is grazed by livestock during the spring and fall, 4/1 to 5/31 and 11/15 to 12/30. Wild horses have continued to overuse the areas identified in 2002, but have shifted their use to the south outside the PEDHMA.

Table 13. Actual Use for Livestock, East Douglas portion of the PEDHMA

Year	Cattle AUMs Hogan Draw*	Cattle AUMs Tommy’s Draw**	Total Cattle AUMs
1999	1502	804	2306
2000	1587	674	2259
2001	1509	398	1730
2002	2024	405	2429
2003	732	175	907
2004	1227	183	1406
2005	1008	464	1472
2006	288	416	704
2007	331	101	432
2008	984	399	1383
2009	996	563	1559

Year	Cattle AUMs Hogan Draw*	Cattle AUMs Tommy's Draw**	Total Cattle AUMs
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*Authorized AUMs for Hogan Draw is 1875.

**Authorized AUMs for Tommy's Draw is 829.

BLM utilized monitoring data accumulated between 1981 and 2002 that indicated the PEDHMA will support AML range of 135 to 235 wild horses over any extended period. Historically, the WRFO has not been able to maintain the population of wild horses within the range of AML. Therefore, WRFO anticipates that existing impacts resulting from wild horse utilization would be similar to those identified during the monitoring data.

For further detailed vegetation data and analysis, Appendix E , the 2002 PEDHMA EA/Gather Plan, WR-02-049 (pg 29), and the 2006 PEDHMA EA/Gather Plan, EA # CO-110-2006-030 (pgs. 18 to 22).

Once AML is achieved, BLM would monitor actual conditions within the range to validate the appropriateness of the AML. Managing wild horses in the range of 135 to 235 head described in the proposed action will assure that the AML will be achieved. BLM expects that once this AML range is achieved long term vegetation and watershed objectives while taking into consideration the remaining approved multiple uses.

Environmental Consequence of Alternative A, Proposed Action: Implementation of the proposed action would result in destruction of vegetation at individual trap sites. Depending on the duration a trap is used and the number of wild horses gathered there, this vegetation loss would be minor and short term. In most cases, WRFO selects sites for the actual trap enclosure due to their accessibility, which these sites typically have limited vegetative cover. Recovery of herbaceous species is expected to occur within three years.

When wild horses are managed at planned levels in the PEDHMA they distribute themselves in accordance with seasonal ranges. Within the PEDHMA summer range has been determined to be the limited resource and at current population levels summer range may be over utilized. Over utilization of the summer range has resulted in year round use of other seasonal range sites by wild horses which results in additional competition with livestock for limited forage allocations.

Implementation of the proposed action will provide forage vegetation species with relief from grazing pressure and therefore, enhance their ability to perform basic plant functions including growth, storage and utilization of carbohydrate reserves, and reproduction, ultimately resulting in an increase in plant vigor, cover and production on range sites. The net result will be improved rangeland health. However, this recovery could take a minimum of five to seven years (Cook and Child, 1971) and most likely would take 10-15 years with maintenance of the recommended wild horse stocking rate.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Gathering and removal of excess wild horses down to the low end of the AML without fertility control and adjusting the sex ration will mean that by the next scheduled gather in approximately 2014 (4 year cycle), the adult population will have exceeded the high end of the

AML by at approximately 46 head of wild horses. This overpopulation is not compatible with maintaining and improving rangeland conditions as prescribed in the WRRMP.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under Alternative C wild horses would not be gathered and removed from the lands within and adjacent to the PEDHMA. There would be no short term impacts to rangeland resources associated with gather operations.

Wild horse populations would increase by more than 20 percent per year. Because periodic removal of wild horses is presently the only management tool being utilized with respect to managing wild horse numbers and therefore their stocking rate, rangelands in the PEDHMA would continue to deteriorate due to overpopulation of wild horses. Utilization rates would increase, further degrading the forage resource. This would be exacerbated by the year round grazing by wild horses which would not allow for growth and reproduction of forage species. As the productivity and composition of desirable forage species decreases wild horses are expected to expand their search for forage negatively affecting other areas. This decline would continue to the point that there would be both insufficient plant cover for ecological site protection and insufficient forage for all rangeland users. Eventually, rangeland condition and site conservation would suffer before there would be a noticeable decline in the condition and fecundity of the wild horse herd(s).

Another impact of the continuing high number of wild horses in the PEDHMA is the effect it has on the rangelands contiguous to the PEDHMA. It has been established that there is a direct correlation between wild horse population levels and the tendency of wild horses to disperse and establish new home ranges outside the PEDHMA. This continues to be a substantial, unmitigated impact.

If no excess wild horses are removed the amount of AUMs exceeding the estimated carrying capacity would increase exponentially each year as the wild horse population increases. Due to the increased competition for forage by livestock, wild horses, and wildlife it is expected that long term negative impacts to rangeland resources would occur. Due to wild horse grazing behavior, such as tendencies to stay within preferred ranges for extended periods of time, rangeland vegetation will not have adequate deferment periods to complete physiological processes necessary to recover and persist after grazing. Under this alternative BLM would be in non-compliance with the WRRMP and additional analysis to reflect the exponential growth and forage use by the wild horses would need to be completed.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

Cumulative Analysis Area and Impacts: The CAA for Rangeland resources would be the affected allotments within and surrounding the PEDHMA where wild horses could reasonably be expected to expand their ranges. Reasonably foreseeable activities in this area include livestock grazing, oil and gas development, wildlife grazing, and recreational uses.

- Continued livestock grazing within these grazing allotments removes vegetation associated with AUMs which are allocated for livestock consumption.
- BLM currently anticipates an increase in oil and gas activity within this area existing infrastructure associated with these activities (i.e. well pads, pipelines and compressor stations) has resulted in long term removal of vegetation. Current reclamation associated with this activity may provide benefits to Rangeland Management, as these wells begin to lose production value and are successfully reclaimed, increasing the amount of valuable forage.
- Wildlife grazing within these grazing allotments removes vegetation associated with AUMs, which are allocated for wildlife consumption.
- Recreation activities (i.e. hunting, hiking, OHV use) may result in removal and impact to vegetation associated with AUMs, which are allocated to livestock and wildlife for consumption. In addition, activities may displace livestock and redistribute animals within the allotment resulting in unanticipated distribution.

Generally impacts associated with the proposed action are considered short term, and will not have long term effects to Rangeland Management.

Alternatives A and B result in the removal of excess wild horses from grazing allotments within the PEDHMA as well as those where wild horses have relocated outside of the PEDHMA. Livestock distribution is expected to improve allowing for lower utilization and deferment improving vegetation communities.

Impacts associated with Alternative C include irreversible loss of native perennial vegetation resulting in a conversion to unhealthy, low producing rangelands unable to support livestock, wildlife, or wild horse grazing. Once rangelands have crossed this threshold, they are then no longer comprised of healthy perennial vegetation communities capable of supporting grazing animals.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES (includes a finding on Standard 4)

Affected Environment: **Listed Species:** The endangered Colorado pike-minnow occupies the lower White River below Taylor Draw dam and Kenney Reservoir—a mainstream impoundment. The White River and its 100-year floodplain below Rio Blanco Lake have been designated as critical habitat for the fish. This river reach, from Piceance Creek to Douglas Creek, forms the northern boundary of the proposed project area. About 15% of the project area (primarily Douglas Creek) drains directly into occupied habitat below Taylor Draw dam; the remaining 85% passing first through Kenney Reservoir before entering occupied habitat. The White River is known to harbor only adult and sub-adult fish in Colorado; collections to date have not yielded any larval or young-of-year fish which would indicate spawning or nursery areas.

BLM Sensitive Species: A number of animals that may inhabit the project area are classified as sensitive by the BLM. These species are thought to be especially susceptible to population-level influences. It is the policy of BLM to identify these species on a state-specific basis and ensure that BLM actions do not contribute to their becoming candidate for listing under the Endangered Species Act. Sensitive species that are known to occur or have a reasonable probability of occurring in the project area include: northern goshawk, Brewer's sparrow (integral with the Migratory Bird section); Townsend's big-eared and big free-tailed bats, fringed myotis, white-tailed prairie dog, northern leopard frog, Great Basin spadefoot; flannelmouth, mountain, and bluehead suckers, roundtail chub, and Colorado River cutthroat trout. The bald eagle was recently delisted, but similar levels of protection are afforded this species through the Eagle Protection Act. The Colorado Division of Wildlife has identified a number of nongame species that, by merit of population vulnerability, may warrant special management attention or concern. Those that inhabit the PEDHMA include the sagebrush vole.

Greater Sage-Grouse: On 5 March 2010, the USFWS concluded that the greater sage-grouse warranted listing as an endangered species under the Endangered Species Act, but that listing was precluded by the need to complete listing actions of higher priority. Range-wide, this species is considered a candidate for listing--a designation that affords management attention equivalent to that of species considered "sensitive" by the BLM. The BLM WRFO is a signatory partner with the Colorado Division of Wildlife (CDOW), U.S. Fish and Wildlife (USFWS), and a broad-based group of local stakeholders in a sage-grouse conservation effort that culminated in the development of a conservation plan for the Parachute-Piceance-Roan (PPR) population of sage-grouse in 2008. The small and relatively isolated PPR population has mirrored national trends and has been in decline since at least the late 1970's. The PPR population is likely Colorado's most severely threatened population of greater sage-grouse owing to its very restricted and naturally fragmented habitat base, the advanced state of vegetation succession, and the concomitant threat of heavy natural gas development. Colorado's Statewide Greater Sage-Grouse Conservation Strategy required each of Colorado's population-specific work groups to prioritize perceived threats to their population of birds. The PPR workgroup ranked energy and mineral development as the primary risk factor facing these birds; the group considered ungulate grazing effects that were incompatible with the maintenance of adequate nest and brood cover as the next highest risk factor.

The project area encompasses about 25% of the overall range associated with the Piceance-Parachute-Roan greater sage-grouse population in the WRFO, as well as some peripheral areas along the White River associated with the more northerly Northwest Colorado population (Blair Mesa, Boise Creek). Consistently occupied habitat is confined to about 9000 acres in the southwest corner of the project area; much of the range north of Stake Springs Draw (i.e., upper/western Boxelder pasture) supports little sage-grouse activity at the present time. All shrubland habitats within identified overall range have supported sage-grouse use within the last 30 years and remain important for eventual reoccupation and recovery of the PPR population.

Suitable nest habitat in northwest Colorado is characterized by live sagebrush and mixed shrub cover with well-developed grass and forb understories of sufficient height and density to offer concealment for both nesting hens and young broods, especially prior to sustained flight (about 5

weeks post-hatch, ~late July). Deterioration of upland meadows and channel systems and premature depletion of broadleaf forage is considered a factor coequal with sagebrush conversion in contributing to declines in continental sage grouse populations. Optimal nest habitat consists of sagebrush stands with conformation that provides effective horizontal and vertical concealment. Understory herbaceous components, including grasses, complements horizontal nest concealment and improves microclimatic (e.g. temperature, humidity, wind) conditions at the nest site. There is evidence suggesting that both nest success and the survival of young broods is markedly enhanced by well developed herbaceous understories beneath and among sagebrush canopies. Heavy grazing use not only reduces the availability of forbs and, perhaps, invertebrates as grouse forage, but aggravates soil moisture loss in the later part of the growing season, and typically prompts retreat of broods to light or moderately utilized ranges, if available. Throughout the year, but particularly during the reproductive period (April through August), sage grouse are behaviorally relegated to the gently sloping sagebrush and mixed brush communities at higher elevations in Piceance Basin--habitat that is generally confined to narrow ridgeline situations, and areas for which horses show mutual preference spring through fall.

Sage grouse begin reproductive displays as early as March and begin nesting by the end of April. Most broods are complete by early July and are fledged by mid-August.

Bald eagle: The White River corridor is the hub for seasonal bald eagle use of the White River valley. Particularly during the late fall and winter months, several dozens of bald eagles make regular foraging use of open upland communities south of the river, and are particularly common along its larger tributaries (e.g., Piceance, Black Sulphur). These foraging forays from nocturnal roosts along the White River are dispersed and opportunistic. Concentrated diurnal use and nocturnal roosting functions during the winter, and summer use attributable to a number of nest sites situated in river corridor's cottonwood stands, occur along the entire north edge of the project area.

Northern goshawk: The BLM has about 6 recent records of goshawk nesting in the Piceance Basin, including a number from the project area. Based on incidental observations of birds during the summer months, the birds are probably more common than the breeding records indicate. Based on BLM's experience, goshawk nest at low density throughout the basin in mature pinyon-juniper woodlands (above 6500') and Douglas-fir stands. Goshawks establish breeding territories as early as March and begin nesting by the end of April. Nestlings are normally fledged and independent of the nest stand by mid-August. An influx of migrant goshawk appears to elevate densities in this Resource Area during the winter months.

Townsend's big-eared bat, big free-tailed bat, and fringed myotis: Although the distribution of these bats is poorly understood, recent acoustical surveys in the Piceance Basin and along the lower White River have documented the localized presence of Townsend's big-eared and big free-tailed bat along larger perennial waterways. These bats typically use caves, mines, bridges, and unoccupied buildings for night, nursery, and hibernation roosts, but in western Colorado, single or small groups of bats use rock crevices and tree cavities. Although rock outcrops and mature conifers suitable as temporary daytime roosts for small numbers of bats are widely available in the project area, and relatively extensive riparian communities are available along the White River and in the mainstem and larger tributaries of Douglas, Yellow, and Piceance

Creek, there are no underground mines or known caves, and unoccupied buildings are extremely limited in the project area. Birthing and rearing of young for these bats occurs in May and June, and young are flighted by the end of July. The big free-tailed bat is not known to breed in Colorado.

White-tailed prairie dog: Lands showing evidence of past prairie dog occupation are confined to about 250 acres in the extreme northwest corner of the project area. Little of this habitat along Highway 64 is currently occupied. The White River separates these areas from extensive core areas north of the river (Coal Oil Basin), and although capable of being occupied by associates such as burrowing owl, it is unlikely that these small, isolated towns would offer an effective habitat base for individuals associated with northwest Colorado's experimental nonessential population of black-footed ferrets. Prairie dogs begin dormancy in the late summer to early fall months and emerge from hibernation in March. Breeding occurs in March and April and young emerge from burrows in May.

Northern leopard frog and Great Basin spadefoot: Leopard frogs are locally common along the White River and portions of Yellow and Piceance Creeks, and are more sporadically distributed along Douglas and East Douglas Creek. Spadefoot toads are known recently from western Rio Blanco County and neighboring Uintah County, Utah and appear to be associated with ephemeral stock ponds in valley and basin terrain. There are scattered historical records of spadefoot from Powell Park (White River valley near Meeker, 1997) and a single record from Piceance Creek near Black Sulphur Creek (1973). Although probably rare and sporadically distributed, it remains possible that toads occupy shrublands and woodlands in close association with stockponds and perennial streams distributed throughout the project area.

Brewer's sparrow: Brewer's sparrows are common and widely distributed in virtually all big sagebrush and mixed brush communities throughout the planning area. These birds are typically one of the most common members of these avian communities and breeding densities probably range between 10-40 pairs per 100 acres. Typical of most migratory passerines in this area, nesting activities normally take place between mid-May and mid-July. This species is addressed integral with the Migratory Bird section.

Sagebrush vole: The sagebrush vole occurs locally in sagebrush regions of the Great Basin and northern Great Plains. In Rio Blanco County, the sagebrush vole is associated with sagebrush and mixed shrub – perennial bunchgrass habitats from 6000-9000', which involves some 385,000 acres of BLM surface in the White River Resource Area. Oil shale baseline inventories in the mid-70s suggest that the vole is a widely distributed, but relatively uncommon component (1-2%) of this Resource Area's upland shrub small mammal community, occupying these habitats at minimum densities of about 1 per hectare. It is presumed that sagebrush voles are distributed throughout the PEDHMA's upland sagebrush and mixed shrub communities with diverse and well-developed understories. Voles are active throughout the winter months beneath the snowpack; sagebrush leaves and cambium being the primary constituents of their winter diet. The voles reproduce during the spring and early summer months; their diverse summer diet consisting of flowers and leaves of virtually all green plants including grasses, forbs, and shrubs.

Sensitive fish: There are a number of BLM-sensitive fish that inhabit waters within the project area. Flannelmouth and mountain sucker occur frequently in most of the larger perennial streams in the Piceance and Yellow Creek basins and inhabit the White River. Bluehead sucker and roundtail chub appear to be confined to the river. The East Douglas portion of the PEDHMA includes a ¾-mile reach of lower Cathedral Creek near its confluence with East Douglas Creek. Colorado River cutthroat trout occupy all the major tributaries of upper East Douglas Creek, although habitat conditions for trout in East Douglas below Cathedral Creek likely begin to diminish (e.g., water temperature) and there is probably little permanent occupation below this confluence.

Environmental Consequence of Alternative A, Proposed Action: As conditioned, the operational aspects of the gather would have little, if any, influence on special status species. Conversely, removing about 107 wild horses from outside the PEDHMA and about 221 wild horses within the PEDHMA would have important ramifications on several species and species-groups whose reproductive performance, abundance and distribution, and overall fitness are strongly influenced by the availability of well-developed herbaceous ground cover.

Aquatic species, including fish and northern leopard frog: Proposed gather operations would not take place on the White River valley and would have no direct influence on critical habitat components for Colorado pike-minnow or habitats for BLM-sensitive fish and amphibians. Safeguards integral with the proposed action are intended to reduce the risk of water contamination from helicopter fueling or inadvertent fuel spills. Drive trapping operations, including helicopter staging areas and drive trap/holding areas would be sited to preclude direct or indirect riparian or aquatic habitat involvement. Although water trapping sites may involve the use of existing water sources (e.g., spring developments or water gaps), by nature and design, these sites receive considerable ungulate use and short term trampling damage from trapping operations would not be expected to exceed pre-existing effects.

The proposed gather would reduce the number of wild horses within the PEDHMA by 50% and reduce overall livestock and wild horse grazing intensity within the PEDHMA by 23%. The extent and incidence of range subject to season-long grazing use would also decline. These effects would complement efforts to moderate the intensity of grazing use and its influence on the vigor and density of herbaceous ground cover as it relates to watershed health and downstream aquatic habitats (see discussion in Riparian and Wetland section).

Localized grazing-related influences of wild horses would be eliminated on about a quarter million acres outside the PEDHMA. Although wild horse use is not widely implicated in declining trends in aquatic or riparian conditions in the project area (see Riparian and Wetland section), deteriorating channel conditions in lower Yellow Creek since the late 1980's and its 5 miles of associated special status fish and amphibian habitat below Barcus Creek (about 40% of the tributary mountain and flannelmouth sucker habitat in the WRFO) suggest that current levels of year-long wild horse use, as a direct or indirect contribution to seasonal livestock and big game use, is incompatible with the maintenance of erosion-resistant riparian vegetation. The stability and structural quality of aquatic habitat in this system is predicated on obligate forms of bank and floodplain vegetation, which typically deteriorate when subjected to season-long grazing. Under the proposed action, wild horse populations likely to use this portion of lower Yellow Creek would be reduced by 80% (i.e., 166 to 33 head). In another instance, removing

wild horses from outside the PEDHMA would resolve potential direct and indirect grazing-related influences (e.g., adverse composition shifts in riparian communities, reduced vegetation-derived bank armoring) associated with 29 wild horses that have dispersed outside the East Douglas portion of the PEDHMA and established season-long use in the Cathedral Creek pasture of the Cathedral Bluffs allotment. This pasture, outside the PEDHMA, encompasses an additional 6.5 valley miles of occupied trout habitat in Lake, Soldier, and upper Cathedral Creek.

Greater sage-grouse: Gather operations would take place outside the sage-grouse reproductive period when broods would be largely independent, fully mobile, and capable of avoiding disturbance. Helicopter-based gather operations in the upper reaches of the Square S (within the PEDHMA) and Reagles allotment (outside the PEDHMA) are expected to be brief and short term (no more than 2-3 days) and confined to the fall months. The timing, intensity, and duration of gather activity would not be expected to have any substantial adverse consequences on sage-grouse energetics or distribution. More influential would be the indirect effects of wild horse reduction and/or removal on the utility of nest and early brood habitat (i.e., grazing-induced reductions in the density, height, and availability of herbaceous cover as forage and cover). Gather operations would remove wild horses from sage-grouse habitat associated with the Magnolia (i.e., Magnolia, Ryan/Black Sulphur drainages) and North Piceance removal areas and reduce the coincident occupation of wild horses in sage-grouse habitat by about 50%. Wild horses remaining within the PEDHMA's suitable and occupied sage-grouse habitats (~9000 acres in the Square S, Boxelder, East Douglas areas) would be reduced to half their current numbers. Reductions and removals within and outside the PEDHMA, respectively, would reduce overall grazing intensity by cattle and wild horses on these confined ridgeline sage-grouse habitats, as well as season-long use attributable to wild horses (who begin use on these habitats by March) by 50-60% -- levels that would contribute substantially to the development and effectiveness of herbaceous ground cover through the nest and brood rearing periods.

Bald eagle: Helicopter herding activity would occur at a time (October) when all bald eagle nest activity is complete. There would be no gather activities or facilities sited in the White River valley. During the late fall and winter months, birds would be making dispersed and opportunistic use of uplands off the river valley. Any exposure of bald eagles to project-related disturbances would be momentary and incidental.

Northern goshawk: Dispersed gather activity during the fall and winter months (October through February) would have no influence on goshawk nesting function or winter foraging efficiency.

White-tailed prairie dogs: White-tailed prairie dogs are confined to a small area along the Highway 64 corridor—a site unlikely to be selected for helicopter or trapping/holding operations. In the unlikely event that short term operations were necessary at this locale, it would occur during the period of prairie dog dormancy. These timeframes would avoid the reproductive period and would coincide with dwindling above-ground activity of adults and, ultimately, hibernation through February. Any trapping operations would involve no physical alteration of habitat besides a brief period of vegetation trampling.

Brewer's sparrow and sagebrush vole: Brewer's sparrow and sagebrush vole are species that are believed to be widely distributed in big sagebrush and mixed shrub habitats across the project

area. Reproduction in each of these species would normally be complete by early August and would not coincide with any anticipated gather activity. The proportion of habitat and number of animals influenced by those facets of the gather that involve longer duration impacts (e.g., helicopter staging, holding and trap sites) would be discountable at the landscape and population levels (see for example, Migratory Bird section). Because the reproductive success and subsequent recruitment of migratory birds and small mammal populations tend to increase in direct response to foliage volume and richness, both of these species and their respective species-groups would benefit from reductions in grazing use intensity (generally 25-50%) attending wild horse removals outside, or reductions within the PEDHMA. These effects would extend to about 75,000 acres of big sagebrush and mixed shrub habitats outside the PEDHMA and about 50,000 acres inside the PEDHMA, and would account for about 50% of the these shrubland types in the WRFO south of the White River.

Bats: It is unlikely that the project area offers habitat suitable for hibernation or rearing of young for the 3 species of bat (big free-tailed bat not known to reproduce in Colorado). Perhaps widely distributed singly or in small groups during the summer months, bats would likely be absent from the project area during its October through February timeframes.

Great Basin spadefoot: These toads are closely associated with water sources that retain free water for sufficient periods of time (at least 5 weeks) to allow successful development of toad larvae into immature terrestrial forms. Dispersal from these waters occurs, but it is likely that the toads remain closely associated with these sites throughout their life. Reducing the intensity and duration of animal use on these water sources would likely enhance the prospects for toad survival and recruitment by reducing trampling mortality, prolonging the availability of ponded water (in certain cases), and allowing for the redevelopment of grounds cover that is effective in concealing young toads from predation.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Gather strategies associated with this alternative would have the same grazing-related influences on special status species populations and habitats as the Proposed Action, but without contraceptive use, gather operations would need to be scheduled more frequently (e.g., every fourth year). Alternative B, then, would tend to abbreviate grazing effects associated with consecutive years at the higher end of AML (e.g., exceeding the AML midpoint of 185 head: 2 years at 20% rate of herd increase versus 4 years at 10% rate of increase), but with higher recruitment rates and the need for more frequent gathers, Alternative B may be expected to remain prone to less reliable gather regimens and more intense and widespread grazing effects attributable to instances when wild horses disperse beyond the PEDHMA and/or exceed AML within the PEDHMA.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, because there would be no gather there would be no short term impacts to threatened, endangered and sensitive wildlife species as a result of gather operations.

Deferring wild horse gathers for an indeterminate period would prolong and exacerbate direct and indirect wild horse-related effects on certain populations of special status animals. With no effective means of biological control, wild horse populations and the influences they exert on

these animals and their habitats would continue to expand and intensify each year in geometrically increasing increments.

Aquatic species, including fish and amphibians: Exponential increases in wild horse populations would be sustained in the short term both inside and outside the PEDHMA. Total forage use attributable to current wild horse numbers (5,600 AUMs) would increase at an average annual rate of about 24% through 2014 (i.e., total use 2.4 times that of 2010 pre-gather). Wild horse contributions to the overall livestock/ wild horse grazing load in the PEDHMA would increase from about 40% presently to about 58% by 2014 (average annual increase of 10%). Similar effects would take place on those ranges occupied by wild horses outside the PEDHMA (264,000 acres).

As forage conditions on preferred use and concentration areas decline from increasing growing season use, wild horses and cattle would be compelled to seek forage increasingly further from water. By 2014 and under no restraint, wild horse populations associated with the PEDHMA (inside and adjacent) would require about 2.4 times the amount of forage currently consumed. Because lands in degraded ecological status (e.g., consistently preferred use areas) can generally produce one-quarter to one-half the herbaceous forage as lands in mid to late seral states, surrounding range subject to increasingly heavy or further season-long grazing use by wild horses would need to expand at a calculated average rate of about 30% per year to meet the annual increase in wild horse numbers and forage demand.

