SOUTH STEENS HERD MANAGEMENT AREA POPULATION MANAGEMENT PLAN

ENVIRONMENTAL ASSESSMENT
DOI-BLM-OR-B070-2013-0027-EA

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July 22, 2015

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CHAPTER I. INTRODUCTION, PURPOSE OF AND NEED FOR ACTION

A. Introduction

The Burns District Bureau of Land Management (BLM) proposes to gather and remove excess wild horses and implement population control measures on wild horses from the South Steens Herd Management Area (HMA) in order to achieve a thriving natural ecological balance and manage the wild horse population within appropriate management level (AML) over a 10-year time frame. Various methods of gathering and removal of wild horses are available (i.e. helicopter-drive trapping, bait/water trapping, and horseback-drive trapping). The method(s) to be used would be determined by the authorized officer.

Figure 1: Photo example of helicopter-drive trapping.

Figure 2: Basic bait trap set up. A water trap would be set up the same way but around water. This photo shows the gates tied back to allow horses/burros time to get used to going in and out of the trap. After several days the far gate is closed and a trip wire set across the middle of the pen that will close the gate in the foreground.

South Steens HMA is located in Harney County, Oregon approximately 75 miles south of Burns, Oregon (Appendix A - Vicinity Map). The HMA contains 126,732 acres of BLM-managed land and is bordered by Catlow Valley to the west and the top of Steens Mountain to the east. Topography varies from slightly rolling hills to steep, mountainous country. Elevation varies from approximately 4,000 to 7,400 feet. Precipitation ranges upwards of 20 inches annually and comes mainly in the form of snow. Temperatures vary from -40°F in winter to 95°F in summer.

1. Purpose of and Need for Action

The purpose of the action is to return and maintain the wild horse population within the established AML on South Steens HMA, protect rangeland resources from deterioration associated with overpopulation, and restore a natural ecological balance and multiple use relationship on public lands in the area consistent with the provisions of Section 1333(b)(2) of the Wild Free-Roaming Horse and Burro Act (WFRHBA) of 1971. The need for action is to achieve a thriving natural ecological balance on public lands; manage wild horses in a manner that assures significant progress is made toward achieving Land Health Standards for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations; as well as other site-specific or landscape-level objectives (discussed below), including those necessary to protect and manage Threatened,

Endangered, and Sensitive Species (H-4700-1, 4.1.5). Wild horse herd health is promoted by achieving and maintaining a thriving natural ecological balance. The Steens Mountain Cooperative Management and Protection Area (CMPA) Record of Decision (ROD) and Resource Management Plan (RMP) and the Andrews Management Unit (AMU) ROD/RMP (both August 2005) set a goal to "Manage and maintain healthy wild horse herds in established HMAs at AMLs to maintain a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values…" (RMP-50) and allocated an AML of 159 to 304 wild horses in the South Steens HMA (RMP-51). The 2014 South Steens Allotment Management Plan (AMP) Environmental Assessment (EA) Decision states grazing "will conform to the utilization maximum of 50% for native key forage species (averaged within each pasture and including wild horse and wildlife use)…" (p.13); this target aids in determining the need for action to maintain a thriving natural ecological balance. Based on utilization monitoring, excess wild horses are contributing to excessive utilization of herbaceous forage species within certain portions of the HMA. Specifically, utilization monitoring in known horse use areas indicate by May 2012, horse use in Hollywood Pasture was 45 percent; by May 2013, horse use in Hollywood Pasture was 47 percent; by early April 2014, in the main horse use area of Tombstone Pasture utilization was 42 percent; and August 2013 horse use was severe (> than 81 percent) on Three Springs riparian vegetation.

Landscape-level Objectives

CMPA ROD/RMP (2005, RMP-50) and the AMU ROD/RMP (2005, RMP-50).

Wild horse objectives are the same for each stated land use plan (LUP) above with management direction specific to the land base covered by each plan. The relevant objectives and actions follow.

a. Designate/retain/adjust HMAs.
b. Designate/retain/adjust Herd Areas (HA) in inactive status.
c. Maintain/adjust AMLs and yearlong forage allocations for each HMA.
d. Maintain a thriving natural ecological balance within HMAs.
e. Maintain/improve year-round water sources to sustain wild horse herds.
f. Maintain herd viability, genetic diversity, and the genetic and physical characteristics that distinguish individual herds.

Management Direction

The CMPA and AMU RODs/RMPs and Wilderness/Wild and Scenic River (WSR) Plan (2005):

- "Wild horse numbers are managed through gathering, removal, and other approved methods of population control. The initiation of gathering or other methods of population control are based on census data, herd health,

rangeland health, productivity (as determined by rangeland monitoring studies), climatic conditions, and occurrence of catastrophic events such as wildland fire and drought. Wild horse numbers are normally reduced to the low end of the AML range when gatherings are conducted" (RMP-50, RMP-52, and P-49, respectively).

- "A diverse age structure and sex ratios ranging from 40 to 50 percent female and 50 to 60 percent male will be maintained. Wild horses returned to the HMA after a gather will possess representative characteristics of herd conformation, size, color, and unique markings" (RMP-51, RMP-52, not in Wilderness/WSR Plan).

- "Permanent increases or decreases in AML and forage allocations will be considered if analysis of monitoring data indicates changes in long-term forage availability" (RMP-50, RMP-51, and P-49, respectively).

2. Decision to be Made

The BLM's authorized officer will decide whether or not to gather and remove excess wild horses, whether to implement population control measures, and what method(s) to use for each. The decision would affect wild horses within (and those that have strayed outside) the South Steens HMA. The BLM's authorized officer's decision would not set or adjust AML nor would it adjust livestock use, as these were set through previous decisions.

B. Land Use Plan Conformance

The Proposed Action and all action alternatives are in conformance with the goals, objectives, and management directions from the CMPA ROD/RMP (2005, RMP-50), the AMU ROD/RMP (2005, RMP-50) and the Steens Mountain WSRs Plan (2005, P-49), even though they are not specifically provided for, because they are clearly consistent with the following land use decisions and they are clearly consistent with the decisions outlined above under purpose and need for action.

C. Conformance with Laws, Regulations, and Policy

The Proposed Action and all action alternatives have been designed to conform to State, Tribal, Federal, and local land use plans, regulations, consultation requirements, and other authorities which direct and provide the framework and official guidance for management of BLM lands within the Burns District:

1. Wild Free-Roaming Horses and Burros Act of 1971 (Public Law (PL) 92-195) as amended.
2. Wild Free-Roaming Horse and Burro Management (43 Code of Federal Regulations (CFR) 4700). The following are excerpts from 43 CFR 4700.

a. 4720.1 - Removal of excess animals from public lands. "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…"

b. 4710.3-1 - Herd Management Areas. "Herd Management Areas shall be established for maintenance of wild horse and burro herds."

c. 4740.1 - Use of motor vehicles or aircraft. "(a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner. (b) 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."

3. BLM Wild Horses and Burros Management Handbook, H-4700-1 (June 2010).
4. BLM Manual 6330 - Management of Wilderness Study Areas (WSA) (2012).
5. BLM Manual 5340 - Management of Designated Wilderness Areas (2012).
6. Wilderness Act, PL 88-577 (September 3, 1964).
7. Steens Mountain WSRs Plan Appendix P - CMPA and AMU RMPs/RODs (August 2005).
8. National Environmental Policy Act (NEPA) (42 U.S.C. 4321-4347, 1970).
9. BLM NEPA Handbook, H-1790-1 (January 2008), Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1701, 1976), Section 302(b) of FLPMA, states, "all public lands are to be managed so as to prevent unnecessary or undue degradation of the lands."
10. Public Rangelands Improvement Act (43 U.S.C. 1901, 1978).
11. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the States of Oregon and Washington (1997).
12. Greater Sage-Grouse and Sagebrush-steppe Ecosystems Management Guidelines (BLM 2001),
13. BLM National Sage-Grouse Habitat Conservation Strategy (2004).
14. Greater Sage-Grouse Conservation Assessment and Strategy for Oregon (Hagen 2011).
15. Local Integrated Noxious Weed Control Plan (EA-OR-020-98-05, 1998).
16. Vegetation Treatment Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Final Environmental Impact Statement (FEIS) (2010) and ROD (2010).
17. Steens Mountain Travel Management Plan (TMP) (EA OR-05-027-021, 2007).
18. Steens Mountain Cooperative Management and Protection Act of 2000 (PL 106-399).
19. South Steens AMP (EA-OR-06-027-060, 2014).
20. Oregon Department of Environmental Quality (ODEQ) Laws and Regulations.
21. State, local, and Tribal laws, regulations, and land use plans.

22. All other Federal laws relevant to this document, even if not specifically identified.

D. Scoping and Identification of Issues

On April 12, 2013, the BLM mailed a scoping letter to interested individuals, groups, and agencies regarding the proposed removal of excess horses from the South Steens HMA. The scoping letter was also posted on the Burns District BLM planning webpage at www.blm.gov/or/districts/burns/plans/index.php. Letters and e-mails were received from 9,902 individuals and groups during the 15-day comment period. The issues identified in those letters and e-mails, along with issues identified during interdisciplinary team (IDT) meetings and through contact with other agencies, have been addressed by the BLM IDT.

1. Issues for Analysis

The following issues were raised by the public or BLM staff, or both, and are considered in detail in this EA.

a. *Could bait and/or water trapping alone be used in place of helicopter gathers?*
Addressed in Appendix D, Issues Considered but Not Analyzed in Detail.

b. *Will the public be notified and able to attend bait trapping?*
Addressed in Chapter II.A.1, Project Design Features Common to All Action Alternatives (A–D).

c. *How does permanent sterilization of horses change their behavior?*
Addressed in Chapter III.A.1, Wild Horses, Alternative C.

d. *What is the definition of "thriving natural ecological balance"?*
Addressed in Chapter I.A.1, Purpose of and Need for Action.

e. *How will BLM avoid undue stress to foals and elderly horses during helicopter gathers?*
Addressed in Appendix B, Wild Horse and Burro Gathers: Comprehensive Animal Welfare Policy (Instruction Memorandum (IM) No. 2013-059).

f. *How much will the proposed gather cost versus alternate methods to manage wild horse numbers (e.g. bait trapping, long-term fertility control.)?*
Addressed in Chapter III.A.7, Social and Economic Values.

g. *What time of year would helicopter gathers occur?*
Addressed in Chapter II.A.1, Project Design Features Common to All Action Alternatives (A–D).

h. *What time of year would bait and water trapping be conducted?*
Addressed in Chapter II.A.1, Project Design Features Common to All Action Alternatives (A–D).

i. *Has the use of PZP been effective at population management of the South Steens herd in the past?*
Addressed in Chapter II.A.1, Wild Horses, Alternative A.

j. *How can volunteers be used to accomplish population management actions for wild horses?*
Addressed in Appendix D, Issues Considered but Not Analyzed in Detail.

k. *Can the following data be included in the EA:*
(1) *previous census data;*
Addressed in Chapter III.A.1, Wild Horses.
(2) *a breakdown of forage allocations in the South Steens HMA to livestock;*
Addressed in Chapter III.A.3, Livestock Grazing Management.
(3) *wildlife*;
Addressed in Chapter III.A, Wildlife and Locally Important Species.
(4) *wild horses*;
Addressed in Chapter III.A.1, Wild Horses.
(5) *actual livestock use for the past ten years;*
Addressed in Chapter III.A.3, Livestock Grazing Management.
(6) *all fencing in the HMA*;
Addressed on Appendix F, HMA Map.
(7) *all available genetic testing reports;*
Addressed in Chapter III.A.1, Wild Horses.
(8) *comprehensive rangeland health studies;*
Addressed in Chapter III.A.2, Fisheries and Special Status Species - Fish, Riparian Zones, Wetlands, and Water Quality *and* in Chapter III.A.3, Livestock Grazing Management.
(9) *all available water sources on private and public land*;
Addressed in Appendix G, South Steens HMA Reliable Water Map.

l. *If deemed necessary, how and why would a horse be euthanized?*
Addressed in Appendix C, Euthanasia of Wild Horses and Burros for Reasons Related to Health, Handling and Acts of Mercy (IM No. 2009-041).

m. *How will BLM maintain the genetic diversity and health of the South Steens herd*?
Addressed in Chapter II.A, Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).

n. *Can wild horses found outside the HMA boundary be relocated to the HMA instead of removing them*?
Addressed in Chapter II.A, Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).

o. *What is the percentage of mares that need to be vaccinated with PZP for it to be effective as a population control method?*
Addressed in Chapter II.A, Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).

p. *Can only select young animals be removed so they are more likely to be adopted?*
Addressed in Chapter II.A, Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).

q. *Can an adaptive management plan be in place to react to changing conditions and situations to alter management of wild horse numbers on a year to year basis?*
Addressed in Chapter II.A, Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).

2. Issues Considered but not Analyzed

Issues considered but not analyzed can be found in Appendix D.

CHAPTER II. PROPOSED ACTION AND ALTERNATIVES

This section of the EA describes the Proposed Action and reasonable alternatives, including alternatives that were considered but eliminated from detailed analysis. Reasonable alternatives are practical or feasible from the technical and economic standpoint and using common sense. The Proposed Action and alternatives represent a reasonable range to cover the full spectrum of alternatives which meet the purpose and need. Five alternatives are considered in detail.

- Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*).
- Alternative B: Alternative A *without* Applying Available and Approved Fertility Treatment.
- Alternative C: Alternative A *plus* Geld Up to 30 Return Stallions.
- Alternative D: Gate Cut Removal
- Alternative E: No Action - Defer Gather and Removal

All action alternatives (A–D) were developed to respond to the identified resource issues and the purpose and need to differing degrees. Alternative E, No Action, would not achieve the identified purpose and need, however, it is analyzed in this EA to provide a basis for comparison with all action alternatives and to assess the effects of not conducting a gather. Alternative E, the No Action Alternative, does not conform to the WFRHBA which requires the BLM to immediately remove excess wild horses.

A. Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*)

Alternative A is designed to manage wild horse populations over a 10-year time frame and would incorporate two to three gather cycles. Implementation of the Proposed Action would begin in the fall of 2015.

Based on the June 2012 census which counted 383 horses and assuming a 20 percent population growth rate, the estimated wild horse population by fall 2015 would be approximately 662 adult wild horses (plus 132 foals). An exact annual population growth rate is not available for this herd so a 20 percent population growth rate is used based on the National Academy of Sciences (NAS) (2013) explanation that growth rates approaching 20 percent or even higher are realized in many horse populations (p. 55). This annual population growth rate includes both survival and fecundity rates (NAS 2013, p. 55). The first portion of the Proposed Action would be to gather 90 percent of the total wild horse population and remove excess horses down to the low end of AML. Ninety percent of the herd is gathered in order to (1) select horses to return to the HMA to re-establish the low end of AML and (2) remove excess wild horses that would be prepared for the adoption program. This would mean if horses were gathered in 2015, approximately 715 horses, roughly 90 percent of the estimated herd size based on current estimates, would be gathered using the helicopter-drive method. Approximately 503 excess adult wild horses would be removed from the South Steens HMA, included those that have strayed outside the HMA boundary, to re-establish the herd size at the low end of AML (159 animals). For future helicopter gathers under this 10-year plan, the number of horses gathered and excess removed would be adjusted based upon the estimated herd size and the number of excess horses determined at the time of the gather. Each helicopter gather would take approximately 1 week. BLM would plan to gather as soon as holding space becomes available and BLM's Washington D.C. Office gives authorization. The gather would be initiated following public notice on the Burns District webpage http://www.blm.gov/or/districts/burns/index.php. No horses found outside of the HMA would be returned to the range.

Bait/water, horseback-drive, and helicopter-drive trapping would be used as tools to remove excess horses in areas where concentrations of wild horses are detrimental to habitat conditions or other resources within the HMA, to remove wild horses from private lands or public lands outside the HMA boundary, to selectively remove a portion of excess horses for placement into the adoption program, or to capture, treat, and release horses for application of fertility control. Bait/water, horseback-drive, or helicopter-drive trapping would be conducted as needed between normal helicopter-drive gather cycles. Bait/water, horseback-drive, and helicopter-drive trapping operations could take anywhere from 1 week to several months depending on the amount of animals to trap, weather conditions, or other considerations. Operations would be conducted either by contract or BLM personnel. Refer to Table 1 for a summary of the proposed methods of capture of wild horses for removal, relocation, and/or application of fertility treatment.

Table 1: Proposed Action Methods for Capturing Horses for Removal, Relocation, and/or Application of Fertility Treatment

Method	Reason	When
Helicopter drive gather	To remove excess horses to maintain AML.	Once excess horses are determined; typical gather cycle is every 4–5 years.
Helicopter-drive trapping	To remove or relocate wild horses when concentrations are causing detriment to habitat conditions or other resources within the HMA.	As needed between normal helicopter-drive gather cycles.
Bait/water trapping	To selectively remove a portion of excess horses for placement in the adoption program.	
Horseback-drive trapping	To capture, treat, and release horses for application of fertility control.	

Site-specific removal criteria were never set for South Steens HMA; therefore, animals removed from the HMA would be chosen based on a selective removal strategy set forth in BLM Manual Section 4720.33. Wild horses would be removed in the following order: (1) First Priority: Age Class - Four Years and Younger; (2) Second Priority: Age Class - Eleven to Nineteen Years; (3) Third Priority: Age Class - Five to Ten Years; and (4) Fourth Priority: Age Class - Twenty Years and Older (which should not be permanently removed from the HMA unless specific exceptions prevent them from being turned back to the range). In general, this age group can survive in the HMA, but may have greater difficulty adapting to captivity and the stress of handling and shipping if removed. BLM Manual Section 4720.33 further specifies some animals that should be removed irrespective of their age class. These animals include, but are not limited to, nuisance animals and animals residing outside the HMA or in an area of an inactive Herd Area (HA). One caveat to these selective removal criteria would be the release of existing geldings back to the HMA. Following the last gather in 2009, 15 stallions were gelded and released back into the HMA. If recaptured during future gather operations, these geldings would be returned to the range regardless of age.

Captured wild horses would be released back into the HMA under the following criteria:

- Released horses would be selected to maintain a diverse age structure of 80 mares and 79 stallions (159 total = low AML); approximately a 50/50 sex ratio.

- Released horses would be selected to maintain the saddle horse conformation. The most common colors of pinto-variations, buckskins, duns, and red duns would have higher priority over the less common colors present.

- Approximately 60 mares (75 percent), age two or older, would be selected to be returned to the HMA after receiving fertility control treatment. These mares would be transported to the Burns Wild Horse Corrals Facility (Burns Facility) where they would receive the first injection (primer dose) of their 2-injection native porcine zona pellucida (PZP) treatment. PZP is the most common form of immuno-contraception which stimulates the production of antibodies that bind sperm receptors on the egg's surface, thereby preventing sperm attachment and fertilization (AG Sacco 1977, Nunez et al. 2010). Mares would be held at the Burns Facility on hay and water for 2–6 weeks until given the second liquid PZP injection as well as 3- and 12-month time-release pellets (PZP-22). This holding period is derived from The Science and Conservation Center's protocol for initial PZP treatment (2006). Mares treated with PZP would be documented via physical description or would be hip marked for future identification. Refer to Figure 3 for a photo example of PZP application in a mare. The BLM would then return the mares to the HMA. After an initial primer and booster vaccination, any mare captured during future gather operations would receive a booster of native PZP or time release pellets and be immediately returned to the range, unless population objectives could not be achieved without the removal of a previously treated mare. This type and method of fertility control treatment would be used in the initial gather but may be adjusted as advancements are made with available and approved fertility control treatments and methods. PZP would be administered following IM No. 2009-090, Population-Level Fertility Control Field Trials: Herd Management Area Selection, Vaccine Application, Monitoring and Reporting Requirements.

Figure 3: Photo example of PZP application in a mare.

Post-gather, every effort would be made to return released horses to the same general area from which they were gathered.

BLM proposes 1 to 2 future gathers, 4 to 5 years following the initial proposed gather, over a period of the next 10 years (following the date on the Decision Record (DR) for this document). This 10-year timeframe enables BLM to determine the effectiveness of the Proposed Action at successfully maintaining population levels within AML in South Steens HMA. During the 10-year time frame, helicopter gathers would be carried out under the same (or updated) Standard Operating Procedures (SOP) as Appendix B (IM No. 2013-059) and the same selective removal criteria, population control measures, release criteria, and sex ratio adjustment strategies would be applied as described in the section above. Adaptive management would be employed that incorporates the use of the most promising methods of fertility control (as long as they are approved for use and available). Future gather dates and target removal numbers for gathers within the next 10 years would be determined based on future population surveys and a determination that "excess" horses exist within the HMA. A notice to the public would be sent out 30 days prior to any future gather.

Following the initial proposed gather to return the population to within AML, adaptive management would be used to maintain a thriving natural ecological balance with periodic gathers within the HMA over the next 10 years. "Adaptive management is about taking action to improve progress toward desired outcomes." (www.doi.gov/initiatives 2007). Knowing that uncertainties exist in managing for sustainable ecosystems and healthy wild horse populations, adjustments to the location and populations of wild horses within the HMA would be implemented. To supplement helicopter-drive trapping,

bait/water or horseback-drive trapping would be used to relocate or remove horses outside the HMA or to reduce wild horse numbers in areas experiencing heavy utilization levels (>50 percent current year's standing crop) or other documented resource damage due to excessive concentrations of wild horses. Bait/water or horseback-drive trapping could also be used to apply fertility control to reduce the population growth rate between gathers.

1. Project Design Features Common to All Action Alternatives (A–D)

- Time frame for comparison of all action alternatives is 10 years.

- Helicopter-drive gather and remove operations would take approximately 7 days to complete. Several factors such as animal condition, herd health, weather conditions, or other considerations could result in adjustments in the schedule.

- Helicopter gather operations would be scheduled any time from July 1 through February 28 in any year and would be conducted under contract.

- Trap sites would be approximately 0.5 acre in size.

- Trap sites would be selected in areas where horses are located to the greatest extent possible and would follow the appropriate Wilderness and WSA guidance set forth in BLM Manual 6340 Section 1.6(C)20(d) (pp. 1–55) and BLM Manual 6330 Section 1.6(C)10(iii) (pp. 1–36).

  In WSAs, traps would be set up on primitive routes. No new routes would be created to access a trap site.

  Currently wild horses are known to reside in the Steens Mountain Wilderness west of Lauserica Road and east of the Donner und Blitzen River outside the HMA boundary (near Cold Springs area). Horses are not known to reside in the Steens Mountain Wilderness east of Donner und Blitzen River inside the HMA boundary at this time but they have been there in the past (e.g. 20 horses were observed in this area during the July 2004 census and one horse was observed in this area during a 2009 Oregon Department of Fish and Wildlife (ODFW) flight).

- Trap sites and temporary holding facilities would be located in previously used sites or other disturbed areas whenever possible. These areas would be seeded with a seed mix appropriate to the specific site if bare soil exceeds more than 10 square yards per location. The seed applied on sites within WSA and wilderness would be a mix of native species while sites outside WSA would be seeded with a mix of desirable non-native species.

- Undisturbed areas identified as trap sites or holding facilities would be inventoried, prior to being used, for cultural and botanical resources. If cultural or botanical resources are encountered, these locations would not be utilized unless they could be modified to avoid effects to cultural resources.

- Trap sites and temporary holding facilities would be surveyed for noxious weeds prior to gather activities. Any weeds found would be treated using the most appropriate methods. All gather activity sites would be monitored for at least 2 years post-gather. Any weeds found would be treated using the most appropriate methods, as outlined in the 1998 Burns District Weed Management EA, or subsequent documents.

- All vehicles and equipment used during gather operations would be cleaned before and following implementation to guard against spreading of noxious weeds.

- Efforts would be made to keep trap and holding locations away from areas with noxious weed infestations.

- Gather sites would be noted and reported to range and weed personnel for monitoring and/or treatment of new and existing infestations.

- Maintenance may be conducted along roads accessing trap sites and holding facilities prior to the start of gather operations to ensure safe passage for vehicles hauling equipment and horses to and from these sites. Any gravel required for road maintenance is to be certified weed-free gravel. Road maintenance would be done in accordance with the Steens Mountain Travel Management Plan (TMP) (2007) or subsequent decisions. A required 30-day notice of road maintenance on Maintenance Intensity (MI) 1 Roads within the CMPA would be placed on the Burns District BLM website (http://www.blm.gov/or/districts/burns/index.php) as a press release. No road maintenance will occur on ways (routes within WSAs) or closed roads in wilderness.

- Gather and trapping operations would be conducted in accordance with the SOPs described in the Wild Horse and Burro Gathers: Comprehensive Animal Welfare Policy (IM No. 2013-059) which was created to establish policy and procedures to enable safe, efficient, and successful wild horse gather operations while ensuring humane care and treatment of all animals gathered (Appendix B).

- An Animal and Plant Health Inspection Service (APHIS) veterinarian would be onsite during the gather, as needed, to examine animals and make recommendations to BLM for care and treatment of the wild horses.

- Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office (WO) IM 2009-041). Current policy reference: http://www.blm.gov/wo/sT&En/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html.

- On all horses gathered (removed and returned), data including sex and age distribution would be recorded. Additional information such as color, condition class information (using the Henneke 1983 rating system), size, disposition of the animal, and other information may also be recorded.

  Excess animals would be transported to the Burns Facility via semi-truck and trailer where they would be prepared (freeze marked, vaccinated, and dewormed) for adoption, sale (with limitations), or long-term pasture.

- Hair samples would be collected to assess genetic diversity of the herd, as outlined in WO IM 2009-062 (Wild Horse and Burro Genetic Baseline Sampling). Hair samples would be collected from a minimum of 25 percent of the post gather population (approximately 40 horses).

- Public and media management during helicopter gather and bait trapping operations would be conducted in accordance with WO IM 2013-058 (Wild Horse and Burro Gathers (WH&B): Public and Media Management). This IM establishes policy and procedures for safe and transparent visitation by the public and media at WH&B gather operations, while ensuring the humane treatment of wild horses and burros.

- Emergency gathers: BLM Manual 4720.22 defines an emergency situation as an unexpected event that threatens the health and welfare of a wild horse or burro population, its habitat, wildlife habitat, or rangeland resources and health. Emergency gathers may be necessary during this 10-year time frame for reasons including disease, fire, insect infestation, or other events of catastrophic nature and/or unanticipated natural events that affect forage and water availability for wild horses. Emergency gather operations would follow the project design elements described in this section.

2. Monitoring

The BLM Contracting Officer's Representative (COR) and Project Inspectors (PI) assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the Gather SOPs (Appendix B) (applies to all action alternatives).

Ongoing monitoring of forage condition and utilization, water availability, and animal health as well as aerial population surveys would continue on the South Steens HMA (applies to all alternatives). Aerial inventories are conducted every 2–3 years for each HMA on Burns District. Population estimates for South Steens will be updated as inventories are conducted in the future.

Genetic monitoring would also continue following gathers and/or trapping. If genetic monitoring indicates a loss of genetic diversity, the BLM would consider introduction of horses from HMAs in similar environments to maintain the projected genetic diversity (applies to all action alternatives A–D).

Fertility control monitoring would be conducted in accordance with the Population-level Fertility Control Treatments SOPs (Appendix E). (applies to Alternative C as well).