As herbaceous ground cover and composition deteriorates, overland erosion rates would increase incrementally, particularly from that accumulating acreage subjected to concentrated season-long grazing use from wild horses. By 2014, these effects would probably become evident across up to 75,000 acres of big sagebrush and mixed shrub habitats outside the PEDHMA and about 50,000 acres inside the PEDHMA, and would account for about 50% of these shrubland types in the WRFO south of the White River. As gathers are consecutively postponed, these lands would contribute increasingly to sediments delivered to tributaries of the lower White River and its Colorado pike-minnow critical habitat, both in rate of delivery and areal extent. Although unlikely that excessive sediment loads in these systems would instigate chronic or widespread channel instability and bank erosion in the White River (at least through 2014 when overall livestock/wild horse grazing use is calculated to exceed current use levels by 43%), a long term trend would be established that would eventually lead to measurable increases in sedimentation of gravel substrates as spawning sites and sources of invertebrate production (as prey), water temperature (with increased channel width and declining water depth) and reductions in the utility or availability of important channel structure such as bank undercuts, backwaters and overflow channels. This alternative, due to its indeterminate duration, would have the potential to adversely influence Colorado pike-minnow critical habitat, and depending on circumstances, may prompt further Endangered Species Act consultation with the U.S. Fish and Wildlife Service. Sediment-related impacts to the lower White River would also involve a number of BLM-sensitive fish that inhabit the lower White River, including roundtail chub, flannelmouth sucker, and bluehead sucker.

In circumstances such as the lower 5 miles of Yellow Creek where coincident wild horse use is indicated as a factor in declining watershed or channel-specific conditions, it is likely that direct

and indirect grazing-related effects would become more pronounced with time, both in reaches occupied by fish and amphibians and upstream systems that contribute to the fishery (e.g., Stake Springs, Corral Gulch, Duck Creek). Similarly, the consequences of season-long grazing use added to seasonal livestock use in the Cathedral Creek drainage would increase the risk and likelihood of grazing-related effects compromising the utility and function of 6.5 miles of Colorado River cutthroat trout habitat (over 40% of occupied habitat within the WRFO).

Greater sage-grouse: In the short term (through 2014), wild horses would continue to occupy and incrementally intensify their influence on about 25% of the overall sage-grouse range associated with the PPR. Overall grazing load by livestock and wild horses would increase on about 9,000 acres of sage-grouse habitats within the PEDHMA by an average 12% annually, reaching levels about 60% higher than current use by 2014, or about double the overall levels achieved at the higher end of AML.

Wild horses would persist in occupying about 13% of sage-grouse overall range outside the PEDHMA. Annual increases in grazing use intensity would be comparable to levels within the PEDHMA, with increasingly strong reductions in ground cover expected to adversely affect about 6,000 acres of occupied nest and brood-rearing habitats on the Reagles, Pasture D, and Little Hills allotments. Progressive increases in grazing intensity concentrated on narrow stringers of suitable ridgeline and basin habitat would be expected to rapidly reduce the density and height of concealing interstitial cover at the earliest stages of nesting (late April-early May), and in combination with livestock turnout later in the nesting cycle, with increasingly severe reductions through the entire brood period. Prior to 5 weeks of age (about late July), sage-grouse broods are most reliant on effective ground cover to reduce their vulnerability to exposure and predation, and are not sufficiently mobile to relocate widely in search of more adequate cover. Failure to gather excess wild horses would deeply compromise the utility of at least 15,000 acres of occupied nest and early brood habitat and contribute to further reductions in chick survival and recruitment across 25% of the PPR habitat base.

Bald eagle: Wild horse populations persistently elevated above AML and their influence on upland habitat conditions would have little, if any, measurable influence on bald eagle riverine habitats or use functions in the short term (through 2014). Although the failure to regulate wild horse populations and allowing numbers to exceed AML by a factor of 2-3 would be undoubtedly detrimental to big game habitat quality in the project area, it is unlikely that short term population level effects would be sufficiently responsive to measurably reduce carrion or alternate prey sources available for bald eagle use in the White River valley.

Northern goshawk, bats: BLM-sensitive species or Birds of Conservation Concern (BOCC) associated with forest or woodland types would probably remain relatively unresponsive to declining range conditions attributable to unregulated wild horse populations (e.g., northern goshawk, bats) in the short term. However, these species would remain vulnerable to the indirect effects of declining range health, namely reduced abundance and diversity of invertebrate prey (or prey with invertebrate diets) stemming from progressive degradation of herbaceous ground cover.

Brewer's sparrow and sagebrush vole: Brewer's sparrows are addressed integral with the Migratory Birds section. In this section, the implications of increasing numbers of wild horses and season-long grazing on migratory birds is directly applicable to small mammals that depend yearlong on well-developed native forms of herbaceous ground cover as sources of forage and cover, namely the sagebrush vole. Similar to breeding bird populations, sagebrush voles may continue to persist in sagebrush and mixed shrub stands with degraded understories, but at densities and with reproductive performance much reduced from potential. Depressed reproductive performance and long term declines in populations of these sagebrush associates may be subtle, but considering the current distribution of wild horses in the WRFO, may extend across up to 50% of the shrubland types south of the White River.

White-tailed prairie dogs: Regardless of populations levels attained in the short term, it would be unlikely that wild horses would concentrate use or have an influence on habitat character for prairie dogs in the immediate vicinity of the Highway 64 corridor.

Great Basin spadefoot: Increasingly concentrated and expansive summer-long wild horse use in and around upland waters used by these toads for reproduction would increase the likelihood of compromising the toad's annual reproductive efforts by aggravating trampling mortality, providing no recovery period for the redevelopment of ground cover effective in concealing young toads from other forms of predation, and reducing the persistence of ponded surface waters. This effect is probably localized at the present time, but as wild horse populations increase, wild horse dispersal and each newly established band would increase the number and proportion of available sites subject to impact.

Cumulative Analysis Area and Impacts: The CAA for threatened, endangered and sensitive wildlife species encompasses the Piceance and Douglas/Evacuation Creek watersheds within Colorado.

Cumulative Analysis Alternatives A and B: The contribution of grazing influences attributable to wild horses within the PEDHMA at AML has been accepted in a multiple use context. As conditioned, gather operations that remedy the consequences of wild horse populations that exceed AML or that become established outside the PEDHMA are consistent with the maintenance or restoration of special status species habitat in the Piceance and Douglas Creek basins. The collective influence of wild horses at AML within the PEDHMA is not expected to compromise the viability or appropriate distribution of any special status animal population at the scale of the Piceance and Douglas watersheds.

Cumulative Analysis Alternative C: Sediments originating from those areas subjected to incompatible wild horse and livestock grazing regimens would contribute cumulatively to those sediments being produced and transported through the White River system and those tributary systems within the WRFO that support special status fish and amphibians from the development of oil and gas resources in the Piceance, Douglas, and Coal Oil basins and from other public lands administered by the Field Office that fail to meet Public Land Health Standards 1, 2, and 3. Progressive deterioration of native ground cover communities, particularly in shrub-steppe habitats, would contribute to the cumulative range-wide deterioration and modification/loss of sagebrush habitats and animals obligate to the type (e.g., Brewer's sparrow, greater sage-grouse,

sagebrush vole, Great Basin spadefoot) from oil and gas developments and the proliferation of invasive annual grasses.

Mitigation: Mitigation has been incorporated into the Proposed Action and Alternative B. Selection of Alternative C may require additional analyses and supplemental BLM planning, and as such, no additional mitigation was prepared for Alternative C.

Finding on the Public Land Health Standard for Threatened & Endangered species: The project area broadly meets the public land health standard for listed and candidate species, as well as for those animals that are regarded with higher conservation interest by BLM, the State, and other entities. As conditioned, the proposed action and Alternative B would promote management that maintains or allows incremental improvements in aquatic and terrestrial communities that support special status animal populations and no aspect of these alternatives would detract from continued meeting of the standard.

Alternative C was analyzed as a point of comparison, but this circumstance would almost certainly lead to progressive declines in the integrity and utility of terrestrial and aquatic systems inhabited by those special status species addresses above. In the longer term, it is projected that growing season-long grazing regimens attributable to unregulated increases in wild horses in Piceance Basin would ultimately compromise 15,000 acres of greater sage-grouse nest and early brood habitat associated with the PPR population, contribute to further deterioration of aquatic habitats that comprise 40% each of sensitive non-game fish and Colorado River cutthroat trout habitats available in the WRFO, and would initiate declining trends in herbaceous understory conditions on up to 50% of the mixed shrub and sagebrush stands in the WRFO south of the White River. All of these instances represent failures in meeting the Public Land Health Standard 4.

MIGRATORY BIRDS

Affected Environment: A large array of migratory birds fulfills nesting functions throughout the area's woodland and shrubland habitats during the months of May, June, and July. Species associated with these shrubland and woodland communities are typical and widely represented in the Resource Area and region. Those bird populations associated with this Resource Area's shrublands and pinyon-juniper identified as having higher conservation interest (i.e., Rocky Mountain Bird Observatory Partners in Flight program). Several of these birds have also been identified for enhanced management attention by federal agencies, including USFWS Birds of Conservation Concern (BOCC) and Colorado BLM-sensitive species. These birds are typically well distributed in extensive suitable habitats. Species classified with the forest types (aspen/fir) are best associated with limited aspen and Douglas fir stands along the Cathedral Rim—a habitat type that does not normally attract or sustain wild horse use.

Table 14. Birds of Higher Conservation Interest by Habitat Association in PEDHMA vicinity

	Habitat Association			
	Sagebrush	Pinyon-juniper	Mountain shrub	Aspen/fir
Birds	Brewer's sparrow* ¹ , green-tailed towhee	gray flycatcher, pinyon jay*, juniper titmouse*, black-throated gray warbler, violet-green swallow, Cassin's finch*, northern goshawk ¹	blue grouse, common poorwill, Virginia's warbler	flammulated owl*, red-naped sapsucker, purple martin, Cordilleran flycatcher, MacGillivray's warbler

*Birds of Conservation Concern (USFWS 2008)

¹Colorado BLM sensitive species

Portions of perennial or intermittent systems inside the PEDHMA boundary (e.g., Left Fork Stake Springs Draw, Duck Creek, Box Elder Gulch, Corral Gulch, Yellow Creek, Tommy's Draw, and the East and mainstem of Douglas Creek) and those outside the PEDHMA boundary (e.g., Spring Creek, Boise Creek) sporadically support a simple contingent of riparian-affiliated migratory birds (e.g., rough-winged swallow, song sparrow). Larger systems (i.e., East and mainstem Douglas Creeks) are represented by better developed willow and sedge-dominated riparian vegetation that supports richer avian communities that include such members as yellow warbler, blue grosbeak, yellow-breasted chat, and willow flycatcher.

Environmental Consequence of Alternative A, Proposed Action and Alternative B, Gather and Removal of Excess Wild Horses Only: Gather operations associated with these 2 alternatives would be confined to timeframes outside the nesting season of all migratory birds (i.e., October-February) and would, therefore, have no potential to directly influence the outcome of migratory bird nesting activities.

Grazing-related effects of excess wild horses within the PEDHMA and populations outside the PEDHMA are primarily associated with reductions in the availability of intervening herbaceous cover as forage (including invertebrate substrate) and cover during nesting and the rearing of young. Strong, localized reductions in the density and height of herbaceous ground cover from collective ungulate grazing during the nesting season can substantially (50% or more) depress nest success and/or breeding densities of, particularly, ground-nesting and near-ground nesting birds (e.g., dusky grouse, Virginia's warbler, green-tailed towhee) and would likely extend more indirectly to survival and recruitment of most shrubland birds that are insectivorous by nature (e.g., dusky flycatcher) or rely heavily on invertebrate prey to feed nestlings during brood-rearing functions (e.g., Brewer's sparrow) (Walsberg 2005, Krueper et.al. 2003). Collective ungulate grazing-related effects would be most concentrated and pronounced on ridgeline and bottomland sites composed of various big sagebrush and mixed shrub vegetation communities.

Presently, about 26% (24,400 acres) and 60% (98,900 acres) of the big sagebrush and mixed shrub communities in GMU 21 and GMU 22, respectively, are encompassed by pastures occupied by wild horses and are subject to their grazing-related influences. Removal of wild horses outside the PEDHMA would reduce overall sagebrush community involvement by up to 60% in the Piceance and Douglas basins, such that 7% of sagebrush communities could be influenced by wild horse use within GMU 21 (reduced from ~24,000 to 6,500 acres) and 26% within GMU 22 (reduced from ~100,000 to 42,000 acres).

Gather strategies associated with these alternatives would have similar grazing-related influences on migratory bird nesting activity, though with efforts to suppress wild horse reproduction through contraceptive use, gather operations would need to be scheduled less frequently (e.g., every eighth year) under the Proposed Action. The Proposed Action may, therefore, tend to prolong grazing effects associated with consecutive years at the higher end of AML (e.g., exceeding the midpoint of 185 head: 2 years at 20% rate of herd increase versus 4 years at 10% rate of increase), but conversely, lower rates of increase may reduce the risk and intensity of grazing effects attributable to the historically chronic excess of wild horses in the PEDHMA (i.e., exceeding established population objectives).

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, because there would be no gather there would be no short term impacts to migratory birds as a result of gather operations.

Deferring wild horse gathers for an indeterminate period would prolong and exacerbate direct and indirect wild horse-related effects on migratory bird populations. With no effective means of biological control, wild horse populations and the influences they exert on migratory bird habitat would continue to expand and intensify each year in geometrically increasing increments. Assuming no interim management response, current forage use (AUMs) attributable to livestock (7,178 AUMs) and wild horses (4770 AUMs) within the PEDHMA would increase at an average annual rate of about 9% through 2014 (i.e., total use 43% greater than 2010 pre-gather). Wild horse contributions to the overall livestock/ wild horse grazing load in the PEDHMA would increase from about 40% presently to about 58% by 2014 (average annual increase of 10%). Similar effects would take place on those ranges occupied by wild horses outside the PEDHMA.

In particular, shrubland communities within 2 miles of water would be subject to increasingly heavy grazing use during or prior to the migratory bird nesting season (April through August). Strong reductions in the density and height of herbaceous ground cover from ungulate grazing in the short term would be sufficient to depress nest success and/or breeding densities of shrubland associated birds (as discussed above). Because water is generally well distributed across the PEDHMA, reductions in the availability of intervening herbaceous cover as forage and cover during nesting and the rearing of young would be evident in the short term across up to 7% of sagebrush communities within the Douglas Creek watershed (6,500 acres) and up to 26% of those within the Piceance Creek watershed (42,000 acres).

In the longer term, persistent patterns of growing season use on affected shrublands would continue to alter the composition of herbaceous understory communities, with increasing expression of annual (cheatgrass, mustards), introduced (Kentucky bluegrass), or grazing tolerant (grama) species, which fail to offer comparable persistence, structure, or production as substrate for invertebrate prey and/or supplemental cover for reproductive functions. Because lands that have shifted to such states can generally produce one-quarter to one-half the herbaceous forage as lands in mid to late seral states, wild horses and cattle would not only make exaggerated use of forage sources near water, but would be compelled to seek and make increasingly heavy growing season demands on forage further from water. Considering the potential for high rates of change in grazing use expression attributable to wild horses (expanse and intensity of use), it is believed that current breeding bird populations would rapidly manifest the progressive

accumulation of bottomland and upland ridgeline and basin habitats in suboptimal condition by persisting at densities well below potential (e.g., 50% or less). In the context of nesting habitat, it is likely that by 2015 widespread deterioration of ground cover conditions would be evident across 40-50% of the sagebrush and mixed shrub habitats available in the WRFO south of the White River (26% of those available in GMU 21 and 60% of those in GMU 22).

Progressive and accelerating declines in rangeland health beyond 2014 may prompt remedial action (e.g., reduction in livestock use). Efforts at reducing total grazing load through livestock would not resolve declining rangeland conditions attributable to sustained season-long grazing regimens in areas inhabited by wild horses. Regardless of options available for domestic livestock management, vegetation and water management aligned with increasing emphasis on the support of an increasingly large and expansive wild horse population would lead to progressive, exponential deterioration of sagebrush and shrubland steppe communities as nesting and brood-rearing habitat for migratory birds.

Cumulative Analysis Area and Impacts: The CAA for migratory birds encompasses the Piceance and Douglas/Evacuation Creek watersheds within Colorado.

Cumulative Analyses Alternative A and B: The contribution of grazing influences attributable to wild horses within the PEDHMA at AML has been accepted in a multiple use context. Wild horse populations that exceed AML or become established outside the PEDHMA, contribute to the cumulative deterioration of migratory bird nesting habitat in the Piceance and Douglas Creek basins generated by natural gas development (direct occupation and clearing) and acreage increasingly influenced by invasive annual grasses and noxious weeds. The collective influence of wild horses at AML within the PEDHMA is not expected to compromise the viability or appropriate distribution of any migratory bird population at the scale of the Piceance and Douglas watersheds.

Cumulative Analysis Alternative C: Progressive deterioration of native ground cover communities, particularly in sage-steppe habitats, would contribute to the cumulative range-wide deterioration and modification/loss of sagebrush habitats and animals associated with the type (e.g., Brewer's sparrow, dusky grouse, Virginia's warbler). More locally, these effects would add substantially to the direct occupation and longer term modification of shrubland nest cover that has and continues to occur from natural gas development and those areas entrenched with invasive annual weeds, introduced grasses, and noxious weeds in the Piceance and Douglas Creek basins, as well as that nesting habitat historically influenced by livestock, wild horse, and big game wildlife grazing use (e.g., diminishment of nest cover and forage substrate). Although unlikely to compromise population viability at the scale of Piceance or Douglas basins in the short term, this alternative would likely prompt distribution discontinuities and severe localized reductions in the abundance of more specialized species, such as dusky grouse and green-tailed towhees.

Mitigation: Mitigation has been incorporated into the Proposed Action and Alternative B. Selection of Alternative C may require additional analyses and supplemental BLM planning, and as such, no additional mitigation was prepared for Alternative C.

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: Mainstem Douglas Creek, East Douglas Creek, Cathedral Creek, and Yellow Creek are the only systems capable of supporting higher order aquatic habitats (i.e., vertebrate forms) within the area occupied and potentially influenced by wild horses. Mainstem Douglas and East Douglas Creek are proper functioning systems that have sustained a long term improving trend in aquatic habitat conditions. Lower East Douglas Creek, a willow-dominated system heavily colonized by beaver, is occupied throughout its length by speckled dace, chorus and northern leopard frogs, and occasionally by Colorado River cutthroat trout that disperse from upstream reaches. Enhanced flow delivery from East Douglas Creek has initiated improving trends in mainstem Douglas such that willows continue to expand downstream and laterally as does the persistence and extent of beaver occupation. At the present time and in spite of flow variability and heavy periodic sediment loads that severely limits habitat conditions for fish and other vertebrate forms; Douglas Creek persists in supporting discontinuous populations of speckled dace.

About 0.75 mile of lower Cathedral Creek lies within the PEDHMA boundary. Similar to East Douglas Creek, Cathedral Creek is regularly occupied by beaver and supports amphibians and speckled dace. Cathedral Creek below Soldier Creek is thought to be capable of supporting CRCT, but no trout have been recently documented from this area. Soldier and Lake Creek, which drain into Cathedral Creek, support small, representative populations of Colorado River cutthroat trout.

Beaver have sporadically occupied portions of lower Yellow Creek, a large sedge-dominated system, over the past 20 years, but within 3 miles of the White River, recent occupation by beaver has tended to be more expansive and prolonged. Periodic monitoring of Yellow Creek since autumn 2001, primarily by private concerns, indicates that Yellow Creek below Barcus Creek supports a predominantly native aquatic community composed of speckled dace, mountain sucker, and northern leopard frog. The fish were found in all age-classes in nearly all seasons and years and suggest that these populations are self-sustaining. Aquatic habitat at the mouth of Yellow Creek is strongly influenced by fish population in the White River. In addition to dace and mountain sucker, the lowest reach of Yellow Creek was found to be occupied consistently by introduced fathead minnow and periodically by juvenile carp (introduced) and flannelmouth sucker (native), and adult brown trout (introduced).

Environmental Consequence of Alternative A, Proposed Action: As conditioned, the proposed action would have little, if any, discernible direct influence on aquatic wildlife communities. Proposed gather operations would not take place on the White River valley and would have no direct influence on the river or its floodplain. Safeguards integral with the proposed action are intended to reduce the risk of water contamination from helicopter fueling or inadvertent fuel spills. Drive trapping operations, including helicopter staging areas and drive trap/holding areas would be sited to preclude direct or indirect riparian or aquatic habitat involvement. Although water trapping sites may involve the use of existing water sources (e.g., spring developments or water gaps), by nature and design, these sites receive considerable

ungulate use and short term trampling damage from trapping operations would not be expected to exceed pre-existing effects.

Wild horse use is not currently influencing riparian character or aquatic conditions in the Douglas Creek drainage. This system within the PEDHMA tends to be resistant to widespread grazing-related effects due to its steep incise walls, heavy willow and tamarisk growth, and pervasive influence of beaver (e.g., damming and ponding). Planned 50% reductions in the number of wild horses inhabiting the East Douglas area would be consistent with maintaining riparian and aquatic habitat conditions in this drainage.

Lower Cathedral Creek within the PEDHMA also tends to be resistant to widespread grazing-related effects due to its steep incise walls and pervasive influence of beaver (e.g., damming and ponding). Upstream segments of Cathedral Creek and Lake and Soldier Creeks outside the PEDHMA become increasingly less incised and are more vulnerable to potentially deleterious grazing-related effects, including trampling damage of channel features and incompatible levels or duration of grazing use in riparian communities (e.g., adverse composition shifts, reduced vigor and function of bank and floodplain vegetation). At the present time (June 2010), wild horse use is evident in and along the Cathedral Creek channel above its confluence with Soldier Creek (outside the PEDHMA). Removal of wild horses from outside the PEDHMA would confine wild horse use to portions of Cathedral Creek better able to withstand the effects of collective seasonal and season-long grazing. See further discussion in *Threatened, Endangered, and Sensitive Animal Species* section.

Reducing the PEDHMA's wild horse population by 60-65% and those groups of wild horses likely to use lower Yellow Creek by 80% should have the effect of not only reducing the overall grazing use intensity in this watershed, but help promote seasonality in the grazing use patterns of wild horses and allow more effective vegetation recovery after the livestock grazing use period. By reducing the confounding influence of yearlong wild horse use, livestock grazing systems that have been designed to operate in a manner that are compatible with riparian and channel function would be allowed to express themselves in the eventual development of obligate riparian/wetland forms (e.g., sedge, rush) which offer superior erosion resistance and are key elements in supporting processes that improve and restore channel function. Proper functioning systems, by merit of riparian vegetation expression, increased channel stability, prolonged flow, and more complex channel morphology, generally support richer and more diverse vertebrate or invertebrate animal communities than degraded stream systems. See further discussion in *Threatened, Endangered, and Sensitive Animal Species* section.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Gather strategies associated with this alternative would have the same grazing-related influences on aquatic wildlife communities as the Proposed Action, but without contraceptive use, gather operations would need to be scheduled more frequently (e.g., every fourth year). Alternative B, then, would tend to abbreviate grazing effects associated with consecutive years at the higher end of AML (e.g., exceeding the AML midpoint of 185 head: 2 years at 20% rate of herd increase versus 4 years at 10% rate of increase), but with higher recruitment rates and the need for more frequent gathers, Alternative B may remain prone to less reliable gather regimens and more intense and widespread grazing effects attributable to

instances when wild horses disperse beyond the PEDHMA and/or exceed AML within the PEDHMA.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, because there would be no gather there would be no short term impacts to aquatic wildlife species as a result of gather operations.

The watershed-wide implications of an unregulated wild horse population on the project area's aquatic communities are addressed in the Environmental Consequence of Alternative C, *Threatened, Endangered, and Sensitive Animal Species* section. In circumstances such as the lower 5 miles of Yellow Creek where coincident wild horse use is indicated as a factor in declining watershed or channel-specific conditions, it is likely that direct and indirect grazing-related effects would become more pronounced with time, both in reaches occupied by fish and amphibians and upstream systems that contribute to the fishery (e.g., Stake Springs, Corral Gulch, Duck Creek). Similarly, the consequences of season-long grazing use added to seasonal livestock use in the Cathedral Creek drainage would increase the risk and likelihood of grazing-related effects compromising the utility and function of 6.5 miles of Colorado River cutthroat trout habitat (over 40% of occupied habitat within the WRFO). Elevated sediment levels arising from grazing-induced channel damage, by accumulating in and filling beaver ponds in these high-gradient, erosion-prone systems, would progressively accelerate the rate of dam breaches that, once beyond the capacity of the system, would result in adverse channel adjustments (both upstream and downstream in Yellow Creek, and Cathedral, Soldier and Lake Creeks) that would be largely incompatible as habitat for aquatic vertebrates (i.e., straightened, entrenched channels).

Cumulative Analysis Area and Impacts: The CAA for aquatic wildlife encompasses the Piceance and Douglas/Evacuation Creek watersheds within Colorado.

Cumulative Analysis Alternatives A and B: The contribution of grazing influences attributable to wild horses within the PEDHMA at AML has been accepted in a multiple use context. As conditioned, gather operations that remedy the consequences of wild horse populations that exceed AML or that become established outside the PEDHMA are consistent with the maintenance or restoration of special status species habitat in the Piceance and Douglas Creek basins. The collective influence of wild horses at AML within the PEDHMA is not expected to compromise the viability or appropriate distribution of any special status animal population at the scale of the Piceance and Douglas watersheds.

Cumulative Analysis Alternative C: Sediments originating from those areas subjected to incompatible wild horse and wild horse-influenced livestock grazing use would contribute cumulatively to those sediments being produced and transported through the White River system and those tributary systems within the WRFO that support aquatic communities from the development of oil and gas resources in the Piceance, Douglas, and Coal Oil basins and from other public lands administered by the Field Office that fail to meet Public Land Health Standards 1, 2, and 3.

Mitigation: Mitigation has been incorporated into the Proposed Action and Alternative B. Selection of Alternative C may require additional analyses and supplemental BLM planning, and as such, no additional mitigation was prepared for Alternative C.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The contribution of grazing influences attributable to wild horses within the PEDHMA at AML has been accepted in a multiple use context. As conditioned, the Proposed Action and Alternative B remedy the consequences of wild horse populations that exceed AML or that become established outside the PEDHMA are consistent with the maintenance or restoration of riparian and aquatic communities within the project area. The Proposed Action and Alternative B are expected to complement the proper function of aquatic habitats supported by the Yellow Creek, Cathedral Creek, or Douglas Creek systems and as such are consistent with continued meeting of the Land Health Standard 3.

Alternative C was analyzed as a point of comparison, but this circumstance would almost certainly lead to progressive declines in the integrity and utility of aquatic habitats in the Yellow Creek and Cathedral Creek systems. In the longer term, it is projected that growing season-long grazing regimens attributable to unregulated increases in PEDHMA wild horses would contribute to further deterioration of aquatic habitats that comprise 40% each of sensitive non-game fish and Colorado River cutthroat trout habitats available in the WRFO. Alternative C would contradict continued meeting of Public Land Health Standard.

SOILS (includes a finding on Standard 1)

Affected Environment: The soils have been mapped by the Natural Resources Conservation Service (NRCS) in an Order III soil survey for Rio Blanco County. Complete detailed maps and mapping unit descriptions are found in the published survey (NRCS 1982) and are on file at the White River Resource Area office. Listed below, are major soil mapping units which occur within the PEDHMA.

Table 15. Soil Types and Acres within the PEDHMA

<i>Soil Type #</i>	<i>Soil Name</i>	<i>Ecological Site</i>	<i>Slope Range</i>	<i>Acres</i>
1	Abor Clay Loam	Clayey Foothills	5-30	6,309
5	Badland	none	N/A	307
6	Barcus channery loamy sand	Foothills Swale	2-8	4,837
7	Billings silty clay loam	Alkaline Slopes	0-5	105
9	Blakabin-Rhone-Waybe complex	Brushy Loam/Brushy Loam/Dry Exposure	5-50	394
10	Blazon moist-Rentsac Complex	Pinyon-Juniper woodland	complex	7,992
11	Potts-Begay fine sandy loams	Loamy Salt-desert/Sandy Salt-desert	2-7	1,095
13	Bulkley channery silty clay loam	Pinyon-Juniper woodlands	5-30	5,919
15	Castner channery loam	Pinyon-Juniper woodland	5-50	28,573
21	Cliffdown-Cliffdown Variant complex	Salt-desert Breaks	5-65	1,870
22	Clifterson channery loam	Loamy Salt-desert	1-15	155

<i>Soil Type #</i>	<i>Soil Name</i>	<i>Ecological Site</i>	<i>Slope Range</i>	<i>Acres</i>
25	Colorow sandy loam	Sandy Saltdesert	5-30	505
31	Dollard silty clay loam	Clayey Foothills	15-40	657
34	Forelle loam	Rolling Loam	2-25	1,524
35	Gaynor-Midway silty clay loam	Silty Saltdesert	2-25	853
36	Glendive fine sandy loam	Foothills Swale	N/A	20,642
37	Glenton sandy loam	Alkaline Slopes	1-6	189
38	Guben loam	Rolling Loam	0-3	60
40	Hagga loam	Swale Meadow	N/A	1,241
41	Havre loam	Foothill Swale	0-4	4,249
42	Irigul channery loam	Loamy Slopes	5-50	9,649
43	Irigul-Parachute complex	Loamy Slopes/Mountain Loam	5-30	9,879
46	Kinnear fine sandy loam	Loamy Saltdesert	1-5	641
47	Kobar silty clay loam	Deep Clay Loam	0-3	16
48	Kobar silty clay loam	Deep Clay Loam	3-8	1,114
49	Kobar silty clay loam	Deep Clay Loam	8-15 %	229
52	Miracle fine sandy loam	Mountain Loam	3-25	12
53	Moyerson stony clay loam	Clayey Slopes	15-65	9,366
55	Nihill channery sandy loam	Saltdesert Breaks	5-50	991
56	Northwater loam	Aspen Woodlands	5-50	1,403
58	Parachute Loam	Brushy Loam	25-75	6,592
59	Parachute-Rhone loams	Mountain Loam	5-30	4,630
61	Patent loam	Rolling Loam	3-8	45
62	Patent loam	Rolling Loam	8-15	252
64	Piceance fine sandy loam	Rolling Loam	5-15	722
66	Potts-Begay fine sandy loams	Loamy Saltdesert/Sandy Saltdesert	2-7	480
67	Rabbitex flaggy loam	Pinyon-Juniper woodland	10-65	191
69	Razorba channery sandy loam	Spruce-Fir woodland	30-75	7,428
70	Redcreek-Rentsac complex	PJ woodlands/PJ woodlands	5-30	16,062
73	Rentsac channery loam	Pinyon Juniper woodlands	5-50	137,991
74	Rentsac-Moyerson-Rock Outcrop	PJ Woodlands/Clayey Slopes	N/A	56,348
75	Rentsac-Piceance complex	PJ woodland/Rolling Loam	2-30	12,728
76	Rhone loam	Brushy Loam	30-75	3,333
78	Rock Outcrop	None	N/A	1,518
80	Shawa loam	Deep Loam	3-8	79
82	Silas loam	Mountain Swale	0-8	591
83	Silas loam	Mountain Swale	8-12	74
87	Starman-Vandamore complex	Dry Exposure/Dry Exposure	5-40	4,393
89	Tisworth fine sandy loam	Alkaline Slopes	0-5	1,553
90	Torrifluvents	None	N/A	1,550
91	Torriorthents-Rock Outcrop	Stoney Foothills	1-15	58,961

<i>Soil Type #</i>	<i>Soil Name</i>	<i>Ecological Site</i>	<i>Slope Range</i>	<i>Acres</i>
92	Trembles loam	Salt Meadow	N/A	77
93	Turley fine sandy loam	Alkaline Slopes	0-3	351
94	Turley fine sandy	Alkaline Slopes	3-8	418
95	Uffens loam	Alkaline Slopes	0-5	910
96	Veatch channery loam	Loamy Slopes	12-50	7,173
102	Work Loam	Deep Loam	8-15	36
104	Yamac Loam	Rolling Loam	2-15	7,875
130	Piceance fine sandy loam	Rolling Loam	5-15	12
131	Kinnear fine sandy loam	Loamy Salt desert	1-5	1

Fragile soils make up 280 acres within the herd unit and were classified in the White River ROD/RMP as derived from Mancos shale and also soils on slopes greater than 35 percent. There are 2,463 acres of saline soils (>16 μ mhos) within the herd unit. In addition, a substantial acreage of soils are slightly to strongly saline at the surface or in a near surface. Saline soils generally support a sparse vegetation cover of low salt tolerant desert shrubs, grasses, and cryptogamic lichens. These soils generally formed in alluvium, colluvium, residuum, and reworked eolian deposits derived dominantly from shale and sandstone. Because they lack continual moisture, these soils are dry, causing salts to precipitate at the surface as soil moisture evaporates. Runoff from these areas transport salt in solution and sediment often contains undissolved salts that can go rapidly into solution when it reaches a major waterway.

Environmental Consequence of Alternative A, Proposed Action: Grazing can remove or alter vegetation that protects soils during runoff events. Hoof action can compact soils and reduce infiltration and in some cases the combination of these impacts can impair soil productivity. Removal of wild horses would aid in relieving pressures on the existing drainage areas where there are poor soils. Annual runoff from public land is quite variable and is dependent on soil type and properties, vegetation type and density, watershed aspect and slope, amount of precipitation, and management practices but could increase in some areas due to the proposed action. Forage deficits could deplete the vegetation cover needed to protect watersheds from runoff/erosion and could cause long-term increases in hill slope soil erosion. Sensitive (e.g. fragile soils) watersheds have a very high erosion potential and are frequently high in salts and therefore are more susceptible to direct impacts.

Standard operating procedures specify that gathering would be conducted when soils are dry or frozen and conditions are optimal for safety. Not conducting wild horse gathers during periods of saturated and muddy soils is likely to reduce direct impacts to soils from hoof action.

Direct and indirect impacts from gather activities would include but are not limited to, disturbance of vegetation and soil compaction at the trap sites. There are approximately 2,463 acres of saline soils (>16mmhos conductivity). These soils would generally be less stable and recover more slowly than other soils. Soils in gather areas will likely become compacted due to wild horses and vehicles use for the gather. Some wind-born soil loss is expected due to the operation of the helicopter at low elevations. Since use at most gather sites is limited, impacts are expected to be minor in these areas. All impacts from wild horse gathering activities are

expected to be short-term (less than 2 years) and to fully recover to pre-wild horse gather conditions within 3 years.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts from gather activities would be similar to the Proposed Action. Without the use of fertility control methods, it is likely more gathering will need to be done to maintain wild horses within the AML.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: No wild horse gathers in the PEDHMA would likely result in more impacts from grazing and concentration of wild horses on the range. With no population control from predators or management, the range conditions will likely deteriorate to its carrying capacity which could be characterized at having significant removal of vegetation. It is likely that soil productivity and soil stability will deteriorate to a point where erosion and topsoil loss could be dramatic. Since this would occur in areas of generally poor soils impacts would likely exceed Public Land Health Standard for Upland Soils.

Under this alternative, because there would be no gather there would be no short term impacts to soils as a result of gather operations.

Cumulative Analysis Area and Impacts: The CAA for soils is the PEDHMA and immediately adjacent areas affected by wild horses.

Alternative A: Implementation of the proposed action along with all existing land uses in the project area would not likely lead to any soil condition which would lead to further degradation or which would not improve naturally. Cumulative impacts would occur to soils where there are multiple land uses affecting the same location such as proposed gather sites. While there are some negative impacts associated with gather sites, they would not likely lead to further soil degradation especially when compared to current departure from natural conditions.

Alternative B: Impacts would be similar to the proposed action except the benefits derived from fertility control and sex ratio adjustment (less foals being born) would not be realized over the short-term and it is likely more gathers would be needed in the future to keep wild horses within the AML.

Alternative C: No wild horse gathers in this PEDHMA would likely result in more impacts from grazing and concentration of wild horses on the range. With no population control from predators or management, the range conditions will likely deteriorate to its carrying capacity which can be characterized at having significant removal of vegetation and erosion. It is likely due to wild horses and other uses such as oil and gas development, soil productivity and soil stability will deteriorate to a point where erosion and topsoil loss could be dramatic. Since this would occur in areas of generally poor soils impacts would likely exceed Public Land Health Standard for Soils.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

Finding on the Public Land Health Standard for Upland Soils: Most of the affected soils within the PEDHMA are currently meeting standards for upland soil health. However, areas identified as being in early seral states which are dominated by undesirable plant species such as cheatgrass (see Invasive, Non-Native Species and Vegetation portions of this document) do not meet standards. Portions of the PEDHMA in early seral states have significantly reduced infiltration and permeability rates which can lead to increased hill slope soil erosion.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: The PEDHMA lies primarily within the upper Douglas Creek watershed and the Yellow Creek drainage which are both partially perennial tributaries to the White River. The White River is a tributary to the Green River (in Utah) which is a tributary to the Colorado River. Spring discharge from these semi-arid lands generally occurs from mid March through early May due to snow melt. Runoff-producing rainfall occurs as localized storms in the late summer and early fall.

The following table (Table 16) shows the affected water quality stream segments, area impacted (in acres), as well as any special designations for each of the affected stream segments.

Table 16. Affected Water Quality Stream Segments.

Stream Segment	Acres Affected	Designated Beneficial Uses	Use Protected (Y/N)	303(d) listed?	M&E listed?	Impairment
12	18,525	Aquatic Life Warm 1, Existing Primary Contact Recreation, Water Supply, Agriculture	N	N/A	N/A	N/A
13a	86,049	Aquatic Life Warm 2, Not Primary Contact Recreation, Agriculture	Y	N/A	N/A	N/A
13b	167,813	Aquatic Life Warm 2, Not Primary Contact Recreation, Agriculture	N	N/A	N/A	N/A
15	26,864	Aquatic Life Warm 2, Potential Primary Contact Recreation, Agriculture	N	N/A	N/A	N/A
16	87,077	Aquatic Life Warm 2, Potential Primary Contact Recreation, Agriculture	N	N/A	N/A	N/A
20	6,050	Aquatic Life Cold 1, Not Primary Contact Recreation, Agriculture	N	N/A	N/A	N/A
22	40,362	Aquatic Life Warm 2, Potential Primary Contact Recreation, Agriculture	Y	Douglas Creek	Soldier Creek	Sediment
23	22,143	Aquatic Life Cold 1, Existing Primary Contact Recreation, Water Supply, Agriculture	N	N/A	N/A	N/A

Stream segments 12, 13b, 15, 16, 20 and 23 have not been classified as use protected. An intermediate level of water quality protection applies to waters that have not been designated outstanding waters or use-protected waters. For these waters, no degradation is allowed unless deemed appropriate following an antidegradation review. Stream segments 13a and 22 have been designated as use protected. The antidegradation review requirements in the Antidegradation Rule are not applicable to waters designated use-protected. For those waters, only the numerical protection specified in each reach will apply.

The list of segments needing development of TMDLs includes one segments affected by the PEDHMA, segment 22, tributaries to the White River, Douglas Creek to the Colorado/Utah

boarder, specifically West Evacuation Creek, and Douglas Creek (sediment impairments). Regulation 94 is the State's list of water bodies identified for monitoring and evaluation (M&E), to assess water quality and determine if a need for TMDLs exists. Soldier Creek is on the M&E list for sediment.

A significant portion of this PEDHMA is in the Douglas Creek Drainage (62,505 acres). The hydrologic setting of the Douglas Creek watershed ranges from relatively low lying, semi-arid lands yielding relatively little flow to steep, moderately high mountains that contribute major flows to Douglas Creek. There is very little flow or water quality data available for the tributaries to Douglas Creek. A USGS gauging station at the mouth of Douglas Creek collected instantaneous flows and periodic water quality data for the water years, 1977, 1978 and 1995. For the period of record, data indicates, this drainage to be an ephemeral stream, flowing in direct response to snow melt or rain. Spring runoff from the semi-arid lands, generally occurs from March through early May and, from the higher terrain, into early June. Documented instantaneous peak flows from summer storms are 3,250 cfs on July 24, 1977, and 541 cfs on July 14, 1995. The major pollutants that the Douglas Creek watershed contributes to the White River are high sediment and salinity loads. USGS measured a late summer rainstorm on October 6, 1994. The instantaneous sediment load at the discharge of 6.3 cfs was 15,800 mg/l or 270 tons per day with a specific conductance of 4,750 μ mhos. Douglas Creek is listed in the White River ROD/RMP as a fragile watershed because it has soils that are both highly erosive and moderately saline.

Environmental Consequence of Alternative A, Proposed Action: Removal of wild horses would aid in relieving pressures on the existing drainage areas. Because wild horses tend to remain in the same areas year after year, watershed conditions in sensitive areas are at risk of becoming more degraded if wild horses are left to exceed AML. Proper grazing practices within fragile watersheds are consequential in reducing erosion and sedimentation from both streambed and upland sources. Improving the rangeland condition and vegetation cover by reducing the amount of vegetation grazed by wild horses, would have a positive effect on watershed stability and water quality. It is expected that fertility control on mares would help keep the number of yearly increases (foals being born) to a minimum. This too, would have a positive effect on watershed conditions.

The four gather methods used are (1) helicopter drive-trapping using a helicopter to spot and then herd wild horses towards a pre-constructed trap and using trained horses to get the wild horses into the trap; (2) helicopter assisted roping where the helicopter herds wild horses towards ropers and 3) water trapping or 4) hay trapping where portable funnel-shaped traps with a gate release mechanism are used. Standard operating procedures specify that gathering would be conducted when soils are dry or frozen and conditions are optimal for safety and protection of the wild horses and wranglers and gathers would not be conducted between March 1 and June 30, except in case of an emergency necessitated by wildlife, drought, etc. Not conducting wild horse gathers during periods of saturated and muddy soils is likely to reduce direct impacts to soils from hoof action. Gathering methods 2-4 are better suited for smaller groups of wild horses and individuals and therefore are likely to be more common in later years.

Direct and indirect impacts from gather activities would include but are not limited to, disturbance of vegetation and soil compaction at the trap sites. There are approximately 2,463 acres of saline soils (>16mmhos conductivity) and the fragile soils described earlier. These soils would generally be less stable and recover more slowly than other soils due to gather activities. Soils in gather areas will likely become compacted due to wild horses and vehicles use for the gather and some wind-born soil loss is expected due to the operation of the helicopter at low elevations. Since most gather sites for methods 2-4 will only be used only once, impacts are expected to be minor in these areas. All impacts from wild horse gathering activities are expected to be short-term (less than 2 years) and to fully recover to pre-wild horse gather conditions within 3 years.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be similar to the proposed action except the benefits derived from fertility control (less foals being born) would not be realized over the short-term and it is likely more gathers would be needed in the future to keep wild horses within the AML.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: No wild horse gathers in this PEDHMA would likely result in more impacts from grazing and concentration of wild horses on the range. With no population control from predators or management, the range conditions will likely deteriorate to its carrying capacity which can be characterized at having significant removal of vegetation and erosion. It is likely that soil productivity and soil stability will deteriorate to a point where erosion and topsoil loss could be dramatic. Since this would occur in areas of generally poor soils impacts would likely exceed Public Land Health Standard for Water Quality.

Under this alternative, because there would be no gather there would be no short term impacts to threatened, endangered and sensitive wildlife species as a result of gather operations.

Cumulative Analysis Area and Impacts: The CAA for water quality is the PEDHMA and immediately adjacent areas.

Alternative A: Oil and gas development activities, livestock grazing and recreation are the reasonably foreseeable activities that would contribute to impacts to water resources in this area. There much foreseeable new oil and gas development in the area that is within the Yellow Creek and Piceance Creek watersheds (estimated as less than 95 % of future development in the WRFO). This development will include the installation of pipelines, building well pads and access roads and infrastructure to develop natural gas resources. Surface disturbance and the loss of forage will increase the impact of wild horses on the landscape. Livestock grazing will result in similar impacts as those described for wild horses. Recreation impacts are most likely from vehicle travel on existing roads and trails. The proposed action will allow for the removal of excess wild horses which would lead to improved water quality within the CAA.

Alternative B: Impacts would be similar to the proposed action except the benefits derived from fertility control and sex ratio adjustment (less foals being born) would not be realized over the short-term and it is likely more gathers would be needed in the future to keep wild horses within the AML.

Alternative C: No wild horse gathers in the PEDHMA would likely result in more impacts from grazing and concentration of wild horses on the range. With no population control from predators or management, the range conditions will likely deteriorate to its carrying capacity which can be characterized at having significant removal of vegetation and erosion. It is likely due to wild horses and other uses such as oil and gas development, soil productivity and soil stability will deteriorate to a point where erosion and topsoil loss could be dramatic. Since this would occur in areas of generally poor soils impacts would likely exceed Public Land Health Standard for Water Quality.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

Finding on the Public Land Health Standard for water quality: It is unlikely that wild horse gathering activities would lead to an exceedance of water quality standards under alternatives B and C due to the short-term (less than three years) and localized impacts of the wild horse gathering activities. Wild horse grazing impacts would be greatest under the no-action alternative and it is conceivable that this impact could lead to not meeting water quality standards that would require a water quality segment to be listed. As shown in the water quality and quantity data for Douglas Creek most changes to water quality are due to flood events associated with particular rain storms and spring runoff. Impacts from the proposed action are likely to contribute sediment or salinity to these events in a measurable way. Most of the Piceance Creek and Yellow Creek watersheds will be the similar to Douglas Creek, in that exceedances would occur in response to storm events.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: The East Douglas portion of the PEDHMA contains the Coal Draw ACEC. This ACEC was designated for the unique paleontological resources contained within its boundary. Four ACEC's designated for rare plants occur within the Piceance Basin portion of the PEDHMA. The Duck Creek ACEC encompasses 3,430 acres; 2,434 acres lie within the PEDHMA. The Duck Creek ACEC was designated for primary management of the threatened Dudley Bluffs bladderpod (*Physaria congesta*). The South Cathedral Bluffs ACEC encompasses 1,280 acres of which about 400 acres lie within the PEDHMA. This ACEC was designated for primary management of three rare plants that are BLM's sensitive species list, the Piceance bladderpod, the Utah gentian and the sun-loving meadowrue. The Upper Greasewood ACEC encompasses 2,434 acres of which about 1,200 acres lie within the PEDHMA. This ACEC was designated for primary management of one BLM sensitive plant (the Piceance bladderpod) and several remnant plant communities. The Lower Greasewood ACEC encompasses 205 acres which lie within the PEDHMA and was designated for primary management of one BLM sensitive plant (the narrow-stem Gilia) and remnant pinyon/juniper woodland.

Environmental Consequence of Alternative A, Proposed Action: Potential impacts to paleontological resources, such as those within the Coal Draw ACEC, are described in the

Paleontology section below. Impacts to the rare plant resources in the other four ACECs (Duck Creek, South Cathedral Bluffs, Upper and Lower Greasewood) could also occur. The reader is referred to the Threatened and Endangered Plants discussion below.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Same as the proposed action.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, because there would be no gather there would be no short term impacts to Areas of Critical Environmental Concern as a result of gather operations.

Environmental consequences of Alternative C to paleontological resources in the Coal Draw ACEC are analyzed in the Paleontology section below. Environmental consequences of Alternative C to special status plant species habitat in the Duck Creek, South Cathedral Bluffs, and Upper and Lower Greasewood ACECs are analyzed in the Threatened, Endangered and Sensitive Plant Species section below.

Cumulative Analysis Area and Impacts: Alternative A: See Paleontology section below for Coal Draw ACEC. See Threatened, Endangered and Sensitive Plant Species section below for Duck Creek, South Cathedral Bluffs, and Upper and Lower Greasewood ACECs.

Alternative B: See Paleontology section below for Coal Draw ACEC. See Threatened, Endangered and Sensitive Plant Species section below for Duck Creek, South Cathedral Bluffs, and Upper and Lower Greasewood ACECs.

Alternative C: See Paleontology section below for Coal Draw ACEC. See Threatened, Endangered and Sensitive Plant Species section below for Duck Creek, South Cathedral Bluffs, and Upper and Lower Greasewood ACECs.

Mitigation: Mitigation has been incorporated into the Alternative A and B in the Paleontology and Threatened, Endangered and Special Status Plant Species sections below. No additional mitigation measures were identified under Alternative C.

THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES (includes a finding on Standard 4)

Affected Environment: Two plant species listed as federally threatened (FT) and four plant species listed as BLM sensitive species (BS) occur within the areas of consideration for this removal action.

Table 17. BLM Sensitive, Threatened and Endangered Plant Species within the WRFO.

SPECIES	COMMON NAME	STATUS	LOCATION
<i>Gentianella tortuosa</i>	Cathedral Bluffs Dwarf Gentian	BS	South Cathedral Bluffs ACEC
<i>Gilia stenothyrsa</i>	Narrow-Stem Gilia	BS	Lower Greasewood ACEC

SPECIES	COMMON NAME	STATUS	LOCATION
<i>Physaria congesta</i>	Dudley Bluffs Bladderpod	FT	Duck Creek ACEC Lower Yellow Creek
<i>Lesquerella parviflora</i>	Piceance bladderpod	BS	South Cathedral ACEC Upper Greasewood ACEC
<i>Physaria obovata</i>	Dudley Bluffs Twinpod	FT	Lower Yellow Creek
<i>Thalictrum heliophilum</i>	Sun-Loving Meadowrue	BS	South Cathedral ACEC

All six plants occur on barren to semi-barren white shales of the Green River Formation, with the exception of the narrow-stem *Gilia*, which is found on the Uinta Formation.

Monitoring studies have been established within the PEDHMA on populations of five of the six species. Monitoring studies in the South Cathedral Bluffs ACEC have shown stable populations for the Utah gentian, the Piceance bladderpod and the sun-loving meadow-rue. All three plants occur on shale barrens that are moderately to very steep and are not foraged upon by large herbivores due to the stature of the plant, steepness of the slope and the barrenness of their habitat. Absolutely no evidence was observed at these monitoring sites that wild horses have ever occupied the habitats for these three species. Likewise, monitoring studies for the narrow-stem *Gilia* in the Lower Greasewood ACEC have shown very little use of this plant's habitat by wild horses. Its habitat is also shale barrens on very steep slopes. Monitoring studies on narrow-stem *Gilia* have shown stable populations that are not foraged upon by large herbivores. Two monitoring sites for the Dudley Bluffs bladderpod occur in the Duck Creek ACEC, one within the PEDHMA and one within Pasture B of the Square S allotment. Both monitoring sites were established in May, 1996. Each has been sampled eight times with the most recent sample taken in May, 2007. The monitoring study within the PEDHMA has shown a declining trend with a 68 percent decrease in the density of the Dudley Bluffs bladderpod since the site's establishment. The monitoring study outside the PEDHMA within Pasture B showed a 7 percent decline in the density of the Dudley Bluffs bladderpod from 1996-2007.

Trampling damage by wild horses was noted at both study sites. The damage noted was from wild horses trailing across the study sites, from some wild horses rolling in the seemingly barren soil and from some wild horses scuffling and fighting. In most cases due to the weight of the animal and the size of their hooves, some individual plants that were trampled were uprooted or severed at the crown resulting in death of the plant. There are two known locations of the Piceance twinpod within the area under consideration, one population within the PEDHMA and a similar sized population in Pasture A of the Square S allotment. Both populations occur on the east slope of lower Yellow Creek. Both populations contain about 200 plants and are located on the upper third of very steep slopes. No monitoring studies occur for the Piceance twinpod within the area under consideration. No evidence has been observed at either site that wild horses or any other large herbivore have ever occupied these sites.

Environmental Consequence of Alternative A, Proposed Action: The potential impacts associated with the proposed action are short term impacts from placement of traps and wings or herding wild horses with a helicopter on or across the habitat of one on these special status plant species. Also, long term impacts can be associated with the number of wild horses within the areas under consideration over a given period of time.

No short or long term impacts, negative or positive, are anticipated to occur to the Dudley Bluffs twinpod, the narrow-stem Gilia, the Piceance bladderpod, the Utah gentian and the sun-loving meadowrue. No impacts are anticipated to these five plants due to the steepness of their habitat and due to the lack of evidence that wild horses use their habitats. Effects to these species are not discussed further.

The Dudley Bluffs bladderpod is likely the only special status plant species that could be impacted by the proposal. Its habitats are less steep than those of the other special status plants and are thus more likely to be utilized by wild horses. It is not BLM's intent to utilize any potential habitat of the Dudley Bluffs Bladderpod or destroy any individuals of this plant in any aspect of the removal operation.