B. Alternative B: Alternative A ***without*** Applying Available and Approved Fertility Treatment

Alternative B would follow the same actions proposed in Alternative A (proposed action) with the exception of applying fertility treatment. None of the animals returned to the HMA would have any fertility treatments conducted on them.

C. Alternative C: Alternative A ***plus*** Geld Up to 30 Return Stallions

BLM's 2011 Proposed Strategy for Future Management of America's Wild Horses and Burros set forth goals, objectives, and management actions for sustainable herds. One objective was to "Use a wide range of fertility control and other population control measures to slow herd growth rates and better align the number of excess [wild horses] which need to be removed with the number of animals that can be placed in private care" (Proposed Strategy 2011). Action 4 developed to address this objective is to "Consider incorporating a non-reproducing component in a number of HMAs, while maintaining the remainder of the herd as a self-sustaining (reproductive) population" (Proposed Strategy 2011).

Alternative C would be the same as Alternative A (Proposed Action) with the addition of the gelding of 30 stallions selected to be returned to the range. These 30 stallions would be gelded (castrated) and released back into the HMA to be managed as a non-reproductive component in the HMA. Under this alternative, 30 geldings, 65 mares, and 64 stallions would be released to the range following the gather. This non-reproductive component would allow horses to remain on the range with a 50/50 ratio of mares to stallions.

Approximately 1/3 of the male horses returned to the HMA would be geldings. This proportion of non-reproducing horses in the overall population would allow BLM to observe how geldings transition into the social structure and utilize their habitat. The information BLM collects on the geldings' existence in the herd would help determine

whether or not this type of fertility control should be continued in the future and/or in other HMAs. Monitoring would be conducted after the release of geldings into the HMA to observe behavior of individual animals and the herd during the first breeding season following the treatment. As recommended in H-4700-1 (2010), monitoring should be designed to determine whether geldings interfere with breeding harems, if there is an increase in forage or water competition, and if geldings form bands or intermix with the breeding population.

Stallions selected for gelding would meet the following requirements: 5 to 15 years of age, having a body condition score (BCS) (Henneke 1983) of 4 or above, and fit the saddle horse conformation and color criteria discussed in the Proposed Action.

Alternative C reflects the proposed management actions for sustainable herds contained within the BLM's Proposed Wild Horse & Burro Strategy (2011) and is consistent with the intent of the WFRHBA (Section 1333(b)(1)) to use sterilization as a means of population control.

D. Alternative D: Gate Cut Removal

Alternative D includes the same Gather SOPs (CAWP 2013) as the Proposed Action, but would only gather excess horses down to the low AML (159 animals) and end the gather. A gate cut removal is generally done to limit any additional stress on the wild horses within a defined gather area. In this situation, wild horses would be gathered and removed regardless of age class, sex ratio, color or conformation, to reach the post gather target number. All the animals captured would be removed from the HMA. Fertility control would not be applied and no changes to the herd's existing sex ratio would be made. Horses remaining in the HMA would not be managed to maintain the desirable characteristics of the South Steens herd.

E. Alternative E: No Action - Defer Gather and Removal

Under Alternative E, the No Action Alternative, no gather would occur and no additional management actions would be undertaken to control the size or sex ratio of the wild horse population at this time. Current estimates of wild horses on the range indicate there are 552 adult horses within the HMA (fall 2014) and there will be approximately 662 horses by fall 2015. Within one normal gather cycle, 4 years, wild horse numbers would increase to approximately 1,144 horses (by fall 2018) under the No Action Alternative. Wild horses ranging outside the HMA would remain in areas outside the HMA not designated for their management.

F. Alternatives Considered but Eliminated from Detailed Analysis

1. Closure of HMA to Livestock Use

This alternative was not brought forward for detailed analysis because it is outside the scope of this EA for analysis. Such an action would not be in conformance

with the existing land use plans, Steens Mountain CMPA ROD/RMP (2005) and AMU ROD/RMP (2005), which authorize Animal Unit Months (AUM) for wild horses and for livestock grazing in the allotments within South Steens HMA (Appendix A-O, pp. J-10, J-12, and J-35). Where livestock grazing is found to limit achievement of standards and multiple-use objectives, management changes are required to meet habitat and other resource objectives (AMU ROD/RMP 2005, RMP-54; CMPA ROD/RMP 2005, RMP-53). Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&G) are being achieved on Lavoy Table and Frazier Field Allotments. For those S&Gs not achieved in South Steens Allotment with livestock being a causal factor, the South Steens AMP EA (2014) addressed changes to livestock grazing management and range improvements that would move toward achieving S&Gs. In South Steens Allotment, livestock, wild horses, and juniper were joint causal factors for not achieving Standards 2 and 4 (Riparian and Water Quality) of Rangeland Health Standards in the Steens Pasture. The implementation of the 2014 South Steens AMP would move toward achieving Rangeland Health Standards without complete removal of livestock. The closure of the HMA to livestock grazing without maintaining wild horse populations within AML would be inconsistent with the WFRHBA (1971) which directs the Secretary to immediately remove excess wild horses. Livestock grazing is reduced or eliminated following the process outlined in the regulations found at 43 CFR Part 4100.

2. Complete Removal of Wild Horses from the HMA

Complete removal of wild horses within the HMA was eliminated from detailed analysis because it would not be in conformance with the CMPA and AMU ROD/RMPs or the Steens Mountain Wilderness/WSR Plans (2005) which specifically authorize AUMs and reestablished AML for wild horse use in South Steens HMA on pages RMP-51, RMP-51 and P-48, respectively. These LUPs each provide a management objective “To maintain/adjust AMLs and yearlong forage allocations for each HMA”; they do not include management direction to eliminate AML for wild horses. Elimination of wild horses and closure of HMAs can only be conducted during the land use planning process or within an RMP revision or amendment. The Proposed Action is not a land use plan allocation; therefore, elimination of wild horses is outside the scope of this EA for analysis.

3. Bait and Water Trapping Only

An alternative considered but eliminated from detailed analysis was the use of bait and/or water trapping as the primary or sole gathering method. The use of bait and water trapping, although effective in specific areas and circumstances, would not be timely, cost-effective, or practical as the primary gather method for this HMA. However, water or bait trapping may be used as a supplementary approach to achieve the desired goals of Alternatives A–D if gather efficiencies are too low using a helicopter or a helicopter gather cannot be scheduled. Water and bait

trapping is an effective tool for specific management purposes such as removing groups of horses from an accessible concentration area. The use of only bait and water trapping was dismissed from detailed analysis as it was determined this method would not fully meet the purpose and need for action as 81 percent of the HMA is either designated wilderness or WSA with very limited road access. The lack of adequate road access or ability for cross country motorized travel would make it technically infeasible to construct traps and safely transport captured wild horses from these areas of the HMA.

4. Gather by Horseback Only

Use of horseback-drive trapping to remove excess wild horses can be effective on a small scale (less than 50 horses); but due to the large geographic size of the HMA (126,732 BLM managed acres), access restrictions (e.g. limited roads, WSA and wilderness designations) and approachability of the horses, this technique would be ineffective and impractical. Horseback-drive trapping is also labor intensive as compared to helicopter-drive trapping. Helicopter-drive trapping would require approximately 7 days to gather this HMA vs. 2–3 months with 5 or more people during horseback-drive trapping. Horseback-drive trapping can also be dangerous to the domestic horses and riders herding the wild horses. For these reasons, this alternative was eliminated from further consideration.

5. Intensive Fertility Control

This alternative would encompass a 10-year time frame with an initial helicopter gather to bring the horse numbers down to the low end of AML. This alternative is a fertility treatment program consisting of administration of a liquid primer dose of PZP (or an approved and available fertility vaccine) administered to all released mares (age 2 and older) at the time of the initial gather and an annual booster vaccination of liquid PZP or an approved and available fertility vaccine applied through remote darting. The program would be designed to treat mares ages 2, 3, and 4 and ages 11 through 20+. Following the initial primer dose and 1 year booster, all mares ages 5–10 would not be treated. The intent of such an alternative would be to reduce the population growth rate each year, thereby eliminating or reducing the need to remove horses through future bait or helicopter gathers.

Although there are specific portions of the HMA where South Steens horses are easily approachable (e.g. Hollywood Pasture) to facilitate identification and darting, it was determined intensive fertility control alone would not fully meet the purpose and need of maintaining AML over the next 10 years because due to the high elevation and limited access within 81 percent of this HMA (discussed in number 4, above), locating, identifying, and successfully darting all individual mares during late winter or early spring each year would be technically infeasible across the HMA. When identifying the most promising fertility-control methods, the NAS (2013) concluded there are HMAs in which remote delivery (i.e. darting)

is possible, but these seem to be exceptions. Given the current fertility-control options, remote delivery appears not to be a practical characteristic of an effective population management tool, but it could be useful in some scenarios (NAS 2013). Access to animals for timely inoculation and other management constraints may affect the utility of PZP as a management tool for western feral horse populations (Ransom et al. 2011).

CHAPTER III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following environmental consequences discussions describe all expected effects including direct, indirect, and cumulative on resources from enacting the proposed alternatives. The EA describes the current state of the environment (affected environment by resource, Chapter III) which includes the effects of past actions. In addition, the introduction section of this EA, specifically the “Purpose of and Need for Action”, identifies past actions creating the current situation.

Reasonably foreseeable future actions (RFFA) include those Federal and non-Federal activities not yet undertaken, but sufficiently likely to occur, that a responsible official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-Federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by BLM. RFFAs do not include those actions that are highly speculative or indefinite. RFFAs for this site are continued livestock grazing, the South Steens AMP EA Decision, wild horse use, weed treatments, road maintenance, recreation activities, the North Steens Ecosystem Restoration Project, and the Comprehensive Recreation Plan (CRP); these are also relevant to cumulative effects and are discussed under each resource, as applicable.

The 2014 South Steens AMP EA Decision renews the 10-year term livestock grazing permit, including adjustments in the season of use, a livestock grazing management design that provides periodic growing season rest for plant species; two riparian protection fences to achieve Rangeland Health Standards (1997); one fence relocation; and one well for livestock, wild horse, and wildlife use.

The North Steens Ecosystem Restoration Project (North Steens Project) EIS-OR-05-027-033 is a landscape-level project, the goal of which is to reduce juniper-related fuel loading, and improve the ecological health of the area, by encouraging a healthy, functioning ecosystem through appropriate land treatments. Treatment techniques include a combination of prescribed fire, juniper treatments, fencing, seeding, and planting in order to reduce fuel loads, restore vegetative communities, improve habitat, and increase forage for wildlife. Project activities will primarily occur above 4,500 feet and below 7,200 feet, concentrating on the "juniper belt". Approximately 99 percent of the South Steens HMA lies within the North Steens Project Area.

The North Steens 230-kV Transmission Line Project ROD was signed on December 28, 2011, by Secretary of the Interior Ken Salazar in Washington D.C. The ROD contains a right-of-way (ROW) grant decision under Title V of the FLPMA. The BLM's decision is to issue new ROW grants to Echanis, LLC (Echanis) for a 230-kV overhead electric transmission line, new and existing access roads, overland access routes, and temporary tensioning sites. The FEIS was made available on October 21, 2011. On March 16, 2012, the BLM issued a ROW to Echanis, LLC for the North Steens Transmission Line Project. All of the wind farm developments and portions of the transmission line are on private land, but were analyzed in the FEIS as a connected action under NEPA. The Echanis Wind Energy Project Site (located completely on private land) is more than 15.5 miles from the eastern edge of the South Steens HMA.

Currently, a CRP for the CMPA EA is being developed by the BLM, which may affect some resources; however, this document is subject to change based on public comments in future NEPA analysis and subsequent administrative remedies. The CRP EA encompasses the HMA but the projects proposed have no measurable effect on wild horse management as they involve moving a gate that is not attached to fences, continued road maintenance, a new hiking trail leading into the HMA, winter recreation permits limited by policy, and an interpretive sign. Increased recreation in the HMA is expected but not to the point where effects could be measured. Therefore, this plan is not being considered an RFFA or included in the analysis of cumulative impacts.

The IDT reviewed the elements of the human environment, as required by law, regulation, Executive Order, and policy, to determine if they would be affected by any of the alternatives. An IDT has reviewed and identified issues and resources affected by the alternatives. The results are summarized in Table 2. Affected resources with issue questions are in **bold** in the following table.

Table 2: Affected Environment

Identified Resource	**Status** **Affected;** Not Affected; Not Present.	**Explanation** **If Affected (BOLD); Reference Applicable EA Chapter and Section.** If Not Affected, explanation required. If Not Present, explanation required.
Areas of Critical Environmental Concern (ACECs)	Not Present	There are no ACECs within this HMA.
Air Quality (Clean Air Act)	Not Affected	Department of Environmental Quality (DEQ) is responsible for air quality permit requirements at facilities and for operations in Oregon. DEQ currently requires no air quality permit for existing operations in the project area. The dust produced from wild horse movement, helicopter operations, and vehicle use would be intermittent and not measurable.
American Indian Traditional Practices	Not Affected	No American Indian traditional practices areas are known to occur within the HMA.
Cultural Heritage	Not Affected	No cultural resources would be affected during the horse gather process. Any cultural resources found within trap areas would be avoided by project re-design prior to implementation.
Environmental Justice (Executive Order 12898)	Not Present	The Proposed Action and alternatives would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations as such populations do not exist within the project area.
Farmlands (prime or unique)	Not Present	There are no prime or unique farmlands in the HMA.
Fisheries	**Affected**	**Since effects to fish species would be the result of effects to their habitat (e.g. vegetative cover, water temperature, or increased sediment), effects to fish are combined with Riparian Zones, Wetlands, and Water Quality and addressed in Chapter III.A.2 of this document.**
Flood Plains (Executive Order 13112)	Not Present	There is no occupancy or modification of flood plains and no risk of flood loss.
Grazing Management and Rangelands	**Affected**	**See Chapter III.A.3**
Hazardous or Solid Waste	Not Present	No solid or hazardous waste would be created by implementation of any of the alternatives. There are no known or disclosed sites currently in the HMA.
Lands and Realty	Not Affected	Cooperative agreements between BLM and private landowners would be developed for access and use of private land for gather operations and trap sites.
Migratory Bird Treaty Act (Executive Order 13186)	Not Affected	No migratory birds would be present during the general helicopter gather period for this HMA so there is no effect to migratory birds or their habitat. Bait/water trapping could have an effect to migratory bird habitat on such a small portion of the existing habitat (approximately 0.5 acre) that the effect to individual migratory birds would not be measurable; there would be no effect to migratory bird populations.
Noxious Weeds (Executive Order 13112)	**Affected**	**See Chapter III.A.6**
Paleontology	Not	Paleontological resources are not known to occur within the HMA.

		Present	
Recreation and Visual Resources		Not Affected	There would be no measurable effect to recreation or visual resources as the actions would be temporary in nature. Any measurable effects to recreation under the No Action Alternative would be considered in the Wildlife (Chapter III.A.5), Social and Economic Values (Chapter III.A.7) and Upland Vegetation (Chapter III.A.4) sections of this EA. There would be no effect to Visual Resources under the No Action Alternative.
Riparian Zones, Wetlands, and Water Quality (Executive Order 11990)		**Affected**	**See Chapter III.A.2**
Social and Economic Values		**Affected**	**See Chapter III.A.7**
Soils and Biological Soil Crusts (BSC)		**Affected**	**See Chapter III.A.8**
SSS and Habitat	**Wildlife**	**Affected**	**See Chapter III.A.12**
	Plants	Not Present	There are no documented Special Status Species (SSS) plants or designated critical habitat within the South Steens HMA; however, if SSS plants are found during the botanical clearance, these sites would be flagged and avoided.
	Fish	**Affected**	**Since effects to special status fish would be the result of effects to their habitat (e.g. vegetative cover, water temperature, or increased sediment), effects to fish are combined with Riparian Zones, Wetlands, and Water Quality and addressed in Chapter III, Part A.2 of this document.**
T&E Species or Habitat	Wildlife	Not Present	There are no known Threatened and Endangered (T&E) species or their habitat found within the HMA.
	Plants	Not Present	No known T&E species or designated critical habitats are found within the HMA.
	Fish	Not Present	There are no T&E fish species or habitat within the HMA.
Upland Vegetation		**Affected**	**See Chapter III.A.4**
Wild Horses		**Affected**	**See Chapter III.A.1**
Wild and Scenic Rivers (WSR)		**Affected**	**See Chapter III.A.9**
Wilderness		**Affected**	**See Chapter III.A.10**
Wilderness Study Areas (WSA)		**Affected**	**See Chapter III.A.11**
Wilderness Characteristics		Not Present	No changes to conditions within South Steens HMA were identified that would modify prior determinations. For further detail see Appendix D - Issues Considered but Not Analyzed in Detail.
Wildlife/Locally Important Species and Habitat		**Affected**	**See Chapter III.A.5**

Resources Identified as Affected

A. Wild Horses

Affected Environment - Wild Horses

Habitat for wild horses is composed of four essential components: forage, water, cover, and space. These components must be present within the HMA in sufficient amounts to sustain healthy wild horse populations and healthy rangelands over the long term (H-4700-1 2010, Ch. 3). Escalating problems are defined as conditions that deteriorate over time (H-4700-1 2010, 4.7.7). The key indicator of an escalating problem is a decline in the amount of forage or water available for wild horse use, which results in negative impacts to animal condition and rangeland health. Causal factors are normally drought or animal numbers in excess of AML (H-4700-1 2010, 4.7.1).

The South Steens HMA encompasses 134,491 total acres; including 126,717 BLM-managed acres, 7,728 privately-owned acres, 14 acres of U.S. Fish and Wildlife Service (USFWS) land, and 0.3 acre of State land. Approximately 97 percent of the HMA lies within the CMPA (Map F). In 1979, the entire South Steens HA was all actively managed as an HMA. The 1979 South Steens Herd Management Area Plan (HMAP) allocated to the HMA 175,605 acres of Federal land, 12,390 acres of State land, and 64,240 acres of private land for a total of 252,235 acres. The AML was established as 150-300 animals in the original 1979 HMAP. However, as a result of the 1982 Andrews Management Framework Plan (MFP), the 1984 Andrews Rangeland Program Summary (RPS), the 1984 State Land Exchange, and the 2000 Steens Act Land Exchanges, the HMA boundary has been changed several times, which separated the active HMA acreage from inactive HA acres. The 1984 Andrews RPS reduced the size of the South Steens HMA by eliminating the Alvord Peak area where there was existing forage conflict between horses and bighorn sheep (no specific acreage was given). The 1984 State Land Exchanges added 9,151 acres to the South Steens HA in order to block up the BLM-managed lands. Since the early 1980s, 34,745 acres within the original HA have been disposed of and 27,290 acres have been acquired through multiple land exchanges including the Steens Act Land Exchanges which had the purpose of “protecting and consolidating Federal lands within the CMPA” (Steens Act 2000). Since 1979, the original active HA acres went from 252,235 total acres to 134,491 total acres in the HMA and 146,256 total acres within the inactive HA. Current boundaries for the HMA and inactive HA were finalized in the 2005 AMU and 2005 CMPA ROD/RMP. Although the HMA boundary adjustments had to be made due to loss of private lands, the AML was not adjusted due to lack of monitoring data to support a change. Approximately 75 percent of wild horse summer range, containing the most reliable water in the HMA, and most of the winter range have been lost following land exchanges over the years. Wild horse management has been impacted as the water sources lost in the exchanges were not replaced. The RMP states that "Permanent increases or decreases in AML and forage allocations will be considered if analysis of monitoring data indicates changes in long-term forage availability" (CMPA ROD/RMP, p. 50).

Currently, wild horse numbers in South Steens HMA are to be maintained within an AML of 159 to 304 animals (CMPA ROD/RMP and AMU RMP/ROD 2005). This number has only been slightly modified (increased by a total of 4 animals) since the original 1979 determination, despite over a 50 percent reduction in the size of the HMA. Forage is allocated to ensure enough feed exists within the HMA to sustain AML of 304 horses throughout the year. Wild horses are allocated 3,648 AUMs of forage.

The South Steens HMA horses exhibit saddle horse conformation, and the most common colors are pinto variations, sorrel, bay, and red roan, with several other colors present.

Figure 4: Example photo of the conformation and variety of color found in the South Steens horses.

The HMA was last gathered to the low end of AML in 2009. Horses came off the range in good health and quality, reflective of past management actions that returned the best animals to the range, thereby, improving and maintaining characteristics of good conformation, size, color, and temperament. Of the 71 mares returned to the HMA, 59 were treated with the 2-year Porcine Zona Pellucida (PZP-22) fertility control vaccine. Eight mares were not captured during the gather, so there were a total of 79 mares remaining in the HMA following the gather. A June 2012 helicopter inventory documented a total of 383 wild horses (333 adults and 50 foals), within the HMA (Appendix F, HMA Map). The direct count census of 383 wild horses in just 3 years indicates the ineffectiveness of treating 75 percent of mares with PZP, a population growth rate of over the expected 20 percent, more horses than the low end of AML (159)

were remaining in the HMA following the 2009 gather, and/or a combination of all three. Assuming a 20 percent population growth rate from June 2012 through fall 2014, the estimated wild horse population is 552 adult wild horses (plus 110 foals). Use by wild horses exceeds the forage allocated to their use (3,648 AUMs at high AML) by approximately 2,976 AUMs. Herbaceous forage utilization monitoring documents heavy (61–80 percent) to severe (>81 percent) utilization levels in portions of the HMA experiencing concentrated wild horse use. In 2008, an IDT identified wild horses as a causal factor for failing to achieve Rangeland Health Standard 2 - Watershed Function, Riparian/Wetland Areas and Standard 4 - Water Quality within the Steens Pasture of the HMA. Field observations in 2012, 2013, and 2014 document poor water availability across the HMA due to below average precipitation. Large concentrations of wild horses (75+) have been observed around these limited water sources, exacerbating overutilization and trailing within these areas.

Genetics analysis was completed by E. Gus Cothran from Texas A&M University using blood samples collected from 41 horses during the 2004 gather and hair samples collected from 31 horses during the 2009 gather. Table 3 is a summary of the two genetic reports within South Steens HMA. The observed heterozygosity (*Ho*) is a measure of how much diversity is found, on average, within individual animals in a wild horse herd and is insensitive to sample size, although the larger the sample, the more robust the estimate. *Ho* values below the mean for feral populations are an indication that the wild horse herd may have diversity issues. Herds with *Ho* values that are one standard deviation below the mean are considered at critical risk. The *Fis* is the estimated inbreeding level (ratio of 1-*Ho/He). Fis* levels greater than 0.25 are considered the critical level and suggestive of an inbreeding problem.

Table 3: South Steens HMA 2004 and 2009 Genetic Variability Measures Comparison

South Steens HMA - Genetic Variability Measures		
	Ho	Fis
2004 (blood samples)	0.439	-0.095
2009 (hair samples)	0.758	-0.023
Critical level	<0.66 (hair)	>0.25
	<0.310 (blood)	
Wild Horse Mean	0.716	-0.012
Domestic Horse Mean	0.71	0.012

Genetic similarity results suggest a herd with mixed ancestry is primarily North American riding stock and possibly Thoroughbred, although this may be due to Quarter Horse ancestry (Cothran 2010). Cothran (2010) summarized that current variability levels are high enough that no action is needed at this point; although, with all herds with numbers less than several hundred, the herd should continue to be monitored. If interbreeding with neighboring herds in possible, this would allow for increased variation (Cothran 2010). Full genetic reports from the 2004 gather (Cothran 2008) and 2009 gather (Cothran 2010) are available at the Burns District Office.

South Steens HMA encompasses the South Steens (6002) and Frazier Field (6006) Allotments as well as two pastures in Lavoy Tables (6031) Allotment. Cattle are the livestock type authorized for these allotments. McInnis and Vavra (1987) found at least 88 percent of the mean annual diets of horses and cattle consisted of grasses; therefore, there is a direct competition for forage within these allotments. In McInnis and Vavra's (1987) work, horses and cattle showed predilection for many of the same forages, and dietary overlap was substantial (62–78 percent) every season. In addition, dietary overlap between horses and cattle grazing common sagebrush-grassland range in eastern Oregon average 67, 69, and 72 percent during spring, summer, and winter, respectively (Vavra and Sneva 1978). "Dietary overlap is not sufficient evidence for exploitative competition (Colwell and Futuyma 1971), and consequences of overlap partially depend upon availability of the resource." (McInnis and Vavra 1987). Site observations and utilization studies indicate wild horse utilization patterns are similar to those of livestock; however, wild horses will typically use range farther from water than cattle. Miller (1983) found that wild horses generally stay within 4.8 km (2.98 miles) of a water source during the summer, while Pellegrini (1971, as cited in Miller 1983) found wild horses will roam up to 7 miles from water before returning. Green and Green (1977, as cited in Miller 1983) found wild horses range from 3 to 7 miles from a water source, but the distance is related to forage availability. When water and forage are available together, the range will be smaller, and when they are not available together wild horses concentrate in areas of ample forage and travel further distances to water (Green and Green 1977, as cited in Miller 1983).

Of the 134,490 total acres within the South Steens HMA, there are 31 reliable water sources (reliable meaning water is available late into the grazing season, from approximately July through October, in most years), in addition to Home Creek in the Home Creek Pasture, Tabor Cabin water gap in Steens Pasture, and the perennial streams in the Steens Mountain Wilderness portion of the HMA. There are 22 waterholes with variable reliability (some years they hold water late into the year and some they do not) and 32 unreliable waterholes (not holding late season water in most years). Appendix G - South Steens HMA Reliable Water Map identifies which water sources regularly provide water late in the year for wild horses and livestock. In general, existing waterholes were located on the western half of the HMA as the Donner und Blitzen River was historically available for livestock and wild horse watering, servicing the eastern portion of the HMA. Therefore, waterholes currently present have poor distribution with few reliable water sources in the vicinity just west of the Donner und Blitzen River. Two of the reliable waterholes, a reliable spring, and a portion of Home Creek are located on private property. In 2014, a cooperative management agreement (CMA) between BLM and the land owner was signed to allow wild horses access to all the same water sources available to livestock while the landowner holds the grazing permit for South Steens Allotment. The water sources include naturally occurring water sources and water developments on private land. In addition to the constructed water sources, wild horses are also able to water at four undeveloped spring complexes, which typically become muddy (water quality becomes poor) as the season progresses due to wild horse and cattle use, as well as Home Creek and the perennial streams and springs in the Steens Mountain Wilderness

portion of the HMA. As the water becomes less readily available later into the season, the use areas of the wild horses tend to shrink as they congregate around those perennial sources. Unprotected springs and streams receive increased utilization and riparian areas often times become trampled and risk degradation (see Section 2, Fisheries and Special Status Species - Fish, Riparian Zones, Wetlands, and Water Quality).

There are several wild horse concentration areas in the HMA including the Three Springs Area, the area north of Burnt Car Road, and Hollywood Pasture. A scattering of horses do reside in the wilderness areas of the HMA and outside the HMA. Currently wild horses are known to reside in the Steens Mountain Wilderness west of Lauserica Road and east of the Donner und Blitzen River outside the HMA boundary (near Cold Springs area). Horses are not known to reside in the Steens Mountain Wilderness east of Donner und Blitzen River inside the HMA boundary at this time but they have been there in the past (e.g. 20 horses were observed in this area during the July 2004 census and one horse was observed in this area during a 2009 Oregon Department of Fish and Wildlife (ODFW) flight).