During the removal operation, wild horses are herded by helicopter to a trap site. When the wild horses are not near the trap, they are allowed to proceed at their own pace, rather than being driven by the helicopter, on trails they are familiar with and use frequently. This part of the operation is not expected to impact the Dudley Bluffs bladderpod. Any trails used in the gather operation which cross habitat for this plant are well used and have been so for many years. No individuals of this plant are expected to occur within these well traveled trails.

The greatest potential for impact from the removal operation on the Dudley Bluffs bladderpod is the location and placement of the trap and the trap wings. Construction of the wings and trap involves mostly hand labor and very little surface disturbance. Some disturbance comes from wild horses being pushed and squeezed in the wings and the trap. There is surface trampling by the wild horses in the wings and in the trap. If the trap or wings were located on habitat for this plant, it is likely that a large number of individual plants would be destroyed especially inside the trap. It is not BLM's intent to utilize any potential habitat of the Dudley Bluffs Bladderpod or destroy any individuals of this plant in any aspect of the removal operation. The mitigation noted below will be used to avoid any known or potential habitat for this plant during removal operations. With the noted mitigation, the physical removal of wild horses as proposed is not likely to affect the Dudley Bluffs bladderpod.

The proposed action is not likely to have any effect, positive or negative on the Dudley Bluffs twinpod, Dudley Bluffs bladderpod, the narrow-stem Gilia, the Piceance bladderpod, the Utah gentian nor the sun-loving meadowrue. BLM Botanist discussed the potential for impacts through personal communications with USFWS on July 9, 2010.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Will be the same as the proposed action.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, impacts resulting from gather operations would not be realized.

Although the current foraging of shale barren plant habitats by wild horses is generally low throughout the herd area, continued increase of wild horse numbers could produce trampling or foraging of special status plant species and unique vegetation sites, especially during drought

when overall forage is limited. Under this alternative, adverse impacts to special status plant species, unique and remnant vegetation would be expected to increase as the grazing pressure for available forage increases especially under drought conditions.

Cumulative Analysis Area and Impacts: The CAA for Special Status Plant species would be limited to those areas of known populations within the PEDHMA and those adjacent areas where wild horses have been observed. Special Status Plant species could be negatively affected via over-use of rangeland resources by all ungulates, both wild and domesticated, via trampling, trailing, and herbivory. Increased competition for rangeland resources by all large herbivores directly increases the likelihood of damage to these resources at various thresholds. If unchecked, wild horse populations would be expected to use incrementally increasing areas of rangeland resources adjacent to the ACEC/WSA, and this could lead to cumulative effects on special status plant species on other areas of the WRFO, or eventually on habitats within the Vernal and Grand Junction Field Office boundaries.

Cumulative impacts of Alternative A and B will reduce the cumulative adverse effects to special status plants from rangeland use by ungulates described above. With a reduced number of ungulates foraging within the PEDHMA at any given time, the intensity of the cumulative impacts described above will be lessened with the proposed action.

Cumulative impacts under Alternative C would be wild horse numbers would increase at an exponential rate per year placing additional demands on limited vegetation resource. Additional wild horse use could cumulatively degrade plant communities, cover, composition, productivity, and vigor. Increased populations of wild horses within the CAA would increase the likelihood of future trampling impacts. Wild horses are expected to continue to be displaced outside the PEDHMA with negative impacts to Special Status plant communities in those areas.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

Finding on the Public Land Health Standard for Threatened & Endangered species: There is no reasonable likelihood that the proposed action or alternative would have an influence on the condition or function of Threatened, Endangered, or BLM Sensitive plant species provided that the mitigation is followed. WRFO expects there would be no effect on achieving the land health standard.

AIR QUALITY

Affected Environment: The PEDHMA is located in rural northwest Colorado in the White River Basin. Industrial facilities in White River Basin include coal mines, soda ash mines, natural gas processing plants and power plants. Due to these industrial uses, increased population and oil and gas development in this region, emissions of air pollutants in the White River Basin due to exhaust emissions and dust (particulate matter) occur. Overall air quality conditions in the White River Basin are generally good due to effective atmospheric dispersion conditions and limited transport of air pollutants from outside the area. The White River Field

Office (WRFO) resource area has been classified as either attainment or unclassified for all air pollutants, and most of the area has been designated for the prevention of significant deterioration (PSD) class II for Dinosaur National Monument. Regional air quality parameters including dust are being measured at monitoring sites located at Meeker, Rangely and Ripple Creek Pass and near the Flat Tops Wilderness Area and air quality modeling is being done to assure that regional air quality is not adversely impacted in the future by these activities.

Environmental Consequence of Alternative A, Proposed Action: The environmental consequences to air quality from Alternative A would include a reduction in the periodic and local production of dust due to wild horse trailing to and from breeding areas, forage, water and nutrient sources. Reductions in the local wild horse herd will minimize the grazing impact wild horses are currently having on vegetation. As a result, effective ground cover is expected to increase which will reduce exposure of soils to eolian (wind driven) erosion processes minimizing potential fugitive dust production. Livestock and wildlife would contribute to grazing impacts and will continue to graze and use forage in the same areas, regardless of this action.

Dust levels due to wild horses may be noticeable locally and especially during drier times. During wild horse gathering activities dust will be produced from wild horse trailing, staging areas, vehicles used for the gather and helicopter use. Dust production from these activities will be localized and short-term and if these activities occur with adequate soil moisture would not be noticeable or measurable.

The Colorado Air Pollution Control Division (APCD) estimates the maximum PM₁₀ levels (24-hour average) in rural portions of western Colorado to be near 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). This alternative is not likely to exceed this dust standard and regional air quality is expected to benefit from the reduction of wild horse herd numbers, although this benefit is not likely to be noticeable or measurable. Regional impacts to air quality receptors such as the Flat Tops Wilderness Area to the east and Dinosaur National Park to the north are unlikely to be impacted by this project.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts to Air quality would be similar to the proposed action except the improvements would not be realized from reducing wild horse herds in the long-term due to not using the fertility control. Impacts from the gathering activities would still occur and it is likely more gathers will be needed in the future to maintain wild horse herd levels. This alternative is not likely to exceed the western Colorado dust standard and regional air quality is expected to benefit from the reduction of wild horse herd numbers, but less than the Proposed Action due to the additional wild horse gathers and generally higher wild horse herd numbers as compared to the Proposed Action.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Impacts to Air quality would be higher than the Proposed Action since wild horse herd numbers would continue to rise until the carrying capacity of the range was reached. Air quality benefits from reducing wild horse herd levels would not be realized. Impacts from the gathering activities would also not occur.

Under this alternative, because there would be no gather there would be no short term impacts to air quality as a result of gather operations.

Cumulative Analysis Area and Impacts for All Alternatives: The CAA for air quality is the PEDHMA and the areas adjacent. Oil and gas development activities, livestock grazing and recreation are the reasonably foreseeable activities that would contribute to dust production in this area. Vehicle trips along dirt roads to access these sites are the primary cause of dust production from oil and gas activities. Livestock grazing results in similar impacts as those described for wild horses with dust production due to hoof action and greater during times of the day when cattle or sheep are moving from water, food and shelter sources. Recreation impacts are most likely from vehicle travel on existing roads and trails. During exceptionally dry times the cumulative impacts from these activities would result in visible dust and reduce visibility and may contribute to regional air quality events mostly due to fugitive dust. These impacts are expected to be temporary and would not likely exceed the National Ambient Air Quality Standard (NAAQS) for PM₁₀ (24-hour average) of 150 µg/m³.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)

Affected Environment: Within those areas currently occupied by wild horses, there are a number of perennial or intermittent systems that support riparian vegetation, both within (e.g., Left Fork Stake Springs Draw, Box Elder and Corral Gulch, Duck and Yellow Creeks, Tommy's Draw, and East and mainstem Douglas Creeks) and outside (e.g., Spring Creek, Boise Creek) the PEDHMA. A number of these systems are not noticeably influenced by wild horse use. Wild horses are not prone to use deeply incised channels or areas in close proximity to heavily traveled roads (e.g., East and main stem Douglas Creeks, Duck Creek). Beaver are present on both Main Stem and East Douglas creek and the flooded areas behind the beaver dams largely discourage livestock and wild horses from traveling the floodplain. There are currently insufficient numbers of wild horses in the Spring Creek and Boise Creek area and riparian habitats on Magnolia Bench to noticeably influence these systems (minimum 14 channel miles), though grazing-related effects continue to be pertinent and would become apparent if these populations outside the PEDHMA are allowed to expand.

The overall status and condition of riparian-bearing channels in the PEDHMA potentially influenced by wild horses are consistently assigned a "functional at-risk" condition rating with slowly improving to non-apparent trends. Typically, these channels suffer from poorly developed bank and floodplain vegetation which is dominated by facultative upland species or grazing-tolerant introduced species. Many of these systems involve nonfunctional reaches that attend recent or active downcutting events. These conditions and their inability to establish proper functioning conditions or a strong improving trend lies with their continued subjection to inappropriate duration, timing, and intensity of grazing and trampling effects from livestock, wild horses and, in some cases, big game. At population levels within the AML range, wild

horse distribution within the PEDHMA tends to display pronounced seasonal elevation shifts similar to big game. At higher population densities, and due to their territorial nature, wild horse distribution becomes increasingly uniform and sedentary across the PEDHMA, and any tendency for wild horses to move between discrete seasonal ranges weakens. At higher densities, including current populations, wild horse distribution involves year-round occupation of the PEDHMA's lowest elevation ranges to the northeast and east.

Current wild horse use within the PEDHMA (i.e., more sedentary range use) tends to compromise seasonal livestock grazing regimens that have been designed and implemented to reduce the intensity and duration of grazing use of riparian and valley terrace vegetation. For example, the Left Fork of Stake Springs, associated with higher elevation mixed shrub habitats receives about 30-45 days of livestock use during the spring/early summer, but is subject to over 200 days of wild horse use (May through November). Tommy's Draw is grazed by livestock for 60 days in the spring and 45 days in the winter versus over 250 days spring through the early winter season use by wild horses. Similarly, lower Yellow Creek is grazed by livestock for 40 days in the spring and 60 days in winter versus virtual yearlong use by wild horses at present. Persistent, long duration use through the growing season invariably reduces the vigor and density of herbaceous components and prompts shifts in composition to grazing or trampling tolerant species such as redtop, Kentucky bluegrass, dandelion, and yarrow plus invites the establishment and proliferation of noxious weeds. These shallow and relatively weakly-rooted species provide little resistance to erosion and are incapable of supporting proper functioning channel conditions. This situation is most applicable on two miles of the Left Fork of Stake Springs, three miles of Tommy's Draw, and some less confined reaches within the lower six to eight miles of Yellow Creek channels.

Environmental Consequence of Alternative A, Proposed Action: Actual gather operations would have no direct impact on any riparian or wetland sites as no traps will be placed in or adjacent to riparian areas. By suppressing effective fecundity, the risk and intensity of grazing effects attributable to a chronic excess of wild horses (i.e., exceeding established population objectives) would be reduced in the short term.

Removal of nearly 57% of the wild horses within the PEDHMA is expected to promote more seasonality in subsequent grazing use patterns by wild horses, relieve the influence of long duration wild horse use, and allows livestock management prescriptions designed to enhance riparian and channel conditions to operate as intended. Cumulative grazing use patterns that are more seasonal, of shorter duration, and of reduced intensity would be more consistent with desired maintenance or improvement of these at-risk riparian and channel systems.

In all cases, wild horses contribute to the cumulative removal of herbaceous material from channel features and valley terraces. The 183 wild horses presently excess to the prescribed AML range of 135 to 235 wild horses within the PEDHMA and all wild horses outside the PEDHMA (138 head), either through prolonging the duration and/or intensity of grazing use, exacerbate grazing-related effects on riparian condition and function, including: 1) increasing the rate and absolute quantity of bank and floodplain vegetation removed, which impairs the system's ability to capture and retain sediment for channel development and restoration processes (this effect can involve extending concentrated use more deeply into the growing

season or increasing dormant season use when there are no further opportunities for regrowth and reestablishment of effective stubble), 2) prolonging growing season use that depresses the vigor and density of channel vegetation and selects against those obligate herbaceous forms that yield optimum channel stability and erosion resistance, and 3) reducing plant vigor and density and reducing residual surface litter on valley terraces, which reduces moisture infiltration and alluvial storage that sustains and prolongs delivery to adjacent channels through the summer and fall months. Reducing the duration and intensity of grazing on valley terraces along riparian-bearing channels within the PEDHMA would increase foliar cover, surface litter, and stem/root mass densities, thereby enhancing moisture infiltration and directly increasing channel recharge and contributing incrementally to prolonged flow and vegetation expression in adjacent channels. Removal of excess wild horses outside the PEDHMA would eliminate the minor influence of wild horse use on about 14 miles of riparian-bearing channel, but more importantly, would eliminate the potential for the eventual development of grazing-related problems on these systems as wild horse populations expand.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be similar to the proposed action except the improvements would not be realized from reducing wild horse herds in the long-term due to not using the fertility control and adjusting the sex ratio.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under Alternative C, wild horses would not be gathered and removed from the PEDHMA. There would be no impacts associated with gather operations. Heavy and persistent use would continue, resulting in further suppressed wetland and riparian development, further degradation to downstream potential for riparian expression to the point where valuable wetlands and riparian zones are irreversibly lost.

Cumulative Analysis Area and Impacts: The CAA for wetland and riparian zones are in the Left Fork Stake Springs Draw, Box Elder, Corral Gulch, Duck, Yellow Creek, Tommy's Draw, and outside Spring Creek and Boise Creek watersheds. A number of these systems are not noticeably influenced by wild horses. For all of the alternatives, oil and gas development activities, livestock and wildlife grazing and recreation are the reasonably foreseeable activities that would contribute to impacts to wetland and riparian resources in these areas. Unmanaged livestock grazing would result in similar impacts as those described for wild horses. Recreation impacts are most likely from vehicle travel on existing roads and trails.

For both Alternative A and B, primarily involve removal of excess wild horses, which would lead to improved wetlands and riparian zones within the CAA. Gather operations may result in increased levels of vehicular traffic. Due to limited water resources within the area competition for water will continue. With fewer animals utilizing these water sources it is expected that over time wetlands and riparian zones would experience improvement.

Under Alternative C, wild horses would not be gathered and removed from the PEDHMA. There would be no cumulative impacts associated with gather operations.

Mitigation: Mitigation has been incorporated into the Proposed Action. No additional mitigation identified.

Finding on the Public Land Health Standard for riparian systems: Adjusting wild horse populations to meet approved population objectives within the PEDHMA would substantially reduce ungulate grazing use intensity and the deleterious effects of season-long grazing regimes on affected channel systems. This management action would complement recent improvements in livestock grazing management and promote grazing use compatible with sustained improvements in channel function and condition.

WASTES, HAZARDOUS OR SOLID

Affected Environment: The PEDHMA contains a number of oil and gas well pads which are known to contain potentially hazardous materials. In addition, these locations may have certain amounts of solid waste site disposal areas as well as several sites associated with illegal dumping, or ranch dumps. BLM reviewed the area for other areas of potential waste disposal sites and found none on the Colorado Department of Health and Environmental Quality website.

Environmental Consequence of Alternative A, the Proposed Action: Helicopter refueling usually takes place on roads or staging areas so that a fuel vehicle is able to reach the helicopter to refuel. Refueling operations could present a hazard if a spill occurs. Needles used to treat wild horses during the gathers could present a hazard to public safety if not disposed of properly. However, all needles will be disposed of by the contract veterinarian off site in a proper disposal facility.

Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be the same as those described in Alternative A, however there will not be the benefit of population reductions due to fertility control. More gathers might be expected under this alternative to meet management levels

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Gathering activities would not occur and therefore there would not be the generation of hazardous waste or the potential impact of spills during gathers.

Cumulative Analysis Area and Impacts for All Alternatives: The CAA for hazardous waste is the PEDHMA and immediately adjacent areas affected by gathering activities. Oil and gas development activities, livestock grazing and recreation are the reasonably foreseeable activities that would contribute to impacts to water resources in this area. Wild horses are not likely to change this impact but in some cases could be impacted themselves by these activities due to potential water contamination from spills.

Mitigation: Mitigation has been incorporated into the Proposed Action.

CULTURAL RESOURCES

Affected Environment: The Piceance Basin, in general, and the core herd area specifically, is known to contain a wide variety of prehistoric and historic resources. Sites include but are not necessarily limited to open lithic scatters, open campsites, wickiup villages, and wild horse trap sites. Such sites seem to be particularly concentrated on the ridges overlooking the various tributaries to Yellow Creek, particularly where the Piñon-juniper and sagebrush vegetation communities come together. Recent inventory data suggests that site densities tend to be very high throughout the area. Wild horse traps, both prehistoric and historic seem to be concentrated on ridges in the Piñon-juniper vegetation communities where the traps can be camouflaged. Historic resources are primarily related to early ranching and livestock grazing efforts and are concentrated along the moister drainage bottoms. Sites include, but are not limited to, old homesteads, line shacks, corrals, pasture fences, occasional irrigation ditches and hay meadows. It appears that site density is lower at elevations above 7,500 feet msl and in some of the narrower canyons and drainages resulting in fewer impacts to cultural resources in those areas.

Sites are vulnerable to a number of impacts as a result of wild horse activity. In areas where wild horses concentrate or trail sites are at risk from trampling which can crush and break artifacts or churn up the soil destroying the site context – the spatial relationship between artifacts and cultural features. Further, as wild horses rub or scratch on standing features, such as structural walls, wickiup poles or other vertical manmade items these items can be knocked down. Loosing these elements hastens the collapse of architectural features such as wickiups or dugouts or homestead cabins. In area of concentration, if the vegetation cover is reduced significantly by trampling or grazing the loosened and unprotected soil is more susceptible to wind and water erosion which can also destroy overall site contexts by eliminating the vertical spacing that might indicate change through time. Trampling can also cause horizontal movement of artifacts, especially during muddy conditions when items encapsulated in mud adhere to wild horse hooves as they move about.

Environmental Consequence of Alternative A, Proposed Action: Reduction of wild horses to the low end of the AML range and initiating immunocontraceptive fertility control will serve to reduce the concentration of wild horses in sensitive site locations. Use of fertility control to reduce the recruitment rate will serve to help extend the time that sites are protected by reduced numbers due to the reduction of herd recruitment rates. Reduction of wild horse concentrations in high site density areas will reduce the damage to sites from trampling due to concentration, from trailing to water or foaling areas or thermal cover locations where wild horses congregate to avoid intense summer heat or shelter from intense winter cold conditions. In concentration areas wild horses may also scratch and rub on standing features such as wickiup poles or fence poles which serve to accelerate the collapse of the structures present. Reducing wild horse numbers will reduce the impacts associated with these activities.

Sites would be avoided by trap locations, both for helicopter trapping and helicopter assisted roping. However, herding hoses via helicopter is not a precise process and it is possible wild horses might trail through sites as they are herded. If the wild horses are moving at a trot or cantor the force of hoof strikes will be higher than if wild horses are just walking and could

cause deeper and more extensive disturbance of site contexts along with crushing or breaking of artifacts. These impacts are permanent and irreversible and cause a loss of scientific data regarding the human use and adaptation to the area over time.

Water or hay trapping would also avoid all known sites and the traps sites themselves would not cause any impacts to known sites. However, as wild horses become habituated to the trap locations prior to being captured they could concentrate in adjacent areas for thermal cover and could select areas where sites are present. The selection of site areas for concentration could result in severe trampling impacts to those sites until the wild horses are captured and removed. The loss of site contextual data is permanent and irreversible and causes a loss of scientific data regarding the human use and adaptation to the area over time.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be similar to the proposed action except for not implementing the fertility control along with the wild horse removal would shorten the time that sites are subjected to reduced impacts.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Not gathering wild horses from the PEDHMA and outside would result in the continued increase in wild horse numbers and the increase of related impacts. Areas of band concentration would undergo increased trampling of resources, standing archaeological and historical features would see increases in rubbing and congregating. Increased grazing pressure and reduction in vegetation cover along with soil loosened by trampling would result in increased soil erosion which would significantly increase the loss of surface features such as hearths tool stone concentrations or other similar cultural features. The loss of site contextual data is permanent and irreversible and causes a loss of scientific data regarding the human use and adaptation to the area over time.

Under this alternative, because there would be no gather there would be no short term impacts to cultural resources as a result of gather operations.

Cumulative Analysis Area and Impacts: The CAA for cultural resources is the PEDHMA and areas adjacent.

Alternative A: As Alternative A is implemented there will continue to be some impacts from wild horses on cultural resources. Gathering operations will avoid sites to the extent possible in an effort to reduce impacts. Overall impacts would be lower as wild horse numbers are reduced to the minimum AML numbers and kept at a lower number longer by reducing the recruitment rate of wild horses to the bands. Impacts to resources from wild horses outside the PEDHMA would be significantly reduced or eliminated, especially if numbers are low enough that wild horses do not wander outside the PEDHMA in search of forage. However, there will continue to be impacts to cultural resources due to the presence of wild horses in the area and the impacts described above such as increased wind and water erosion, trampling and so on. As long as there are wild horses, especially in the PEDHMA, there will continue to be wild horse related impacts which are cumulative and irreversible.

Alternative B: In the short term impacts to cultural resources would be reduced as wild horse numbers are reduced to the minimum AML numbers. However, due to the high reproductive rate of the wild horses the reductions due to reduced numbers would only be short term in nature. As wild horse numbers increase above approved AML numbers between gathers the impacts outside the PEDHMA from wild horses expanding their range in search of forage and water will increase and cultural resources outside the PEDHMA will be more heavily impacted. Gather operations will avoid cultural resources to the extent practicable based on the incorporated mitigation for gathers. As long as there are wild horses impacts will continue, particularly in the lower elevations of the PEDHMA. These impacts are cumulative and irreversible.

Alternative C: Deferring wild horse gathers would result in significantly increased impacts to cultural resources. The impacts would be severe inside the PEDHMA and would extend outside the PEDHMA as wild horses disperse further afield in search of forage and water. Irreversible and cumulative impacts would extend over a much wider geographical area as wild horses leave the PEDHMA in search of forage and water. Impacts from trampling in the PEDHMA would be especially severe as would loss of resources from the resulting loss of soil due to increased wind and water erosion.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

PALEONTOLOGY

Affected Environment: The area of the Piceance Basin consists primarily of horizontal planes and near vertical outcrops of the Uinta Formation of Eocene age. The area is known to produce fossils of large mammals, particularly herbivores such as *Titanotherium*, *Uintatherium* and an extinct species of horse. Smaller species may also be present but are poorly reported. The area has also produced vegetation fossils including some of the most easterly known, well preserved samples of *Araucaria* in addition to various bits of petrified wood and various leaf impressions. Well preserved samples of palm, a type of willow and sycamore have also been reported from the area. Other invertebrates that have been recently reported from the shale fingers in the formation include a variety of insect fossils previously unreported from the area.

Inventory data indicate that wild horse trampling can negatively impact exposed fossils. These impacts are manifest by badly fragmented or crushed fossils found on the surface of the more horizontal and gently sloping areas of the formation. In areas where wild horses concentrate and rub on vertical exposures there is the potential to break larger specimens or remove smaller fossil completely from the stone matrix, causing a permanent and irreversible loss of scientific data.

Environmental Consequence of Alternative A, Proposed Action: Reduction of the numbers of wild horses to the lower end of the AML and implementation of fertility control would significantly reduce the overall damage to exposed fossils by limiting the opportunity for concentrations of wild horse on exposed localities with the attendant trampling, crushing and displacing of the fossils. A reduction in the rate at which the herd grows extends the time span

where exposed fossils are protected from higher concentrations of wild horses that could potentially cause damage from trampling.

Fossils could be impacted by gather operations if trap sites and associated wing fences or holding facilities are located in known and reported fossil localities. Careful siting of trap sites and holding facilities would also limit the damage to exposed fossils and fossil localities.

Herding wild horses via helicopter is not a precise undertaking and it is possible that wild horses may trail across exposed outcrops of fossil bearing stone as they travel to trap sites or roping areas. There is the potential to damage or destroy some fossil resources as the wild horses trail across the formation, particularly if the rock surface is weathered and soft and the wild horses travel through at a rate of speed greater than a walk.

Hay and water trapping pose a limited threat of impacts to fossil resources as traps will be sited to avoid all known or suspected fossil localities and exposed outcrops of stone. A potential indirect impact from hay and water trapping could occur if wild horses concentrate in areas of rock exposure as they become habituated to the trap before capture. Soft and weathered rock exposures could be further eroded by trampling causing loss of smaller fossils to erosion or crushing and breaking of fossils by trampling.

Loss of fossil specimens due to crushing or erosion is an irreversible, permanent loss of scientific data.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be similar to the proposed action except that not implementing the fertility control along with the wild horse removal would shorten the time exposed fossils are protected.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under the no action alternative wild horse numbers would continue to increase. With the increase in wild horse numbers there would be a corresponding increase in wild horse concentrating and/or trailing in some areas or rubbing on exposed vertical exposures in other areas. Should those concentration or trailing areas happen to coincide with exposures of fossiliferous stone or rock outcrops there is an increased potential for damage to fossil resources from trampling of or rubbing on the expose rock. The more wild horses there are the greater potential for trailing and concentrating on exposed horizontal surfaces or rubbing on vertical surfaces and the greater the potential impact to fossil resources.

Loss of fossil resources under this alternative would potentially be the most severe of the alternatives. The loss of fossil resources and scientific data that accompanies them is permanent and irretrievable.

Under this alternative, because there would be no gather there would be no short term impacts to paleontological resources as a result of gather operations.

Cumulative Analysis Area and Impacts: The CAA for paleontological resources is the PEDHMA and areas adjacent.

Alternative A: The continuing presence of wild horses, but only in the PEDHMA, under this alternative would continue to result in adverse impacts to fossil resources. However, since numbers would be reduced to the minimum AML numbers and be kept at lower numbers longer with the use of immune-contraceptives the impacts would be lower for a longer period of time. Impacts to fossil resources outside the PEDHMA would be significantly reduced or completely eliminated as wild horse numbers are reduced and the remaining animals remain within the PEDHMA. Mitigation measures utilized, to the extent practicable, during gather operations will have no impacts on fossil resources. Impacts to fossil resources from the continuing presence of wild horses in the PEDHMA will result in some continuing, irreversible and cumulative loss of scientific paleontological data.

Alternative B: The impacts under this alternative would be similar to Alternative A except that the benefits of reduced numbers of wild horses would occur for a much shorter period of time due to the high reproductive rate of wild horses. The increase in numbers would occur much more rapidly resulting in a potential for wild horses to once again expand their range outside the PEDHMA causing increased impacts in the areas outside the PEDHMA. The continuing presence of wild horses will result in a continued irreversible and cumulative loss of scientific paleontological data and it would extend over a wider geographical area as wild horses leave the PEDHMA in search of forage and water.

Alternative C: Deferring wild horse gathers would have the most severe impacts to fossil resources due to the increased concentration in the PEDHMA and outside the PEDHMA as wild horses extend their range in search of forage and water. Areas that would not normally be impacted could be impacted as wild horses extend their range causing an even greater potential for the loss of scientific paleontological data. All loss of scientific data is cumulative and irreversible.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

RECREATION

Affected Environment: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM manages the ERMA as custodial providing for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The PEDHMA is within the northwestern corner of Colorado Division of Wildlife (CDOW) Game Management Unit (GMU) 22 as well as the northeast corner of GMU 21. Both GMUs are heavily used by public land hunters during the fall mule deer and elk big game hunting season. GMU 21 is a trophy Mule Deer hunting unit but still open to other upland big game hunting from

the end of August to the middle of November. GMU 22 has public land hunting beginning the end of August to the end of December.

Environmental Consequence of Alternative A, Proposed Action: If helicopter wild horse gather operations coincide with big game hunting seasons, it is likely that conflict between public land hunters and the gather operations will develop. Gather operations may disrupt public land hunters to a degree that the recreational activity, in this case upland big game hunting, may not be able to occur within the areas helicopter gather operations impact the White River ERMA.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Similar consequences to that of the Proposed Action.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: Under this alternative, the immediate result of this decision will not have an impact on recreation, but the future impact could potentially have more of an effect on recreation compared to Alternatives A and B. Under this alternative wild horse populations will increase every year that a gather is delayed. An increase in population size will require more time required to gather the specified amount of wild horses to meet healthy herd levels. An increase in the time needed for gathering operation will increase exposure to the public, primarily hunters, which will increase the potential for conflicts between gather personnel and the public.

Under this alternative, because there would be no gather there would be no short term impacts to recreation as a result of gather operations

Cumulative Analysis Area and Impacts: The CAA for recreation is the PEDHMA and areas adjacent.

Alternative A: Both GMUs 21 and 22 are being developed for natural gas or coal bed methane gas. The drilling, completion and regular maintenance for each well pad has a significant amount of traffic associated with it. The continual traffic interrupts the public's ability to experience unstructured recreational activities. Gathering operations will temporary increase the amount of interruptions, however the operations are short term and will only increase the during the time of the gathering operations.

Alternative B: Similar to Alternative A.

Alternative C: Similar to Alternative A but the duration of impact to the area may increase as wild horse population rises due to the delayed gather.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

HYDROLOGY AND WATER RIGHTS

Affected Environment: The primary drainages affected by the proposed action are Douglas Creek, Yellow Creek (tributary to White River) and Ryan Gulch (tributary to Piceance Creek). Overland runoff to these streams results mostly from snowmelt in spring and short-duration, high-intensity rainstorms in summer. Most streams within the Douglas Creek, Piceance Creek and Yellow Creek basins are intermittent, meaning some reaches have no flow while other reaches have perennial flows. Base-flow to these streams originates principally from springs and other ground water inflow. Surface discharge and periodic water quality records are available on Douglas Creek and Yellow Creek for the years 1973-1982 and 1988 to present in the Colorado annual water resources reports (U.S. Geological Survey). Yellow Creek's annual mean water discharge for period of record is 2.28 cubic feet per second. To signify the magnitude of an intense rainstorm, the historical instantaneous peak flow on this drainage occurred on September 7, 1978, where 6,800 cubic feet per second were measured using the slope area technique. In the White River Water Atlas, there have been 90 springs identified in the PEDHMA. Seventy-seven of the springs have had inventories and fifty-one have water rights filed on them. The data collected in these inventories is listed below.

Table 18. Springs Inventoried within the PEDHMA

SECTION NUMBER	TOWNSHIP	RANGE	MAP CODE	WATER RIGHT	SC	PH	Q IN GPM	DATE MEASURED
6	2N	99W	119-01	85CW341	5851	8	0	11-Jul-83
4	2N	99W	119-02		2589	7	1.15	31-Aug-83
1	2N	100W	119-03	85CW460	5000	8		05-Jul-83
1	2N	100W	119-04		5589	9	0.02	30-Jun-83
12	2N	100W	119-05		5249	9	0.05	30-Jun-83
10	2N	100W	119-06		9563	8	1.5	30-Jun-83
7	2N	99W	119-07	85CW341	3469	9	0.13	05-Jul-83
					3648	7	0.04	12-Jul-83
9	2N	99W	119-09	85CW412	1659	8	0.08	31-Aug-83
17	2N	99W	119-10		1411	9	0.46	12-Sep-83
19	2N	99W	119-12	85CW458	4600	8	0.88	13-Jul-83
9	2N	100W	119-13	85CW461	2402	8	0.61	30-Jun-83
9	2N	100W	119-15	85CW461	2201	8	0.16	30-Jun-83
9	2N	100W	119-16	85CW461	6617	7		30-Jun-83
19	2N	99W	119-19	85CW458	2691	8	8.11	13-Jul-83
19	2N	99W	119-20	85CW458	8347	9	0.75	13-Jul-83
18	2N	99W	119-21	85CW458	5563	8	0.09	13-Jul-83
18	2N	99W	119-22	85CW458	6192	7	0.02	13-Jul-83
18	2N	99W	119-23					13-Sep-83
7	2N	99W	119-24	85CW341	5170	8	0.93	12-Jul-83
6	2N	99W	119-26		6742	9	0.08	11-Jul-83
6	2N	99W	119-27		6321	9		11-Jul-83
1	2N	100W	119-28	85CW460	4834	9	0.02	05-Jul-83
7	2N	99W	119-30	85CW411	3907	8	1	12-Jul-83
7	2N	99W	119-31	85CW411	2132	8	1.56	12-Jul-83
6	2N	99W	119-32	85CW411	8160	6	0.13	12-Jul-83

SECTION NUMBER	TOWNSHIP	RANGE	MAP CODE	WATER RIGHT	SC	PH	Q IN GPM	DATE MEASURED
6	2N	99W	119-35					11-Jul-83
6	2N	99W	119-36		5710	9		11-Jul-83
5	2N	99W	119-40	85CW410	3380	8	17.9	15-Sep-83
15	2N	100W	119-44		3945	7		30-Jun-83
6	2N	99W	119-45	85CW341	6508	10	0.01	11-Jul-83
6	2N	99W	119-46		6017	7		12-Jul-83
7	2N	99W	119-48	85CW411	2215	8	0.07	12-Jul-83
18	2N	99W	119-50	85CW458	50000	8		13-Jul-83
19	2N	99W	119-51	85CW458	3816	8	3.16	13-Jul-83
19	2N	99W	119-52	85CW458	6440	9	0.12	13-Jul-83
19	2N	99W	119-53	85CW458	13000	9		13-Jul-83
19	2N	99W	119-54	85CW458	9820	8	0.03	13-Jul-83
5	2N	99W	119-55	85CW368	4450	8	0.41	15-Sep-83
26	2N	98W	146-02		4198	8		16-Sep-83
31	2N	99W	148-06	85CW459	1415	8	1.39	31-Aug-83
24	2N	100W	148-34	85CW462	8034	9	4.17	26-Aug-83
30	2N	99W	148-44	85CW459	2057	8	0.95	31-Aug-83
28	1N	101W	149-02		11419	8	0.2	21-Jun-84
33	1N	100W	149-03	AR72,81CW4	2549	8	1	14-Aug-84
4	1N	101W	149-04	85CW455	1957	9	0.54	26-May-83
35	2N	101W	149-12	85CW374	6251	8	7.5	14-Aug-84
18	1S	100W	156-03	85CW376	6283	9	12	14-Aug-84
32	1S	100W	156-05	85CW377	8610	8	20	13-Jun-84
32	1S	100W	156-06	85CW443	3269	8	0.7	09-Jul-84
32	1S	100W	156-07	85CW443	3175	9	4.6	09-Jul-84
9	2S	100W	156-09		3078	9	100	26-Jun-84
18	1S	100W	156-14	85CW376	3096	9	0.5	14-Aug-84
18	1S	100W	156-15	85CW376	4645	9	5	14-Aug-84
21	1S	100W	156-16		2049	7	2.5	14-Aug-84
32	1S	100W	156-19	85CW377	9479	8	0.8	13-Jun-84
32	1S	100W	156-20		5096	8	0.2	13-Jun-84
32	1S	100W	156-21	85CW377	11076	8	1.9	13-Jun-84
5	1S	100W	156-24	85CW375	8132	7	3.8	14-Aug-84
6	2S	99W	157-01	82CW317	2780	7	5.8	27-Jul-83
					1694	9	23.6	31-Aug-82
7	2S	99W	157-02		1619	8	5.3	31-Aug-82
16	1S	100W	157-10		2078	8	21.9	28-Jul-83
22	1S	100W	157-11	85CW446	2328	8	7.5	02-Aug-83
23	1S	100W	157-14		2409	8	5.6	02-Aug-83
25	1S	100W	157-15		2869	8		26-Jul-83
25	1S	100W	157-16		2505	7		27-Jul-83
25	1S	100W	157-17		2468	7		27-Jul-83
2	2S	100W	157-19	85CW363	1870	7		20-Jul-83
25	1S	100W	157-23		2365	8		02-Aug-83
25	1S	100W	157-25		1932	8	7.5	26-Jul-83

SECTION NUMBER	TOWNSHIP	RANGE	MAP CODE	WATER RIGHT	SC	PH	Q IN GPM	DATE MEASURED
26	1S	100W	157-26		2783	8		02-Aug-83
23	1S	100W	157-28		2101	8	1.5	02-Aug-83
9	2S	99W	157-36		1585	8		26-Jul-83
2	2S	100W	157-44	85CW363	2203	7		20-Jul-83
12	3S	100W	174-01		1277	7	4.22	17-Aug-82
22	2S	100W	174-02				45.2	19-Jul-83
					2102	8	2.73	27-Jul-83
24	2S	100W	174-03		2275	8		19-Jul-83
					1223	7	0.26	17-Aug-82
1	3S	100W	174-09	82CW317	826	8	22.5	21-Jul-83
					735	9	3.69	24-Aug-82
22	3S	100W	174-11	82CW317	609	8	3.35	25-Aug-82
14	2S	100W	174-12	85CW383	1641	7		18-Jul-83
36	2S	100W	174-13		1287	8	54.6	20-Jul-83
2	3S	100W	174-29	85CW388	2795	9	0.3	13-Aug-84
11	3S	100W	174-30	85CW388	2360	8	7.1	10-Jul-84
2	3S	100W	174-31	85CW351	1718	8	3.53	21-Jul-83
14	2S	100W	174-34	85CW364	2484	8	0.5	18-Jul-83
14	2S	100W	174-35	85CW364	2021	7		18-Jul-83
1	3S	100W	174-46	85CW351	1965	8	6.67	25-Jul-83
36	2S	100W	174-48		1867	8	12.5	26-Jul-83
31	2S	99W	174-49	85CW382	3916	8	4.5	26-Jul-83
26	2S	100W	174-53	85CW367	775	8	0.28	20-Jul-83
14	2S	100W	174-66		3008	7	3.3	18-Jul-83
2	3S	100W	174-67	85CW351	1041	8	4.34	21-Jul-83
2	3S	100W	174-68	85CW351	1278	8	1.3	21-Jul-83
1	3S	100W	174-69	85CW351	908	8	8.57	21-Jul-83
1	3S	100W	174-70	85CW351	995	8	0.25	21-Jul-83
1	3S	100W	174-71		2300	8	0.74	25-Jul-83
1	3S	100W	174-72	85CW394	2288	8	0.63	25-Jul-83
26	2S	100W	174-73	85CW366	1729	7	7.3	26-Jul-83

In addition to these springs, there are also two water gaps located on Yellow Creek for wild horse, livestock and wildlife watering. Implementation of the proposed action including fertility control will likely be most beneficial to water resources.

Environmental Consequence of Alternative A, Proposed Action: There are many water sources within the PEDHMA, and wild horse trampling around these water sources occurs. When the numbers of wild horses within the PEDHMA are not controlled, negative impacts such as trampling, removal of vegetation to bare ground and eventually head cutting in drainages will occur. Removal of wild horses and limiting the number of wild horses on the range would aid in relieving pressures on the existing water sources.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Short term reductions in the number of wild horses within the PEDHMA will

benefit spring sources and stream channel morphology in the immediate future. However, without any control over reproduction in the herd, benefits from wild horse removal will be only short term.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: No wild horse gathers in this PEDHMA would likely result in more impacts from grazing and concentration of wild horses on the range. With no population control from predators or management, the range conditions will likely deteriorate to its carrying capacity which could be characterized at having significant removal of vegetation. It is likely that soil productivity and soil stability will deteriorate to a point where erosion and topsoil loss could be dramatic. Since this would occur in areas of generally poor soils impacts would likely exceed Public Land Health Standard for Water Quality. Increasing surface runoff during storm events is likely to increase the peak flow during storm events and decrease baseflows.

Under this alternative, because there would be no gather there would be no short term impacts to hydrology and water rights as a result of gather operations.

Cumulative Analysis Area and Impacts for All Alternatives: The CAA for hydrology and water rights is the PEDHMA and immediately adjacent areas affected by gathering activities. Oil and gas development activities, livestock grazing and recreation are the reasonably foreseeable activities that would contribute to impacts to water resources in this area. Wild horses are not likely to change this impact but in some cases could be impacted themselves by increased or decreased opportunities for water sources.

Mitigation: Mitigation has been incorporated into the Alternative A and B. No additional mitigation measures were identified under Alternative C.

NOISE

Affected Environment: The initial gather is expected to take as long as 11 days to complete (October 11 – 22, 2010). During this time the gather helicopter will be operating daily in specific locations within the areas identified for wild horse capture. The helicopter will not remain in any given location for long durations of time; rather the noise associated with helicopter use will be intense, isolated and short-lived between one gather location and another. Vehicular traffic in the form of motor vehicles and equipment pulled by these motor vehicles will occur in locations within the gather area. Again, this activity will focus in locations where wild horses are being captured and will shift from location to location on an almost daily basis.

Environmental Consequence of Alternative A, Proposed Action: All of the areas identified for gather will be temporarily affected by noise associated with helicopters and increased vehicular traffic.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts under alternative B are the same as those analyzed under Alternative A.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: No areas will be affected by noise either by helicopter or vehicle traffic due to no gather operation taking place.

Cumulative Analysis Area and Impacts: The CAA for noise would be the PEDHMA and immediate adjacent areas where wild horses are currently located outside of the PEDHMA. The cumulative effects would be that during daylight hours there would be flights in the area of the PEDHMA gather operation and immediately adjacent areas while the helicopter is in the air herding wild horses or performing reconnaissance flights. The increased vehicle traffic noise would be short term and generally only on roads that would be specific to the gather operation or holding facility.

Mitigation: None

LAW ENFORCEMENT

Affected Environment: This area is managed by the Colorado Division of Wildlife (CDOW) for big game hunting areas and has numerous licensed guide and outfitters utilizing the area. Upland big game hunting is a popular recreation activity in NW Colorado with public guided and non-guided hunters. Because of the added public presence during the hunting seasons, law enforcement patrol activities increase along with public contacts and enforcement/compliance of federal and state laws. This area has multiple uses for the general public including wood cutting, camping and wildlife viewing. Wild horse gathers/removals from this area have generated numerous responses with a wide range of emotions from local public and the public abroad.

Environmental Consequences of Alternative A, Proposed Action: Due to the timing of any proposed gather that would take place during big game hunting seasons, the gather activity could potentially cause conflicts with hunters wanting to camp in specific locations or having concerns of aircraft disturbing the wildlife and their natural movements. Also of concern is the potential for protesting or interference from individuals or groups that do not want the wild horses to be removed. In the past there has been great interest in wild horse gatherings within the WRFO, as well as nationally, that have escalated to a point in one particular instance were an individual or individuals attempted to release captured wild horses from the WRFO temporary holding facility at Yellow Creek. Unintentional interference from the public wishing to utilize public lands or observe the proposed action may occur. Increased public contact will increase the probability of conflict that may require law enforcement action. This increase in public contacts will require an increase in patrol activities within this area which will result in decreased patrol activities or the ability to respond to other incidents throughout the rest of the WRFO area.

Environmental Consequence of Alternative B, Gather and Removal of Excess Wild Horses Only: Impacts would be the same as those described in Alternative A.

Environmental Consequence of Alternative C, No-Action Alternative Defer gather and removal: There would be no impacts associated with this alternative since there would be no gather conducted.

Cumulative Analysis Area and Impacts: The CAA for law enforcement is the PEDHMA and immediately adjacent areas.

Under Alternatives A and B the cumulative effects would be that law enforcement presence may be necessary on a 24 hour schedule at the trap locations and holding facility during the entire gather operation. This adds an additional group of BLM administrative employees to the total operation which in turn may cause additional stress to those wild horses that are gathered.

Under Alternative C no gather operations would be conducted and would not result in any associated cumulative impacts.

Mitigation: Mitigation has been incorporated into the Proposed Action. No additional mitigation identified.

ELEMENTS NOT PRESENT OR NOT AFFECTED:

Table 19: Provides Critical Elements Not Present or were Determined not Applicable to this Proposed Action.

Other Element	NA or Not Present	Applicable or Present, Not Brought Forward for Analysis
Prime and Unique Farmlands	X	
Native American Religious Concerns	X	
Environmental Justice Concerns	X	
Visual Resources		X
Fire Management		X
Forest Management		X
Realty Authorizations		X
Access and Transportation		X
Geology and Minerals	X	
Wilderness	X	
Wild and Scenic Rivers	X	
Cadastral	X	
Socio-Economics		X

Visual Resources: The majority of the PEDHMA is located within Visual Resource Management (VRM) Class III with a small portion being within a VRM Class IV. The Proposed Action and the Alternatives developed are of such short duration and minimal impacts that are identified, that they would not affect the landscape in such a manner that would be seen by the casual observer.

Fire Management: The PEDHMA is located within the Northwest Fire Management Plan. The Proposed Action and the Alternatives would not change the overall management or affect the management objectives for fire management within this analysis area.

Forest Management: The PEDHMA is located within areas which contain forest resources. The Proposed Action and the alternatives do not propose damage or removal of forest or woodland products, resources.

Realty Authorizations: The PEDHMA contains a number of realty authorizations including, e.g. pipelines, access roads, and powerlines, however it was determined due to the short term and limited disturbance associated with all of the alternatives would not affect realty authorizations.

Access and Transportation: The PEDHMA contains a number of County and BLM roads. The Alternatives A and B may result in a short increase in area traffic due to gather operations, and small delays in traffic to allow for fueling of helicopters, and other gather operations. These impacts would not exceed those affects that are currently ongoing due to existing oil and gas uses of these roads.

Under Alternative C there would be no gather operations, therefore no associated impacts to Access and Transportation.

Socio-Economics: Socio-economics would address those activities that result in increases to local area infrastructure (i.e. housing, schools, law enforcement, and fire and emergency medical services). Gather operations are so transient in nature, only being within Rio Blanco County for less than a month, BLM does not anticipate socio-economic impacts would be observable.

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- Garrott, Robert A., Ph.D., Wildlife Conservation, University of Minnesota, PhD Thesis, 1990. (Dissertation: Demography of Feral Horse Populations in the Western United States).
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PERSONS / AGENCIES CONSULTED: Native American tribes were notified of the proposed action and no replies were received. In addition, an updated list of current NEPA actions including the PEDHMA Gather was posted March 25, 2010 in the field office Public Area, on the White River Field Office NEPA Register and published in the local newspaper (Rio Blanco Herald Times) for two consecutive weeks. Appendix C – Interested Parties will be contacted when the document becomes available publicly and uploaded to the White River Field Office NEPA Register website.

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility
Bob Lange	Hydrologist	Air Quality, Wastes, Hazardous or Solid, Water Quality, Surface and Ground, Hydrology and Water Rights, Soils
Jill Schulte	Botanist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species
Michael Selle	Archaeologist	Cultural and Paleontological Resources
Jim Michels	Fuels Specialist	Forest Management, Fire Management, Recreation, Wilderness, Visual Resources, Access and Transportation
Ed Hollowed	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Wildlife Terrestrial and Aquatic
Mark Hafkenschiel	Rangeland Management Specialist	Invasive Species, Vegetation, Rangeland Management
Paul Daggett	Mining Engineer	Geology and Minerals
Linda Jones	Realty Specialist	Realty Authorizations
Melissa J. Kindall	Range Technician	Wild Horses, Wetlands and Riparian Zones

MITIGATION: Incorporated into the Proposed Action as design features and mitigation.

COMPLIANCE/MONITORING: As per the Proposed Action.

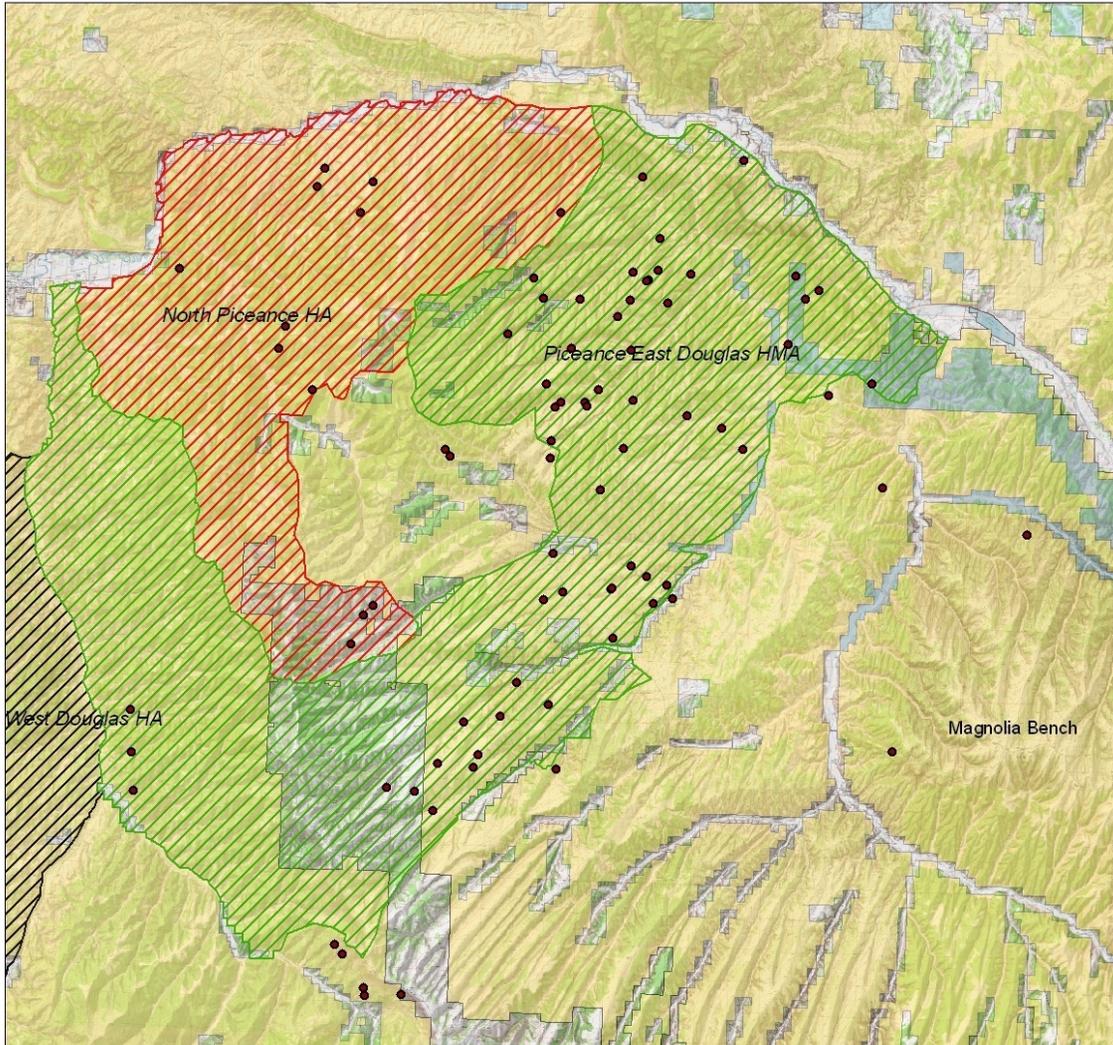
NAME OF PREPARER: Melissa Kindall

NAME OF ENVIRONMENTAL COORDINATOR: Caroline Hollowed

DATE: 7/29/10

ATTACHMENTS: Map 1 – PEDHMA and Outside 2010 Inventory
Map 2 – PEDHMA Geographic Regions
Appendix A – Standard Operating Procedures
Appendix B – 2010 Updated Standard Operating Procedures
Appendix C – Fertility Control Treatment
Appendix D – Population Model
Appendix E – Trend
Appendix F – Rangeland Evaluation
Appendix G – Interested Public

2010 Inventory Piceance-East Douglas HMA North Piceance HA and Magnolia Bench



- PED HMA 2010
- ▨ North Piceance HA
- ▨ Piceance East Douglas HMA
- ▨ West Douglas HA
- ▭ FieldOffice_Boundary_WRFDO
- BLM
- CDW
- County
- FOR
- NPS
- PRI
- STA