The most common management action that occurs within the project area for wild horses is horse gathers, which are to be done as the herd reaches the maximum established AML number and when monitoring data (census, utilization, use supervision, etc.) indicate ecological balance would be exceeded. Depending on reproductive rates, results of rangeland monitoring data, funding, and management considerations, horses within the HMAs are typically gathered and removed on a 4- to 5-year cycle. Since 1998, there have been numerous census counts, gathers, and releases within the HMA. Table 4 shows the wild horse counts for each activity occurring since 1998. Table 5 shows details of horses gathered, returned to range, and remaining on the range following the 2009 gather.

Table 4: South Steens HMA - Census and Gather History since 1998

Year	Activity	Number of Horses
August 1998	Census	271
October 1998	Gather	259
October 1998	Release	91
June 2001	Census	321
September 2002	Census	387
October 2004	Gather	376
October 2004	Release	101
July 2009	Census	491
November 2009	Gather	482
November 2009	Release	143
June 2012	Census	383

Table 5: South Steens HMA - Data from 2009 Gather

Year	Activity	Number of Horses	Horses Gathered	Removed	Returned	Horses Not Gathered	Estimated Remaining in HMA Post Gather	Sex Ratio Post Gather	Mares Treated w/PZP
Jul-09	Census	491							
Nov-09	Gather		482	340	142 [1]	22 [2]	164	50/50	59 [3]

[1] Of the horses returned to the HMA, 71 were mares, 57 studs, and 15 geldings.

[2] The sex ratio of the horses not gathered was 8 mares and 9 studs with 5 foals, with a possibility of additional horses remaining that were not observed.

[3] 83 percent of the mares returned were treated with PZP. 75 percent of the mares remaining in the HMA were treated with PZP.

An increase in forage use is expected as populations grow. This, coupled with drought for the past three growing seasons, creates a grim outlook for forage and water availability in the coming years. A combination of rangeland monitoring and estimates of wild horse numbers within the HMA indicate action to maintain wild horse populations within AML is necessary in order to ensure vegetation and water resources are managed in a manner that achieves and maintains the thriving natural ecological balance of the rangelands within the HMA. Appendix H, June 2012 Inventory Map, shows the horses counted and their location in June 2012.

Environmental Consequences - Wild Horses

The cumulative effect analysis area (CEAA) for wild horses is the HMA boundary for all action alternatives (Alternatives A–D) as they aim to maintain wild horse populations within AML which should provide adequate resources for the horses within the HMA. The No Action Alternative would have a CEAA for wild horses of an estimated 10 miles outside the HMA boundary in all directions. This area was chosen because the AML is currently exceeded. No action to maintain populations within AML often causes horses to drift outside of an HMA as resources inside the HMA become limited. For the action alternatives (Alternatives A–D) these effects would be seen within a 3- to 5-year period as the high end of AML is reached and surpassed during the normal gather cycle. For the No Action Alternative (Alternative E), the high end of AML has already been surpassed. Past and present actions, such as those described in the affected environment above, have influenced the existing environment within the CEAA. The RFFAs in the CEAA that may contribute to cumulative effects to wild horses include recreation, ongoing maintenance of existing range improvements, wildlife use, fire rehabilitation actions, ongoing noxious weed treatments, the South Steens AMP Decision (July 2014), and the North Steens Ecosystem Restoration Project.

The North Steens 230-kV Transmission Line Project ROD and the Echanis Wind Energy Project Site (located completely on private land) are more than 15.5 miles from the eastern edge of the South Steens HMA. Therefore, there would be no cumulative effects from these projects affecting wild horse management under any of the alternatives.

Effects Common to All Alternatives

As stated in the South Steens AMP Decision dated July 16, 2014, the potential effects to wild horses are the (1) grazing permit renewal and maintaining an objective to continue a maximum utilization level of 50 percent for native key forage species (averaged within each pasture and including wild horse and wildlife use), (2) spring protection fences would be a loss of two water sources causing higher congregation levels at the other water sources in the allotment, (3) well development would be an additional late-season water source decreasing the risk to wild horses during drought conditions and aiding in their distribution.

The North Steens Ecosystem Restoration Project FEIS Chapter 4 Section 4.2.3.5, Wild Horses and Burros, indicates that juniper treatments would increase forage available to all herbivores thus decreasing competition between wild horse populations and other animals reliant upon the same limited resources.

Results of WinEquus Population Modeling

The WinEquus Wild Horse Population Model was designed for and used in this analysis for comparing fertility control and removal as management strategies. The fertility control portion of the model uses effectiveness results from applications of PZP in the field. Appendix I provides the comparison of alternatives resulting from the WinEquus Population Model. Population modeling using Version 3.2 of the WinEquus population model (Jenkins 2002) was completed to analyze possible differences in effects that could occur to wild horse populations between alternatives. The purpose of the modeling was to analyze and compare effects of action alternatives on population size, average population growth rate, and average removal number. Table 6 summarizes the results. Alternative A - Proposed Action resulted in the smallest population growth rate and the least number of horses removed. Alternatives B, C, and D were calculated as the same management action as they have similar population management results and resulted in the least number of horses gathered next to the Proposed Action. In 11 years, the population size would be virtually the same under all action alternatives. The minimum number of years for analysis in the WinEquus program is 10 years. The 10-year analysis gives results on growth rate (in 10 years) and population (gather needs) on year 11. The 10-year analysis fits with the 10-year time frame of this EA. See Appendix I for additional detail.

Table 6: Average Population Size, Growth Rates, and Next Projected Gather Year.

Alternative	Avg. Pop. Size (11 Years)	Avg. Growth Rate Next 10 years (%)	Next Project Gather (Year)	Est'd No. to Remove (Next 11 years)
Alt. A: Proposed Action	318	17.5	2018	676
Alt. E: No Action	1444	19.6	NA	NA
Alt. B: P-Action w/o Fertility Control Alt. C: P-Action w/ Gelding 30 Return Stallions Alt. D: Gate Cut Removal	310	19.9	2018	751

This modeling was used to identify if any of the alternatives would eliminate the population or cause numbers or growth rates to reach a point where there was no new recruitment to the population. Modeling data indicate sustainable population levels and growth rates would be expected to be within reasonable levels and adverse effects to the population would be unlikely.

Effects Common to All Action Alternatives (A–D)

Over the past 35 years, various effects to wild horses resulting from gather activities have been observed. Under the action alternatives, effects to wild horses would be both direct and indirect, occurring to both individual horses and the population as a whole. The BLM has been conducting wild horse gathers since the mid-1970s. During this time, methods and procedures have been identified and refined to minimize stress and effects to wild horses during gather operations. The procedures outlined in IM 2013-059 (Appendix B) would be implemented to ensure a safe and humane gather occurs, which would minimize potential stress and injury to wild horses.

In any given gather, gather-related mortality averages about 0.5 percent, which is considered very low when handling wild animals. Approximately another 0.6 percent of the captured animals could be humanely euthanized (refer to Appendix C, IM No. 2009-041) due to pre-existing conditions and in accordance with BLM policy (GAO-09-77, p. 49). These data affirm 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 (and burros) from public lands. BLM Manual 4720.41 prohibits the capture of wild horses by using a helicopter during the foaling period, which is defined as 6 weeks on either side of the peak of foaling, generally March 1 to June 30. However, IM 2013-146 allows for the use of helicopter gathers during peak foaling season due to emergency conditions and escalating problems.

Both helicopter gathers and bait/water trapping can be stressful to wild horses. There is policy in place for gathers (both helicopter and bait/water) to enable efficient and successful gather operations while ensuring humane care and treatment of the animals gathered (IM 2013-059). This policy includes SOPs such as time of year and

temperature ranges for helicopter gathers to reduce physical stress to the horses while being herded toward a trap; maximum distances to herd horses based on climatic conditions, topography, and condition of horses; and handling procedures once the animals are in the trap. In Oregon, wild horse or burro fatalities related to gather operations are less than 1 percent of the animals captured for both helicopter and bait/water trap gathers. Injuries generally occur once the animal is in the confined space of the trap. When capture and handling of wild animals are required to achieve management objectives, it is the responsibility of the management professionals to plan and execute operations that minimize the animals' risks of injury or death. However, when capturing any type of large, wild animal one must expect a certain percentage of injury or death. Multiple studies in the wildlife research and management field have worked to improve understanding of the margins of safe capture and handling and have documented their findings of capture-related mortality. Delgiudice et al. (2005) reported 984 captures and recaptures of white-tailed deer (*Odocolleus virginianus*), primarily by Clover trap[1], under a wide range of winter weather conditions. Their results showed the incidence of capture accidents (e.g. trauma-induced paralysis, death) was 2.9 percent. ODFW Assistant District Wildlife Biologist, Autumn Larkins, stated the general consensus between biologists on capture-related mortality in wildlife is that "…anything up to 4 percent is the reality of the aerial capture process. Once you get over 5 percent you need to reevaluate because something is not working, either the conditions are too poor, the methods are inappropriate, etc." (Larkins 2014).

Individual effects to wild horses include the stress associated with the roundup, capture, sorting, handling, and transportation of the animals. The intensity of these effects varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. When being herded to trap site corrals by the helicopter, injuries sustained by wild horses may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks and brush. Rarely, because of their experience with the locations of fences in the HMA, wild horses encounter barbed wire fences and receive wire cuts. These injuries are treated onsite until a veterinarian can examine the animal and determine if additional treatment is indicated.

Other injuries may occur after a horse has been captured and is either within the trap-site corral or the temporary holding corral, or during transport between facilities, or during sorting and handling.

Occasionally, horses may sustain a spinal injury or a fractured limb but based on prior gather statistics, serious injuries requiring humane euthanasia occur in less than one horse per every 100 captured. Similar injuries could be sustained if wild horses were captured through bait and/or water trapping, as the animals still need to be sorted, aged, transported, and otherwise handled following their capture; these injuries result from kicks and bites, or from collisions with corral panels or gates.

[1] Clover trap: A portable net trap to capture deer. This trap has been modified over the years since its original design by Clover in 1954. The trap is constructed with a pipe or tubing frame with netting stretched over the frame. A drop gate is activated by a trip cord (Schemnitz 1980).

To minimize potential for injuries from fighting, animals are transported from the trap site to the temporary (or short-term) holding facility where they are sorted as quickly and safely as possible, then moved into large holding pens where they are provided with hay and water. On many gathers, no wild horses are injured or die. On some gathers, due to the temperaments of the horses, they are not as calm and injuries are more frequent.

Indirect individual effects are those which occur to individual wild horses after the initial event. These may include miscarriages in mares, increased social displacement, and conflict between dominant studs. These effects, like direct individual effects, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief 1 to 2 minute skirmish between older studs which ends when one stud retreats. Injuries typically involve a bite or kick with bruises which do not break the skin. Like direct individual effects, the frequency of these effects varies with the population and the individuals. Observations following capture indicate the rate of miscarriage varies, but can occur in about 1 to 5 percent of the captured mares, particularly if the mares are in very poor body condition or health.

A few foals may be orphaned during a gather. This can occur if the mare rejects the foal, the foal becomes separated from its mother and cannot be matched up following sorting, the mare dies or must be humanely euthanized during the gather, the foal is ill or weak and needs immediate care that requires removal from the mother, or the mother does not produce enough milk to support the foal. On occasion, foals are gathered that were previously orphaned on the range (prior to the gather) because the mothers rejected them or died. These foals are usually in poor, unthrifty condition. Every effort is made to provide appropriate care to orphan foals.

Electrolyte solutions may be administered or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in foster homes in order to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor.

During a summer gather, foals are smaller than during gathers conducted during the winter months. Water requirements are greater than in the winter due to the heat. If forage or water is limiting, animals may be traveling long distances between water and forage, and may become more easily dehydrated. To minimize potential for distress during summer gathers, capture operations are often limited to early morning hours when temperatures are cooler. The distance animals must travel to the trap is also shortened to minimize potential stress. The BLM and gather contractor make sure there is plenty of clean water for the animals to drink once captured. A supply of electrolytes is kept on hand to apply to the drinking water if necessary. Electrolytes help to replace the body fluids that may be lost during capture and handling.

Through the capture and sorting process, wild horses are examined for health, presence of injuries, and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM-2009-041

(Appendix C) is used as a guide to determine if animals meet the criteria and should be euthanized.

Wild horses not captured may be temporarily disturbed and moved into another area during the gather operation. With the exception of changes to herd demographics from removals, direct population effects have proven to be temporary in nature with most, if not all, effects disappearing within hours to several days of release. No observable effects would be expected within 1 month of release, except for a heightened awareness of human presence.

By maintaining wild horse population size within the AML, there would be a lower density of wild horses across the HMA, reducing competition for resources and allowing wild horses to utilize their preferred habitat. Maintaining population size within the established AML would be expected to improve forage quantity and quality and promote healthy, self-sustaining populations of wild horses in a thriving natural ecological balance and multiple-use relationship on the public lands in the area. Deterioration of the range associated with wild horse overpopulation would be avoided. Managing wild horse populations in balance with available habitat and other multiple uses would lessen potential for individual animals or the herd to be affected by drought, and would avoid or minimize the need for emergency gathers, which would reduce stress to animals and increase success of the herd over the long term. In its 2013 report, the National Research Council concluded that "free-ranging horse populations are growing at high rates because their numbers are held below levels affected by food limitation and density dependence. Regularly removing horses holds population levels below food-limited carrying capacity. Thus, population growth rate could be increased by removals through compensatory population growth from decreased competition for forage" (NAS, pp. 5–6). This report also concluded that animal responses to density dependence, due to food limitation, will increase the number of animals that are in poor body condition and dying from starvation (NAS, p. 6). The report further indicates rangeland health, as well as food and water resources for other animals which share the range, would be affected by resource limited horse populations, which could be in conflict with the legislative mandate that BLM

Transport, Short-Term Holding, and Adoption (or Sale) Preparation

Animals would be transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s). From there, they would be made available for adoption or sale to qualified individuals or sent to long-term holding (grassland) pastures.

Wild horses selected for removal from the range are transported to the receiving short-term holding facility in straight deck semi-trailers or gooseneck stock trailers. Vehicles are inspected by the BLM COR or PI prior to use to ensure wild horses can be safely transported and the interiors of the vehicles are in 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 effects to

individual 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. At the short-term holding facility, a veterinarian examines each load of horses and provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. 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 under the guidelines in Appendix C. Wild horses in underweight 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 underweight condition may have difficulty transitioning to feed. Some of these animals are in such poor condition it is unlikely they would have survived if left on the range. Similarly, some mares may lose their fetuses. 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 infectious anemia, vaccinating against common diseases, castration (of male horses) as necessary, and deworming. During the preparation process, potential effects to wild horses are similar to those that can occur during handling and transportation. Serious injuries and deaths from injuries during the preparation process can occur.

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5 percent per year (GAO-09-77, p. 51), and includes animals euthanized due to pre-existing conditions; animals in extremely poor condition; 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 Pasture

Adoption applicants are required to have at least a 400 square foot corral with panels at least 6 feet tall for horses over 18 months of age. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse for 1 year and the horse and facilities are inspected to ensure the adopter is complying with the BLM's requirements. After 1 year, the adopter may take title to the horse, at which point the horse becomes the property of the adopter. Adoptions are conducted in accordance with 43 CFR 4750.

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 more than 10 years old; or which has been offered unsuccessfully for adoption 3 times. The application also specifies all buyers are not to resell the animal to slaughter buyers or anyone who would sell the animal to a commercial processing plant. Sales of wild horses would be conducted in accordance with BLM policy under IM 2013-032 or any future BLM direction on sales.

Potential effects to wild horses from transport to adoption, sale, or long-term holding are similar to those previously described. One difference is when shipping wild horses for adoption, sale, or long-term holding, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18 to 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 25 pounds of good-quality hay per horse with adequate bunk space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested. The rest period may be waived in situations where the travel time exceeds the 24-hour limit by just a few hours and stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

Long-term pastures are designed to provide excess wild horses with humane, life-long care in a natural setting off public rangelands. Wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with forage, water, and shelter necessary to sustain them in good condition. About 31,000 wild horses, in excess of the existing adoption or sale demand (because of age or other factors), are currently being held in long-term pastures. These animals are generally more than 10 years in age. Located in mid or tall grass prairie regions of the United States, these long-term holding pastures are highly productive grasslands as compared to more arid western rangelands.

Generally mares and castrated stallions (geldings) are segregated into separate pastures. No reproduction occurs in the long-term grassland pastures, but foals born to pregnant mares are gathered and weaned when they reach about 8 to 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 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 underweight condition and are not expected to improve to a BCS of 3 or greater due to age or other factors. Natural mortality of wild horses in long-term holding pastures averages approximately 8 percent per year, but can be higher or lower depending on the average age of the horses pastured (GAO-09-77, p. 52).

Euthanasia and Sale without Limitation

While humane euthanasia and sale without limitation of healthy 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 and all years to date, for this purpose.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (*Proposed Action*)

By gathering 90 percent of the horses within the HMA, BLM would be better able to select horses to return to the HMA possessing the desired characteristics of the South Steens herd. This selection process enables sound management of the genetic and desirable physical characteristics of the herd. The management Burns BLM has applied to the South Steens herd over the years has allowed the genetic variability to remain high as per E. Gus Cothran's 2010 genetic analysis of the South Steens HMA. Gathering every 4 to 5 years allows BLM to collect Deoxyribonucleic acid (DNA) samples, closely monitor the genetic variability of the herd, and make appropriate changes when testing deems them necessary. A consistent gather cycle also enables the maintenance and improvement of desirable physical traits within the herd. The South Steens herd is recognized for their showy colors and conformation. The herd would not be as popular as it is today without the selection process that BLM staff has conducted in the past.

Sixty of the eighty mares released back to the HMA would be treated with a two-injection liquid PZP inoculation following the initial gather (or an approved and available fertility treatment following future gathers during the 10-year plan). PZP acts as a vaccine against pregnancy by stimulating the production of zona pellucida antibodies in female mammals (Ransom et al. 2011, Liu et al. 1989, Sacco 1977). These antibodies provide a barrier that prevents sperm from binding to the surface of an ovum and results in limited penetration of the zona pellucida and subsequent limited pregnancy in horses (Ransom et al. 2011, Kirkpatrick et al. 1990, Liu et al. 1989). "Fertility control application should achieve a substantial treatment effect while maintaining some long-term population growth to mitigate the effects of environmental catastrophes" (BLM IM 2009-090). South Steens HMA was chosen for a fertility vaccination treatment area because the greatest beneficial impacts are expected to be seen where: (1) annual herd growth rates are typically greater than 5 percent; (2) post-gather herd size is estimated to be greater than 50 animals; and (3) treatment of at least 50 percent of all breeding-age mares left on the range is possible. A maximum of 90 percent of all mares should be treated and is encouraged to maximize treatment effects (BLM IM 2009-090).

Following the 2009 gather of South Steens HMA, 75 percent of the mares returned to the HMA were treated with PZP 22. Based on the results from the 2012 direct count census and discussions amongst PZP experts, PZP 22 was minimally effective when used in 2009 and remains minimally effective at slowing population growth. Recommendations from Dr. Jay F. Kirkpatrick, Ph.D. suggest following the standard 2-

injection protocol (Lyda et al. 2005, Turner et al. 1997). If injections are delivered as late in the fall as possible, the foaling rate (for the first foaling season) should be brought down to around 4.5 percent versus the 53 percent foaling rate of untreated mares (Turner et al. 1997). Horses in the study conducted by Turner et al. (1997) indicated a return to fertility after 1 year. A multi-year, high-efficacy rate would be more desirable for long term (3–5 years) population management, specifically in HMAs where wild horses are inaccessible, but this method appears to be the most effective at this time.

Contradictory evidence exists regarding the effect of PZP on the behavior of mares treated and on the social structure of a herd. Determining effects is the question. When asked his opinion about behavioral changes associated with native PZP, the liquid formulation accompanied by a primer that is effective for 1 year, Dr. Jay Kirkpatrick states that after 23 years of experience in the field, using native PZP, researchers observing wild horse mares feel that fundamental wild horse social behavior is not changed by the vaccine (Kirkpatrick et al. 2012). He explains that any behavioral changes that can be documented are the result of successful contraception, e.g. absence of foals, better body condition, or increased longevity (Kirkpatrick et al. 2012).

As shown here and in the analysis for Alternative B below, there is still a great need for additional studies of the effects of immunocontraception on the behavior of wild horses.

Wild horse populations will produce roughly equal numbers of males and females over time (H-4700-1, 4.4.1). Re-establishing a 50/50 male to female sex ratio is also expected to avoid consequences found to be caused by skewing the ratio in either direction. Sex ratio typically adjusted in such a way that 60 percent of the horses are male results in slightly reduced populations (Bartholow 2004), implying that ratios would need to be adjusted even further to account for a significant slowing of population growth. In the Pryor Mountain Wild Horse Range, Singer and Schoeneker (2000) found that increases in the number of males on this HMA lowered the breeding male age but did not alter the birth rate. In addition, bachelor males will likely continue to seek matings, thus increasing the overall level of male-male aggression (Rubenstein 1986).

Reducing and then maintaining wild horse numbers within AML during the 10-year time frame of the Proposed Action using approved and available fertility control along with gathers when horses are found to be in excess of the high end of AML would reduce the risk of horses experiencing periods of diminished available forage and/or water (e.g. during drought). Having a plan in place would allow BLM staff to monitor and take appropriate action when needed, before an emergency situation arises. Using adaptive management that involves incorporating the use of the most promising methods of fertility control (as long as they are approved for use and available) may allow BLM to extend the years between gather cycles while continuing to maintain numbers within AML and providing for a thriving natural ecological balance. Successful management of many species often relies on actions that involve intensive handling of individuals (Ashley and Holcombe 2001). Nevertheless, extending a gather cycle based upon a slowing of the population growth would reduce the frequency of stressful events, such as gathers, put on horses.

The objectives set forth in the South Steens AMP Decision (July 2014) to maintain or improve riparian condition, upland health, forage and water resources, and wilderness characteristics would be most likely achieved under Alternative A (Proposed Action) because this alternative combines the best tools and actions to maintain wild horse populations within AML and therefore achieve a thriving natural ecological balance. The additional water source (well) planned in this AMP would reduce the risk of water starvation for wild horses, increase distribution, and further aid in achieving a thriving natural ecological balance.

As the wild horse population is maintained within AML under Alternative A the effects of increased forage quantity and quality from the North Steens Ecosystem Restoration Project would be more readily recognized.

Alternative B: Alternative A <u>without</u> Applying Available and Approved Fertility Treatment

Effects to wild horses under this alternative would be the same as the Proposed Action with the exception of the use of fertility treatment. With no fertility treatment applied, wild horse numbers are expected to increase by approximately 20 percent annually, as they have in the past in South Steens HMA. Therefore, if the post-gather population in the South Steens HMA is 159 horses (low AML), then within 4 years the herd size would be approximately 330 to 388 animals.

An alternative that omits fertility treatment as an action item takes into consideration the concerns regarding the ethics of potentially altering animal behavior and social structure through use of fertility control agents on free-roaming wild horses. Powell (1999) discusses how PZP-treated mares continually undergo nonconceptive cycles and thus demonstrate estrous behavior throughout the season, causing stallions to continue to tend and mate with mares until they cease to cycle in the fall. Ransom et al. (2011) hypothesized the repetitive estrous behavior in PZP treated mares may elicit excess reproductive behaviors prompting more frequent herding and harem-tending behaviors by stallions and elevate frequency of antagonism between stallions and females. Results from their 4-year study show no difference in body condition between the control and treated females, however, treated females received 54.5 percent more reproductive behaviors from stallions per hour than the control females. Nunez et al. (2010) concluded that PZP recipient mares exhibited a change in their reproductive schedule; recipient mares gave birth over a broader time period than did non-recipients. The study by Nunez et al. (2010) provides the first evidence that mares treated with PZP can extend ovulatory cycling beyond the normal breeding season. In addition, results of a study conducted by Madosky et al. (2010) on Shackleford Banks Island horses indicate that PZP used to control population numbers has a significant negative effect on harem stability.

As shown here and in the analysis for Alternative A above, there is still a great need for additional studies of the effects of immunocontraception on the behavior of wild horses. Nevertheless, under this alternative the population growth rate would remain at

status quo yet the natural reproductive cycles and social behavior would remain without the interference from fertility control treatments.

The objectives set forth in the South Steens AMP Decision (July 2014) would become more difficult to achieve in a shorter time under this alternative as fertility treatment to slow population growth in wild horses would not be applied. The additional water source (well) planned in this AMP would have the same effects under this alternative as under Alternative A.

As the wild horse population is maintained within AML under Alternative B, the effects of increased forage quantity and quality from the North Steens Ecosystem Restoration Project would be more readily recognized. However, the high end of AML would be achieved in a shorter amount of time under Alternative B as compared to Alternative A.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

BLM's 2010 Wild Horse and Burro Handbook (H-4700-1) suggests adjusting sex ratios by either releasing greater numbers of stallions post-gather or releasing geldings back to their home range. It suggests geldings would have less impact on the herd's social structure as compared to an increase in the proportion of stallions. "Based on anecdotal observations, geldings released back to their home range: (1) tend to remain near where they were released (with adequate forage and water), (2) form small bachelor groups rather than join with a reproducing band, (3) maintain better body condition than the herd average because they are sexually inactive, (4) live longer in comparison to sexually active horses, and (5) were easy to recapture (many have been recaptured and released several times)" (H-4700-1 2010).

Nevertheless, there are several studies that contradict the efficacy of releasing sterilized stallions into a herd with the intent of slowing population growth. Garrott and Siniff (1992) compared the sterilization of only dominant harem stallions to sterilization of a proportion of all males regardless of their social rank with results indicating that a male-oriented contraceptive program will effectively suppress population growth only when a large proportion of all males are sterilized. The simulation results by Garrott and Siniff (1992) indicate that significant reproduction may occur even when 100 percent of the dominant harem stallions are sterilized, if other males perform as little as 10 percent of the breeding. The long breeding season allows mares to cycle 6–10 times if not successfully bred and provides many opportunities for them to breed with males outside the harem. It would take weeks to months in the field (daily observances during the breeding season) to collect an accurate understanding of which stallions are dominant. BLM does not have the staff or funding to collect this extent of herd information. Eagle et al. (1993) studied the efficacy of sterilizing dominant males, by vasectomy, to reduce foaling rates of feral horses. Vasectomized males remained dominant, although the presence of foals in their bands suggested that subordinate stallions succeeded in inseminating some of the females. Although sterilization of dominant males may be an effective treatment to reduce foaling in a small sample of bands selected from a population, this treatment might not limit population growth (Eagle et al. 1993). In

addition, this alternative returns up to 30 geldings to the range and keeps the mare (65) and stallion (64) sex ratio at approximately 50/50. This being said, the annual reproductive rate would virtually remain the same (approximately 20 percent annually) as previous years, but the beginning number of the reproductive population (65 mares) would be lower than normal as less mares would be released to the range (Refer to Table 7).

Table 7: Comparison of the Reproductive Population Within Alternative A - Proposed Action and Alternative C - Alternative A *Plus* Geld Up to 30 Return Stallions.

Alternative	Description	Make up of Horses Returned to HMA			Total Returned to HMA
		Mares	Stallions	Geldings	
Alternative A - Proposed Action	Return 50/50 ratio and apply immuno-contraceptive to 60 mares.	80	79	NA	159
Alternative C	Alternative A *plus* gelding of up to 30 return stallions.	65	64	30	159

An additional concern of a male-oriented contraception program is that it may cause some undesirable changes in the seasonal reproductive patterns of wild horses. Horses have a 340-350 day gestation period and undergo a post-foaling heat approximately 5–15 days after parturition (Ginther 1979). These characteristics essentially lock mares into a relatively fixed yearly reproductive cycle, dictating that if a mare conceives during the post-foal heat she will produce consecutive foals at essentially the same time each year. Garrott and Siniff (1992) concluded a potential consequence of introducing substantial numbers of infertile males into the population is disrupted normal seasonal foaling. Shifting the foaling season toward the summer or autumn months would result in large numbers of relatively young foals entering the winter without adequate forage for themselves and the lactating dams, or adequate body reserves to endure long periods of nutritional stress. Garrott and Siniff (1992) predict the consequences of such conditions would undoubtedly be higher mortality of foals during the winter.

This alternative would have the same results as Alternative A (proposed action) as it relates to the objectives from the South Steens AMP Decision (July 2014). The additional water source (well) planned in this AMP would have the same effects under this alternative as under Alternative A.

This alternative would have the same results as Alternative A (Proposed Action) as it relates to the effects of increased forage quantity and quality from the North Steens Ecosystem Restoration Project.

Alternative D: Gate Cut Removal

BLM Manual 4720.34 states budgetary limitations or other considerations may require consideration of “gate cut” removals (i.e. exceptions to the selective removal requirements) to achieve population objectives. This gather option is valid in situations where resources (e.g. water or forage) for horses are limited and threatening their wellbeing; however, does not address the long-term management of the herd. With a gate cut removal, horses not captured would likely be the more difficult horses to gather and manage, further perpetuating that trait. Gate cut removals eliminate the ability to remove wild horses based on animal health or desirable or historical characteristics, which often results in unintended impacts to the remaining herds. For example, horses of larger size, gentle disposition, or bright/light coloring are often easier to locate and capture. Therefore, they are typically the first to be removed and, with the gate cut removal method, would not be returned to the HMA. This has the potential to permanently remove these genetic traits from the herd. Sex ratios and age distributions of the un-gathered population would be unknown because the gather would stop when approximately 159 horses remain in the HMA. These factors make estimating population growth and managing herd characteristics in the HMA difficult. Nevertheless, wild horses that are not gathered may be minimally impacted due to the helicopter activity but would otherwise be unaffected. Under this alternative, all impacts to horses would cease once gather operations were complete, as compared to Alternatives A through C. Wild horses would not be held at the holding corrals for extended lengths of time while waiting to apply fertility control and horses would not be stressed by additional handling to apply fertility control. Results from WinEquus indicate that population size in 11 years under this alternative would be the same as the other action alternatives. This alternative would reduce the amount of stress some of the horses would receive during gathers; however, there would be less opportunity for quality control of the horse herd.

According to the results from WinEquus this alternative would have a similar wild horse population as the other action alternatives in 11 years. Wild horse populations would be the same as other action alternatives but the disposition and quality of the herd would be different as there would be no selection process for the horses remaining in the HMA. Horses with poor disposition or that are territorial and causing resource damage in sensitive areas may not be removed under this alternative. Nuisance horses would remain in their use areas making movement toward achieving objectives such as riparian and upland objectives from the South Steens AMP Decision (July 2014) more difficult to achieve.

The additional water source (well) planned in this AMP would reduce the risk of water starvation for wild horses, increase distribution, and further aid in achieving a thriving natural ecological balance.

As the wild horse population is maintained within AML under this alternative, the effects of increased forage quantity and quality from the North Steens Ecosystem Restoration Project would be more readily recognized.

Alternative E: No Action - Defer Gather and Removal

Based upon the normal 20 percent annual growth rate observed in this HMA, the No Action Alternative (no gather) would result in 552 adult horses in the HMA in 2014 and 953 horses in the HMA by 2017. Results from WinEquus using the No Action Alternative indicate in 11 years there would be approximately 1,444 horses in the HMA.

The South Steens HMA has minimal year-round water sources available. If horses are not gathered, water would be a limiting factor for all uses (horses, wildlife, and livestock) in the HMA. To maintain a thriving natural ecological balance "an adequate year round quantity and quality of water must be present within the HMA to sustain [wild horse and burro] numbers within AML" (H-4700-1, p. 12). The Merck Veterinary Manual (Kahn 2005) states that "[w]ater requirements depend largely on environment, amount of work or physical activity being performed, nature of the feed and physiologic status of the horse." The manual suggests the minimum daily water requirement is 0.4 gallon per 100 pounds of weight, with the average daily intake being closer to 0.65 gallon per 100 pounds. The manual also recognizes this would increase under specific conditions, such as sweat loss, increased activity, and lactation, with the increase being as much as 200 percent, up to 1.3 gallons per 100 pounds per day. Wild horses within the South Steens HMA range from 900 to 1,200 pounds. Assuming an average weight of 1,050 pounds, horses within South Steens HMA require a minimum daily water intake of 4.2 gallons, with an average daily intake of 6.8 gallons, but the requirement may be as high as 13.65 gallons. This calculates out to 668 gallons per day when the HMA is at the low end of the AML (159 animals) and using only the minimum amount of water, to almost 4,150 gallons per day when the HMA is at the high end of the AML (304) and requiring a water intake 200 percent above average. Over the course of a year, this translates to a range of 243,747 gallons of water (minimum) to 1,514,604 gallons of water (maximum). The maximum water requirements would be even higher for the HMA when horse numbers exceed the AML.

BLM has observed impacts from horses on riparian and upland use areas within the HMA with current horse numbers. Taking no action on reducing horse numbers or applying fertility control would only exacerbate the problem. Not only would horses have competition for forage and water from wildlife and livestock, but amongst themselves as well. Horses usually occupy home ranges (undefended, nonexclusive areas), however, when resources are limited, mutual avoidance occurs but can intensify into increased aggression for territory (defended, exclusive areas). In a wild horse behavior study in Grand Canyon, Berger (1977) summarized home ranges for all bands decreased in size in successive warm months, probably due to increased ambient temperature and drought, resulting in greater utilization of spring areas that led to increased interband confrontation and agonistic display. Miller and Denniston (1979) reported that even females participated along with male group mates when threatening another group of horses at water. Increased occurrences of aggressive activities, caused by a lack of necessary resources, and the consequent acute injuries or effects to the health and wellbeing of wild horses would not follow BLM's objective of managing for a thriving natural ecological balance within an HMA.

Failure to achieve objectives from the South Steens AMP Decision of July 16, 2014, (specifically, the riparian, upland, and forage and water resources objectives) would be realized more rapidly under the No Action Alternative as compared to the action alternatives which aim to maintain wild horse populations within AML. If no action were taken to reduce the population size, initially there would be no effect to wild horses and forage/water availability. Livestock would be moved from the pasture if adequate forage/water was not available for wild horses present. However, as the population grew, increased competition for forage, water, and home ranges between wild horse bands would become apparent, disrupting social behavior and increasing risk to herd health as forage quantity and quality becomes more limited. The additional water source (well) planned in this AMP would reduce the risk of water starvation for wild horses, yet as the population increases, congregation would become an issue in the area surrounding this water source.

Wild horse numbers currently exceed the high end of AML and would continue to increase; therefore, the effects from the North Steens Ecosystem Restoration Project of increased forage availability are less likely to be realized.

The NAS (2013) report concluded that animal responses to density dependence, due to food limitation, will increase the number of animals that are in poor body condition and dying from starvation (NAS, p. 6). The report further indicates rangeland health, as well as food and water resources for other animals which share the range, would be affected by resource limited horse populations, which could be in conflict with the legislative mandate that BLM maintain a thriving natural ecological balance (NAS, p. 56). Therefore, the No Action Alternative would not meet the purpose and need of this EA.

B. Fish and Special Status Species - Fish, Riparian Zones, Wetlands and Water Quality

Affected Environment - Fisheries and Special Status Species - Fish, Riparian Zones, Wetlands and Water Quality

There are 37.4 miles of perennial streams within the HMA, including Donner und Blitzen River, Home Creek, Ankle Creek, South Ankle Creek, Deep Creek, and Mud Creek. The Donner und Blitzen River within the HMA and upstream of Fish Creek (outside the HMA) are part of the Donner und Blitzen River Redband Trout Reserve (RTR) designated in the Steens Act of 2000. The RTR was created by the Steens Act to conserve, protect, and enhance the Donner und Blitzen River population of redband trout and the unique ecosystem, and to provide opportunities for research, education, and fish and wildlife-oriented recreation. The western side of Donner und Blitzen River is excluded from livestock and wild horses by fences and topography with only one small (approximately 150 feet) water gap constructed as a watering point (Tabor Cabin). Wild horse management is currently having no effect on Ankle, South Ankle, Deep, and Mud Creeks as there are currently no known wild horses residing in that portion of the HMA.

Portions of Home Creek and several perennial springs are the only riparian habitat currently being accessed by wild horses.

The role of BLM in management of fish and other aquatic resources is to provide habitat that supports these resources. Aquatic habitat values are products of attributes and processes of properly functioning riparian and aquatic systems at a desired ecological status. Maintenance, restoration, or improvement of aquatic habitat is carried out by the BLM and supported by the management direction provided for collectively under Water Resources, Vegetation, and Special Status Species Sections of BLM planning documents for the Andrews/Steens Resource Area (RA).

Fish habitat monitoring focuses on water quality, riparian vegetation, and upland condition as they relate to inputs into stream channels. Species monitoring and manipulation is under authority of the ODFW and the United States Fish and Wildlife Service (USFWS). Additionally, the BLM, independently or in coordination with the ODFW or USFWS or both, periodically assesses fish and aquatic habitat using established inventory and monitoring protocols and coordinates with these agencies relative to monitoring habitat.

The Environmental Protection Agency (EPA) delegated authority to the Oregon Department of Environmental Quality (ODEQ) to implement the Clean Water Act (CWA). To that end, the ODEQ develops water quality standards to support the most sensitive "beneficial uses" of a particular water body. For the subbasins that encompass South Steens HMA, Donner und Blitzen and Guano, the beneficial use designation is redband and hybrid trout. ODEQ has set a water temperature standard of 68°F for salmonid bearing streams. Water bodies that fail to attain standards are considered "water quality limited", and are identified as such on the State's 303(d) list.

Table 8: 303(d) Limited Streams within the HMA
(Table shows the water quality limited streams within the HMA, however, only Home Creek is currently being accessed by wild horses.)

303(d) Limited Streams within the HMA			
Stream Name	**Limiting Parameter**	**Stream Segment**	**List Date**
Donner und Blitzen River Subbasin			
Ankle Creek	Temperature-Summer	River Mile 0 to 7.6	1998
Deep Creek	Temperature-Summer	River Mile 0 to 7.2	1998
Donner und Blitzen River	Summer	River Mile 45.3 to 77.3	1998
Mud Creek	Temperature-Summer	River Mile 0 to 4.8	1998
Guano Subbasin			
Home Creek	Temperature-Summer	River Mile 0 to 21.3	1998

The condition of aquatic habitat is a reflection of physical and biological processes operating throughout the watershed. Changes in the physical condition or state in upland areas can affect stream ecosystems (e.g. increases in fine sediment supply to the stream affect salmonid spawning and the production of aquatic macro invertebrates, an important food source for all fish). The integrity of uplands in the watershed therefore may have consequences for the health of aquatic ecosystems. Three of the four pastures in South

Steens Allotment are achieving all Rangeland Health Standards. Only Steens Pasture (consisting of 41,699 acres) is not achieving Watershed Function-Riparian Standard 2 (causal factors being livestock, wild horses, and juniper encroachment) and Water Quality Standard 4 (causal factors being livestock and wild horses). Affected areas within this pasture consist of one spring fully on BLM-managed land and one spring complex that is partially on BLM-managed land and partially on private land. Several springs in the allotment continue to be impacted by season-long wild horse use, including an unnamed spring on BLM managed land (T. 34 S., R. 32.5 E., section 19) just downstream of Three Springs (Figure 5).

Rangeland Health Standards were assessed in 2007 for Frasier Field and Lavoy Tables Allotments with all standards being achieved or not present.

Home Creek is the only perennial stream in the HMA wild horses are currently accessing, with the exception of a 150 foot water gap on the Donner und Blitzen River that wild horses rarely use for a watering source. A proper functioning condition (PFC) assessment was conducted on Home Creek in August 2013 on the reach accessible to livestock and horses, Reach 2 (Figure 6). This reach of Home Creek was rated as functioning at risk with no trend apparent. Observations indicate a diversity of woody riparian and hydric herbaceous species present, yet all woody species were mature with no recruitment of younger age classes. A majority of the woody riparian species had the appearance of being hedged; continuous late-season utilization that restricts upright growth. Hydric herbaceous utilization was high and evidence existed that livestock had recently been removed. There was wild horse sign evident near Home Creek Butte but not throughout the entire reach. With no recruitment of woody riparian species and heavy, late-season utilization levels of hydric herbaceous species there is little time for regrowth to allow

Figure 5: Unnamed spring on BLM managed land just downstream of Three Springs. Only wild horses had used the area by August 15, 2013.

for stream bank stabilization and energy dissipation during high flow events. The width to depth ratio of this reach appeared high and since the photos taken in 2000 at this site, the riparian area had not widened inward, which would narrow the stream channel. An algae bloom was evident throughout the entire reach. Algae are simple plants that are naturally occurring, yet nutrient pollution, and warm water, high pH, stagnant water, and lots of sunlight can lead to excessive blooms (ODEQ 2013). It is unknown at this time what caused the algae bloom this year, but the wide channel with little shading by woody species or undercut banks allows for increased surface area which could lead to higher water temperatures. Western juniper is also encroaching upon this stream with high densities in the uplands and scattered trees growing within the riparian area. On site discussion concluded an agreement that the site appeared to be functioning, as photo monitoring shows similar conditions for at least a decade. Nevertheless, the reach is at risk as described above.

Figure 6: Home Creek permanent riparian photo monitoring plot - August 28

Home Creek provides habitat for native fish species, distinct subspecies or distinct populations, and introduced fishes. Fish species found within or in tributaries of streams within the South Steens HMA are shown in Table 9.

Table 9: Fish Species or Subspecies Within the Vicinity of the South Steens HMA

Common Name	Scientific Name	Status			Native
		BLM	State[1]	Federal[2]	
Great Basin redband trout	*Oncorhynchus mykiss*	Tracking		S	X
Mountain whitefish	*Prosopium williamsoni*				X
Malheur mottled sculpin	*Cottus bairdi ssp.*	Sensitive			X
Catlow Valley tui chub	*Gila bicolor spp.*	Tracking		S	X
Longnose dace	*Rhinichthys cataractae*				X
Speckled dace	*Rhinichthys osculus*				X
Redside shiner	*Richardsonium balteatus*				X
Largescale sucker	*Catostomus macrocheilus*				X
Bridgelip sucker	*Catostomus columbianus*				X

1State Status (ODFW): E-endangered; T-threatened
2Federal Status (USFWS): S-Species of special concern with conservation agreements

Within the HMA, documented hatchery rainbow trout stocking within the distribution of redband trout is limited to the Donner und Blitzen River subbasin. However, hatchery supplementation in Donner und Blitzen River was discontinued upstream of the Page Springs gauging weir in the 1940s (ODFW 1983) and downstream of the weir in 1992. Rainbow trout continue to be stocked in two small, isolated BLM reservoirs in the Donner und Blitzen River subbasin. Because of sport fishery management and limited scope of presence of hybrid rainbow trout, the species will not be discussed further.

Descriptions of the special status fish species known to inhabit the streams within and adjacent to the HMA are below.

Catlow tui chub *Gila bicolor spp.*

Catlow tui chub occur in three streams (Threemile, Skull, and Home Creeks) draining the west flank of the Catlow Rim and appear to be locally abundant in wetlands, springs, and ditches along the eastern edge of the Catlow Valley. The Catlow tui chub, a small-to-medium-sized minnow, with adults averaging about five inches (Williams et al. 1989), is a recognized, though undescribed, subspecies of the more widespread tui chub. Due to its restricted distribution and threats to remaining habitat, the subspecies is a BLM Tracking Species. Diversions of creek flows for irrigation reduce Catlow tui chub habitat. Due to the Catlow tui chub's restricted distribution, disturbances such as drought, fire, and human land use practices place populations at risk.

Catlow tui chub prefer low gradient reaches suggesting an affinity for low velocity habitats, which is typical of most tui chubs. Catlow tui chubs occur in streams occupied by redband trout (Kunkel 1976). Tui chub, in general, spawn in shallow water in the

vicinity of heavy beds of vegetation, where females widely deposit adhesive eggs and males then fertilize them (Sigler and Sigler 1987). Tui chub, in general, are opportunistic omnivores, primarily feeding on invertebrates on the bottom or on plants, and are considered a prey species to larger fish and birds. In Threemile Reservoir, Catlow tui chub were found to be an important food source for Catlow redband trout (Kunkel 1976).

Great Basin Redband Trout *Oncorhynchus mykiss ssp.*

Native rainbow trout found east of the Cascades are commonly called "redband trout" (*Oncorhynchus mykiss ssp.*). Redband trout are a primitive form of rainbow trout and are an evolutionary intermediate between ancestral "cutthroat"-like species and coastal rainbow trout. Redband trout is a BLM Tracking Species, and is considered sensitive by the USFWS representing a unique natural history and ancient connection between lake basins of eastern Oregon and Snake and Columbia Rivers. Redband trout are described as inland populations of *O. mykiss*, with few morphological characteristics distinguishing them from coastal rainbow trout. Within the Steens Mountain area, populations are widespread throughout the Donner und Blitzen drainage and in the Catlow Valley. These populations are viable and self-sustaining (USFWS 2000).

Redband trout evolved in a variety of habitats from montane forests to high desert stream environments characterized by unpredictable and intermittent flows, high temperatures and alkalinity, drought, and fire. As a result, redband trout have been subject to naturally high levels of population fluctuation, evolving traits that allow them to survive in conditions inhospitable to other types of trout. Human induced changes to the thermal regime may create temperature conditions that limit redband trout distribution by making once valuable habitat unusable (Bowers et al. 1979). Degradation and fragmentation of habitat, and the introduction of non-native species are primary factors that influence the status and distribution of redband trout.

Redband trout prefer clear, cold water; a silt-free rocky substrate in riffle-run areas that include slow, deep water; an abundant in-stream and stable stream-bank cover; and relatively stable water flows and temperatures (Behnke 1992, Underwood and Bennett 1992). Stream dwelling adult rainbow trout typically inhabit water depths of less than 1 foot or greater in areas with some type of cover and where slow (0 to 0.5 foot/second) water is adjacent to faster water that may carry food (Behnke 1992). Sexual maturity is reached within 2 to 3 years. Spawning usually occurs when daily maximum water temperatures range from 50 to 60°F. Eggs hatch within 4 to 7 weeks with fry emergence from the gravel after approximately 2 weeks (Wydoski and Whitney 1979, as cited by US Environmental Protection Agency 2002).

Catlow redband trout

The Catlow redband trout is found in Home, Threemile, and Skull Creeks which drain the southwest face of Steens Mountain into Catlow Valley. The most extensive life history study on Catlow redband trout to date was conducted by Kunkel (1976) on the Threemile Creek system. Catlow redband trout in Threemile Reservoir were known to migrate from

the reservoir into the stream to spawn during April and May. Catlow redband trout feed on caddisfly larvae, mayfly, stonefly, and snails. In Threemile Reservoir, Catlow redband trout were also observed feeding on Catlow tui chub.

Donner und Blitzen Redband Trout *Oncorhynchus mykiss*

The Donner und Blitzen River has one of the few intact migratory populations of redband trout (*Oncorhynchus mykiss*) in Oregon's Great Basin region. The population within the HMA is part of the Malheur Lakes Species Management Unit (SMU) for redband trout, and includes distinct, unconnected populations in Riddle and McCoy Creeks. Little is known about the movement patterns of this migratory population or all of the factors that may limit or threaten the population's long-term viability.

The Steens Act designated Donner und Blitzen River as a Redband Trout Reserve (RTR) upstream of the confluence with Fish Creek. The RTR consists of the public land portion of the Donner und Blitzen River and tributaries upstream of its confluence with Fish Creek to the longitudinal extent of current and future redband trout distribution, and the width of the flood prone area. The purpose of the reserve is to conserve, protect, and enhance the Donner und Blitzen River population of redband trout and the unique ecosystem of plants, fish, and wildlife of a river ecosystem; and to provide opportunities for scientific research, environmental education, and fish and wildlife-oriented recreation and access.

Malheur Mottled Sculpin *Cottus bairdi*

The Malheur mottled sculpin is endemic to the Harney Basin of southeastern Oregon, and is listed as a BLM sensitive species. Historic distribution includes the Blitzen River and tributary streams on Steens Mountain, including populations in McCoy, Kiger, and Riddle Creeks. The preferred habitat of mottled sculpin is clear, cool mountain streams of rapid to moderate current with large gravel or rubble substrates for cover and spawning (Bond 1974). Malheur mottled sculpin can occupy small headwater streams and larger rivers such as the lower Donner und Blitzen River. Mottled sculpin are very specifically adapted to use only benthic habitats, foraging on benthic invertebrates. Malheur mottled sculpin appear to be very sensitive to changes in water quality, including increases in temperature, sediments, and turbidity. Elevated water temperature, increased turbidity, and sediment transport caused by human activities have been cited by the BLM as causes for the decline of Malheur mottled sculpin populations.

Environmental Consequences Fisheries and Special Status Species - Fish, Riparian Zones, Wetlands, and Water Quality

The CEAA for all alternatives for fish, riparian zones, wetlands, and water quality is the five watersheds that overlap the HMA boundary. The five watersheds are Alvord Lake (<1 percent in HMA boundary), Home Creek - Garrison Lake (6 percent in HMA), Middle Donner und Blitzen River (2 percent in HMA), Upper Donner und Blitzen River (45 percent in HMA) and Walls Lake Reservoir (26 percent in HMA). No cumulative

effects under any of the alternatives to the Alvord Lake watershed are expected because so little of it lies within the HMA. The action alternatives (Alternatives A–D) aim to maintain wild horse populations within AML which would provide adequate resources for wild horses and maintain riparian zones in good condition, thus providing for good water quality and quality fish habitat. The No Action Alternative (Alternative E) does not move toward maintaining wild horse populations within AML and, therefore, does not move toward achieving a thriving natural ecological balance within the HMA. For the action alternatives (Alternatives A–D) effects to fish, riparian zones, and water quality would be seen within a 3- to 5-year period as the high end of AML is reached and surpassed. For the No Action Alternative (Alternative E) the high end of AML is already surpassed and effects are currently or would be observed.

Past and present actions, such as those described in the affected environment above, have influenced the existing environment within the CEAA. The RFFAs in the CEAA that may contribute to cumulative effects to fish, riparian zones, and water quality include recreation, ongoing maintenance of existing range improvements, wildlife use, fire rehabilitation actions, ongoing noxious weed treatments, the South Steens AMP Decision (July 2014), and the North Steens Ecosystem Restoration Project.

The North Steens 230-kV Transmission Line project site and the Echanis Wind Energy project site (located completely on private land) are more than 15.5 miles from the eastern edge of the South Steens HMA. Therefore there would be no cumulative effects from these projects which should affect fish, riparian zones, and water quality under any of the alternatives.

Environmental Consequences - Fisheries and Special Status Species - Fish, Riparian Zones, Wetlands and Water Quality

Effects Common to All Action Alternatives

The South Steens AMP Decision (July 2014) established a goal to, “Maintain or improve riparian functioning condition of perennial and intermittent streams, and restore and maintain natural, free-flowing characteristics of springs and associated wet meadows”. The 2014 Decision authorized protective fences around the two springs not meeting Rangeland Health Standards along with a new well. This goal and its four specific objectives are expected to be achieved under any of the action alternatives (A–D) as they aim to maintain wild horse populations within AML which would provide less pressure from wild horses on the spring protection fences. The new well is expected to pull some horses off of more sensitive riparian zones and fish habitat further reducing the impacts of wild horse use on riparian areas and their associated habitats.

As the wild horse population is maintained within AML under the action alternatives (A–D), the effects of improved riparian condition, fish habitat, and water quality from juniper treatments associated with the North Steens Ecosystem Restoration Project would be more readily recognized.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Water Quality/Riparian Areas

Regulating the number of wild horses in the HMA would reduce use near water sources, minimizing degradation to riparian areas. Data collected on the Sheldon National Wildlife Refuge suggests the potential for altered habitat structure with horse grazing (Boyd and Davies 2012). In the riparian communities short-statured herbaceous plants increased, and bare ground was higher with horse-use (Boyd and Davies 2012). Improved shading, bank stability, and flood plain development of these portions of stream by deciduous woody and desired herbaceous species would help to improve water temperatures and overall water quality. Achieving AML for wild horses would also accelerate improvements of upland plant communities and increase capture and infiltration capability of the riparian zone.

The Proposed Action would reduce the number of horses in and near riparian areas. As a result, riparian areas would continue to make progress toward achieving Rangeland Health Standards. Further, the fertility control, if applied and effective, would allow for a longer period of time before wild horses would exceed the AML and would need to be gathered. This would allow for increased recovery time following the annual livestock grazing period and overall improved riparian habitat conditions over a longer period of time.

Fish

Use of Home Creek riparian area by wild horses would be reduced which would decrease sediment inputs, thereby improving fish habitat. This alternative, with the use of effective fertility control, would allow for a longer period of time, possibly 1 to 2 more years, before wild horses would exceed the AML and would need to be gathered. This would allow for improved habitat conditions for fish species for a longer period of time.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Water Quality/Riparian Areas

This alternative would be similar to the Proposed Action except the benefits to riparian areas would be reduced as the herd size increases faster than the Proposed Action that includes fertility control.

Fish

Affects to fish and wildlife would be similar to the Proposed Action except wild horse numbers would exceed AML in 3 to 4 years instead of 5 to 6 years as in the proposed

action. Habitat conditions for fish species would have a shorter time to recover from current overuse by wild horses. Depending on climatic conditions during this timeframe, habitat conditions might improve little over the 3- to 4-year timeframe. This could affect abundance of fish species in the HMA.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Water Quality/Riparian Areas

Under this alternative, effects to water quality and riparian areas would be the same as described for the Proposed Action; no additional measureable effects to riparian or water quality would be expected under this alternative.

Fish

Since the rate of return for wild horses to exceed AML is about the same timeframe as in the Proposed Action, effects to fish would be the same as described for the proposed action.

This alternative would have results similar to Alternative A (Proposed Action) as it relates to the goal from the South Steens AMP Decision (July 2014) to "Maintain or improve riparian functioning condition of perennial and intermittent streams, and restore and maintain natural, free-flowing characteristics of springs and associated wet meadows". The additional well planned in this AMP would have the same effects under this alternative as under Alternative A.