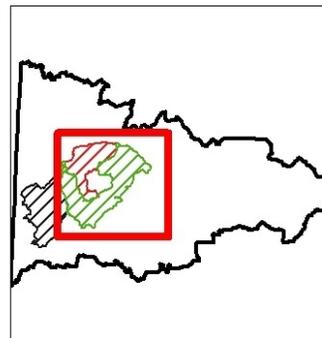
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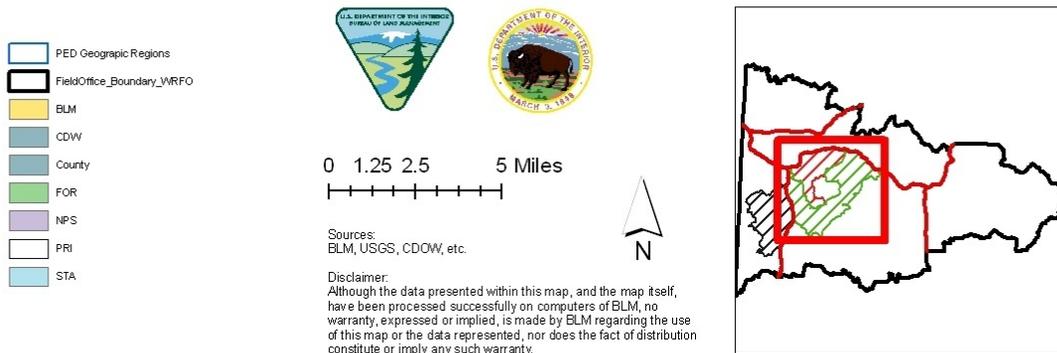
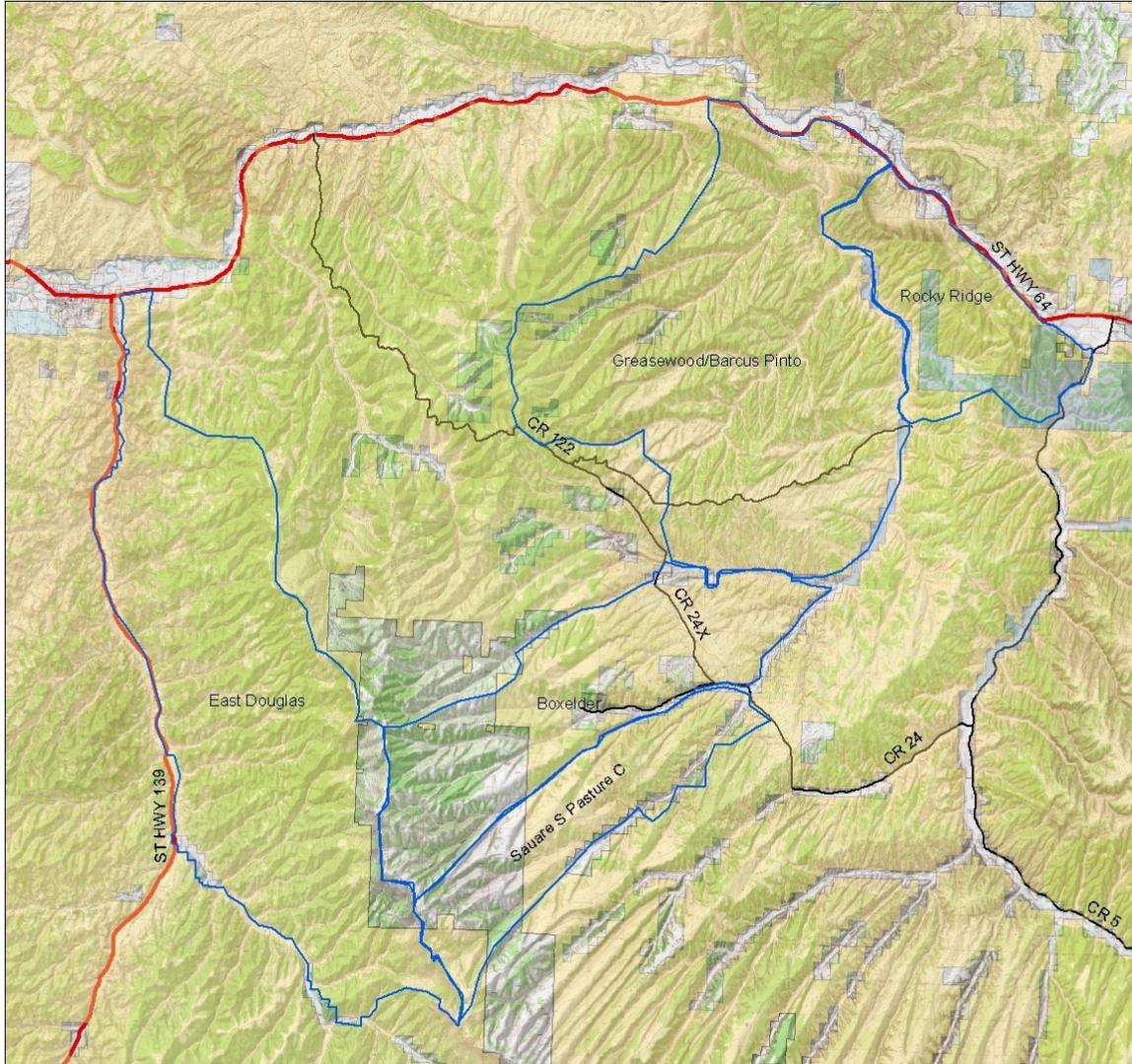


Sources:
BLM, USGS, CDOW, etc.

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Piceance-East Douglas HMA Geographic Regions



Appendix A

Standard Operating Procedures

The following considerations and guidelines are considered the technical portion of the Piceance-East Douglas Herd Management Area (PEDHMA) Wild Horse Gather Plan. This appendix outlines the safety considerations involved with the technical aspects of capturing wild horses, transporting the wild horses to temporary holding facilities, handling the captured animals and shipping the wild horses to the BLM Canon City, Colorado holding facility. This appendix defines the roles and responsibilities of individuals directly involved with the planned gather project.

Most of the gathers will be completed through a nationally awarded gather contract. Agency personnel will be directly involved in the completion of the project. The same procedures for capture and handling of wild horses apply to contractors, to agency personnel, and to volunteers. As the population decreases, a BLM gather crew may be utilized to gather small numbers of wild horses.

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

A. Capture Method Descriptions

1. Helicopter drive trapping

The helicopter drive-trapping method of capture will be the primary method used to capture wild horses. The following stipulations and procedures will be followed during the contract period to ensure the welfare, safety, and humane treatment of the wild horses in accordance with the provisions of 43 CFR 4700 and with the national gather contractor. The captures will be conducted by BLM personnel and the contractor; both of whom are experienced in the humane capture and handling of wild horses. The same rules apply to both the contractor and to BLM personnel.

Helicopter drive-trapping involves using a helicopter to spot and then herd wild horses towards a pre-constructed trap. The trap is constructed of portable, round-pipe steel panels. Funnel-shaped trap wings are built out from the corners of the trap to funnel wild horses into the trap. Trap wings are built with jute or snow fence, which is draped over and tied around trees or steel posts. The wings form a visual barrier to the wild horses and they usually enter the trap without being aware they are being trapped.

The helicopter pilot completes a recon prior to trapping to see where the bands are located. Once the trap and wings are ready for use, the pilot starts moving one or more bands of wild horses toward the trap and into the wings. The number of wild horses/number of bands moved towards a trap at one time depends on a variety of facets including proximity of bands to the trap; the number of wild horses in each band; the distance bands travel to the trap; topography, weather conditions, temperature, time of year, animal condition, and trap dimensions.

The pilot herds the wild horses into the wings of the trap and then hovers while a ground crew on foot and/or horseback comes in behind the wild horses, hazes them into the trap corral and closes a gate behind the trapped wild horses. The helicopter remains in the trap wings close enough to keep the wild horses from running back out of the trap and far enough away to assure safety of the ground crew and the wild horses. Once the gate is closed, or when the pilot sees it is best for him to leave the area, the helicopter leaves the trap site.

A pair of Parada or Judas horses; are often supplied by the contractor to encourage bands of wild horses to run smoothly into the trap corrals. The Judas horses are stable mates and do not like being separated from one another. One Judas horse is lightly tied in the trap corral. The second Judas horse is led into the mid-section of the trap wing and held along the edge of one side of the trap wing. As wild horses are moved by helicopter into the trap the Judas horse being held in the trap wing is released. The Judas horse runs towards the trap corral to be with his stable mate. The wild horses see a horse running free ahead of them. Their instinct tells them this horse is running to freedom; they follow the Judas horse into the trap corral. The Judas horses are familiar with being in close proximity to freshly-captured wild horses. Once trapped in the corral, the Judas horses hold their own but are not overly aggressive with the wild horses.

2. Helicopter Assisted Roping

Helicopter assisted roping is used when mares and foals become separated, when every wild horse must be captured from an area, and when specific animals are targeted for capture. Helicopter roping will only be used when determined by the COR or PI as the most efficient manner to capture specific wild horses and when the roping can be done in a safe and humane manner.

In helicopter assisted rope capture individual wild horses are herded by helicopter towards ropers who rope the wild horse(s). Once roped, another rider rides alongside the roped wild horse and roper, helping to haze, or herd, the roped wild horse either towards the trap or towards a stock trailer. Once at the trap the rope is flipped away from the roped wild horse's neck and it joins the rest of the trapped wild horses. When hazed to a stock trailer the wild horse is hobbled, laid on its side and then either pulled or slid into the trailer. If the wild horse is slid into the trailer a fabric or wood surface is placed under the wild horse to protect the wild horses' hide as it is pulled into the trailer. Once in the trailer the wild horse is freed of ropes and allowed to quiet down before being transported to the trap site.

3. Water Trapping

Water trapping will be used when wild horses are not able to be helicopter drive trapped or roped, when every wild horse must be captured from an area, and when specific wild horses are targeted for capture. In the upcoming gather water trapping may be used for both wild horses within the HA and to capture wild horses that have relocated outside HA boundaries. Water trapping will be used when determined by the COR or PI as the most efficient manner to capture specific wild horses and when the helicopter drive trapping and assisted helicopter roping proves to be inadequate means of gathering or cannot be done in a safe and humane manner.

In water trapping individual wild horses are allowed to use water sources before, during and after trap construction. The trap is constructed of portable, round-pipe steel panels. Funnel-shaped traps are built which allows wild horses to get deep into the trap so that when the gate release mechanism is activated time is allowed for the gate to close which traps the wild horses inside. Once trapped the captured wild s will be loaded into an appropriate stock trailer and delivered to the holding facility. The wild horses are not herded towards the water they simply make use of the water that they frequent naturally or human enhanced water sources.

4. Hay Trapping

Hay trapping will be used when wild horses are not able to be helicopter drive trapped or roped, when every wild horse must be captured from an area, and when specific wild horses are targeted for capture. In the upcoming gather hay trapping may be used for both wild horses within the HA and to capture wild horses that have relocated outside HA boundaries. Hay trapping will only be used when determined by the COR or PI as the most efficient manner to capture specific wild horses and when the helicopter drive trapping, assisted helicopter roping, and water trapping prove to be inadequate means of gathering or cannot be done in a safe and humane manner.

In hay trapping, individual wild horses are provided with hay during and after trap construction. The trap is constructed of portable, round-pipe steel panels. Funnel-shaped traps are built which allows wild horses to get deep into the trap so that the gate release mechanism allows time for the gate to close. Once trapped the captured wild horses will be loaded into an appropriate stock trailer and delivered to the holding facility. The wild horses are not herded towards the hay but simply make use of the hay as a necessary supplemental feed source. All hay used will be certified weed free hay.

B. Trap Site Selection

The Authorized Officer will make a careful determination of a boundary line to serve as an outer limit where the wild horses will be herded to each trap. The Authorized Officer will insure that the pilot is fully aware of all natural and man made barriers that might restrict free movement of wild horses. Topography, distance, and current condition of the wild horses are factors that will be considered to set limits to minimize stress on wild horses.

For winter gathers, distance to trap sites will be reduced to a maximum of five (5) miles when snow depth is greater than one (1) foot. Animals will be moved slower when snow depth hinders their natural movement. Wild horses will be monitored by the contracting officer representative (COR) after the first few runs to ensure that they are not sweating excessively. If wild horses are sweating excessively, the speed and/or distance to the trap will be reduced. Wild horses will not be gathered by helicopter when temperatures are less than ten (10) degrees below zero and will not be pushed across icy terrain where sharp turns could cause injuries.

Gather operations will be monitored to assure the body condition of the wild horses is compatible with the distances and the terrain over which they must travel. Pregnant mares,

mares with small colts, and other wild horses will be allowed to drop out of bands that are being gathered if required to protect the safety and health of the animals.

All trap and holding facility locations will be approved by the Authorized Officer prior to construction. The situation may require moving of the trap. All traps and holding facilities not located on public land must have prior written approval of the landowner.

Trap sites will be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites will mostly be located on or near existing roads. However, additional trap sites may be required, as determined by the Authorized Officer, to relieve stress to the animals caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.) or to access wild horses in remote areas.

C. Stipulations for Portable Corral Traps/Exclosures

1. Capture traps will be constructed in a fashion to minimize the potential for injury to wild horses and BLM personnel. Trapped wild horses held in traps longer than 10 hours will be fed and watered.

2. The Colorado Division of Wildlife will be notified as soon as possible if any wildlife are injured during capture operations. Wildlife caught inside traps will be released immediately.

3. All traps, wings, and holding facilities shall be constructed, maintained, and operated to handle the animals in a safe and humane manner and in accordance with the following:

a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for wild horses, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and temporary holding facilities shall be without corners; oval or round in design.

b. All loading chute sides shall be fully covered with plywood (without holes) or like material. The loading chute shall also be a minimum of 6 feet high.

c. All runways shall be of sufficient length and height to ensure animal and wrangler safety and may be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 6 feet for wild horses.

d. If a government furnished portable chute is used to restrain, age, or to provide additional care for animals, it shall be placed in the runway in a manner as instructed by or in concurrence with the Authorized Officer.

e. All crowding pens including the gates leading to the runways will, if necessary to prevent injuries from escape attempts, be covered with a material which prevents the animals from seeing out (plywood, burlap, snow fence etc.) and should be covered a minimum of 2 feet to 6 feet for wild horses.

f. Alternate pens will be constructed at the temporary holding facility to separate mares with newborn foals, sick or injured animals, and domestic strays. Wild horses may also be separated according to age, number, size, temperament, and sex. The pens will be constructed to minimize injury resulting from fighting and trampling.

4. If animals are held in the traps and/or holding facilities, a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day will be supplied. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day.

5. Water troughs shall be provided at each pen where animals are being held. Water troughs shall be constructed of such material (e.g. rubber, rubber over metal) so as to avoid injury to animals.

6. When dust conditions occur within or adjacent to the trap or holding facility, the contractor/BLM shall be required to wet down the ground with water.

D. Capture Stipulations

1. The contractor/BLM shall attempt to keep bands intact except where animal or human health and safety become considerations that prevent such procedures.

2. At least one saddle-horse will be immediately available at the trap site to perform roping if necessary. Roping shall be done as determined by the Contracting Officer's Representative or Project Inspector. Roping will be performed in such a manner that bands will remain together. Under no circumstances shall animals be tied down for more than one hour.

3. Domestic saddle horses may be used to assist the helicopter pilot on the ground during the gather operation, by having the domestic horse act as a pilot (or "Judas") horse leading the wild horses into the trap site. Individual ground hazer(s) and individuals on horseback will be used to assist in the gather.

4. Foals will not be left behind. If a situation arises where a foal becomes separated from its mare ropers with the help of the pilot will make every attempt to capture either the mare, or the foal and reunite the mare/foal pair keeping the safety of all the horses and gather crew in mind.

E. Contract Helicopter, Pilot and Communications

1. The contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the contractor shall comply with the Contractor's Federal Aviation Certificates, and applicable regulations of the State in which the gather is located.

2. When refueling, the helicopter shall remain a distance of at least 1,000 feet or more from animals, vehicles (other than fuel truck), and personnel not involved in refueling.

3. The COR/PI shall have the means to communicate with the contractor's pilot at all times. If communications cannot be established, the Government will take steps as necessary to protect the welfare of the animals. The frequency (ies) used for this contract will be assigned by the COR/PI when the radio is used. The contractor shall obtain the necessary FCC licenses for the radio system.
4. The COR or PI will notify dispatch each morning prior to the helicopter leaving the ground to capture wild horses; and at the end of each day's project. Dispatch will be kept informed of the trap locations and location inside the HA where the pilot is herding/capturing wild horses. The gather pilot and COR will maintain open communications with dispatch to assure both parties are aware of aircraft other than the gather contractor who may be in the capture vicinity, or who request permission to travel through, or work in the capture vicinity.
5. The proper operation, service, and maintenance of all contractor furnished helicopters is the responsibility of the contractor. The BLM reserves the right to remove from service pilots and helicopters which, in the opinion of the Contracting Officer or COR/PI, violate contract and FAA rules, are unsafe or otherwise unsatisfactory. In this event, the contractor will be notified in writing to furnish replacement pilots or helicopters within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.
6. All incidents/accidents occurring during the performance of any delivery order shall be immediately reported to the COR.

F. Animal Handling and Care

1. Prior to capturing wild horses, the COR/PI will conduct a pre-capture evaluation of existing conditions in the gather areas. The evaluation will determine whether the proposed activities will require the presence of a veterinarian during the project or if the veterinarian can remain on-call during the gather operation. Animal health, temperature extremes; topography, distance to the traps, and other factors will be considered when deciding between an on-call vet contract and an on-site contract.
2. The contractor will be apprised of all the conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.
3. The Authorized Officer and pilot will identify and discuss natural hazards and man-made hazards on the ground by looking at a topographic map so the helicopter flight crew, ground personnel, and wild horse safety will be maximized. Aerial hazards will be recorded on the project map.
4. No fence modifications will be made without authorization from the Authorized Officer. The contractor/BLM shall be responsible for restoration of any fence modification.
5. If the route the contractor/BLM proposes to herd animals passes through a fence, the opening shall be large enough to allow free and safe passage. Fence material shall be rolled up and fence

posts will be removed or sufficiently marked to ensure safety of the animals. The standing fence on each side of the gap will be well flagged and covered with jute or like material.

6. Wings shall not be constructed from materials injurious to animals and must be approved by the Authorized Officer.

7. It is the responsibility of the contractor/BLM to provide security to prevent loss, injury, or death of captured animals until delivery to final destination.

8. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours.

9. Branded or privately owned animals captured during gather operations will be handled in accordance with state estray laws and existing BLM policy.

10. Capture methods will be identified prior to issuance of delivery orders. Regardless of which methods are selected, all capture activities shall incorporate the following:

G. Treatment of Injured or Sick; Disposition of Terminal Animals

1. The contractor/BLM shall restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. If necessary, destruction shall be done by the most humane method available. Authority for humane destruction of wild horses (or burros) is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy.

2. Any captured wild horses that are found to have the following conditions may be humanely destroyed:

- a. The animal shows a hopeless prognosis for life.
- b. Suffers from a chronic disease.
- c. Requires continuous care for acute pain and suffering.

3. The Authorized Officer will determine if injured animals must be destroyed and provide for destruction of such animals. The contractor/BLM may be required to dispose of the carcasses as directed by the Authorized Officer.

4. The carcasses of the animals that die or must be destroyed as a result of any infectious, contagious, or parasitic disease will be disposed of by burial to a depth of at least 3 feet.

5. The carcasses of animals that must be destroyed as a result of age, injury, lameness, or non-contagious disease or illness will be disposed of by removing them from the capture site or holding corral and placing them in an inconspicuous location to minimize visual impacts. Carcasses will not be placed in drainages regardless of drainage size or downstream destination.

H. Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The contractor shall provide the Authorized Officer with a current safety inspection (less than one year old) of all tractor/stock trailers used to transport animals to final destination.
2. Vehicles shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.
3. Only stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities. Only stock trailers or single deck trucks shall be used to haul animals from temporary holding facilities to final destination(s). Sides or stock racks of transporting vehicles shall be a minimum height of 6 feet 6 inches from the vehicle floor. Single deck trucks with trailers 40 feet or longer shall have a minimum of two (2) partition gates providing a minimum three (3) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate animals. The compartments shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have at the minimum a 5 foot wide swinging gate. The use of double deck trailers is unacceptable and will not be allowed.
4. All vehicles used to transport animals to the final destination(s) shall be equipped with at least one (1) door at the rear end of the vehicle, which is capable of sliding either horizontally or vertically. The rear door must be capable of opening the full width of the trailer. All panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of the trailer must be strong enough, so that the animals cannot push their hooves through the sides. Final approval of vehicles to transport animals shall be held by the Authorized Officer.
5. Floors of vehicles, trailers, and the loading chute shall be covered and maintained with materials sufficient to prevent the animals from slipping.
6. Animals to be loaded and transported in any vehicle or trailer shall be as directed by the Authorized Officer and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The minimum square footage per animal is as follows:
 - 11 square feet/adult horse (1.4 linear feet in an 8 foot wide trailer)
 - 8 square feet/adult burro (1.0 linear foot in an 8 foot wide trailer)
 - 6 square feet/horse foal (0.75 linear feet in an 8 foot trailer)
 - 4 square feet/burro foal (0.50 linear feet in a 8 foot wide trailer)
7. The Authorized Officer shall consider the condition of the animals, weather conditions, type of vehicles, distance to be transported, or other factors when planning for the movement of captured animals. The Authorized Officer shall provide for any brand and/or inspection services required for the captured animals.

8. Communication lines will be established with personnel involved in off-loading the animals to receive feedback on how the animals arrive (condition/injury etc.). Should problems arise, gathering methods, shipping methods and/or separation of the animals will be changed in an attempt to alleviate the problems.

9. If the Authorized Officer determines that dust conditions are such that animals could be endangered during transportation, the contractor/BLM will be instructed to adjust speed and/or use alternate routes.

10. Periodic checks by the Authorized Officer may be made as animals are transported along dirt roads. If speed restrictions are in effect the Authorized Officer will at times follow and/or time trips to ensure compliance.

I. Special Stipulations.

1. Private landowners or the proper administering agency(s) would be contacted and authorization obtained prior to setting up traps on any lands that are not administered by BLM. Wherever possible, traps would be constructed in such a manner as to not block vehicular access on existing roads.

2. Gathering would be conducted when soils are dry or frozen and conditions are optimal for safety and protection of the wild horses and wranglers. Whenever possible, gathering activities will be scheduled to minimize impacts with big game hunting seasons.

3. Gathers would not be conducted between March 1 and June 30 to reduce the risk of injury or stress to pregnant mares and mares with young foals, except in case of an emergency necessitated by wildlife, drought, etc.

4. The helicopter would avoid eagles and other raptors, and would not be flown repeatedly over any identified active raptor nests. Unnecessary flying would not occur over big game on their winter ranges or active fawning/calving grounds during the period of use.

J. Safety

Safety of BLM employees, contractors, members of the public, and the wild horses will receive primary consideration. The following safety measures will be used by the Authorized Officer and all others involved in the operation as the basis for evaluating safety performance and for safety discussions during the daily briefings:

1. A briefing between all parties involved in the gather will be conducted each morning.

2. All BLM personnel, contractors, and volunteers will wear protective clothing suitable for work of this nature. BLM will alert observers of the requirement to dress properly. BLM will assure that members of the public are in safe observation areas.

3. Emergency road closures may be planned and implemented to control public access once trap locations are determined.

4. BLM Law Enforcement Officer presence may be required to ensure the safety of the public, BLM personnel, contractors, volunteers, and animals.

K. Responsibility and Lines of Communication

1. The Contracting Officer's Representative and Project Inspectors have the direct responsibility to ensure the contractor's compliance with the contract stipulations.

2. The Associate Field Manager and the Field Manager will take an active role to ensure the appropriate lines of communication are established between the Field Office, State Office, and Royal Gorge Field Office.

3. All employees involved in the gathering operations will keep the best interests of the animals and their own safety at the forefront at all times.

4. The COR will maintain open communications with dispatch to assure both parties are aware of project status; capture locations; and daily aviation activity.

Appendix B

WO IM 2010-135

Gather Policy, Selective Removal Criteria, and Management Considerations for Reducing Population Growth Rates

Attachment 1: Standard Operating Procedures for Wild Horse Gathers

Gathers are conducted by utilizing contractors from the Wild Horse Gathers-Western States Contract or BLM personnel. The following procedures for gathering and handling wild horses apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse Aviation Management Handbook* (January 2009).

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that a large number of animals may need to be euthanized or capture operations could be facilitated by a veterinarian, these services would be arranged before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

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

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

- 1) Helicopter Drive Trapping. This capture method involves utilizing a helicopter to herd wild horses into a temporary trap.
- 2) Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.
- 3) Bait Trapping. This capture method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary trap.

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

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

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors. Under normal circumstances this travel should not exceed 10 miles and may be much less dependent on existing conditions (i.e. ground conditions, animal health, extreme temperature (high and low)).

3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:

a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.

b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes larger than 2"x4".

c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.

d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses.

e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.

4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.

5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.

6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays or other animals the COR

determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

7. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor will supply certified weed free hay if required by State, County, and Federal regulation.

An animal that is held at a temporary holding facility through the night is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.

8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.

10. Animals shall be transported to their final destination from temporary holding facilities as quickly as possible after capture unless prior approval is granted by the COR for unusual circumstances. Animals to be released back into the PEDHMA following gather operations may be held up to 21 days or as directed by the COR. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24 hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR/PI or Field Office horse specialist.

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

1. Capture attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap. If this capture method is selected, the following applies:

- a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
- b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
- c. Traps shall be checked a minimum of once every 10 hours.

2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:

- a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.
- b. The contractor shall assure that foals shall not be left behind, and orphaned.

3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the following applies:

- a. Under no circumstances shall animals be tied down for more than one hour.
- b. The contractor shall assure that foals shall not be left behind, or orphaned.
- c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI, if requested, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.

3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to

final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have at least two (2) partition gates providing at least three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing at least two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.

4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping as much as possible during transport.

6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

- 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
- 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
- 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
- 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).

7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.

8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

D. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.

- a. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the

contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

b. The Contractor shall obtain the necessary FCC licenses for the radio system.

c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

2. Should the contractor choose to utilize a helicopter the following will apply:

a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

b. Fueling operations shall not take place within 1,000 feet of animals.

G. Site Clearances

No personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands or Indian lands.

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary clearances (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up. Said clearance shall be arranged for by the COR, PI, or other BLM employees.