Alternative D: Gate Cut Removal

Water Quality/Riparian Areas

Under this alternative, effects to water quality and riparian areas would be the same as described for the Proposed Action; no additional measureable effects to riparian or water quality would be expected under this alternative.

Fish

Since the rate of return for wild horses to exceed AML is about the same timeframe as in the Proposed Action, effects to fish would be the same as described for the Proposed Action.

Alternative E: No Action - Defer Gather and Removal

Water Quality/Riparian Areas

Increasing numbers of wild horses in the HMA would result in greater use and degradation of riparian areas. This would result in a decline in water quality through

increased sedimentation and water temperatures. Riparian area vegetation would be degraded as additional horse use would decrease vegetation recruitment, reproduction, and survivability. In addition, riparian vegetation community types and distribution would be changed, root density lessened, and canopy cover reduced. This would lead to reduced stream channel and spring/seep functionality and further deterioration of these systems.

Wild horse presence has been identified as a contributing factor in failure to achieve Rangeland Health Standards in Steens Pasture. Under this alternative, Rangeland Health Standards 2 and 4 would not be expected to be achieved. However, the 2014 South Steens AMP Decision authorizes two spring protection fences to move toward achieving Rangeland Health Standards in these riparian areas. Once these fences are in place, conditions should move toward achieving standards.

Fish

Fish habitat in the Home Creek system would be affected by increased wild horse use along stream banks that would increase sedimentation inputs into the waterway.

The riparian goal and its four specific objectives from the South Steens AMP Decision (July 2014) would be less likely to be achieved under the No Action Alternative as compared to the action alternatives which aim to maintain wild horse populations within AML. The existing wild horse population exceeds the AML and the effects to riparian areas and water quality are becoming apparent (e.g. the BLM managed, unnamed spring near the privately owned Three Springs). The South Steens allotment which is home to a majority (>90 percent) of the wild horses in the HMA has limited water sources. Many of these water sources are riparian systems which would be impacted as an increasing number of horses use these sites. As riparian conditions degrade within the HMA as a result of wild horse overpopulation, the water quality, fish habitat, and additional riparian conditions up and down stream within the watersheds of the CEAA would be affected by increased sedimentation, turbidity, and dissolved oxygen. The additional well in this AMP would help alleviate this, but its influence would not be measureable as horse numbers dramatically increase past AML.

Wild horse numbers currently exceed the high end of AML, therefore the effects from juniper treatments associated with the North Steens Ecosystem Restoration Project on riparian condition, fish habitat, and water quality would not be expected to be fully realized.

C. Livestock Grazing Management

Affected Environment - Livestock Grazing Management

Within the South Steens HMA, there are three grazing allotments with eight pastures. Of the three allotments, South Steens Allotment, with four of the eight HMA pastures, is entirely within the HMA, and Lavoy Tables and Frazier Field Allotments each have two

pastures within the HMA. P-Hill and Mustang Lake Pastures are within Lavoy Tables Allotment and West Lower River and West Upper River Pastures are within Frazier Field Allotment. There are a total of three livestock operators currently authorized to graze livestock within the HMA. The operators are authorized to use a total of 13,136 AUMs[2] of forage each year within these allotments[3]. These allocations were based on the analysis of monitoring data that included actual use, utilization, climate data, long-term trend studies, and professional observations. Grazing management varies by allotment and pasture. In general, pastures within these allotments are managed in graze/defer rotation with season-long rest being implemented when monitoring data shows a need. The BLM allocated forage for livestock use through the CMPA and AMU RMPs (2005). Table 10 summarizes the livestock use information for the allotments in the HMA.

Table 10: Livestock Use Information

Allotment	Total Allotment Acres (Including Private)	% Allotment in HMA	Permittee	Permitted Season of Use	Permitted Livestock AUMs (Preference)	Average Actual Livestock Use (Past 10 Years)
Frazier Field	20,815	24%	1	04/01-09/30	1,906	1,540
Lavoy Tables	40,288	16%	1	04/01-10/31	1,653	1,514
South Steens	94,598	100%	1	04/01-10/31	9,577	4,724[4]

The permittees within Lavoy Tables and Frazier Field Allotments have only been able to utilize 92 percent and 82 percent, respectively, of their permitted AUMs since the last gather. The non-use within these two allotments can be attributed to lack of perennial water sources to support livestock grazing for the entire season of use. Lack of water has concentrated livestock and wild horse utilization around the remaining water sources. As a result, livestock grazing permittees have taken voluntary non-use to prevent heavy to severe herbaceous utilization within the service areas around these water sources. To some extent, this has also occurred within South Steens Allotment, specifically in Steens and Tombstone Pastures; however, other circumstances within that allotment make it difficult to accurately estimate the reduction in AUMs due to wild horses. Within South Steens Allotment, the Tombstone Pasture was fully rested from 2011 to 2013 as part of a settlement agreement. However, livestock had continued to graze in the other three pastures. Within Hollywood Pasture of South Steens Allotment, heavy wild horse use during the winter has limited the ability to use this pasture for livestock in order to protect the vegetation from heavy to severe (>61 percent) utilization levels. In spring 2011 and 2013, BLM rode the Hollywood Pasture and pushed as many wild horses as possible out

[2] An AUM is the amount of forage needed to sustain one cow, five sheep, one horse, or five goats for a month.
[3] This number includes the total AUMs for those allotments, not only the AUMs associated with the pastures within the HMA.
[4] There are other factors, in addition to wild horse use, that have resulted in the average actual use over the last five years being less than permitted.

of the pasture and into the rest of the allotment to try to provide the pasture with growing season rest from wild horses. It was mostly effective in 2011 at keeping wild horses out of this pasture until gates were inadvertently reopened in the late fall. From 2013 through fall 2014, all but three wild horses were successfully kept out of the Hollywood Pasture, allowing one full growing season of rest.

In 2008, South Steens Allotment was assessed for conformance with the 1997 Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&G) by an IDT. Within the allotment, 3.8 miles of perennial and intermittent streams were determined to be capable of supporting riparian vegetation. A Proper Functioning Condition (PFC) assessment found that 1.3 miles of streams are in PFC and 2.5 miles are functioning at risk with an upward trend and almost at PFC. This resulted in Standard 2 - Watershed Function, Riparian/Wetland Areas and Standard 4 - Water Quality being achieved in Tombstone and Home Creek Pastures (these standards were determined not to be present in the Hollywood Pasture). However, Standards 2 and 4 were not achieved in Steens Pasture due to wild horses, livestock, and juniper encroachment in riparian and spring areas, and it is not in PFC. Standard 1 - Watershed Function, Uplands; Standard 3 - Ecological Processes; and Standard 5 - Native, Threatened and Endangered (T&E) and Locally Important Species were fully achieved throughout the allotment: it was determined these standards are at risk of not being achieved in the future due to juniper expansion. A South Steens AMP and Decision were issued in 2014 to address S&Gs, along with grazing management and the lack of reliable water.

Rangeland Health Standards were assessed in 2007 for Frasier Field and Lavoy Tables Allotments with all standards being achieved or not present.

Through previous decisions, the BLM has allocated available forage to livestock, wildlife, and wild horses. Other decisions, such as the projects for implementation of the Steens Mountain Cooperative Management and Protection Act of 2000 EA and the South Steens AMP, have resulted in adjustments to livestock numbers, seasons of use, grazing systems, and the associated range improvements to promote rangeland health. The current level of permitted livestock grazing use is approximately 100 percent of that permitted in 1971 when the WFRHBA passed.

Environmental Consequences - Livestock Grazing Management

Effects Common to All Alternatives

While the present livestock grazing systems and efforts to manage the wild horse population within AML have reduced past historic impacts, the current overpopulation of wild horses is continuing to contribute to areas of heavy vegetation utilization, trailing and trampling damage, and is preventing the BLM from managing for rangeland health and a thriving natural ecological balance and multiple-use relationships on the public lands in the area.

For the purposes of this analysis, the CEAA for livestock grazing management consists of the pastures within the HMA. Past and present actions, such as those described in "Affected Environment", have influenced the existing environment within the CEAA. Past and RFFAs that have and would affect livestock grazing management and would contribute to cumulative effects are fence and water developments selected in the South Steens AMP/EA Decision, wildfires, prescribed burns, juniper treatments (including treatments associated with the North Steens Ecosystem Restoration Project), wild horse utilization, periodic wild horse gathers to maintain horse numbers within AML, wildlife use, hunting and other recreational pursuits, ongoing noxious weed treatments, and road maintenance. Two major RFFAs include implementation of the South Steens AMP/EA Decision and the North Steens Ecosystem Restoration Project. The South Steens AMP/EA renewed the term livestock grazing permit with changes to the season of use and terms and conditions, designs livestock grazing management to provide periodic growing season rest for plant species, relocates a pasture boundary fence, constructs two spring exclosures, and drills one well to provide an additional water source for livestock, wildlife, and wild horses. Maintaining existing water developments and constructing new water sources would allow for more reliable water for horses throughout the year and disperse their use more evenly across the HMA into areas previously not available for use due to the lack of water. The North Steens Ecosystem Restoration Project is currently in progress. Effects of reducing encroachment of juniper by cutting and burning will result in healthier and more vigorous sagebrush/bunchgrass plant communities. Increasing the composition of perennial grasses, forbs, and shrubs in these communities inherently increases herbaceous forage production to all grazers. Reducing juniper dominance will also increase water infiltration into the soil profile and improve ground water recharge (Deboodt et al. 2008). More available ground water leads to more water in streams, springs, and waterholes that would be provided to wild horses, livestock, and wildlife. Historically less reliable water sources are expected to become more reliable following juniper management.

Livestock grazing would be expected to continue to occur in a manner consistent with grazing permit terms and conditions. Utilization of the available vegetation (forage) would also be expected to continue at similar levels (up to 50 percent). In some years, this may result in livestock being removed from the area prior to utilizing all of their permitted AUMs. Continuing to graze livestock in a manner consistent with grazing permit terms and conditions would be expected to achieve or make significant progress toward achieving Rangeland Health Standards.

Effects Common to All Action Alternatives (A–D)

Gather activities could result in direct effects by disturbing and dispersing the livestock present for a period of 5 to 7 days. Any removal of wild horses would result in some level of reduced competition between livestock and wild horses for available forage and water. Indirect effects would include an increase in the quality and quantity of the available forage for the remainder of the grazing year. This benefit would decrease as wild horse numbers increased until the next gather.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Under this alternative the wild horse herd size would be decreased and reestablished at the low end of AML (159 animals). The animals would be returned with an approximate 50/50 sex ratio and 75 percent of the females returned to the HMA would receive available and approved fertility treatment. The combination of these design elements would result in a slower increase in wild horse population. This would allow wild horse use to remain within their allocated AUMs for a longer period of time, increasing the availability of forage for livestock up to their full permitted use dependent on annual rangeland conditions. The ability to continue gathers, as needed, over the next 10 years would decrease the risk of wild horse numbers interfering with the ability of livestock to utilize permitted AUMs.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Under this alternative, the effects would be the same as under Alternative A with the exception of the long-term benefits. Under this alternative, without the fertility treatment, wild horse numbers would increase at a quicker rate, resulting in the need for more gathers in the long term or increasing the likelihood that livestock use may have to be reduced prior to future gathers due to wild horse populations exceeding the high end of AML and the associated forage competition.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Under this alternative, the effects would be the same as the Proposed Action. The only exception being that the beginning number of reproductive population would be less than the normal as fewer mares would be released to the range. The reproductive rate would virtually remain the same (approximately 20 percent annually) as previous years, but would take longer to populate to the high end of AML and show the subsequent resources effects.

Alternative D: Gate Cut Removal

Under this alternative, the effects would be similar to those under Alternative B. The exception would be that the 50/50 sex ratio would not be enforced. If more males were left than females, the reproduction rate would be slower than under Alternative B, resulting in a longer period for livestock to fully utilize the permitted AUMs. If more females remained than males, the reproduction rate would be faster than under Alternative B and the period livestock would be able to fully utilize permitted AUMs would be decreased.

Alternative E: No Action - Defer Gather and Removal

Utilization of native perennial forage species by authorized livestock has been directly affected due to the current excess of wild horses above the AML. Wild horse numbers above the AML result in wild horses utilizing more AUMs than they were allocated in the 2005 Andrews/Steens RMP/ROD. In order to meet annual utilization targets and continue to achieve Rangeland Health Standards, permitted livestock grazing would continue to be reduced below full permitted use, as wild horse numbers continue to exceed AML. Heavy to severe utilization is occurring in areas used by livestock, wild horses, and wildlife, specifically around water sources. These areas are currently receiving heavy use even when livestock are not present. The indirect effects of the No Action (defer gather and removal) Alternative would be continued damage to the range as would be seen in S&Gs not being achieved in the future; continued competition between livestock, wild horses, and wildlife for the available forage and water; reduced quantity and quality of forage and water; and undue hardship on the livestock operators who would continue to be unable to fully use the forage they are authorized.

D. Upland Vegetation

Affected Environment - Upland Vegetation

The dominant vegetation communities throughout the HMA are mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and low sagebrush (*Artemisia arbuscula*) with needlegrass species (*Achnatherum* ssp.*)* and Idaho fescue (*Festuca idahoensis*). Additional communities include: basin big sagebrush (*Artemisia tridentata* spp. *tridentata*), Wyoming big sagebrush (*Artemisia tridentata* spp. *wyomingensis*), bluebunch wheatgrass (*Pseudoroegneria spicata)*, Thurber's needlegrass (*Achnatherum thurberianum)*, Sandberg bluegrass (*Poa secunda*), needle and thread grass (*Hesperostipa comate)*, Indian ricegrass (*Achnatherum hymenoides)*, basin wildrye (*Leymus cinereus)*, and western needlegrass (*Achnatherum occidentale).* Overall, the vegetation is in good condition; however, areas where wild horses and livestock congregate, as well as trailing routes, are heavily utilized with some areas having all vegetation removed. Annual grasses are an issue within the HMA but have not yet become the dominant understory species.

Western juniper occurs in a band between 4,500 and 7,000 feet on Steens Mountain, over 90 percent of which is comprised of trees established after the 1860s (Miller et al. 2008). Over half of the area of the present juniper forest in eastern Oregon became established between 1850 and 1900 (Gedney et al. 1999). Once established, juniper forests increased in density, with the greatest increase occurring between 1879 and 1918 (Gedney et al. 1999). This rapid increase in juniper stand establishment occurred during a period of favorable climatic conditions and reduced fire frequency and intensity (Gedney et al. 1999). Larger trees are sometimes killed by fire, but many survive; survival is often dependent on fire intensity. The crowns of larger juniper trees often limit grass and other vegetative growth beneath them, thereby, reducing the fuel necessary to carry fire into the tree, fireproofing the crown and stem (Agee 1993).

In the absence of pre-settlement fire return intervals, western juniper has functioned as an invasive species over much of Steens Mountain, generally increasing in frequency to the greatest degree on north slopes and at higher elevations (Johnson and Miller 2006), encroaching into more productive mountain big sagebrush and low sagebrush plant communities. Expansion juniper intercepts precipitation and utilizes soil moisture, well beyond its own crown area, that would otherwise be available to competing native vegetation (Bates et al. 2000). Juniper has assumed control of ecological site processes (soil hydrologic cycle and nutrient transfer through the soil profile) within the HMA. Loss of shrubs, grasses, and forbs has occurred in some areas, and could lead to loss of soil surface stability over the next few decades.

Up to 10 percent of juniper stands are comprised of older trees (over 130 years) inhabiting rocky ridges or shallow soil areas where fires are not expected to burn. Tree age may exceed 1,000 years in these stands, and at these sites the rocky surface controls soil infiltration and maintains soil surface stability.

Since watering sites are not well-distributed, visual effects to vegetation from grazing and wild horse use are more obvious in these areas and not easily observed in portions of the HMA away from water. Bunchgrass vigor is declining, or expected to decline, in locally heavily-grazed areas due to utilization in excess of 50 percent over successive years. Conversely, bunchgrass vigor may also decline in lightly-grazed or non-grazed areas, due to plant decadence (growth may be limited by accumulation of old and dead tissue) (Oesterheld and McNaughton 1991), especially where no fire or other event has occurred which would remove accumulations of dead material. Both conditions have been observed in the HMA.

In Hollywood Pasture wild horse utilization was already 45 percent and 47 percent by May of 2012 and 2013, respectively. Horses were successfully removed from the pasture for the remainder of each growing season. Horses have stayed out through 2014 to allow plants to complete a growth and reproductive cycle moving toward improving plant vigor reduced by successive growing season use by horses. One popular wild horse use area lies north of Burnt Car Road in Tombstone Pasture, west of the ridgeline in the east side of the pasture and north to the area surrounding Island Reservoir. In early April 2014, a wild horse utilization study was conducted in this pasture to document wild horse use prior to livestock entering the pasture. There was no horse use, but some tracks, east of the ridgeline. The overall pasture utilization was 27.5 percent (light[5]) because it included those areas outside the home range of the horses in this pasture. The utilization level in the horse use area only was 42.6 percent (moderate).

Vigor of bunchgrass plants may be maintained, or even improved, by some disturbance that removes buildup of previous years' growth, either infrequently through large, sudden

[5] The Landscape Appearance Utilization Monitoring method modified from interagency TR1734-3 was used to collect utilization data. Utilization levels on key forage species are defined as; No use (0–5%), Slight (6–20%), Light (21–40%), Moderate (41–60%), Heavy (61–80%), and Severe (81–100%).

events such as wildfire (which may kill the plant), or more frequently with less intensity, as with grazing. The effect of defoliation to bunchgrasses, before and after prescribed fire or wildfire, can be directly observed within the HMA. The effect on plant vigor from grazing is more subtle, and involves interplay between a plant's ability to reestablish photosynthetic activity and its ability to retain a competitive position in the plant community (Oesterheld and McNaughton 1991).

Although assessments have found the HMA meets Rangeland Health Standards for upland watershed health, local areas of declining bunchgrass health have been observed, generally in areas affected by juniper encroachment and directly around the limited reliable water sources. This suggests without juniper control in these areas, the allotment is at risk for not meeting standards in the future, despite management of grazing animals. For the purposes of this analysis, the CEAA for vegetation is at the HMA scale. Past ground-disturbing activities which had the potential to affect vegetation within the HMA include the construction of range improvement projects, livestock grazing, wild horse use, wildfire, juniper treatments (including cutting and piling) such as the North Steens Project, prescribed burning, recreation, and hunting.

Environmental Consequences - Upland Vegetation

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Under the Proposed Action, wild horse numbers would be reduced to the low AML and fertility vaccine would be administered to a portion of the mares returned to the HMA. Reducing wild horse numbers to AML would reduce the potential for heavy annual utilization levels in wild horse use areas. Reductions in horse numbers would result in decreased demand for forage thus providing opportunity for some plants in use areas to have a full growing season of no use to restore vigor and complete a reproductive cycle. Removal of excess horses would allow native vegetation to improve in areas where it has received continuous moderate to heavy growing season use. Annual utilization of herbaceous plants during the growing season is widely known to reduce plant vigor, reproduction, and productivity. Since a portion of Tombstone Pasture is a documented wild horse home range, it can be assumed horses would continue to use this area in future years. Inventory and horse observation data show continuous heavy horse concentrations in 2012, 2013, and 2014 in the use area described in Tombstone Pasture and around Three Springs in Steens Pasture. Gathering the horses in these areas and removing excess animals may aid in breaking up the use pattern in these sites. A change in the amount of use received and possibly timing of use (with fewer horses) would lessen the effects to upland vegetation and may provide upland vegetation time to complete a full reproductive cycle and increase vigor. Managing intensity and timing of use on vegetation largely influences maintaining a thriving natural ecological balance and maintaining Rangeland Health Standards, specifically Standard 1 - Watershed Function, Uplands. This standard is achieved when upland soils exhibit infiltration and permeability rates, moisture storage, and stability appropriate to soil, climate, and landform. Potential indicators of achieving this standard include amount and distribution of plant cover and

bare ground and plant composition and community structure. Potential indicators of the condition of rangeland health are influenced by the timing and amount of utilization pressure received over a period of years.

Applying the fertility vaccine would slow down the reproductive rate reducing the grazing pressure over a longer period of time, disperse wild horse use areas, and give native vegetation a greater stronghold. Healthy, diverse, and productive plant communities promote improved resiliency, reducing the threat of noxious weed establishment and spread.

Due to the hoof action and vehicle use around trap sites, upland vegetation is often trampled and/or uprooted. Because of these effects, trap sites would be located in areas previously used or those which have been disturbed in the past. The trap sites would be approximately 0.5 acres in size which would have a minimal effect, 0.0004 percent of the total acreage, on upland vegetation in an HMA that is 126,732 acres. However, keeping gather sites in previously used areas or areas previously disturbed would minimize or reduce potential new effects to upland vegetation since vegetation will already have been impacted.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

The environmental consequences on upland vegetation would be similar to Alternative A, proposed action, with the exception of not slowing down the growth rate as a result of applying fertility treatment. Vegetation would be impacted by increased horse numbers sooner which would decrease vegetative recovery rates post gather.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

The environmental consequences on upland vegetation would be the same as the Proposed Action.

Alternative D: Gate Cut Removal

The environmental consequences on upland vegetation would be the same as Alternative B: Alternative A *without* Applying Available and Approved Fertility Treatment.

Alternative E: No Action - Defer Gather and Removal

Under the No Action Alternative, wild horses in excess of the AML would not be removed. The increased number of horses on the range would increase the amount of utilization and decrease the amount of available forage. Rangeland Health Standards would not be achieved with the continued increase in the wild horse population. At approximately 662 adult horses in 2015, there would be twice that number in four years with a 20 percent annual growth rate. Consistent heavy (>61 percent) utilization in wild horse use areas could lead to Rangeland Health Standards not being achieved in the

future. If native, perennial vegetation is degraded, the potential for the invasion of annual grasses would occur. Currently there are only 14 acres of medusahead known to exist in the South Steens HMA. Plant communities consisting of tall tussock perennial grasses are critical in preventing medusahead invasion and increasing tall tussock perennial grass density would reduce the susceptibility of a site to medusahead invasion (Davies 2008). No action to maintain the wild horse population within AML would be expected to reduce the vigor and resiliency of perennial grasses in the HMA as utilization levels increase, therefore increasing the potential for annual grass invasion. Annual grass communities lack the plant community structure, root occupancy of the soil profile, and ability to provide the amount and distribution of plant litter that native communities provide. Annual grass communities, as compared to the potential and capability of native perennial communities, lack the ability to protect the soil surface from raindrop impact; to provide detention of overland flow; to provide maintenance of infiltration and permeability, and to protect the soil surface from erosion (Rangeland Health Standards 1997). Under this alternative, increases in annual grasses would occur and the condition of the range would deteriorate. The loss of native vegetation would lead to soil loss due to exposure to wind and water erosion and would expose previously uninfested areas to noxious and invasive weeds. Increases in erosion directly influence the potential to achieve Rangeland Health Standards 1 - Uplands and 3 - Ecological Processes.

E. Wildlife and Locally Important Species

Affected Environment - Wildlife and Locally Important Species

Wildlife, other than migratory birds and SSS, include mule deer, elk, pronghorn antelope, badger, black-tailed jackrabbit, cottontails, magpies, ground squirrels, pocket gophers, deer mouse, cougar, bobcat, coyote, ducks, geese, swans, chukar, California quail, mountain quail, yellow-bellied marmot, wood rats, voles, chipmunks, bats, reptiles, and amphibians.

Forage allocation for wildlife in South Steens Allotment is 500 AUMs for deer, 22 AUMs for antelope, and 60 AUMs for elk (Andrews/Steens RMP Appendix J 2005). Wildlife AUMs allocated within South Steens Allotment are at the pre-Steens Land Exchange levels and have not been adjusted for the loss of land in the allotment. Only a portion of the lands within Frazier Field and Lavoy Tables Allotments lie within the HMA and wildlife AUMs in the 2005 Andrew/Steens RMP (Appendix J 2005) are allocated on an allotment basis, rather than by pasture. For the HMA and for the purposes of this EA, wildlife AUMS have been prorated based on the acres per allotment within the HMA. Frazier Field is prorated with 78 AUMs for deer, 2 AUMs for antelope and 2 AUMs for elk. Lavoy Tables is prorated with 8 AUMs for deer, 1 AUM for antelope and 0 AUMs for elk. Although California bighorn sheep utilize the portion of the HMA nearest East Rim of Steens Mountain, there has been no forage allocated for them.

Other small mammals are not as mobile and may remain underground or stay active near the ground's surface throughout winter. Wild horses present throughout the HMA may exclude other wildlife use of water sources, especially in late summer when water sources

are limited. Miller (1983) found that when antelope could get to water while being no closer than three meters from a wild horse or cow, they were able to water; otherwise, they would only circle the waterhole, leave, and return later to try again.

Mule deer use bitterbrush as a fall and winter browse. There are several areas throughout the HMA with extensive stands of bitterbrush. Currently, there are only about six reliable late-season water sources near most of the bitterbrush areas. These water sources allow for later use mainly in Tombstone Pasture but usually only until the end of July. Although bitterbrush stands in the HMA appear healthy, juniper encroachment into these stands is expected to affect the continued health of these plants.

The increase in wildfires in the Great Basin has resulted in loss of important big game winter ranges in the Great Basin (Pellant 1990, Updike et al. 1990), habitat supporting North America's densest concentration of nesting raptors (Kochert and Pellant 1986), native sensitive plant species (Rosentreter 1994) and nongame bird occurrence (Dobler 1994). In addition, plant diversity is reduced at both the local and landscape levels with frequent wildfires (Whisenant 1990). Not only is cheatgrass a permanent component of many intermountain ecosystems, including within South Steens HMA, it is the focal point for the disruption of many ecosystem processes and functions. Wildfire cycles are shorter and severity and extent of fire impacts are greater with cheatgrass in the ecosystem. Wildlife species are affected both directly by alteration of habitat due to cheatgrass invasion and indirectly by the loss of habitat due to increased wildfires. Also, the diversity and cover of microbiotic crusts are diminished with cheatgrass in the ecosystem allowing additional entry of cheatgrass and other weeds. The rangeland health of cheatgrass infested communities is either at risk or already in the unhealthy category with even more undesirable weeds invading some cheatgrass communities (Pellant 1996).

Environmental Consequences - Wildlife and Locally Important Species

For the purposes of this analysis, the CEAA for wildlife extends up to 10 miles beyond the HMA boundary to encompass regular movements of most animals that may use the HMA. The CEAA does not incorporate the entire annual use area for some animals, such as elk and mule deer, because this information is not available nor is it expected to change the analysis. Vegetation communities present in the allotment are representative of those in the CEAA.

Past and present actions, such as those described in *Affected Environment*, have influenced the existing environment within the CEAA. RFFAs in the CEAA that may contribute to cumulative effects to wildlife and habitat include livestock grazing, hunting and other recreational pursuits, the Miller Homestead Fire, and the North Steens Project. While the North Steens 230-kV Transmission Line ROW and Echanis Project are outside of the CEAA, some effects on further ranging wildlife are mentioned below. Several thousand acres of treatments are proposed in the CEAA under the North Steens Project, but funding, weather conditions, and other factors affect timing of implementation. The Miller Homestead Fire occurred in July of 2012 and burned about 150,000 acres. This

fire occurred outside of the South Steens HMA and would have no effect to the gathering of horses within the HMA.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Some wildlife could be temporarily disturbed or displaced by the helicopter or by placement of traps. Impacts would be short term (2 weeks) and many species of wildlife would return to regular use of the areas after the disturbance has passed. Reduction of wild horse numbers to AML would reduce utilization of forage and water resources by horses, reducing competition for these resources and allowing for improvement of habitat conditions for wildlife species.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Same effects to wildlife as the Proposed Action.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Same effects to wildlife as the Proposed Action.

Alternative D: Gate Cut Removal

Same effects to wildlife as the Proposed Action.

Alternative E: No Action - Defer Gather and Removal

Wildlife would have the same resources available as are currently present in the HMA. Some areas of the HMA near perennial water sources, such as springs, would continue to be affected by concentrated wild horse use.

In the short term (0–2 years), there would be no change to resources available to wildlife as they are now available. Over time the wild horse population would continue to increase, using more resources and leaving fewer forage species for wildlife to graze upon. Of the three most common big game species in the HMA; elk, then pronghorn, would be affected before forage competition between deer and wild horses was evident as Hubbard and Hansen (1976) found wild horse foods were 40 percent identical to those of elk in the Red Desert of Wyoming; on an annual basis, dietary overlap between feral horses and pronghorn averaged 16 percent and ranged from 7 to 26 percent (McInnis and Vavra 1987); and a study by Hansen et al. (1977) found that mule deer food habits appear to be complementary rather than conflicting with diets of wild horses. The No Action Alternative and the subsequent increase in wild horse numbers would also cause increased competition between horses and some wildlife for water. As wild horse numbers increase, they may exclude wildlife from using water sources, especially in late summer when water sources are limited and horse concentrations are high around the remaining water sources. Miller (1983) found pronghorn often came to a water hole,

walked around the concentration of horses and left, only to return shortly and repeat the behavior. When there was enough room at a waterhole for pronghorn to drink without getting closer than 3 meters from a horse or cow, they drank freely. Miller (1983) also found that the presence of horses at waterholes did not prevent either sage grouse or coyotes from drinking. As horse numbers increase, wildlife numbers in the HMA could decrease due to lack of forage base support and accessible water sources.

F. Noxious Weeds

Affected Environment - Noxious Weeds

Noxious weeds have been documented within the South Steens HMA. Table 11 lists the details:

Table 11: South Steens HMA Noxious Weed Sites by Species

Weed Species	# of Sites	Total Acres/Spp
Canada thistle	54	89.3
Bull thistle	56	53.6
Scotch thistle	34	54.9
Yellow starthistle	1	0.0002
Diffuse knapweed	4	2.7
Spotted knapweed	7	7.2
Russian knapweed	4	0.013
Perennial pepperweed	4	0.002
Whitetop	12	2.5
Mediterranean sage	4	157.2
Medusahead Rye	2	14.2
St. John's Wort	2	0.001
Field bindweed	1	0.08
	185	**381.7 Acres**

Most of the weed sites are receiving on-going treatments and are monitored on an annual basis. Many of these sites have been reduced considerably (or completely) from their original extent but the entire extent of each site is kept in the database, monitored as a site, and treated where weeds still occur.

Canada thistle occurs in many of the riparian areas. Whitetop occurs primarily along roads and on dams. Scotch thistle has historically infested most of the disturbed areas (waterholes, animal congregation areas). It is still present but greatly reduced. Unfortunately, the longevity of the seed lends itself to reappearing when conditions are right. Monitoring of known sites occurs on an annual basis and treatment occurs wherever the weeds occur.

Environmental Consequences - Noxious Weeds

The CEAA for noxious weeds for this analysis is the HMA boundary. Livestock, wild horses, and wildlife have a large impact on the spread of noxious weeds within this HMA. Seeding burn piles following prescribed burning activities in the North Steens Project provides competition which reduces the likelihood of noxious weed establishment. These seedings could be an attractant to wild horses under all alternatives.

Increased recreation opportunities from the CRP could bring more weed infestations into the HMA under all alternatives.

Areas of high horse concentration lead to heavy grazing. This disturbance opens up more niches for noxious weed establishment and spread. By maintaining horse numbers at or below AML, the opportunities for noxious weed spread would be reduced. Limiting vehicle travel to existing roads and ways and timing gather events to avoid times of high spread potential (seed shatter, muddy conditions, etc.) as much as possible, combined with aggressive weed treatment during the year pre-gather and avoiding noxious weed infested areas when selecting trap sites, would limit the potential of noxious weed spread during gathering operations. Gather sites would be noted, monitored by the range staff, and should weeds become evident, those details would be reported to district weed personnel for treatment and monitoring. Gather related monitoring and treatment of noxious weeds are described in the Project Design Features, Chapter 2.A.1.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

By reducing horse populations, vegetation in areas of horse usage within the HMA would be less heavily grazed, allowing the desirable vegetation to be more vigorous and competitive and providing less opportunity for new weed infestations. The fertility treatment may lengthen the time before horse numbers return to high AML which would allow the vegetation a longer time period in which to recover. Managing within AML would increase the likelihood that seeded burn piles associated with the North Steens Project would have a chance to establish.

Improving desirable riparian vegetation, along with aggressive weed treatments, would reduce the dominance of this noxious weed and allow the riparian areas to recover and function properly. Aggressive weed treatments along roads and other disturbed areas reduce opportunities for spread from all vectors, including increased recreation associated with the CRP.

If the gather activities follow the listed SOPs and project design elements, including thoughtful selection of ***timing*** of gathers which minimize likelihood of weed spread, then the gather activities themselves would not increase the opportunities for additional noxious weed introduction and spread. Trap sites would be disturbed and would need to be monitored at least 2 years post-gather. Any weeds found would need to be treated in a timely manner using the most appropriate methods.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Impacts would be essentially the same as the Proposed Action but with a quicker return to high numbers of horses more rapidly leading to increased disturbance and the likelihood of additional weed introduction and spread.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Impacts to weeds would be essentially the same as for the Proposed Action.

Alternative D: Gate Cut Removal

Impacts to weeds would be essentially the same as for Alternative B.

Alternative E: No Action - Defer Gather and Removal

The continuing increase in horse numbers above the AML would lead to areas of higher horse concentrations causing more impacts to the vegetation due to overgrazing. This opens up more niches for noxious weeds to establish and spread. Areas of horse concentration and consequent heavy use typically are highest near riparian areas, springs, and reservoirs. This would exacerbate the recovery of the riparian areas and lead to increases in Canada thistle and other riparian weeds such as perennial pepperweed and whitetop. Heavier use around already disturbed areas such as water holes and congregation areas would lead to increased disturbance and consequent increases in noxious weed establishment. Seedings in burn piles associated with the North Steens Project would have a harder time surviving because of increasing horse grazing pressure, leading to weedier burn piles.

G. Social and Economic Values

Affected Environment - Social and Economic Values

Previous wild horse gather EAs, including the scoping for this EA, within the BLM Burns District have received numerous comments both supporting and opposing wild horse gathers. This EA received 9,902 comments during scoping.

Many of these commenters derive benefit from the presence of these wild horse herds by actively participating in recreation to view the horses. A certain number of these individuals believe that any type of gathering and holding of wild horses is inhumane. Others value the existence of wild horses without actually encountering them. This value represents a non-use or passive value commonly referred to as existence value. Existence values reflect the willingness to pay to simply know these resources exist. Conversely, a separate group of individuals may or may not support the existence of wild horses on public land yet express concern about wild horse numbers and the adverse impacts on other resources. These “other resources” include but are not limited to the economic impacts that could result from reduced

livestock grazing opportunities, the impacts to wildlife resources, and the resultant decline in hunting opportunities.

For the purposes of the "Social and Economic Values" portion of this analysis; it is important to recognize the number of horses the BLM manages across the United States in order to fully understand the effects analysis area of social and economic costs of the decisions to be made. Table 12 displays the numbers of horses estimated on the range and in short- and long-term holding facilities. The national high AML is 26,677 horses and burros.

Table 12: Number of Horses and Burros BLM Manages Nationally, On and Off the Range

Horses		Burros	Total
On the Range (Estimate as of January 1, 2013. Does not include 20% increase for the 2013 foal crop).	33,703	6,825	40,528
Off the Range (BLM facilities and long term holding).	49,369	1,348	50,717
Total			**91,245**

BLM has placed more than 230,000 wild horses and burros into private care since 1971. The BLM placed 2,311 removed animals into private care through adoption in fiscal year (FY) 2013—less than half as many as in FY 2005, when 5,701 were adopted (Wild Horse and Burro Quick Facts, paragraph 6). The adoption demand is down for many reasons, including, but not limited to: the cost of caring for a horse is continuously increasing as hay prices and veterinary care costs increase, the national economy is down, there is no outlet for unwanted horses available in the United States, and the market is flooded with domestic and wild horses.

The costs associated with certain activities included in the range of alternatives are listed below. Not all activities are included in the list as it is extremely difficult to put a numerical value on such things as vegetative resource damage or decreased recreational opportunities, yet there is certainly a social and economic value associated with their improvement, maintenance, or loss. The costs associated with holding, gathering, bait/water/horseback driving trapping and fertility treatment are listed below.

- Holding horses at Burns Facility costs approximately $5 per day per horse. This includes the cost of hay, BLM staff, and equipment to operate the facility. Currently there is an average of 700 horses being held at the Burns Facility. This cost per day per horse calculates to $3,500 per day to run the facility or approximately $108,500 per month.

- Long-term holding costs average about $1.45 per day per horse.

- Helicopter-drive gather operations are currently costing around $600 per horse gathered.

- Bait, water and horseback-drive trap gathers are currently averaging $1,170 per horse trapped.

- PZP-22 fertility treatment costs approximately $350 per mare treated. This includes the cost of vaccine and administration, as well as holding of the horse during gather operations before it is released back to the HMA. PZP-22 is currently widely used and therefore used in this cost analysis. However, several options for fertility treatment may be available after further research is complete.

- Gelding of stallions costs approximately $60 per horse. This includes the surgery only.

Environmental Consequences - Social and Economic Values

Effects Common to All Alternatives*:*

For the purposes of this analysis, the CEAA for social and economic values is the extent of Harney County. Past actions such as wild horse gathers to maintain AML have influenced the existing environment within the CEAA. Present actions associated with the North Steens Project have the potential to improve rangeland health and increase forage production for wildlife, wild horses, and livestock, thereby, maintaining or possibly increasing economic opportunities and fostering more desirable recreation opportunities (i.e. wild horse viewing/photography) with associated economic benefits to the local economy. The South Steens AMP Decision renewed the 10-year permit for livestock grazing and authorized construction of two spring protection fences and an additional well for improved water source distribution. This decision should lead toward improvements in range condition and aid in the sustainability of the ranching operation depending on the grazing permit. In addition to sustaining livestock operations, rangeland improvement could also bring about increased sustainability for wild horse management, further improving the local economy and supporting a well-established, local, rural-oriented social fabric. The North Steens 230-kV Transmission Line ROW identifies changes in employment, income, revenue and fiscal health, and property values. Whether horses are gathered and AML is maintained would have no measureable affect to social and economic values in Harney County.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Comments received from the public for BLM gathers over the past few years have emphasized the desire for BLM to increase the use of fertility control in order to reduce the number of wild horses to be removed from the range or maintained in long-term holding. This proposed gather includes the use of available and approved fertility control

in those mares that would be released back into the HMA to help maintain the wild horses within AML with fewer necessary removals in the future.

The following is a message from the former BLM Director, Bob Abbey: *"The BLM finds itself in the predicament of needing to gather overpopulated herds from the Western range each year while its holding costs keep rising - with no end in sight. Recognizing this unsustainable situation, the Government Accountability Office, in a report issued in October 2008, found the Bureau to be at a 'critical crossroads' because of spiraling off-the-range holding costs and its limited management options concerning unadopted horses. In response, [former] Secretary of the Interior Ken Salazar and I announced on October 7, 2009, a new and* sustainable *way forward for managing our nation's wild horse horses and burros. … We recommended* ***applying new strategies aimed at balancing wild horse and burro population growth rates with public adoption demand to control holding costs*** [emphasis in original]. *This effort would involve slowing population growth rates of wild horses on Western public rangelands through the aggressive use of fertility control, the active management of sex ratios on the range, and perhaps even the introduction of non-reproducing herds in some of the BLM's existing Herd Management Areas in 10 Western states".*

The Humane Society of the United States (HSUS) "strongly supports efforts to increase the use of fertility control and improve gather efficiency as we believe these are the most critical improvements that the agency can make to its current on-the-range management program. High gather efficiency is essential in order to conduct successful fertility control programs, and thus, reduce population growth rates, the need and frequency of removals, and ultimately, long-term reductions in off-the-range management costs…We recommend that BLM increase the number of mares treated with fertility control and consider other population growth suppression methods…" (2011).

Costs associated with the proposed gather and implementation of the fertility control would be incurred under the Proposed Action. If approximately 715 horses are gathered and 60 mares are treated with available and approved fertility treatment the cost of the gather and fertility treatment would be approximately $450,000. Five hundred and three excess adult horses would be removed from the HMA and held at Burns Facility and made available for adoption. It would be assumed that approximately half of the horses removed (252) would be stallions and require gelding at a total cost of $15,120. There would also be costs associated with both short- and long-term holding facilities incurred once the gather is completed but the percentages that would be adopted or sent to long-term holding are unknown at this time. The magnitude of these costs is uncertain as are any long-term costs of maintaining wild horses either within AML on the range or in holding facilities.

The Proposed Action encompasses a 10-year time frame that would include 1 to 2 additional gathers following the initial gather which would bring horse numbers down to low AML. The possible 1 to 2 gathers are based upon the normal 20 percent reproductive rate observed across most HMAs and when populations would normally

reach high AML. However, the cost and frequency of gathers would decrease if more effective fertility control treatments become approved and available for use on BLM wild horses.

Under the Proposed Action, wild horses would be gathered to the low end of AML. Over time the vegetation and hydrologic resources in the area would be allowed to recover due to the reduced amounts of utilization and forage competition by livestock and wildlife. Livestock permittees would be able to continue grazing their cattle, at permitted levels, in these areas further securing the possibility of economic benefits (e.g. income) for those permittees. This would contribute to the local economies through taxes, the purchase of supplies, and other contributions to the local communities.

Habitat quality for wildlife, livestock, and wild horses would be maintained or improved with management of wild horse populations within AML. When horse numbers are kept within AML, BLM is able to manage for a natural ecological balance. This means horses would have enough forage to maintain a healthy body condition throughout the year. Horses in good health are what the public wants to see, no matter if they are opposed to or proponents of gathers.

Maintaining wild horse populations within AML and contributing to a thriving natural ecological balance for the 10-year period of this Proposed Action would allow the rangeland improvements associated with the North Steens Project and South Steens AMP Decision to be more readily recognized. Managing wild horse populations in South Steens Allotment ensures security for a sustainable livestock grazing operation associated with the 10-year term permit recently renewed in the South Steens AMP Decision. A sustainable livestock operation includes economic success and the ability to continue to contribute to the economy of Harney County.

Alternative B: Alternative A <u>without</u> Applying Available and Approved Fertility Treatment

The BLM, organizations such as the HSUS, and sectors of the public support some sort of fertility treatment applied for the management of wild horse numbers within AML and possibly to decrease the frequency of wild horse gathers. Under this alternative, the status quo of 20 percent annual reproduction would continue with no application of fertility control. This alternative would ensure, in the 10-year time frame of this analysis, 3 more gathers would be required as nothing beyond gathering wild horses would be done to slow the population growth.

Under this alternative, the public perception of BLM's management of wild horses would likely decline if no efforts are made to solve the current issues with growing wild horse populations.

Effects to past, present, and RFFAs would be the same under this alternative as those described in Alternative A.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Effects of this alternative to social and economic values would be similar to those of the Proposed Action with one exception; in this alternative, the BLM would be slowing population growth in the South Steens HMA with the inclusion of gelding up to 30 of the returned stallions coupled with fertility treatment of 60 returned mares. The cost of this alternative would be slightly more than the Proposed Action only following the initial gather as 30 additional stallions would need to be gelded; adding a cost of $1,800. However, this alternative would lengthen the years between gathers by starting with a smaller breeding population than that under the proposed action. Being able to increase the amount of years between gathers to more than the normal 4–5 years, would reduce the long-term cost inputs to managing wild horse populations.

The HSUS supports the introduction of geldings to the range in areas that were previously zeroed-out [all wild horses removed] by the BLM and/or introduction into existing HMAs with self-sustaining (i.e. reproductive) wild horse populations (HSUS 2011). The public would continue to have the opportunity to see wild horses on the range while BLM would be better able to maintain a natural ecological balance within the HMA.

Effects to past, present, and RFFAs would be the same under this alternative as those described in Alternative A.

Alternative D: Gate Cut Removal

Under the Gate Cut Removal Alternative, BLM would save money on the initial gather as there would only be 503 horses gathered as compared to the 715 gathered in the Proposed Action ($301,800 vs. $429,000, respectively). However, the every-4-year gather cycle would continue with a 20 percent annual reproductive rate under the absence of fertility control methods. A gate cut removal would be expected every 4 years at the same or increased cost as the initial gather.

Under this alternative, the BLM would not take any steps toward slowing population growth to lengthen the gather cycle and prevent sending horses to long-term holding facilities. In addition, BLM would not be managing for the unique characteristics the public has grown to expect from the South Steens horses. Specifically, South Steens "Hollywood" herd is often referred to as the most photographed wild horse herd in the country. There is a dedicated group of individual photographers that follow the Hollywood herd throughout the year. It is unknown what the economic loss would be if the Hollywood herd was not maintained and photographers were unable to take pictures of these horses. However, some local businesses would be impacted if this group were to go elsewhere.

Effects to past, present, and RFFAs would be the same under this alternative as those described in Alternative A.

Alternative E: No Action - Defer Gather and Removal

Under the No Action Alternative there would be no initial monetary cost as no gather would be conducted and no fertility treatments would be applied to slow wild horse population growth.

Wild horse numbers over 4 years, the normal gather cycle, from fall 2014 would be up to approximately 1,144 adult horses given a 20 percent annual increase; over double the estimated population in the HMA currently. Competition for forage would become evident between wild horses, livestock, and possibly wildlife. It is anticipated at this point range conditions would be deteriorating enough to create a situation where livestock active preference would be reduced accordingly to prevent further degradation to range conditions under authority of CFR 43 Ch. II, Subpart 4110.3 *Changes in grazing preference* (2006). Livestock permittees would have to find feed elsewhere, probably at the private land lease rate which is significantly higher than the BLM lease rate, or sell their cattle. BLM's rate per AUM in 2014 was $1.35 while the private land lease rate was considered to be $15.00 per AUM in Oregon. The South Steens AMP decision to renew the 10-year livestock grazing permit would be ineffective toward the sustainability of the livestock operation if livestock are not turned out on the allotment because the AUMs available are being utilized by wild horses. A livestock operation in Harney County that is not sustainable economically would further burden the struggling economy of Harney County.

The North Steens Project indicates juniper treatments would increase rangeland health, thus increasing forage production for both wildlife and livestock, and possibly increasing economic opportunities and fostering more desirable recreational opportunities with attendant economic benefits to the local economy. Under this alternative cumulative economic benefit from this project would not be seen.

At two times the high AML, it is assumed, the BCSs of the wild horses would decrease as forage competition increased and water availability decreased. If horse numbers become too high and drought conditions persist, emergency situations may arise where BLM must take extreme measures to save wild horses. Generally these extreme measures include hauling water, gathering in the heat of summer to prevent water starvation, and even euthanizing horses too weak to survive.

Should a gather take place in the future, there would be a higher cost to remove wild horses as there would need to be more horses removed from the HMA and an expected higher number of wild horses sent to long-term holding facilities.

H. Soils and Biological Soil Crusts

Affected Environment - Soils and Biological Soil Crusts

The predominant soil association (75 percent+) within the South Steens HMA is Ninemile-Westbutte-Carryback. These soils are well-drained, shallow, and moderately deep soils that formed in residuum and colluvium and tend towards gravelly to very cobbly loams or stony to cobbly clays with areas of silty clay loam. They're found on plateaus, hills, and mountains that receive 12 to 16 inches of precipitation. Slopes range from 0–65 percent leading to a moderate hazard of water erosion. The associated native vegetation communities are mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*) and low sagebrush (*Artemisia arbuscula*) with needlegrass species (*Achnatherum* sp.*)* and Idaho fescue (*Festuca idahoensis*).

Two other associations are also found within the HMA, but make up less than 25 percent of the HMA. They include Raz-Brace-Anawalt and Reallis-Vergas-Lawen. The Raz-Brace-Anawalt association includes cobbly or stony loams that evolved on hills and tablelands. These soils are shallow to moderately deep, generally well-drained, and have a low potential for wind erosion and low to moderate potential for water erosion. These soils of cold plateaus and uplands support native vegetative communities dominated by Wyoming big sagebrush (*Artemisia tridentata* spp. *wyomingensis*), low sagebrush (*Artemisia arbuscula*), needlegrass species (*Achnatherum* sp.*)*, and bluebunch wheatgrass (*Pseudoroegneria spicata)*. The Reallis-Vergas-Lawen soil complex consists of very deep, well-drained soils that formed in gravelly or loamy alluvium and eolian materials derived from volcanic rocks and wind and water deposited sediments. This complex is found on alluvial fans, lake terraces, and in depressions on plateaus and has slopes of 0–8 percent. The complex ranges from a loamy to sandy loam texture and is well-drained with slow to moderate permeability resulting in a low to moderate risk of wind and water erosion. Native vegetation commonly found in this soil complex is: basin big sagebrush (*Artemisia tridentata* spp. *tridentata*), Wyoming big sagebrush (*Artemisia tridentata* spp. *wyomingensis*), bluebunch wheatgrass (*Pseudoroegneria spicata)*, Thurber's needlegrass (*Achnatherum thurberianum)*, Sandberg bluegrass (*Poa secunda*), needle and thread grass (*Hesperostipa comate)*, Indian ricegrass (*Achnatherum hymenoides)*, basin wildrye (*Leymus cinereus)*, and western needlegrass (*Achnatherum occidentale).*

Identification of biological soil crusts (BSC) at the species level is often not practical for fieldwork. The use of some basic morphological groups simplifies the situation. Cover and frequency can be recorded by taxa or morphological groups and are often good indicators of the ecological and hydrological status of the landscape (Belnap et al. 2001). Using a classification scheme proposed in 1994 we can divide microbiota such as BSCs into three groups based on their physical location in relation to the soil: hypermorphic (above ground), perimorphic (at ground) and cryptomorphic (below ground).

The morphological groups are:

1. Cyanobacteria - Perimorphic/cryptomorphic.
2. Algae - Perimorphic/cryptomorphic.
3. Micro-fungi - Cryptomorphic/perimorphic.
4. Short moss (under10mm) - Hypermorphic.
5. Tall moss (over 10mm) - Hypermorphic.
6. Liverwort - Hypermorphic
7. Crustose lichen - Perimorphic.
8. Gelatinous lichen - Perimorphic.
9. Squamulose lichen - Perimorphic.
10. Foliose lichen - Perimorphic.
11. Fruticose lichen - Perimorphic.

Morphological groups 4, 5, 7, 8, and 9 would likely be the dominant groups represented in the project area. Depending on precipitation amounts and microsites, groups 6, 10, and 11 may also be well-represented where the site specific conditions required for their growth exist. Morphological groups 1, 2, and 3 are difficult to discern in the field as they require specialized tools which are not easily useable in the field. Soil surface microtopography and aggregate stability are important contributions from biological soil crusts as they increase the residence time of moisture and reduce erosional processes. The influence of BSCs on infiltration rates and hydraulic conductivity varies greatly; generally speaking, infiltration rates increase in pinnacled crusts and decrease in flat crust microtopography. The Northern Great Basin has a rolling BSC microtopography and the infiltration rates are probably intermediate compared to flat or pinnacled crustal systems. Factors influencing distribution of BSCs (TR-1730-2) include, but are not limited to: elevation, soils and topography, percent rock cover, timing of precipitation, and disturbance.

Possible disturbances that have occurred within the HMA include, but are not limited to: effects from livestock grazing, vehicles, wild horses, and recreation. The specific contribution of these activities to current BSC condition and cover is not discernable from other historic disturbances.

Environmental Consequences - Soils and Biological Soil Crusts

For the purposes of this analysis, the cumulative effects analysis area for soils/BSCs is at the HMA scale. Past ground-disturbing activities affecting soils/BSCs within the HMA include the construction of range improvement projects, livestock grazing, wild horse use, recreation, and hunting.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Wild horses, much like livestock, tend to congregate around areas where resources are plentiful, such as water sources. When horse numbers increase, the impacts to soils and BSCs (e.g. soil compaction) increase. Soils become compacted in a greater radius from the resources with BSC loss within the same radius as a result of the soil compaction. Removal of excess wild horses would prevent larger areas of compaction and BSC loss and the application of fertility treatment would slow down the reproduction rate with the same outcome. Removal and slowing the growth rate would also prevent overgrazing by wild horses. Loss of vegetation exposes soils and BSCs to wind and water erosion which would lead to excessive loss. Because the gather sites would be in areas used in prior gathers or in areas where disturbance has already occurred, soil and BSCs would not be impacted.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Environmental consequences would be similar to the Proposed Action with the exception of not slowing the growth rate (which would potentially decrease the intervals for gathers).

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Environmental consequences would be the same as the Proposed Action.

Alternative D: Gate Cut Removal

Environmental consequences would be the same as Alternative B.

Alternative E: No Action - Defer Gather and Removal

Under the No Action Alternative, wild horse numbers would increase at a rate of approximately 20 percent per year with no gathering to the lowest AML. Increases in horse numbers would lead to excessive overgrazing which would expose soils to wind and water erosion and remove BSCs from the HMA. Larger areas around water resources would become compacted as animal numbers increase. Increased loss of BSCs across the HMA would occur as wild horses utilize more of the area looking for resources as they become scarce.