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

H. Animal Characteristics and Behavior

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

I. Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations will be made available to the extent possible; however, the primary considerations will be to protect the health, safety and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM

facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

J. Responsibility and Lines of Communication

Contracting Officer's Representative/Project Inspector

Melissa Kindall

Contracting Officer's Representative/Project Inspector

Tyrell Turner

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Assistant Field Manager, James Roberts, for Renewable Resources and Field Manager, Kent Walter, will take an active role to ensure the appropriate lines of communication are established between the field, White River Field Office, Northwest Colorado District Office, Colorado State Office, National Program Office, and BLM Holding Facility offices at Canon City. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Assistant Field Manager for Renewable Resources and Northwest Colorado District Office Public Affairs. These individuals will be the primary contact and will coordinate with the COR/PI on any inquiries.

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

The contract specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced. Should the Contractor show negligence and/or not perform according to contract stipulations, he will be issued written instructions, stop work orders, or defaulted.

Appendix C

Fertility Control Treatment: The following management and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered by trained BLM personnel.
2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18 gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14 gauge needle. These are loaded on the end of a trocar (dry syringe with a metal rod) which is loaded into the jabstick which then pushes the pellets into the breeding mares being returned to the range. The pellets and liquid are designed to release the PZP over time similar to a time release cold capsule.
3. Delivery of the vaccine would be as an intramuscular injection while the mares are restrained in a working chute. 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid and pellets would be propelled into the left hind quarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.
4. All treated mares would be freeze-marked on the hip to enable researchers to positively identify the animals during the research project as part of the data collection phase.
5. At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years 2 through 4 by checking for presence/absence of foals. The flight scheduled for year 4 will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.
6. A field data sheet will be used by the field applicators to record all the pertinent data relating to identification of the mare (including a photograph when possible), date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and PEDHMA, etc. The original form with the data sheets will be forwarded to the authorized officer at National Program Office (NPO) (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
7. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by PEDHMA, field office, and state along with the freeze-mark applied by PEDHMA.
8. The field office will assure that treated mares do not enter the adoption market for three years following treatment. In the rare instance, due to unforeseen circumstance, treated mare(s) are removed from PEDHMA before three years has lapsed, they will be maintained in either a BLM facility or a BLM-contracted long term holding facility until expiration of the three year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three year holding period, the animal may be placed in the adoption program or sent to a long-term holding facility.

Appendix D

Results of Population Modeling for PEDHMA

Population Model Overview

Population modeling is a tool designed to help Wild Horse and Burro Specialists evaluate various management alternatives and possible outcomes for management of wild horses. The population model is not applicable for burros.

The WinEquus program, developed by Dr. Steven Jenkins at the University of Nevada at Reno was designed to assist wild horse and burro specialists evaluate various management alternatives that might be considered for a particular area.

The model uses data on average survival probabilities and foaling rates of horses to simulate population growth for up to 20 years. The model accounts for year-to-year variation in these demographic parameters by using a randomization process to select survival probabilities and foaling rates for each age class from a distribution of values based on these averages. This aspect of population dynamics is called environmental stochasticity, and reflects the fact that future environmental conditions that may affect horse populations cannot be known in advance. Therefore, each trial with the model will give a different pattern of population growth. Some trials may include mostly “good years”, when the population grows rapidly; other trials may include a series of several “bad” years in succession. The stochastic approach to population modeling uses repeated trials to project a range of possible population trajectories over a period of years, which is more realistic than predicting a single specific trajectory.

The model incorporates both selective removal and fertility control treatment as management strategies. A simulation may include no management, selective removal, fertility control treatment, or both removal and fertility control treatment. Wild horse and burro specialists can specify many different options for these management strategies such as the schedule of gathers for removal or fertility control treatment, the threshold population size which triggers a gather, the target population size following a removal, the ages and sexes of horses to be removed, and the effectiveness of fertility control treatment.

Modeling was complete for this HMA. Population modeling was completed for all alternatives including the No Action Alternative. Initial population age structures were developed for the HMA based on the gather/release history data. All simulations used the survival probabilities and foaling rates supplied with the WinEquus population model for the Garfield Flat HMA. Survival data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999. Marked individuals were followed for a total of 708 animal-years to generate these survival probabilities.

Foaling rate data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999. Marked females were followed for a total of 351 animal-years to generate these data on foaling rates.

These initial populations for the HMA were entered into the model and put through simulations that included Fertility Control and Sex Ratio Adjustment with Gather, Gather Only (No Fertility

Control) or No Management (No Gather). The simulations were run for 100 trials for the eleven years. For each simulation, a series of graphs and tables were provided which included the “most typical” trial, population sizes, growth rates, and gather numbers.

Results of Population Modeling

Out of the 100 trials in each simulation run, the model tabulated minimum, average, and maximum population sizes. The model was run for a period of eleven years from 2006 to 2016, and gives output through 2016. These numbers are useful to make relative comparisons of the different alternatives, and potential outcomes under different management options. The lowest, median and highest trials are displayed for each simulation completed. This output, together with the time series and most typical trial graphs are useful representations of the results of the program in terms of assessing the effects of the management alternatives because it shows not only expected average results but also extreme results that might be possible. The minimum population size in general reflects the numbers that would remain following management or random environmental impacts. The maximum population size generally reflects the population that existed prior to the gather, and in many cases that figure would not be exceeded during the ten years of the simulations. Half of the trials were greater than the median and half of them less than the median.

Table 1. Population Size – Proposed Action Alternative

Estimated Population Sizes in 11 Years			
Trial	Minimum	Average	Maximum
Lowest	111	187	267
Median	152	205	294
Highest	174	223	466

Table 2. Population Size – No Fertility Control Alternative

Estimated Population Sizes in 11 Years			
Trial	Minimum	Average	Maximum
Lowest	97	189	266
Median	152	215	302
Highest	171	239	393

Table 3. Population Size – No Action Alternative

*Estimated Population Sizes in 10 Years versus 11 Years			
Trial	Minimum	Average	Maximum
Lowest	266	590	963
Median	288	845	1766
Highest	403	1224	2680

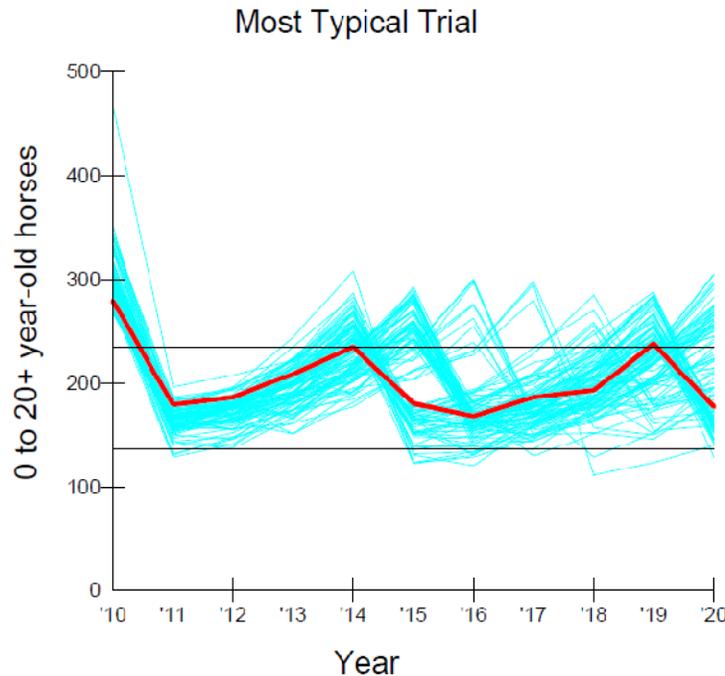
Time Series Graph of Most Typical Trial

Based on the results from the model, spaghetti graphs (see below) were generated for each simulation. These graphs show how population size changes over time. The Y-axis scale remains constant for each graph; however the X-axis was determined based on results and was unable to be changed. At first glance, there appears to be not much difference between the trials, but if the reader takes a closer look one finds the scales to be different.

Each line represents one of the 100 trials for the simulations completed for each alternative. The two horizontal lines located in the graphs represent the threshold for gather (upper range of

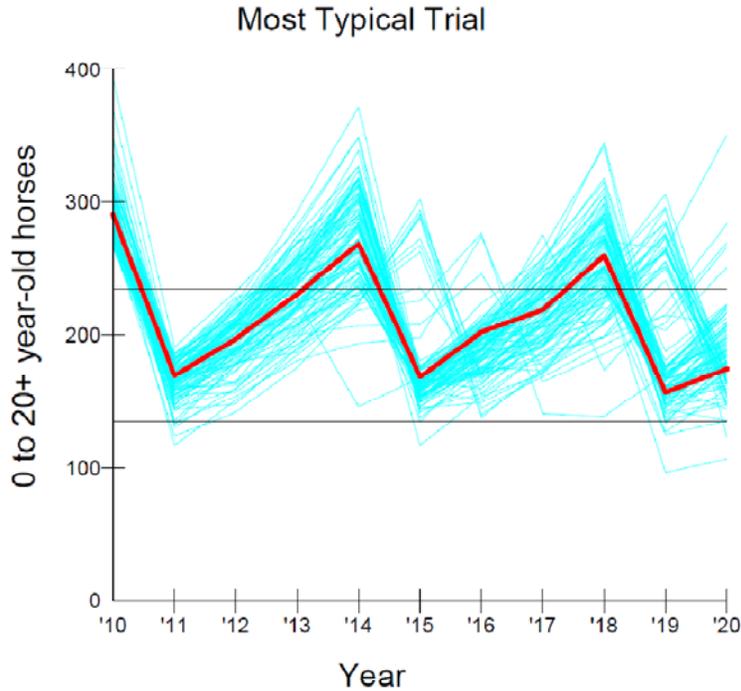
AML) and the target population size (low range of AML). The Most Typical Trial graph includes a dark heavy line (red) which represents what the model has chosen as the trial with the most typical results. This trial closely matches the average of all 100 trials. The most typical trial is useful for making comparisons between alternatives, and for predicting what would be the probable results of the action.

Population Size Graph of Most Typical Trial
Proposed Action Alternative



The results of the modeling indicate that following the 2010 gather down to low end of AML with fertility control and the sex ratio adjustment that the average population between 2010 and 2020 on a four year gather cycle would stay well within the of the AML. This could potentially make for adjustments in future gather operations as well as the use or non use of fertility and the sex ratio adjustment. The maximum population reflects the population that existed before the gather. This is one demonstration of why the fertility control with sex ratio adjustment option was selected as the Proposed Action for the PEDHMA.

**Population Size Graph of Most Typical Trial
No Fertility Control Alternative**



The results of the modeling indicate that when 135 wild horses remain in the HMA following the gather, that the average population would not reach the upper end of the AML until the fourth year. Which could potentially make for adjustments in future gathers to be further out from the current four year gather cycle. The model indicated that without fertility control and the sex ratio adjustment, the AML could possibly be exceeded by as early as 2013. The maximum population reflects the population that existed before the gather. This is one demonstration of why the fertility control with sex ratio adjustment option was selected as the Proposed Action for the PEDHMA.

Growth Rates

Through the model, average population growth rates were obtained for the Proposed Action and the Alternative to Reduce Herd to Lower AML Range but not to implement Fertility Control on Select Mares out of 100 trials. Growth rates are displayed for the lowest, median and highest trial.

PEDHMA - Percent Average Growth Rates in 11 years

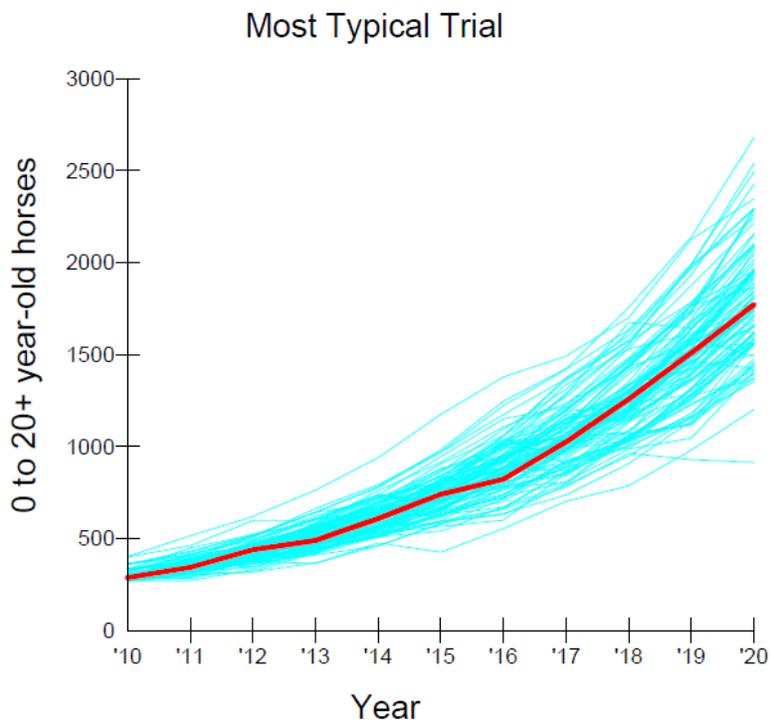
Trial	Proposed Action: Gather + Fertility Control + Sex Ratio Adjustment	Alternative: Gather + No Fertility Control
Lowest	8.4	9.5
Median	14.5	18.8
Highest	19.8	24.0

Population modeling data reflects that the implementation of fertility control would result in reduced growth rates of the wild horse population in the PEDHMA. Growth rate analyzed for the fertility control plus sex ratio adjustment alternative were 9.5 – 17.5% lower than when fertility control and sex ratio adjustment was not implemented. The model also indicates that growth rates would not be so low as to cause risk to the population should fertility control be implemented.

No Action Alternative (No Wild Horse Gather)

Population modeling was completed for the No Action Alternative. The most typical trial was utilized to demonstrate the projected population over time if a gather does not take place. The spaghetti graph of most typical trial for the gather area is displayed below for the No Action Alternative as a comparison only. The graphs clearly show the continued increase in population size if a gather was not completed.

**Population Size Graph of Most Typical Trial
No Action Alternative**



Population Modeling Summary

To summarize the results obtained by simulating the range of alternatives for the PEDHMA wild horse gather, the following questions can be addressed.

- *Do any of the Alternatives “crash” the population?*
None of the alternatives indicate that a crash is likely to occur to the population. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely.
- *What effect does fertility control have on population growth rate?*
As expected, the alternative implementing fertility control (Proposed Action) reflects the lowest overall growth rates. The growth rates for the PEDHMA proposed for fertility control and sex ratio adjustment are 9.5 – 17.5% lower than the non-fertility control growth rates.
- *What effect do the different alternatives have on the average population size?*
Based on the average median population trial obtained through the population model the no management action the herd size would be 845, for the removal only alternative the herd size would be 215, and for the removal with fertility control and sex ratio adjustment alternative the herd size would be 205.

The No Action Alternative is clearly unacceptable, however, was analyzed for comparison with the other alternatives. Without a wild horse gather, populations would potentially triple within a five year period.

Appendix - E

Trend

A total of 11 Daubenmire canopy coverage transects were completed in the Yellow Creek and Square S part of the HMA in 2001. Ten were existing transects and one was newly established in 2001. The mean canopy cover values for 1995 and 2001 for the common key species, needle and thread (*Stipa comata*) were statistically analyzed to determine if there had been a significant change in the canopy cover of this species from 1995 to 2001. The analysis determined that there had been no significant change. In the 1996 Rangeland Evaluation the 1995 values were determined to be insufficient for maintenance of rangeland health. See appendix 4 for a comparison of the trend study values of 1995 and 2001.

The Trend study in Tommy's draw pasture of the East Douglas Geographical Region showed declines in composition of key forage species 45 to 20%. Utilization levels ranged from moderate to severe.

Outside of this area utilization levels dropped significantly. The area below the Cathedral Bluffs, between Coal and Philadelphia Draws, showed little use by horses or cattle. In the past horses made concentrated use in the area of Wild Rose Spring. This past year very little sign of horses was found.

The trend study for this area showed a decrease in the composition of key species 45 to 35%, and increases in cover and litter 17 to 38% and 3 to 44% respectively. Overall trend is static. Utilization Studies Utilization has been conducted on key areas in the Piceance - East Douglas HMA, specifically, the Barcus-Pinto and Boxelder and Pasture C, Square S units. This monitoring continues to show wild horse utilization in excess of prescribed levels both on a seasonal and yearlong basis. Utilization studies were conducted using the Key Forage Plant method. This information is summarized as follows:

1996

Rocky Ridge - Spring Use (Clayey foothills range site)

- Colorado wildrye - 53%, needle and thread 53%
- Corral Gulch - Winter Use (Stony foothills range site)
- Beardless wheatgrass - 68%, indian ricegrass 47%, shadscale 70%

84 Mesa - Winter Use (Stony foothills range site)

- winterfat - 70%, needle and thread - 70%, indian ricegrass - 70%, beardless bluegrass 71%

84 Mesa - Spring Use (Rolling loam range site)

- winterfat - 63%, needle and thread - 70%, indian ricegrass - 75%
- Maverick key area, Summer Use (Stony foothills range site)
- shadscale - 60%, beardless bluebunch wheatgrass - 71%, indian ricegrass - 68%

1997

North Barcus key area, winter (Foothill swale range site)

- winterfat - 71%

Middle Barcus key area, winter (Stony foothills range site)

- indian ricegrass - 63%, beardless bluebunch - 57%

Pinto Mesa key area, winter (Rolling loam/foothill swale range sites)

- indian ricegrass - 49%, winterfat - 80%

Middle Barcus key area, spring (Stony foothills range site)

- indian ricegrass - 57%, beardless bluebunch - 53%, winterfat - 70%

Boxelder, 84 Mesa key area, spring (Rolling loam range site)

- winterfat - 72%

2001

Barcus - Pinto, Middle Barcus Key Area, Spring Use (Rolling Loam, Stony Foothills Range sites)

- needle and thread - 47%, indian ricegrass - 56%

Barcus - Pinto, Pinto Mesa Key Area, Spring Use (Rolling Loam Range Site)

- needle and thread - 28%, indian ricegrass - 44%, beardless bluebunch - 31%

Boxelder, 84 Mesa Key Area, Spring Use (Stony Foothills and Rolling Loam Range Sites)

- winterfat - 44%, needle and thread - 36%, indian ricegrass - 36%

Pasture C, Square S, Baldy Key Area (Dry Exposure Range Site)

- needle and thread - 68%, prairie junegrass - 59%

Appropriate Management Level Analysis

Greasewood Allotment:

In 1997, an Ecological Site Inventory was completed for the Greasewood allotment which was added to the Piceance part of the Herd Management Area as a result of the July, 1997 WRRRA RMP Record of Decision. This inventory determined that there were 435 AUMs available for allocation to wild horses. This allocation would equate to a yearlong capacity for 29 horses. Detailed analysis of this data and conclusion is contained in Environmental Assessment CO-WRFO-00-91 developed in conjunction with the grazing permit renewal for Oscar Wyatt Jr.

Yellow Creek and Square S Allotments: 33

Analysis in the 1996 wild horse gather plan and environmental assessment indicated that forage was available to support 115 wild horses.

6035-5 North Barcus

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Western Wheatgrass	.8	2	4.2	13
Needle and Thread	1.5	3.5	.1	1
Rabbitbrush	4.3	9.8	9.5	30
Winterfat	1	2.3	1.6	5
Litter	28		40	

6030-4 Agar's Nob

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Sagebrush	13.1	2	7.9	18
Western Wheatgrass	7.4	14	1.7	4
Needle and Thread	4.1	8	2.3	5
Rabbitbrush	1.9	4	2.5	6
Winterfat	8.1	15	4.4	10
Cheatgrass	1.1	2	1.2	3
Litter	15		21	

Hydrologic Cover = 64.3

6030-5 84 Mesa

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Sagebrush	6.8	25	7.6	22
Western Wheatgrass	2.5	10	4.3	12
Needle and Thread	9	3	2.7	8
Cryptograms	2.4	9	1.6	5
Upland Gedge	1.9	7	.6	2
Litter	13		9	

6030-6 84 Mesa

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Sagebrush	25.5	49	11.3	37
Western Wheatgrass	9.7	19	2.3	8
Needle and Thread	1.9	4	.3	1
Cryptogams	not recorded	not recorded	3.6	12
Winterfat	1.1	2	1.3	4
Indian Ricegrass	3	6	.7	2
Litter	not recorded		12	

6027-1C Wolf Ridge

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Sagebrush	21	32	17.9	29
Western Wheatgrass	7.3	11	7	11
Needle and Thread	.1	.2	2.7	4
lupine	16.4	25	4.8	8
Cryptogams	not recorded	not recorded	3.2	5
Moss	not recorded	not recorded	9.4	15
Litter	33		20	

6027- 2C Left Fork Stake Springs

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Sagebrush	33.2	45	25.6	44
Western Wheatgrass	2.4	3	1.1	2
Upland Sedge	.1	1	1.2	2
Prairie Junegrass	.6	1	.3	1
Lupine	6	8	3.3	6

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Litter	18		38	

6027-4C Left Fork Stake Springs

Year - 1995			Year 2001	
Species	% Canopy Cover	% Species Composition	% Canopy Cover	% Species Composition
Needle and Thread			1.4	7
Western Wheatgrass			.7	3
Prairie Junegrass			4	19
Snakeweed			5.9	28
Muttongrass			1.5	7
Litter			5	

Hydrologic cover = 26.2%

APPENDIX F

RANGELAND EVALUATION- PICEANCE PORTION OF THE PEDHMA

I. AVAILABLE DATA AND ANALYSIS

A. PRECIPITATION

Precipitation, in particular, its amount and distribution during the growing season, has a profound effect upon rangeland vegetation. Illustration 1 shows precipitation recorded from 1981- 1995. The trends and amounts are self-explanatory. The following is pertinent to years in which Daubenmire canopy coverage trend studies were completed.

1981 would be considered as an average precipitation year. At the Little Hills recording site, the March precipitation value of 2.82 inches was a record maximum for 46 years of recording and the May value of 3.2 inches was .03 inches less than the maximum recorded value for 46 years of record. Both these values would positively correlate with above average herbaceous plant production.

1987 would also be considered an average precipitation year. May precipitation of 2.36 inches is approximately 58% above the monthly average of 1.49 inches and again, would positively affect herbaceous plant production.

1995 precipitation was approximately 40% above average, and more significantly, the April and May values of 3.44 inches and 5.59 inches were double the 15 year average for those months.

B. ACTUAL USE

1) Livestock

a) Yellow Creek Allotment: Burke Brothers, grazing permittees on the Yellow Creek allotment, which is composed of the Rocky Ridge, Barcus-Pinto and Boxelder units are licensed to make use of the allotment in specific areas on a seasonal basis with cattle. Their grazing use of the Yellow Creek allotment in terms of licensed use has remained stable over the study evaluation period. Burke's licensed use from 1988 through 1992 averaged 2,016 AUMs. From 1981 through 1987 their licensed use averaged 2,174 AUMs. Actual use was materially unchanged over this period. The following is a summary of their actual use by unit over the last three years:

<u>YEAR</u>	<u>UNIT</u>	<u>AUMs</u>
1993	Barcus-Pinto	1598
	Rocky Ridge	224
	Boxelder	<u>319</u>
		2141
1994	Barcus-Pinto	1595
	Rocky Ridge	224
	Boxelder	<u>319</u>
		2138
1995	Barcus-Pinto	1553
	Rocky Ridge	220
	Boxelder	<u>319</u>
		2092

Burke Brother's grazing preference is 2725 AUMs. They have taken an average of 602 AUMs of nonuse over the last three years. 400 AUMs of this nonuse has been within Barcus-Pinto unit of the Yellow Creek allotment.

Burke's grazing use for the spring period (5/1-6/30) is typically 680- 700 AUMS. This use occurs entirely on the Barcus-Pinto pasture. At this time of year, their cattle typically use all available parts of the foothill swale range site (Yellow Creek drainage and associated tributary drainages. Ninety-five (95) percent of their use is made within 1 mile of a water source. Their cattle also use the stony foothills range site which typically adjoins the above drainages on the upslope side. Their other principal source of forage is the Barcus seeding in Barcus Creek proper. Their spring cattle use typically overlaps very little with wild horses with the exception of cattle use made on Pinto Mesa in transition between Barcus Creek and 84 Mesa, and on the Barcus seeding. The principal cattle forage source on Pinto Mesa is the rolling loam range site. Burke's actual use for spring 1995 indicates that they made a maximum of 100 AUMs of use on Pinto Mesa, having pumped Conroy well for approximately 2 weeks.

For the purposes of this analysis, Burke's actual livestock use has remained essentially stable. The only principal change in the distribution of use has been that their cattle have made significantly more use of the Barcus drainage from 1993-1995 as a result of the burn and seeding there. It should also be noted that prior to completion of this vegetation manipulation this area produced approximately 216 usable AUMs, after the burn and successful seeding; its average production is approximately 928 AUMS.

b) Pasture C, Square S: Pasture C is the one pasture of the Square S allotment that is part of the Piceance- E. Douglas HMA. Actual grazing use by cattle in this pasture for the period 1981- 1995 averaged 720 AUMs. Grazing capacity for the pasture is 1258 AUMs. Cattle use in 1995 occurred from 9/7-11/19, following utilization studies. Actual grazing use for the past three years is as follows:

<u>YEAR</u>	<u>UNIT</u>	<u>AUMS</u>
1993	Square S, Pasture C	884
1994	Square S, Pasture C	833
1995	Square S, Pasture C	608

2) Wild Horses -Illustration 2 is a summary of census data for the Piceance portion of the Piceance- East Douglas HMA. This includes data for Pasture C, Square S which will be referred to later. The entire HMA was censused 2/27- 3/1/1995. This census was completed prior to 1995 foaling. For the purpose of determining forage used by wild horses in the area of consideration, the censused horse number for each unit shall be used.

Rocky Ridge-	58 horses X 12 Months X 1.25*= =	870 AUMs yearlong
Barcus- Pinto-	117 horses X 12 Months X 1.25*= =	1755 AUMs yearlong
Boxelder-	106 horses X 12 Months X 1.25*= =	1590 AUMs yearlong
Yellow Creek-	(total) =	4215 AUMs yearlong
Sq. S, Pasture C-	64 horses X 12 Months X 1.25*= =	960 AUMs yearlong
Total	=	5175 AUMs yearlong

* Horse forage use factor, substantiated by NRC

C. HORSE HERD DISTRIBUTION

Four distinct wild horse herds use the Yellow Creek allotment. Three of these reside the entire year within the allotment. The remaining one, the Greasewood herd, uses part of the Barcus- Pinto allotment in the winter and spring and then migrates south and west to the upper Greasewood area. The use pattern of the three other herds is described as follows. The home ranges of all four herds overlap, particularly within the Barcus- Pinto unit.