I. Wild and Scenic Rivers

Affected Environment - WSRs

There are approximately 26 miles of WSRs within the boundary of the South Steens HMA. The creeks and rivers within the HMA boundary are part of the Redband Trout Reserve (RTR), a congressionally designated area set aside to maintain the genetic integrity of the redband trout, a native species. WSRs located within the South Steens

HMA are popular destinations for visitors. Hunting, fishing, hiking, and camping are the most popular activities within the WSR corridor. Visitors use the existing access routes for motorized recreation as well as for access to their WSR destination

The segments of WSRs are summarized in Table 13, following:

Table 13: Summary of Wild and Scenic Rivers in the HMA Boundaries

Segment	Description	Outstanding Resource Values (ORV)[6]	Miles	Acres	In Wilderness
Donner und Blitzen WSR Segments					
A[7]	Donner und Blitzen	S,G,R,F,W,V	13.9	2,540	Except 19 acres in Page Springs Campground and 73 other acres
C[7]	South Fork Donner und Blitzen	S,G,R,F,W,V	14.9 BLM 3.0 Private	2,730 BLM 758 Private	Except 67 acres in a WSA
G[8]	Mud Creek	S,R,F,W	5.1	1,515	Yes
H[8]	Ankle Creek	S,R,F,W	6.0 BLM 2.1 Private	1,656 BLM 638 Private	Yes
I[8]	South Fork Ankle Creek	S,R,F,W	1.6	476	Yes

Environmental Consequences - WSRs

For the purposes of this analysis, the CEAA for WSRs is the South Steens HMA. Past and present actions have influenced the existing environment within the South Steens HMA. The RFFAs in or around the South Steens HMA contributing to cumulative effects to WSR outstanding resource values (ORV), include hunting and other recreational pursuits, ongoing maintenance of existing range improvements, wild horse utilization, periodic wild horse gathers to maintain horse numbers within the AML, wildlife use, fire rehabilitation actions, ongoing noxious weed treatments, the North Steens Project, the CRP, and the South Steens AMP DR. The CRP EA proposes to increase the number of designated trails which cross or lie within WSR corridors, improving the recreational ORV through better access.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

[6] ORVs: S=Scenery, G=Geological, R=Recreational, F=Fish, W=Wildlife, V=Vegetation, B=Botanical
[7] Rivers Designated by the 1988 Omnibus Oregon WSRs Act.
Note: River miles may vary slightly from the 1988 legislation due to improvements in mapping data.
[8] Rivers designated by the Steens Act of 2000.

Effects to the WSR ORVs within the HMA are as follows:

Scenic

Gathering operations would have no effect on the Scenic ORV because gathering wild horses does not affect landforms or naturalness.

Geologic

Gathering operations would have no effect on the Geologic ORV because gathering wild horses has no impact on rare, unusual, or unique geological features.

Recreational

The effects to the Recreational ORV would be helicopter over-flights while wild horses are being gathered which would affect recreation activities during the gather operation. The sights and sounds of helicopters herding or searching for horses could disturb visitors who may be hunting or bird-watching or searching for solitude. Once the wild horse gather has been completed there would be no more impacts to WSRs.

Fish

Gathering operations would have no effect on the Fish ORVs because trap locations typically are placed on dry land. However, horses cross the South Fork of Donner und Blitzen WSR while being herded and may disturb the bank and river bottom while doing so. The impact to fish ORVs is not measurable because the disturbance is small relative to the size of the river. See Fish section for further detail on individual fish populations.

Wildlife

Gathering operations would have no effect on the Wildlife ORV as it would have no effect to diversity and overall population of wildlife. The ORV would remain unchanged and therefore unaffected.

Vegetation

Gathering operations would have no effect on the Vegetation ORV because the diversity of plant communities would remain unchanged during and after the gather.

Alternative B: Alternative A without Applying Available and Approved Fertility Vaccination

Effects would be similar to Alternative A. This alternative would result in population management gathers more frequently based on the herd growth rate. The high end of AML would be observed earlier under this alternative than under Alternative A (given

effective fertility vaccination). Effects to WSR ORVs would be observed earlier under this alternative as compared to Alternative A.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Effects would be similar to Alternative A as the gathering operation actions are the same. Application of fertility vaccinations and gelding of stallions returned to the HMA would prolong the time until the next gather because the herd would take longer to grow in population. Increasing time between gathers reduces the cumulative effect to the Recreation ORV by reducing interruptions to solitude created by the use of helicopters.

Alternative D: Gate Cut Removal

Effects would be similar to those discussed under Alternative B because the gathering operation actions are the same with the exception of the gate cut removal which has no effect to WSR ORVs.

Alternative E: No Action - Defer Gather and Removal

Effects to the WSR ORVs within the HMA are as follows:

Scenic

An expanding population of wild horses is expected to create resource damage in areas of high usage. Examples include riparian areas along the WSR river banks (trampling by hooves) and fence damage (such as knocking down fence posts) along boundaries. Resource damage caused by wild horses diminishes the naturalness component of the Scenic ORV.

Geologic

The No Action Alternative would have no effect on the Geologic ORV because wild horses have no impact on rare, unusual, or unique geological features.

Recreational

Recreational activities of visitors would be affected by the wild horses under the No Action Alternative in the following way: game animals and wild horses competing for the same resources could affect hunter success rates by driving game animals out of the area to look for water and forage due to the increased population of wild horses.

Fish

The No Action Alternative could affect the fish ORV. An increasing population of wild horses could lead to a decrease in water quality through stream bank degradation which could harm the RTR.

Wildlife

The No Action Alternative may affect wildlife when an increasing population of wild horses crowds out other wildlife when competing for water, forage, and habitat.

Vegetation

The No Action Alternative could affect the Vegetation ORV. A wild horse population over AML can create damage to vegetation through hoof trampling and when they rip vegetation from the ground as they eat. These actions create areas where invasive weeds can germinate in the disturbed soil. Invasive weeds such as cheatgrass and medusahead could create a monoculture of vegetation. The effect could exist wherever wild horses find access to the river.

J. Wilderness

Affected Environment - Wilderness

There are 43,113 acres of the Designated Steens Mountain Wilderness lying within the South Steens HMA. Some of the most unique attributes of Steens Mountain Wilderness are scenic vistas and spectacular geology. Visitors can experience a diversity of habitats above tree line, where climate and thin soils result in a belt of grasses, low-growing plants, and stunted, wind-formed shrubs. At the base of the mountain where water is scarce, sagebrush is common. Stands of quaking aspen occur along streams, while mountain mahogany occupies the drier ridge tops. Visitors may see large raptors such as golden eagles; mammals such as pronghorn antelope; or even a piece of living history, South Steens wild horses, descendants of horses escaped from early explorers, settlers, miners, Indians, and ranchers. Many other unique features within Steens Mountain Wilderness are described as ORVs of the designated WSRs.

Environmental Consequences - Wilderness

There are RFFAs occurring because of other administrative actions taking place in or around the project area:

The North Steens Ecosystem Restoration Project EIS uses prescribed fire and mechanical treatments to control juniper within the project area, however the plan states the continuation of current management, which may use wildland fire to meet resource objectives or other NEPA, would be used in the wilderness. Fire is a natural part of the ecological process and would have no affect to wilderness values.

The CRP EA proposes additional designated trails within the wilderness. Designation of additional trails may increase visitor use which could affect solitude through increased visitor encounters; however, additional proposed wilderness access points would also be created in the plan to provide more dispersed recreation opportunities. Visitors recreating

in the wilderness may encounter the horse gather operations and the wilderness characteristic of solitude may be diminished.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Under the Proposed Action, helicopter-drive trapping and bait/water trapping would occur in the wilderness. The 2012 BLM 6340 Management of Designated Wilderness Areas (Section 1.6(C)(20)) allows the employment of prohibited uses when they are necessary to meet the minimum requirements for administering the area for the purpose of the Wilderness Act or where the uses are required under the Wild Free-Roaming Horse and Burro Act of 1971. The Minimum Requirements Decision Guide (MRDG) will be used to determine when prohibited uses—such as motorized or mechanized vehicles, motorized equipment, and installations (such as traps, temporary corrals, and fences)—are permissible for the management of wild horses and burros (BLM Manual 6340). The MRDG for actions proposed in this document can be found in Appendix J.

Helicopter-drive trapping of wild horses would not occur in wilderness where alternative non-wilderness public land locations are available. Traps would be set up adjacent to roads, close enough for vehicles with trailers to access the site to remove horses. These traps would be set up for up to approximately 1 week at a time, but typically for only 2–3 days.

Where wild horses are found in the wilderness, bait or water traps would be set up in known wild horse watering and foraging areas adjacent to roads, close enough for vehicles with trailers to access the site to remove horses.

Effects to wilderness character are the following:

<u>Untrammeled</u>

Herding, capturing, transporting, and caring for wild horses are impairing to the untrammeled wilderness characteristic because humans are controlling the natural population growth of the wild horses by artificially culling the herd.

<u>Undeveloped</u>

There would be no effect to the undeveloped characteristic because there would be no permanent developments or installations in the wilderness.

<u>Naturalness</u>

The natural distribution of the wild horse population within the wilderness portion of the HMA would be altered by gathering as horses are herded and pushed towards the capture area during a helicopter gather. Naturalness would be diminished by this action but it would be short term, approximately 1 week. Removing enough wild horses to bring the

population down to AML would restore an ecological balance between wildlife, wild horses, and livestock, ensuring long-term naturalness is maintained or improved.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation

During helicopter gather operations, solitude in wilderness would be affected by the sight and sound of the helicopter. These impacts would be limited to those areas of Steens Mountain Wilderness where the gathering is taking place and would last approximately 2 weeks. Once the wild horse gather is completed, solitude would no longer be affected.

During helicopter gather operations, primitive and unconfined recreation opportunities would be constrained by the presence of the helicopter. For example: hunters stalking game may be disturbed by the noise and sight of helicopters conducting low altitude flights. Birdwatchers spotting or photographing birds may be disturbed in the same way. These effects would only occur within the vicinity of gathering operations. Once the gather is complete, opportunities for primitive and unconfined recreation would return.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Effects would be similar to Alternative A, the Proposed Action, with the additional point that it could also result in gathers being conducted more often than in other alternatives. The fertility vaccination used in Alternative A would reduce the population growth of animals returned to the wild. Animals returned to the wild without the vaccination, as in this alternative, could produce more offspring compared to the Proposed Action over the same period of time. Increasing the number of gathers would increase the cumulative effects to the wilderness characteristics of untrammeled, naturalness, and outstanding opportunities for solitude. Cumulative effects can be seen in the number of days the actions take place over the 10-year period of analysis.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Effects would be the same as Alternative A, Proposed Action.

Alternative D: Gate Cut Removal

Effects would be similar to those discussed under Alternative B.

Alternative E: No Action - Defer Gather and Removal

Under Alternative E, the No Action Alternative, no gather would occur and no additional management actions would be undertaken to control the size or sex ratio of the wild horse population at this time. Current estimates of wild horses on the range indicate there are 460 horses within the HMA. Within one normal gather cycle, 4 years, wild horse numbers would increase to approximately 952 horses under the No Action Alternative. Wild horses

ranging outside the HMA would remain in areas outside the HMA not designated for their management.

Untrammeled

Not culling the herd could result in overpopulation and resource degradation thereby affecting other wilderness characteristics such as naturalness or recreation.

Undeveloped

There would be no effect to the undeveloped characteristic because there are no developments or installations.

Naturalness

Naturalness would be affected in the following ways: the wild horse population would grow unchecked which enhances the naturalness characteristic. However, an unchecked population of wild horses could affect other ecological conditions in congregation areas and around sensitive riparian areas where wild horses gather for water and forage, and other wildlife may be crowded out as the population of wild horses continues to grow.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation

There would be no effect to outstanding opportunities for solitude or a primitive and unconfined type of recreation as no helicopter overflights or traps would be set up in the wilderness.

Other Unique Components Reflecting the Character of this Wilderness are**:**

Horseback riding is considered a heritage and cultural resource of the Steens Mountain ranching community. Horseback riding is a traditional skill of the Steens Mountain ranching community. This skill would not be recognized or practiced under this alternative as no action would be taken to control the wild horse population.

K. Wilderness Study Areas

Affected Environment - WSAs

The affected environment has three Wilderness Study Areas (WSA). Wilderness characteristics are summarized from Volume I of the Oregon BLM Wilderness Study Report (1991).

Home Creek WSA: was reduced to 1,165 acres from 26,590 with designation of Steens Mountain Wilderness.

Naturalness

Home Creek WSA is in a natural condition. The WSA has good populations of pronghorn antelope and chukar and provides habitat for a variety of nongame species. There are no unnatural features in the 1,165 acre WSA.

Solitude

Opportunities for solitude in Home Creek WSA are outstanding. These opportunities are enhanced by vegetative screening and the remoteness of the Home Creek WSA.

Primitive and Unconfined Recreation

Home Creek WSA offers outstanding opportunities for hunting, wildlife viewing, camping, and horseback riding. Game species include mule deer, pronghorn antelope, and chukars.

Supplemental Values

The identified special features of wildlife, geology, and scenery for Home Creek WSA are now in Steens Mountain Wilderness.

The South Fork Donner und Blitzen River WSA: was reduced to 27,969 acres from 37,555 with designation of Steens Mountain Wilderness.

Naturalness

South Fork Donner und Blitzen River WSA is in a relatively natural condition. Juniper and low sagebrush are the dominant vegetation. The WSA provides habitat for a variety of big game, upland game birds, and other wildlife species. The WSA contains 30 unnatural features: 15 reservoirs, 11 ways totaling 28 miles, a corral, 2 fences totaling 2 miles, and an old, abandoned habitation. (The number of unnatural features has not been adjusted to reflect new structures in the WSA or changes resulting from the designation of wilderness).

Solitude

Opportunities for solitude in South Fork Donner und Blitzen River WSA are outstanding. The WSA's size, numerous shallow drainages, deeper river tributaries, and juniper trees enhance the opportunities for a visitor to find seclusion.

Primitive and Unconfined Recreation

South Fork Donner und Blitzen River WSA has outstanding opportunities for primitive recreation. Day hiking, backpacking, camping, and horseback riding opportunities are

available. Water and camping spots are available throughout the WSA. Game species in the WSA include mule deer, pronghorn antelope, elk, and upland game birds.

Supplemental Values

A Greater Sage-Grouse strutting area is located in South Fork Donner und Blitzen River WSA. Greater Sage-Grouse is a BLM special status species.

Blitzen River WSA: was reduced to 31,737 acres from 55,880 with designation of Steens Mountain Wilderness.

Naturalness

Blitzen River WSA is in a relatively natural condition. The WSA contains a variety of wildlife habitats with a diversity of animals. There are 84 unnatural features: 52 reservoirs, 1 developed spring, a 2-mile irrigation ditch, 12 fences totaling 33 miles, and 18 ways totaling 58 miles. (The number of unnatural features has not been adjusted to reflect new structures in the WSA or changes resulting from designation of wilderness). Many of the developments and ways are visible from the higher elevations around them. The fences are generally screened by topography or vegetation. Outside influences include several small reservoirs along the west boundary, the Page Springs Campground, and a power line along the northwest boundary.

Solitude

Blitzen River WSA has outstanding opportunities for solitude. The area contains a substantial amount of topographic and vegetative screening. There are small portions of the WSA, mostly near the western border, where finding seclusion would be difficult because of the area's lack of topographic or vegetative screening.

Primitive and Unconfined Recreation

Blitzen River WSA provides outstanding opportunities for primitive recreation. These activities include day hiking, backpacking, camping, horseback riding, hunting, wildlife viewing, sightseeing, and photography. Game species include mule deer, pronghorn antelope, elk, and chukars.

Supplemental Values

Special features of Blitzen River WSA are scenic quality and wildlife. The topography of the WSA offers spectacular scenery of ridges covered by juniper and sagebrush, intermixed with outcroppings of dark basalt rock. Special wildlife features include a Greater Sage-Grouse strutting ground and mule deer winter range. Greater Sage-Grouse is a BLM special status species.

Environmental Consequences - WSAs

There are RFFAs occurring because of other administrative actions taking place in or around the project area.

The CRP EA proposes to increase visitor use through additional designated trails within the WSAs. Designation of additional trails may increase visitor use which could affect solitude through increased visitor encounters.

Visitors recreating in the WSA may encounter the horse gather operations and the wilderness characteristic of solitude may be diminished.

The South Steens AMP EA would increase the number of developments within the project area. Developments impair the undeveloped character of WSAs. However the only developments in this WSA are protection fences around two springs which would cause minimal effects to the WSA and therefore will not be discussed further.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

Under the Proposed Action, helicopter-drive trapping and bait/water trapping would occur in the WSA. The 2012 BLM Manual 6330 Management of Wilderness Study Areas provides for wild horse and burro populations to be "[M]anaged at appropriate management levels so as to not exceed the productive capacity of the habitat (as determined by available science and monitoring activities), to ensure a thriving natural ecological balance, and to prevent impairment of wilderness characteristics, watershed function, and ecological processes. The BLM should limit population growth or remove excess animals as necessary to prevent the impairment of the WSA" (BLM Manual 6330, Chapter 1.6.D.10.a).

The manual also allows for "[T]emporary traps [to be] located within WSAs for the effective removal of animals in excess of the appropriate management level established for the herd area", when practical alternatives do not exist…. Also, "Vehicles necessary for set-up and take-down of traps and for transporting excess wild horses and burros away from the area may be driven off of existing primitive routes or boundary roads on a route specified through the NEPA analysis" (BLM Manual 6330, Chapter 1.6.D.10.c).

To conform with BLM Manual 6330, "at the completion of the gather [or bait/water trapping], all facilities must be removed, the route used for trap access closed to motor vehicles until it is restored to the original condition, and any new access route and trap area rehabilitated so that the route is no longer visible to subsequent motor vehicle operators" (Chapter 1.6.D.10.c).

Naturalness

Naturalness in the WSA is affected by herding wild horses with a helicopter and the use of traps to collect and transfer them to trailers for transport. The natural distribution of horses across the WSA is altered when the helicopter herds them toward the trap area but this is short term, approximately 1 week in duration. The use of traps, while necessary for the effective removal of animals in excess of the AML established for the herd area, leaves a surface disturbance from setting up the trap and from the path created by the horses when entering the trap which diminishes naturalness. These impacts would be limited to those areas of the WSA where the gathering is taking place. However, any tracks or disturbances caused by the vehicles or trap setups would be rehabilitated. Once the wild horse gather is completed, naturalness would no longer be affected.

Solitude

During gather operations solitude in the WSA would be affected by the sight and sound of the helicopter disturbing the solitude of visitors to the WSA. These impacts would be limited to those areas of the WSA where the gathering is taking place. Once the wild horse gather is completed, solitude would no longer be affected.

Primitive and Unconfined Recreation

During all gather operations, primitive and unconfined recreation opportunities would be constrained by the presence of the helicopter. For example: hunters stalking game would be disturbed by the noise and sight of helicopters conducting low altitude flights; birdwatchers spotting or photographing birds would be disturbed in the same way. These effects would only occur within the vicinity of gathering operations. Once the gather is completed, opportunities for primitive and unconfined recreation would return.

Supplemental Values

Supplemental values are not affected.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Effects would be similar to those of Alternative A with the additional point that Alternative B could also result in gathers being conducted more often than in other alternatives. The fertility vaccination used in Alternative A would reduce the population growth of animals returned to the wild. Animals returned to the wild without the vaccination, as in this alternative, could produce more offspring compared to the Proposed Action over the same period of time. Increasing the number of gathers would increase the cumulative effects to the wilderness characteristics of naturalness and outstanding opportunities for solitude. Cumulative effects can be seen in the number of days the actions take place over the 10-year period of analysis.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Effects would be the same as Alternative A.

Alternative D: Gate Cut Removal

Effects would be similar to those discussed under Alternative B.

Alternative E: No Action - Defer Gather and Removal

Naturalness

Wild horse populations which continually increase from year to year would affect the ecological balance of the WSA in the following ways: The WSAs share water sources and forage among wild horses, wildlife, and cattle, therefore, an increasing population of wild horses would take up more water and forage; more wild horses would cause more damage at sensitive riparian areas; and as wild horse populations increase because they thrive in the environment, other stable populations of wildlife would be crowded out of foraging and watering opportunities, diminishing naturalness. Sensitive riparian areas would have an increased area of disturbance because there would be more horses trampling the ground while they watered, also diminishing naturalness.

Solitude

There would be no effects to solitude because there would be no gather.

Primitive and Unconfined Recreation

Effects to primitive and unconfined recreation would be gradual and occur over a period of years. As the population of wild horses becomes larger, they would compete for water and forage with other wildlife such as deer, elk, antelope, and others. The wild horses could crowd out the game animals, forcing them to move into other areas of the Steens. Decreasing numbers of game animals due to an increasing population of wild horses diminishes the primitive and unconfined recreation character of the WSA.

Supplemental Values

There would be no effects to supplemental values of the WSA.

L. Special Status Species and Habitat - Sage-grouse

Affected Environment - Sage-grouse

Greater Sage-Grouse use the HMA yearlong and have ten leks within the HMA, four of which are known to be active at this time. The other six have intermittent use, where they are used some years and not others (for more information contact ODFW).

Table 14: Greater Sage-Grouse Habitat by Type

Greater Sage-Grouse Habitat	Acres	Percent
Preliminary Priority Habitat (PPH)	83,948	64%
Preliminary General Habitat (PGH)	47,082	36%
TOTAL	131,030	100%

Approximately 64 percent of the South Steens HMA is designated PPH and 36 percent is PGH. Nest sites were located in the area during a radio telemetry study from 1997 to 2000. Approximately 65 percent of nests were within two miles of a lek and 83 percent were within 3 miles of a lek. Seventy percent of the HMA is within 3 miles of a lek site. In a study conducted in South Steens Allotment, nest sites were determined to be located mostly in big sagebrush/mountain shrub vegetation types with about one-third of nests occurring in low sagebrush sites (Crawford et al. 2000). Since most sage-grouse hens nest during late March to early April, new growth of perennial grasses is minimal and previous years' (residual) grass growth provides cover for nesting. Nest success for sage-grouse is higher when sagebrush canopy cover is high and residual tall grass cover is present at the nest site (Gregg et al. 1994, DeLong et al. 1995). Residual grass cover provides horizontal screening at the nest site, which blocks the view from predators. Brood rearing also occurs within the HMA, but with few meadow areas in the HMA, sage-grouse hens would be expected to move to higher elevations or south to Home Creek. During the summer months, sage-grouse seek water, usually associated with wet meadows and succulent vegetation (Call and Maser 1985). Sage-grouse winter in lower elevations of the HMA, depending on snow depth during the winter. Sage-grouse rely heavily on sagebrush leaves for food during the winter, and as such choose areas where there is sagebrush above the snow or on windswept areas.

Anderson and McCuistion (2008) found grazing management (including horses) when upland birds are present should be flexible but limited to a light to moderate use (30 percent–50 percent utilization), using deferred or rest-rotation grazing to limit grazing disturbances during critical bird life stages such as nesting. They concluded light to moderate use can increase forb quality and quantity since it can delay the maturation of forbs, extending availability throughout the growing season. Adams et al. (2004) suggests that light to moderate grazing encourages the height and cover of sagebrush and other native species during nesting seasons, and light grazing is used to create patches in the vegetation, increasing the herbage of species preferred by sage-grouse, especially during nest and brood rearing. Sage-grouse often prefer the lightly grazed area and desired grazing intensity should be light to moderate to meet their needs for litter and cover. While sage-grouse like some patchiness in grazing, due to increased forb production that may occur on these sites, impacts associated with heavy use often occur in preferred habitat (such as riparian areas). In general for sage-grouse, the desirable grazing regime and distribution would result in healthy vegetation with good cover and small patches of moderate to heavy use; poor grazing practices would result in large areas of uniform grazing at heavy grazing intensities. Adams found that light to moderate grazing can improve both the plant vigor and the productivity of grass and forb communities, which in turn increases the amount of cover and food vegetation available. This uniformity occurs when grazing animals have access to all forage, and are forced to utilize both

palatable and unpalatable species within the pasture, with no topography, cover, or water factors limiting the use (Coughenour 1991). France et al. (2008) found that in more arid sites sagebrush cover provides the bulk of screening cover (for wildlife including sage-grouse) which is contradictory to other research that emphasizes the role of herbaceous cover for screening. Due to the complexities of sagebrush communities and the variation in grazing effects on these communities, it can be difficult to draw large-scale conclusions regarding the impact of current grazing on sage-grouse (Crawford et al. 2004).

The "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" (Hagen 2011), hereafter referred to as the Strategy, contains guidelines for wild horse management as it relates to sagebrush habitat management (p. 104). It states, "The management goals for wild horses are to manage them as components of the public lands in a manner that preserves and maintains a thriving natural ecological balance in a multiple use relationship. Wild horses are managed in twenty Herd Management Areas (HMAs) that involve 2.8 million acres of public land, primarily in Southeastern OR." The recommended conservation guidelines for wild horses from the Strategy are:

> *1) The cumulative Appropriate Management Level (AML) for horse numbers should be kept within current AML (1,351 to 2,650) in herd management areas.*
>
> > *a) Management agencies are strongly encouraged to prioritize funding for wild horse round-ups in sage-grouse areas that are over AML.*
> > *b) Evaluate the AMLs for impacts on sagebrush habitat.*
> > *c) Further measures may be warranted to conserve sage-grouse habitat even if horses are not at, above, or below appropriate AML for a herd management area.*

Environmental Consequences – Sage-grouse

Effects Common to All Alternatives

For the purposes of this analysis, the CEAA for SSS extends up to 10 miles beyond the HMA boundary to encompass regular movements of sage-grouse that may be using the HMA. The total acreage of the HMA plus the CEAA would be approximately 532,987 acres. Vegetation communities in the HMA are fairly representative of those across the CEAA.

RFFAs in the CEAA that may contribute to cumulative effects to SSS and habitat include management activities associated with livestock grazing, hunting and other recreational pursuits, and cutting and prescribed burning treatments to reduce encroaching juniper and restore habitat. Several thousand acres of treatments are proposed in the CEAA, but funding, weather conditions, and other factors will affect timing of implementation. Completion of analyzed juniper treatments within the CEAA will improve habitat quality for sage-grouse, and decrease the risk of a community altering wildfire that would remove habitat. Past and RFFAs, from the previous 15 years, that have affected SSS or their habitat in the CEAA are found in Table 15.

Table 15: Special Status Species - Wildlife Past and RFFAs

Action	Past Actions			Future Actions		
	Acres	Miles	Number	Acres	Miles	Number
Wildfire Starts			107			Unknown
Wildfires	163,660		36	Unknown		Unknown
Known Primitive Campsites			84			Unknown
Trails		95			39	
Trailheads			4			None
Recreation Sites			9			None
Open Roads		785			None	
Closed Roads		181			None	
Action	**Past Actions**			**Future Actions**		
	Acres	**Miles**	**Number**	**Acres**	**Miles**	**Number**
Fences		457			6	
Pipeline		4			1	
Exclosures	141		6	17		2
Water Developments			235			1
Gravel Pits	689		11	None		None
Cutting	8,264		32	17,063		21
Piling	3,737		12	2,976		25
RX Burning	54,305			16,555		21
Seeding	41,165		45	1,960		4

Other actions, mainly implementation of the North Steens Ecosystem Restoration Project, will affect sage-grouse habitat by removing encroaching juniper from what is believed to have been suitable nest and brood-rearing habitat prior to juniper encroachment. Removal of juniper is expected to increase the amount of forage available for livestock, wild horses, and wildlife species (including sage-grouse). This will leave more residual nesting cover in the long-term (10–15 years) for sage-grouse. Cutting, piling, and burning of juniper within two miles of lek sites will retain much of the shrub cover and increase nesting habitat near leks. Removing juniper may also increase the amount of water available in seasonally wet areas which will improve sage-grouse brood-rearing habitat. Another project falling within the CEAA is the Miller Homestead Fire Emergency Stabilization and Rehabilitation Plan (DOI-BLM-OR-B060-0047-EA). The Miller Homestead Fire occurred in 2012, burning over 160,000 acres of BLM-managed, private, and refuge lands, 91 percent of which is considered PPH and 7 percent of which is considered PGH, as well as 6 known leks. While there are some unburned areas within the fire perimeter, they are generally small and very scattered, with the fire removing most of the big sagebrush in its interior. Due to limited cover and habitat currently found within the burned area, sage-grouse are expected to avoid the area until habitat components are restored. Some of these birds may move into unburned areas near the fire, including the South Steens HMA. Projects associated with this plan include seeding of the burned area (occurred fall 2012) to minimize ecological damage associated with the community altering wildfire that occurred in the fall of 2012. Two temporary fences were also constructed around the rehabilitation area to protect it from livestock and wild

horse grazing. These fences are marked with anti-strike markers to reduce the risk of collision. Also associated with this project is the planting of sagebrush plugs across the burn area in order to help restore sage-grouse habitat in the burned area by providing a seed source for sagebrush.