1) The Barcus- Pinto herd range corresponds with the Barcus-Pinto grazing allotment. Its core distribution area is Pinto Mesa. This herd's affinity for Pinto Mesa is the result of a nearly ideal mixture of habitat features including

thermal cover, large open foraging areas and proximity to reliable water sources. This herd's range extends over into Barcus Creek proper which is used extensively for forage, particularly in the summer months.

The Rocky Ridge herd utilizes a range centered on Black Mountain which includes lower Yellow Creek, Barcus Creek, and lower Greasewood. Their home range and thus, forage use area, overlaps with that of the Barcus-Pinto herd principally in the Barcus and Yellow Creek drainages.

The Boxelder herd range is the former Boxelder grazing allotment. On 84 Mesa, the range of this herd overlaps with that of the Barcus-Pinto herd. The primary range of the Boxelder herd is the upper two-thirds of this unit. The key concentrated winter use area of this herd in typical snowfall years is the south exposures of Dry Gulch and to a lesser extent, the south slope of Corral Gulch below its junction with Water Gulch. The herd's summer use area is primarily all of Boxelder south and west of Water Gulch due to the favorable mix of water and foraging habitat. Its key summer forage habitats are the dry exposure and loamy slopes range sites.

2) Square S, Pasture C- The Pasture C herd home range is confined primarily to Pasture C although horses can migrate west down off Cathedral Bluffs into the Cathedral Bluffs portion of the HMA. The Pasture C herd winters on the south slopes around the forks of Stake Springs, typically from 12/1- 4/15. As quickly as snow melt occurs, the horses move south and west to the upper elevation ridges that are their preferred foraging habitat until heavy snow cover occurs in the fall. The ridgetop grasslands that are their primary habitat are the Dry Exposure and Loamy Slopes range sites.

D. UTILIZATION

Utilization studies were specifically conducted on wild horse key use areas. These key areas sustain seasonal and continuous yearlong use by wild horses. With the exception of the Barcus Creek seeding, the wild horse key areas had received little cattle use (< 10%), so livestock utilization was considered as a fixed factor in the equation. The premise is that the stocking rate for wild horses should be based on the range that they primarily use and not an area that is unavailable or that they do not use. When the Ecological Site Inventory for the Piceance -E. Douglas HMA is finalized later this spring, that information will be correlated with applicable utilization data.

Where it was anticipated that cattle might make some use of a wild horse key area, such as Pinto Mesa, utilization studies were conducted prior to their arrival.

Utilization studies were conducted using the Key Forage Plant Method. Ungrazed plants of the same species growing on sites of similar potential were used for reference. Utilization studies were conducted on the following wild horse key areas. 90% of these studies were conducted using a horse in order to improve accessibility and accuracy.

Yellow Creek Allotment

1) Pinto Mesa- (S) As of 6/14/95 average use of key species was as follows:

Beardless bluebunch wheatgrass-	53%
Indian ricegrass-	63%
Winterfat-	59%

Pinto Mesa (N)- As of 6/19/95 average use of key species was as follows:

Beardless bluebunch wheatgrass-	47%
Indian ricegrass-	59%

Overall utilization for the combined area was already in the heavy range (61-80%). Utilization of winterfat, where present, was rapidly approaching the heavy range. These rates of utilization are significant because: 1) they occurred in a year when precipitation was more than 40% above average, and 2) the horse herd uses this area on a yearlong basis. Because this key area is the yearlong home range of the Barcus-Pinto herd, stocking should be based on a maximum yearlong utilization level of 35-40 %. In this case, the level will have to be negatively corrected to compensate for the overutilization which has already occurred to allow for range recovery.

2) 84 Mesa- As of 6/20/95 average utilization of key species was as follows:

Beardless bluebunch wheatgrass-	53%
Western wheatgrass-	36%
Needle and thread-	42%
Winterfat-	42%

The key wintering areas on 84 Mesa had received localized heavy use. The three or four bands of the Barcus herd which winter in this area had moved back across Duck Creek onto Pinto Mesa by the time this utilization was done. The levels of use for western, needle and thread and winterfat are acceptable on a seasonal use basis. The level of use on beardless bluebunch wheatgrass (approaching the lower end of the heavy range, 61-80%) is a concern. This species is **the key species** on the stony foothills and rolling loam south exposures where horses winter in a typical year. A Daubenmire transect will be set up here in 1996 so that this may be monitored.

3) Boxelder, Dry Gulch wintering area- As of 6/27/95 average utilization of key species was as follows:

Beardless wheatgrass-	57%
Indian ricegrass-	65%
Winterfat-	65%
Needle and thread-	57%

This utilization was conducted on the loamy slopes and stony foothills range sites which produce 100 % of the forage in this key area. This is the key wintering area for the Boxelder herd. At the time utilization was done, the horses had migrated south and west to their traditional summer range. Given the concentration of use here from 12/1- 5/30 in a typical snowfall year, maximum allowable use probably shouldn't exceed 50%. Mortality of key species and a low state of both vigor and reproduction was exhibited by all key species throughout this key area.

Square S, Pasture C

Summer range-As of 9/5/95 average utilization of key species was as follows:

Letterman/needle and thread-	55%
Indian ricegrass-	58%
Junegrass-	53%
Beardless/western wheatgrass-	50%

Utilization studies were conducted on the Dry Exposure and Loamy Slopes range sites. These range sites are the key wild horse forage habitat from roughly 5/1- 11/30 on a yearly basis. Utilization was done prior to the arrival of cattle in the pasture. In general, both vigor and reproduction of the key species was low; crown mortality was apparent in Letterman needlegrass and needle and thread.

These utilization levels, when adjusted for an average precipitation year would be in the high end of the heavy range (70-78%). Because of the duration of use of these range sites by horses (approx. 7 months), allowable utilization should probably not exceed 45%.

E. TREND

Trend studies were established in most key areas beginning in 1981 throughout the HMA. The purpose of these studies is to measure change in the plant community/range site which is the key area. The method used is the Daubenmire canopy cover transects. A repeatable permanent line is established and plots are measured off this line. The Daubenmire canopy cover transects measures plant frequency and cover and from those values, percent plant composition by cover can be determined. Trend information is listed by key area.

Yellow Creek Allotment

1) Pinto Mesa

STUDY #6035-1 (PINTO MESA) Rolling Loam range site

ATTR.	1981			1987			1990			1995		
	% CANOPY COVER	% SPECIES COMP	LITTER	% CANOPY COVER	% SPEC COMP	LITTER	% CANOPY COVER	% SPECIES COMP	LITTER	% CANOPY COVER	%SPEC COMP	LITTER
Orhy	-	-	-	3.9	8.1	35	-	-	-	3	7.8	21
Agsm	-	-	-	8.6	18		-	-	-	4.6	12.1	
Cela	-	-	-	2.1	4.4		-	-	-	2.37	6.2	

STUDY #6035-2 Rolling Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER
Orhy	19.5	28.6	58	7.4	15.9	71	-	-	-	2.75	7.4	40.2
Agsm	23.4	34.4		14.1	30.3		-	-	-	2.87	7.8	
Stco	8.0	11.7		6.5	13.5		-	-	-	7.0	19	
Artr	10.6	15.6		10.9	23		-	-	-	17.7	48.1	

2) Middle Barcus-

STUDY #6035-3 Rolling Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER
Stco	1.0	2.0	30	4.4	16.2	12	-	-	-	4.25	11.9	14
Orhy	-	-		.4	1.5		-	-	-	.12	.3	
Agsm	2.0	4.0		2.6	9.6		-	-	-	9.25	25.9	
Kocr	10.1	20.1		12.4	46.1		-	-	-	3.75	10.5	
Artr*	20.6	41.		0	0		-	-	-	.12	.3	

*Artr dropped out due to wildfire burn 8/86

Brte and Lepidium, not previously recorded appeared on transect in 1995

3) North Barcus winter/spring

STUDY #6035-4 Rolling Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER
Orhy	14.5	23.3	26	1.8	5.3	22	4.6	14.8	21	1.6	3.6	14
Agin	11.4	18.4		7.5	22.		14.75	47.5		13.6	31	
Brte	0	0		18.75	17.7		5.6	18.0		2.75	6.3	
Stco	15	7.6		2.5	2.3		.87	2.8		1.12	2.5	
LEPI	*	*	*	*	*		*	*		20.1	45.9	

*Not recorded by species but probably as UNK Forb (unknown forb), all values of 5 or less, % CANOPY COVER

STUDY #6035-5 Foothill Swale range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIES COMP	LITTER	%CANOPY COVER	%SPEC COMP	LITTER
Cela	.9	1.3	40	1.5	4	62	2.75	11.3	16	1.	2.3	28
Stco	5.6	7.8		2.8	7.5		.12	.5		1.5	3.5	

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Agsm	21.8	30.3		15.25	40.6		16.25	66.7		.75	1.7	
Chvi	11.5	16.		4.4	11.7		.87	3.6		4.25	9.8	
Brte	23.9	33.2		12.6	33.6		1	4.1		28.3	65.3	
Orhy	7.6	10.6		.1	.3		0	0		0	0	

4) 84 Mesa-

STUDY 6030-5 Rolling Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Pasm*	-	-	-	5.5	26	22	6.87	30.4	23	2.5	9.5	13
Artr	-	-	-	2.5	11.7		3.75	16.6		6.75	25.8	
Stco				-	-		2.0	8.8		.87	3.3	
CAREX				.9	4.2		2.75	12.2		1.87	7.1	

*Pasm, *Pascopyrum smithii* was previously named Agsm, *Agropyron smithii*

Boxelder- Dry Gulch winter area

STUDY #6030-4 (AGAR'S NOB) Loamy Slopes range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Cela	10.3	14.1	10	6	14.6	29	6	17.2	25	8.1	14.9	15
Agsm	24.2	33.2		16.8	41		19	54.6		7.4	13.7	
Stco	8.8	12.1		.3	.7		1.5	4.3		4.1	7.6	
Brte	0	0		.9	2.2		.12	.3		1.1	2.	
Depi	0	0		.1	.2		0	0		2.4	4.4	

Boxelder- summer range

STUDY # 6030-3 Mountain Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Agsm	4.4	6.4	23	-	-	-	-	-	-	2.25	2.8	20
Pofe	6.3	9.2		-	-	-	-	-	-	6.75	8.4	
Artr	20.3	29.7		-	-	-	-	-	-	35.3	44.2	

Square S Allotment- Pasture

Summer range

STUDY #6027-2C Loamy Slopes range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Kocr	14.1	16.5		.6	.8	22.8	-	-	-	.6	1	17.6

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Pofe	0	0		6.5	9.2		-	-	-	12.8	17.4	
Agsm	0	0		2.1	3.		-	-	-	2.4	3.2	
CAREX	0	0		2.8	4.		-	-	-	.12	.1	
Artr	33.5	39.3		31.8	45		-	-	-	33.2	45.1	

STUDY #6027-3C Mountain Loam range site

YEAR	1981			1987			1990			1995		
ATTR.	%CANOPYCOVER	%SPECIESCOMP	LITTER	%CANOPYCOVER	%SPEC COMP	LITTER	%CANOPY COVER	%SPECIESCOMP	LITTER	%CAN COV	%SPEC COM P	LITTER
Kocr	19.1	15.3	54	.5	.5	56	-	-	-	.25	.3	27
Stcol	17.4	13.9		1.7	1.9		-	-	-	1.6	1.8	
Agsm	0	0		1	1.1		-	-	-	2.4	2.7	
Amut	3.1	2.5		10.3	11.6		-	-	-	10.5	11.7	
Syor	15.6	12.5		13.7	15.5		-	-	-	11.1	12.4	
Artr	43.6	35.		30.2	34.1		-	-	-	29	32.3	

F. ANALYSIS OF TREND

Trend study data collected in 1981 and 1987 occurred in precipitation years that were very close to the long term average of 15.3 inches. However, both 1981 and 1987 were years in which April, May and June precipitation were significantly above average which typically has a positive effect on herbaceous plant production and cover. Partial trend data was collected in 1990. 1990 total precipitation of 12.48 inches was 18% below the long term average of 15.3 inches, so plant production and cover would reflect this. 1995 precipitation of 22.45 inches was 46% above average and more significantly, the distribution of this moisture in April, May and June (10.46 inches) created optimum conditions for plant production and cover which occur very infrequently.

The two Daubenmire transects on the Pinto Mesa key area (6035-1, 6035-2) show a decline in the cover and composition of both indian ricegrass and western wheatgrass. The trend in the cover of indian ricegrass is alarming as it is the key and preferred forage species for wild horses. Its decline as reflected on 6035-2 for 19.5% canopy cover in 1981 to 2.75% canopy cover in 1995 is a radical change and is diagnostic. The decline in cover of both indian ricegrass and western wheatgrass would likely drop this ecological site one full seral stage. an unacceptable decline. This change is the result of yearlong wild horse use at a high stocking rate. This maximizes the potential for repeat defoliation of key forage species such as indian ricegrass with no relief interval, leading to a high rate of plant mortality.

The Middle Barcus transect indicates a peak in condition at 1987 and a decline in the two key species indian ricegrass and needle and thread since that time. This site is used on a seasonal basis, primarily in the winter/early spring by both the Barcus and Greasewood horse herds.

The North Barcus key area Daubenmire transects are diagnostic. On the Foothill Swale range site, needle and thread declined continuously from 1981 and indian ricegrass declined to 1987 and then completely disappeared from the transect. Other, but not key, forage species showed a general favorable trend in attributes up to 1990 and a decline since that time. Also very apparent in 1995 was a major increase in annual pepperweed on the rolling loam range site and a corresponding increase in the undesirable annual, cheatgrass on the foothill swale range site. Both species reflect a disturbance regime that is probably grazing induced.

The 84 Mesa study established in 1987 showed an increase in key species trend up to 1990 and a decline since that time. This again is a seasonal range due primarily to water availability. The area is used by horses of both the Boxelder and Barcus herds.

The Dry Gulch Daubenmire (6030-4) showed a decline in the cover value of key species from 1981 to 1995. Winterfat declined to 6% canopy cover in 1987 and stabilized, then increased slightly in 1995. Its increase in cover in 1995 can best be attributed to unusually high June precipitation increasing its growth following the horse's migration from the area to their summer range. It is clear that this is the Boxelder herd's key winter area and management of horse numbers should be geared to no further sacrifice in range condition as expressed by the key species, winterfat and western wheatgrass.

The Boxelder summer range trend study showed a decline in the key species western wheatgrass. It should be noted that the site was already in a low seral stage when the study was established in 1981 due to elimination of the preferred bunchgrass species Columbia needlegrass and Letterman needlegrass due to heavy grazing pressure as a result of high horse stocking rates in the late 1970's, early 1980's in this area. All mutton bluegrass on the transect was under the canopy of mountain big sagebrush, and thus inaccessible to large grazers. This range site, in a degraded state when the study was established, shows a further decline as reflected by western wheatgrass and mountain big sagebrush.

The Square S, Pasture C trend studies reflect a similar trend to the Boxelder site although the data collected in 1987 indicates that range condition may have stabilized somewhat around 1987. The key bunchgrass species, junegrass and Columbia needlegrass both declined over the long term. Western wheatgrass acted as an increaser species on this site under intensifying grazing pressure, showing a slight increase in cover on both sites. The data from these studies indicates an improving trend toward 1987 and a decline since that time.

Ecological Site Inventory maps for the Piceance- East Douglas HMA are currently being finalized. The field work for the inventory was completed from 1991-1993. Data on vegetation production, species composition by weight and seral condition of range sites are expected to further substantiate the analysis of trend and utilization data here.

II. EVALUATION OF MONITORING

A. Management Objectives-

1) **Pertinent objectives from the Piceance Basin RMP**, the current land use plan are as follows. These objectives have been carried forward in the pending Final WRRR RMP.

- a) Maintain wild horse herds at a level consistent with the carrying capacity of the area while providing adequate forage for livestock and wildlife.
- b) Improve range condition in the Herd Management Area within 15 years.
- c) Maintain a moderate level of utilization (maximum of 60 percent) on key species that will allow for an increase in these species.
- d) Maintain a healthy, viable breeding population of wild horses.

2) Activity Plan Livestock Grazing Objectives-

There is no allotment specific activity plan for grazing management on the Yellow Creek Allotment so the general objectives from the Piceance Basin RMP (1986) apply.

Vegetation and watershed management objectives for Square S, Pasture C, Square S Allotment Management Plan are as follows:

Increase the composition and density of the key grass species:

<u>Avg. Tot. Density</u>	<u>Objective Tot. Density</u>
16%	20%

Objective Key Grass

Key Grass Spec. Comp.-% Species Comp.-%

8%

15%

3) Piceance- East Douglas Herd Management Area Plan Objectives-

a) Maintain wild horse herds at a level consistent with the carrying capacity for the area while providing for adequate forage for livestock and wildlife. The other two objectives are identical to objectives b) and c) above in the Piceance RMP.

Under planned actions, the Piceance RMP prescribes maintenance of a population between 65-100 horses. Excess horses are to be removed periodically as determined necessary.

In both the RMP and HMAP, utilization is indicated as the key planned action on which to base population adjustment.

General objectives for livestock grazing management are:

1. Maintain or improve present plant composition where rangeland condition is presently fair. Rangeland condition will be improved on all areas presently in unsatisfactory (poor) condition.
2. Fifty percent of the forage on these lands is allocated to the predominant consumptive users: livestock, big game wildlife and wild horses. The remaining vegetation production is reserved for plant maintenance, no game and small game wildlife, and water shed protection.

4) White River Resource Area RMP

Management objectives in the pending Final WRRR RMP essentially restate those found in the Piceance RMP with respect to wild horses. Vegetation objectives in the WRRR RMP are expressed in terms of range/ecological sites and the appropriate Desired Plant Community for a given site. Management of a site *above* its conservation threshold and improvement of unhealthy/at risk rangelands are two key criteria for selection/management for the Desired Plant Community. Low seral sites in both big sagebrush and mountain shrub plant communities are targeted for improvement.

III MANAGEMENT EVALUATION

1) In reference to the HMAP objective of maintaining a healthy, viable breeding population of wild horses, this objective has obviously been met and exceeded. The estimated 1996 effective population of 414 is the highest recorded.

2) In reference to the HMAP and Piceance RMP objectives of b) improving range condition and c) maintaining a moderate level of utilization that will allow for an increase in key species, the data indicates that the former has not been achieved since the mid 1980's. For the latter, 1995 utilization studies show heavy and severe levels of use in key areas. The primary reason for this is our failure to manage horse numbers and thus, their forage removal within the Piceance part of the Piceance _ East Douglas HMA. Both trend and utilization data demonstrate this. While other management factors have remained relatively static, the horse population in the subject area has climbed from 79 in 1985 to the present estimate of 414. This represents a **fivefold** increase in stocking rate, and compounded by the continuous yearlong use of areas such as Pinto Mesa, is the primary reason for a rapid decline in desirable vegetation attributes as described in the Daubenmire trend studies. Horse forage utilization levels will have to be maintained at a light (40% or less) level for a sustained period of time to provide for an improvement in key species trend.

Our failure to properly manage horse numbers has been the result of 1) budgetary restraints, 2) the policy of turning back onto the range older, unadoptable horses (Because of this in the 1992-1994 horse removals, for every 3 horses gathered, 1 was returned to the range) and, 3) we simply have not removed enough horses to keep up with the

accelerated rate of population increase. It appears now that we must gather 85% of the existing population to bring horse stocking rates to a level which will provide for an improvement in range trend and ecological condition. This level, by nature must be conservative, because of : a) continuous yearlong use of some key areas, and b) trend data indicates that we have gone over the conservation threshold on some range sites. This approach was recommended by the **Final Report, Committee on Wild and Free Roaming Horses and Burros, National Academy of Sciences, 1982**. In fact, they recommended stocking based on 65-80% of *average* forage production in the case of over utilized horse ranges. They pointed out that stocking decisions were more often made on the basis of range trend information than based on a capacity determination. Their rationale for the conservative stocking level was that it would provide relief to preferred forage species, allowing for their conservation and recovery.

3) Livestock grazing objectives as specified in the Piceance RMP and the Square S AMP have not been met. This is directly attributable to: 1) increasing horse stocking rates and 2) increasing continuous yearlong use of key species as a result of 1).

4) **Management Recommendations:** Remove wild horses until a population of 90- 120 is attained. If this cannot be accomplished in 1996, continue removal operations until this number is attained. Maintain the population of 90-120 for a minimum of 5 years while continuing monitoring studies on wild horse key areas. The 90- 120 population management level is based on a correlation of trend data and extrapolation of 1985 census data which arrives at a 1987 population of 113 as indicated below.

1987 POPULATION AND FORAGE USE BY UNIT

HMA UNIT	ESTIMATED POPULATION#	FORAGE USE (AUMS)
ROCKY RIDGE	27	405
BARCUS-PINTO	17	255
BOXELDER	38	570
PASTURE C-SQUARE S	31	465
PICEANCE TOTAL	113	1695

POPULATION ESTIMATE BASED ON 1985 CENSUS PLUS .2 ANNUAL INCREASE

The population distribution (herd numbers) should correspond to the table and should be as follows:

Rocky Ridge	30 horses
Barcus- Pinto	20 horses
Boxelder	35 horses
Pasture C, Square S	30 horses

These numbers also correspond to the HMAP recommendation for herd size in the specific units above. The 1987 population data was used because trend data indicates that there had been an improvement in key species from 1981 on most range sites up to 1987. In addition, since range trend studies indicate that most key areas within the Piceance part of the Piceance- E. Douglas HMA are not being maintained above the site conservation threshold, it is appropriate to manage for a conservative stocking rate as indicated above. It should be noted that the Piceance RMP management level of 65- 100 horses was substantially correct and was consistent with improving condition of most key range sites. We simply failed to follow it.

Monitoring, both of trend and utilization should continue to focus on wild horse use key areas. Daubenmire canopy cover trend transects should be read at a minimum three year interval barring erratic precipitation conditions. Future management should be based on evaluation of that data and its correlation with the final Ecological Site Inventory information for the Piceance- East Douglas HMA (expected completion 4/15/96).

PREPARED BY: Mark Hafkenschiel
RANGELAND MANAGEMENT SPECIALIST

APPROVED BY: John J. Mehlhoff
AREA MANAGER

**APPENDIX G
INTERESTED PUBLIC**

Senator Al White
Bill Barnard
Jack Barnett, CRBSCF
Patti Barney
Thomas Berry
Mark Bishop, Sombrero Ranches Inc
Geoff Blakeslee, Carpenter Ranch
County Commissioners, Rio Blanco County
Deniz Bolbol, Wild Horse Defenders
Sharen Branch
Gary Brannon
Buckles Ranch
Dale and Dean Burke
Judy Cady, Friends of the Mustangs
Donna Caplan
Colorado Cattlemen's Assoc
Colorado Division of Wildlife, Bill DeVergie
Colorado Division of Wildlife, Terry Wygant
Jeff Comstock, Moffat County Dept Resources
Ed Coryell, Brand Inspector
Wade Cox, Cox Bros Land and Livestock
Kirk Cunningham, Conserv Chair Rocky Mountain
Jimmie and Joy Dearman
T. Wright Dickinson, NW Resource Adv Council
Matt Dillon, Pryor Mtn Wild Mustang Center
Betsy Director, Uintah/Ouray Agency
Craig Downer
Barb Evens, Friends of the Mustang
Patricia A. Fennell
Barb Flores, American Mustang & Burro Assoc
Gail Fox
Friends of the Mustangs
Nancy A. Lindley-Gauthier, The Prancing Pony
Rodeo and Marilyn Harbottle
Jon Hill, Cripple Cowboy Cow Outfit
Dave Hillberry
Marji Herrmann, El Paso Oil and Gas
Humane Society of America, Wildlife Habitat
Protection
Darynne Anna Jessler
Allison Jones, Wild Utah Project
Clayton Karran
Ginger Kathrens, The Cloud Foundation
Frank and Ginger Kime, Kime Ranch
Jauson King
Audrey Kipp
Bonnie Kline, CO Wool Grower's Assoc
Tamara Lackey, Political Voice for Animals
Patricia Lane, HSUS
Dawn Lappin, WHOA
Andrea Lococo
Longhopes Donkey Shelter
Mike Lopez
Cindy MacDonald

Tim Mantle
Mike Marinovich, CE Brooks & Associates, PC
John Marvel, Western Watersheds Project
Tina Mavor, Mile High Mustang Club
Ed McLain, Encana Oil and Gas (USA) Inc
Cindy Meyer
Mile Hi Mustangs
Jim Miller, Dept of Agriculture
Toni Moore
Reed Morris, CO Environmental Coalition
Maxine Natchees, Tribal Council
Roby Nichols, Debeque Wild Horse Council
Don O'Banion, Friends of the Mustangs
Michael H. Palmer
Christopher M. Papouchis, API
Wayne Pennell
Leah and Robert Plant
Lisa Pollard and Gabrielle Elliott
Rangely Town Government
Dan Rathburn
Timothy Reynolds, Tim & Randy Ecology Co
Dave Robertson, Twin Buttes Ranch
Erin Robertson, Center for Native Ecosystems
Own Robertson
Scott Robertson
Samantha Rolando, American Humane Assoc
Randy Russell, Garfield County Planning Office
Bob Schmidt
Jerry Schmutzler
Mary Schoknecht
Richard Sewing, National Mustang Assoc
Monty Sheridan
Roger Smith
Steve Smith, Western CO Congress
Vera Smith, Public Lands Policy
Valerie Stanley, Animal Legal Defense Fund
Stirrup Cup Farm, LLC
Matt Sura
Karen Sussman, ISPMB
Patti Temple
Nick Theos Family Ltd
LR Pat Thompson, Thompson Ranch
Karen Thymes, Political Voice for Animals
Barbara Warner
George Wenschhof
Celia E. Wetherill
Wild Horse Observers Assoc
The Wilderness Society, Regional Director
Lonnie Williamson, Wildlife Management Institute
Larry and Jane Yazzie
Ted Zukoski, Attorney, Earth Justice
The Cloud Foundation
Amy Hadden Marsh
Animal Welfare Institute, Chris Heyde