Within the HMA, and across the Burns District, Aroga moth infestation has been contributing to sagebrush mortality, increasing the risk of catastrophic wildfire, and decreasing cover and food sources for birds. Mortality caused by Aroga moth has been observed in all sagebrush types within the HMA. It is believed sagebrush mortality as a result of Aroga moth infestation was at least partially responsible for the large size of the Miller Homestead Fire and the limited number/size of unburned patches within the fire perimeter. These habitat component losses can result in declining sage-grouse populations due to increased nest predation and early brood mortality associated with decreased nest cover and food availability (Braun 1998, p.149; Moynahan et al. 2007, p. 1781). Continued Aroga moth infestation within the HMA may result in Rangeland Health Standard 5 - Native, T&E, and Locally Important Species not being achieved in the future. The sagebrush plant communities that support sage-grouse are very complex and successionally dynamic as are the effects of livestock grazing within these communities, often making it difficult to form large-scale conclusions about the impacts of current livestock grazing practices on sage-grouse populations (Crawford et al. 2004). However, research suggests it is possible for grazing to be managed in a way that promotes forage quality for sage-grouse since grazing can set back succession which may result in increased forb presence (Vavra 2005). When grazing management is periodic and allows forbs to regrow or prevents their utilization by livestock, the number of forbs available to sage-grouse may increase (Vavra 2005). Anderson and McCuistion (2008) found grazing management, when upland birds are present, should be flexible but limited to a light to moderate use (30–50 percent utilization), using deferred or rest-rotation grazing to limit grazing disturbances during critical bird life stages such as nesting. They recommended light to moderate use in their conclusion; this level can increase forb quality and quantity since grazing can delay the maturation of forbs, extending their availability throughout the season (Anderson and McCuistion 2008). Anderson and McCuistion also acknowledge the complexity of managing grazing within sage-grouse habitat and determined no one grazing system is best suited in all cases, but should be site specific. While many of these references specifically refer to livestock, it is concluded that they apply to wild horses as well, since they are also grazing animals.

Alternative A: Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment (Proposed Action)

In this alternative sage-grouse would have the same resources available as are currently present within the HMA. Horse numbers would be reduced to AML, reducing the occurrence of large areas of uniform utilization at heavy intensities on a year round basis. Areas within the HMA near water sources would continue to be affected by concentrated grazing uses. Portions of the HMA away from existing waterholes and springs would have non-grazed areas, which would be expected to provide more suitable nesting sites for sage-grouse due to more residual grass cover. This would be expected to be highest in

areas outside of the current use area during drought years and lowest in these areas during wet years, since in those years it would be expected that all water sources would have water and attract livestock and wild horses while dispersing their use. Residual grass cover provides horizontal screening at nest sites, in addition to screening from shrubs, which is believed to reduce predation. Maintaining wild horse numbers within AML would aid BLM land managers in their ability to provide quality sage-grouse habitat in the quantities needed for their survival and the growth of populations. This alternative would maintain achievement of Rangeland Health Standard 5 with the goal of providing habitats that support healthy, productive, and diverse populations and communities of native plants and animals (including SSS and species of local importance) appropriate to soil, climate, and landform. This alternative would not contribute to the decline of sagebrush habitat for sage-grouse or the reduction of sage-grouse populations.

Alternative B: Alternative A without Applying Available and Approved Fertility Treatment

Effects would be the same as Alternative A.

Alternative C: Alternative A plus Geld Up to 30 Return Stallions

Effects would be the same as Alternative A.

Alternative D: Gate Cut Removal

Effects would be the same as Alternative A.

Alternative E: No Action - Defer Gather and Removal

Under this alternative horse numbers would continue to increase, resulting in greater use of the area and reduction of residual grasses that provide horizontal cover for sage-grouse nests. Utilization studies in the HMA are currently showing only localized moderate to heavy (41–60 percent to 61–80 percent) use areas around water sources and wild horse home ranges. This alternative would likely expand those moderate to heavy use areas with an indefinite increase in wild horse numbers. Findings from France et al. (2008) suggest cattle initially concentrate grazing on plants between shrubs, and begin foraging on perennial grasses beneath shrubs as interspace plants are depleted. It can be assumed wild horse use would mimic cattle use of perennial grasses as the more easily accessible plants would be grazed first. France et al. (2008) found cattle use of under-canopy perennial grass was minimal until standing crop utilization reached about 40 percent; although this utilization level would likely vary depending on sagebrush density, sagebrush arrangement (e.g., patchy vs. uniform distribution), bunchgrass structure, and accompanying forage production levels. As utilization levels increase across the HMA with increased wild horse numbers, it is expected that horizontal screening cover of sage-grouse nests would decline. An increase in wild horse numbers would also decrease the likelihood that individual perennial plants could receive a full growing season of rest from wild horse use. When perennial plants lack adequate growing season rest periods

where they are able to complete a full reproductive cycle, the plant community composition, age class distribution, and productivity of healthy habitats is negatively affected thus influencing the ability to achieve Rangeland Health Standard 5 for Native, T&E, and Locally Important Species. Increases in wild horse numbers beyond AML could also lead to direct competition between horses and sage-grouse for food sources during critical stages of the sage-grouse life cycle (nesting and brood rearing), with less available resources for sage-grouse due to over-utilization of the area by horses. This alternative could, and is expected to, result in lower habitat quality for sage-grouse and contribute to the further reduction of sage-grouse habitat and population numbers.

CHAPTER IV: CONSULTATION AND COORDINATION

Steens Mountain Advisory Council (SMAC) was presented with the Proposed Action and alternatives of this EA during a conference call meeting on September 11, 2014. The group gave a majority opinion for BLM to continue maintaining the wild horse population of South Steens HMA within AML.

A letter was mailed to 65 interested parties on April 12, 2013, to notify them of BLM's intent to manage wild horses within AML, specifically the need to address the excess horses above AML. In addition, this EA was mailed to the same individuals allowing a 30-day comment period.

A. Agencies and Individuals Consulted

Oregon Department of Fish and Wildlife, Hines, Oregon
Steens Mountain Advisory Council (SMAC)
Grazing Permittees

B. Interdisciplinary Team

Daryl Bingham, Fisheries and Riparian Specialist (Riparian, Water Quality, Fisheries)
Tom Wilcox, Outdoor Recreation Planner (Wilderness, WSRs, WSAs)
Eric Haakenson, Outdoor Recreation Planner (Recreation)
Lisa Grant, Wild Horse and Burro Specialist (Lead Preparer - Wild Horses/Social and Economics Values)
Tara McLain, Realty Specialist (Lands and Realty)
Caryn Meinicke, Natural Resource Specialist (Vegetation, Soils, BSCs, SSS-Plants)
Andrew Daniels, Wildlife Biologist (SSS-Animals, Migratory Birds, Wildlife)
Lesley Richman, District Weed Specialist (Noxious Weeds)
Scott Thomas, Archaeologist (Cultural Heritage)
Autumn Toelle, Rangeland Management Specialist (Livestock Grazing Management)
Justin DeCroo, Rangeland Management Specialist (Livestock Grazing Management)

C. Advisory

Rob Sharp, Supervisory Wild Horse and Burro Specialist
Pam Keller, Geographic Information System (GIS) Specialist

Holly Orr, District Planning/Environmental Coordinator
Rhonda Karges, Andrews Resource Area Field Manager
Jerry Magee, State Recreation and Wilderness Specialist
Bob Hopper, State Wild Horse and Burro Specialist and State Range Specialist

D. References

Adams, B.A., J. Carlson, D. Milner, T. Hood, B. Cairns, and P. Herzog. 2004. Beneficial grazing management practices for sage-grouse (*Centrocercus urophasianus*) and ecology of silver sagebrush (*Artemisia cana*) in southeastern Alberta. Technical Report, Public Lands and Forests Division, Alberta Sustainable Resources Development. Pub. No. T/049, p. 60.

Agee, J.K. 1993. *Fire ecology of Pacific Northwest forests.* Island Press, pp. 371-385.

Anderson, A., and K.C. McCuistion. 2008. *Evaluating Strategies for Ranching in the 21st Century: Successfully Managing Rangeland for Wildlife and Livestock*. Rangelands 30(2): 814.

Ashley, Michael C. and Dale W. Holcombe. 2001. *Effect of stress induced by gathers and removals on reproductive success of feral horses*. Wildlife Society Bulletin 29(1): 248-254.

Bartholow, John M. 2004. *An Economic Analysis of Alternative Fertility Control and Associated Management Techniques for Three BLM Wild Horse Herds*. USGS. File Report 2004-1199.

Bates, J.D., R.F. Miller, and J.J. Svejcar. 2000. *Understory dynamics in cut and uncut western juniper woodlands.* Journal of Range Management 53: 119-126.

Behnke, R.J. 1992. Native Trout of Western North America. American Fisheries Society Monograph 6.

Belnap, Jayne, Julie Hilty Kaltenecher, Roger Rosentreter, John Williams, Steve Leonard, and David Eldridge. 2001. Biological Soil Crusts: Ecology and Management. Technical Reference 1730-2. U.S. Department of the Interior, p. 75.

Berger, Joel. 1977. *Organizational Systems and Dominance in Feral Horses in the Grand Canyon*. Behavioral Ecology Sociobiology 2: 131-146.

Bureau of Land Management (BLM). 1979. *South Steens Wild Horse Herd Management Area Plan*. Burns District Office.

BLM. 1984. *Andrews Rangeland Program Summary.* Burns District Office.

BLM. 1991. Wilderness Study Report. Volume 1. Oregon State Office, Portland, Oregon.

BLM. 1997. *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington*. August 12, 1997.

BLM. 2000. *Steens Mountain Cooperative Management and Protection Act of 2000.* Public Law 106-399. 106th Congress.

BLM. 2001. *Projects for Implementation of the Steens Mountain Cooperative Management and Protection Act of 2000 Environmental Assessment,* EA OR-027-01-27.

BLM. 2005. *Andrews Management Unit and Steens Mountain Cooperative Management and Protection Area Record of Decisions and Resource Management Plans.* Burns District Office.

BLM. 2007. *North Steens Ecosystem Restoration Project, Record of Decision.* Burns District Office.

BLM. 2008. *BLM NEPA Handbook, H-1790-1*. pp. 70–74.

BLM. 2009. *Instruction Memorandum 2009-062. Wild Horse and Burro Genetic Baseline Sampling*. January 15, 2009.

BLM. 2009. *Instruction Memorandum 2009-090. Population-Level Fertility Control Field Trials: Herd Management Area Selection, Vaccine Application, Monitoring and Reporting Requirements.* March 12, 2009.

BLM. 2010. *Wild Horse and Burros Management Handbook 4700-1*.

BLM. 2010. *BLM Manual 4730 - Removal*. (Section 4720.33).

BLM. 2011. *Proposed Strategy: Details of the BLM's Proposed Strategy for Future Management of America's Wild Horses and Burros.* February 28, 2011. National Wild Horse and Burro Program.

BLM. 2012. *BLM Manual 6330 - Management of Wilderness Study Areas*.

BLM. 2012. *BLM Manual 6340 - Management of Designated Wilderness Areas.*

BLM. 2012. *Miller Homestead Fire Emergency Stabilization and Rehabilitation Plan Environmental Assessment,* DOI-BLM-OR-B060-0047-EA. Burns District Office.

BLM. 2013. *Comprehensive Animal Welfare Program, Draft Gather Standard Operating Procedures.* National Wild Horse and Burro Program.

BLM. 2013. *South Steens Allotment Management Plan and Environmental Assessment, OR-06-027-060.* Burns District Office.

BLM. 2013. *Wild Horse and Burro Gathers Comprehensive Animal Welfare Policy,* IM 2013-059.

BLM. 2014. *South Steens AMP Decision*.

BLM. 2015. *Wild Horse and Burro Quick Facts*. Retrieved from http://www.blm.gov/wo/sT&En/prog/whbprogram/history_and_facts/quick_facts.html.

Bond, C.E. 1974. *Endangered plants and animals of Oregon* (special report). Agricultural Experiment Station, Oregon State University.

Bowers, Wayne, Bill Hosford, Art Oakley, and Carl Bond. 1979. *Wildlife Habitats in Managed Rangelands - The Great Basin of Southeastern Oregon (Native Trout)*. General Technical Report PNW-84. Pacific Northwest Research Station. USDA Forest Service.

Boyd, Chad S. and Kirk W. Davies. 2012. *Feral horse impacts to riparian areas and adjacent uplands*. Unpublished data. Eastern Oregon Agricultural Research Center.

Braun, C.E. 1998. Sage grouse declines in western North America: what are the problems? Transactions of Western Association of Fish and Wildlife Agencies 78: 139-156.

Call, M.W., and C. Maser. 1985. *Wildlife habitats in managed rangelands: The Great Basin of southeastern Oregon: Sage-grouse*. USDA Forest Service Pacific Northwest Forest and Range Experiment Station. General Technical Report PNW-187.

Code of Federal Regulations. 2006. 43 CFR Ch. II, Subchapter D - Range Management (4000), Subpart 4110.3 Changes in grazing preference.

Cole D.N. 1987. *Research on soil and vegetation in wilderness: a state-of-knowledge review*. pp. 135-177 in R.C. Lucas (comp.) Proceedings, national wilderness research conference: perspectives, state of knowledge, and future directions. USDA Forest Service General Technical Report INT-220, Intermountain Research Station. Ogden, UT.

Colwell, Robert K. and Futuyma, Douglas J. 1971. *On the Measurement of Niche Breadth and Overlap*. Retrieved from http://www.jstor.org/stable/1934144?seq=1#page_scan_tab_contents.

Cothran, E. Gus. 2008. *Genetic Analysis of the South Steens, OR HMA.* Unpublished report. Department of Veterinary Integrative Bioscience, Texas A&M University. College Station, TX 77843-4458.

Cothran, E. Gus. 2010. *Genetic Analysis of the South Steens HMA, OR.* Unpublished report. Department of Veterinary Integrative Bioscience, Texas A&M University. College Station, TX 77843-4458.

Coughenour, M.B. 1991. *Invited Synthesis Paper*: *Spatial Components of Plant-Herbivore Interactions in Pastoral, Ranching, and Native Ungulate Ecosystems*. Journal of Range Management, 44(6): 530-542.

Crawford, J.A., T.H. Bliss, and M.K.D. McDowell. 2000. *Habitat Use by Sage Grouse at South Steens BLM Allotmen*t. Final Report. Unpublished report. Game Bird Research Program, Dept. of Fisheries and Wildlife, Oregon State University, Corvallis.

Crawford, J.A., R.A. Olsen, N.E. West, J.C. Mosley, M.A. Schroeder, T.D. Whitson, R.F. Miller, M.A. Gregg, and C.S. Boyd. 2004. "Ecology and management of sage-grouse and sage-grouse habitat." Journal of Range Management, 57: 2-19.

Davies, Kirk W. 2008. *Medusahead Dispersal and Establishment in Sagebrush Steppe Plant Communities*. Rangeland Ecology and Management, 61: 110-115.

Deboodt, T.L., M.P. Fisher, J.C. Buckhouse, and J. Swanson. 2008. *Monitoring Hydrological Changes Related to Western Juniper Removal: A Paired Watershed Approach*. In: The Third Interagency Conference on Research in the Watersheds, September 8-11, Estes Park, CO, pp. 227-232.

Delgiudice, Glenn D., Barry A. Sampson, David W. Kuehn, Michelle Cars Tensen Powell, and John Fie Berg. 2005. *Understanding margins of safe capture, chemical immobilization, and handling of free-ranging white-tailed deer*. Wildlife Society Bulletin. Summer 2005, Vol. 33 Issue 2, p. 677.

Delong, A. K., J. A. Crawford, and D. C Delong, Jr. 1995. *Relationships between vegetational structure and predation of artificial sage grouse nests*. Journal of Wildlife Management, 59: 88-92.

Dobler, F.C. 1994. *Washington State shrub-steppe ecosystem studies with emphasis on the relationship between nongame birds and shrub and grass cover densities*. In: Monsen, Stephen B.; Kitchen, Stanley G., comps. 1994. Proceedings-ecology and management of annual rangelands; 1992, May 18-22; Boise ID, Gen. Tech. Rep. INT-GTR-313. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station, pp. 149-161.

Eagle, T. C., C. S. Asa, R. A. Garrott, E. D. Plotka, D. B. Siniff and J. R. Tester. 1993. *Efficacy of dominant male sterilization to reduce reproduction in feral horses*. Wildlife Society Bulletin, 21: 116-121.

France, K.A., Ganskopp, D.C. and C.S. Boyd. 2008. *Interspace/Undercanopy foraging patterns of beef cattle in sagebrush habitats*. Rangeland Ecology and Management, 61: 389-393.

Government Accountability Office. October 2008. *Bureau of Land Management; Effective Long-Term Options Needed to Manage Unadoptable Wild Horses*, GAO-09-77.

Garrott, Robert A. and Donald B. Siniff. 1992. *Limitations of male-oriented contraception for controlling feral horse populations.* J. Wildl. Manage, 56(3): 456-464.

Gedney, D.R., D.L. Azuma, C.L. Bolsinger, and N. McKay. 1999. *Western Juniper in Eastern Oregon.* USDA Pacific Northwest Research Station. General Technical Report, PNW-GTR-464.

Ginther, O. J. 1979. *Reproductive biology of the mare*. McNaughton and Gunn, Inc., Ann Arbor, MI. pp. 411.

Gregg, M.A., J.A. Crawford, M.S. Drut, and A.K. DeLong. 1994. *Vegetative cover and predation of sage-grouse nests in Oregon*. Journal of Wildlife Management, 58: 162-166.

Hagen, Christian. 2011. *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat*. Oregon Department of Fish and Wildlife, Bend, OR.

Hansen, R. M., R. C. Clark and W. Lawhorn. 1977. *Foods of Wild Horses, Deer, and Cattle in the Douglas Mountain Area, Colorado.* Journal of Range Management, 30(2): 116-118.

Henneke, D.R., G. D. Potter, J.L. Kreider and B. F. Yeates. 1983. *Relationship between condition score, physical measurements and body fat percentage in mares.* Equine Veterinary Journal, 15(4): 371-372.

Hubbard, R. E. and R. M. Hansen. 1976. *Diets of Wild Horses, Cattle, and Mule Deer in the Piceance Basin, Colorado.* Journal of Range Management, 29(5): 389-392.

Humane Society of the United States (HSUS). 2011. *Recommendations on the Bureau of Land Management's Standard Operating Procedures for Wild Horse and Burro Gather Operations. A Report to the Bureau of Land Management - Wild Horse & Burro Program.*

Jenkins, Stephen. H. 2002. WinEquus - Wild Horse Population Model. Version 1.4.

Johnson, D.D. and R.F. Miller. 2006. *Structure and development of expanding western juniper woodlands as influenced by two topographic variables.* Forest Ecology and Management, 229: 7-15.

Kahn, Cynthia M. 2005. *The Merck Veterinary Manual*. Rahway, New Jersey. Merck & Co. Ninth Edition.

Kirkpatrick, J. F. Ph.D., A. T. Rutberg Ph.D., and L. Coates-Markle. 2012. *Immunocontraceptive Reproductive Control Utilizing Porcine Zona Pellucida (PZP) in Federal Wild Horse Populations*. Fourth Edition.

Kochert, M. N. and Pellant, M. 1986. *Multiple use in the Snake River Birds of Prey Area*. Rangelands, 8: 217-220.

Kunkel, C.M. 1976. Biology and Production of the Redband Trout in Four Southeastern Oregon Streams. Master's Thesis, Oregon State University, Corvallis, OR.

Larkins, Autumn. Assistant District Wildlife Biologist. Oregon Department of Fish and Wildlife, Hines, OR. October 23, 2014. Personal Communication.

Lyda, Robin O., J. Ron Hall, Jay F. Kirkpatrick. 2005. *A Comparison of Freund's Complete and Freund's Modified Adjuvants used with a contraceptive vaccine in wild horses (Equus caballus)*. J. Zoo Wildl. Med., 36: 610-616.

Madosky, J. M., D. I. Rubenstein, J. J. Howard, and S. Stuska. 2010. *The effects of Immunocontraception on harem fidelity in a feral horse (Equus caballus) population*. Applied Animal Behaviour Science, 128: 50-56.

McInnis, M. and M. Vavra. 1987. *Dietary Relationships among Feral Horses, Cattle, and Pronghorn in Southeastern Oregon*. Journal of Range Management, 40(1): 60-66.

Miller, R. 1983. *Habitat Use of Feral Horses and Cattle in Wyoming's Red Desert*. Journal of Range Management, 36(2): 195-199.

Miller, R. and R. H. Denniston II. 1979. *Interband dominance in feral horses*. Z. Tierpsychol, 51: 41.

Miller, R.F., R.J. Tausch, E.D. McArthur, D.D. Johnson, and S.C. Sanderson. 2008. Age structure and expansion of piñon-juniper woodlands: a regional perspective in the Intermountain West. Res. pap. RMRS-RP-69. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountian Research Station.

Moynahan, B.J., M.S. Lindberg, J.J. Rotella, and J.W. Thomas. 2007. *Factors affecting nest survival of Greater Sage-Grouse in north-central Montana*. Journal of Wildlife Management, 71: 1173-1783.

National Academy of Sciences. 2013. *Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward*. Chapters 4 and 5.

Nunez, C. M. V., J. S. Adelman, and D. I. Rubenstein. 2010. *Immunocontraception in Wild Horses (Equus caballus) Extends Reproductive Cycling Beyond the Normal Breeding Season*. PLoS ONE, 5(10): e13635. Doi:10.1371/journal.pone.0013635.

Oesterheld, M. and S.J. McNaughton. 1991. *Effect of Stress and Time for Recovery on the Amount of Compensatory Growth after Grazing.* Oecologia, 85(3): 305-313.

Oregon Department of Environmental Quality. *Water Quality, Harmful Algal Blooms*. Retrieved from: http://www.deq.state.or.us/wq/algae/algae.htm#cause . Accessed September 3, 2013.

Oregon Department of Fish and Wildlife. 1983. Blitzen River Redband Trout Evaluation. Information Report No. 83-9.

Pellant, Mike. 1990. *The cheatgrass-wildfire cycle - are there any solutions*? In: McArthur, E. Durant; Romney, Evan M.; Smith, Stanley D.; Tueller, Paul T., compilers. *Proceedings - symposium on cheatgrass invasion, shrub die-off, and other aspects of shrub biology and management*; 1989 April 5-7; Las Vegas, NV. Gen. Tech. Rep. INT-276. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 11-17.

Pellant, Mike. 1996. *Cheatgrass: The Invader That Won the West*. Interior Columbia Basin Ecosystem Management Project, p. 22.

Powell, David M. 1999. *Preliminary Evaluation of Porcine Zona Pellucida (PZP) Immunocontraception for Behavioral Effects in Feral Horses (Equus caballus)*. Journal of Applied Animal Welfare Science, 2(4): 321-335.

Public Lands Interior. 2013. 43 *Code of Federal Regulations*. 4770.1 Prohibited Acts.

Ransom, J. I., J. E. Roelle, B. S. Cade, L. Coates-Markle, and A. J. Kane. 2011. *Foaling Rates in Feral Horses Treated with the Immunocontraceptive Porcine Zona Pellucida.* Wildlife Society Bulletin, 35(4): 343-352.

Rosentreter, R. 1994. *Displacement of rare plants by exotic grasses*. In: S.B. Monsen, and S.G. Kitchen, compilers. Proceedings: Ecology and Management of Annual Rangelands. Gen. Tech. Report INT-GTR-313, Ogden, Utah.

Rubenstein, D. I. 1986. Ecology and sociality in horses and zebras. In: *Ecological Aspects of Social Evolution*, D. I. Rubenstein and L. W. Wrangham, eds. Princeton, NJ; Princeton University Press, pp. 282–302.

Sacco, A.G. 1977. Antigenic cross-reactivity between human and pig zona pellucida. Biology of Reproduction, 16: 164–173.

Schemnitz, Sanford D. (editor) 1980. *Wildlife Management Techniques Manual*. The Wildlife Society, Washington D.C. p. 67.

Science and Conservation Center. *Background Information for the Immunocontraception of Captive Exotic Species with Porcine Zonae Pellucidae*. Retrieved from: http://www.sccpzp.org/wp-content/uploads/Protocol.pdf. Accessed March 3, 2015.

Sigler, William F. and John W. Sigler. 1987. *Recreational Fisheries, Management, Theory and Application*. University of Nevada Press. Reno, Nevada 89557.

Singer, F.J., and K.A. Schoenecker. 2000. *Managers' summary - ecological studies of the Pryor Mountain Wild Horse Range*, 1992-1997. Fort Collins, CO: U.S. Geological Survey, Midcontinent Ecological Science Center. p. 131.

Turner, J. W., I. K. M. Liu, A. T. Rutberg, and J. F. Kirkpatrick. 1997. *Immunocontraception limits foal production in free-roaming feral horses in Nevada*. J. Wildl. Manage., 61: 873-880.

Underwood, T.J. and D.H. Bennett. 1992. *Effects of fluctuating flows on the population dynamics of rainbow trout in the Spokane River of Idaho.* Northwest Science, 66(4): 261-268.

U. S. Congress. Public Law 92-195. Section 1333(b)(1). 1971. *The Wild Free-Roaming Horses and Burros Act of 1971. As amended 2006.*

United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA, APHIS). *Horse Disease Information.* Retrieved from: http://www.aphis.usda.gov/animal_health/animal_dis_spec/horses/. Accessed February 21, 2013.

United States Department of the Interior, Bureau of Land Management, Wild Horse and Burro Program. *Wild Horse and Burro Quick Facts*. Retrieved from: http://www.blm.gov/wo/sT&En/prog/whbprogram/history_and_facts/quick_facts.html. Accessed October 23, 2014.

United States Environmental Protection Agency. 2002. *Columbia River Basin Fish Contaminant Survey, Vol. I, App*. B Fish Life Histories. Seattle, WA. Retrieved from http://yosemite.epa.gov/R10/OEA.NSF/0703bc6b0c5525b088256bdc0076fc44/1721025f37881ac788256c59007e2ac1/$FILE/V1_App_B.pdf.

United States Fish and Wildlife Service. 2000. Status Review for Great Basin Redband Trout. Portland, OR.

Updike, D.R., E.R. Loft, and F.A. Hall. 1990. *Wildfires on big sagebrush/antelope bitterbrush range in northeastern California: implications for deer*. In Proceedings—Symposium on cheatgrass invasion, shrub die-off, and other aspects of shrub biology and management, Las Vegas, NV. General Technical Report INT-276, USDA Forest Service, Ogden, UT. pp. 41–46.

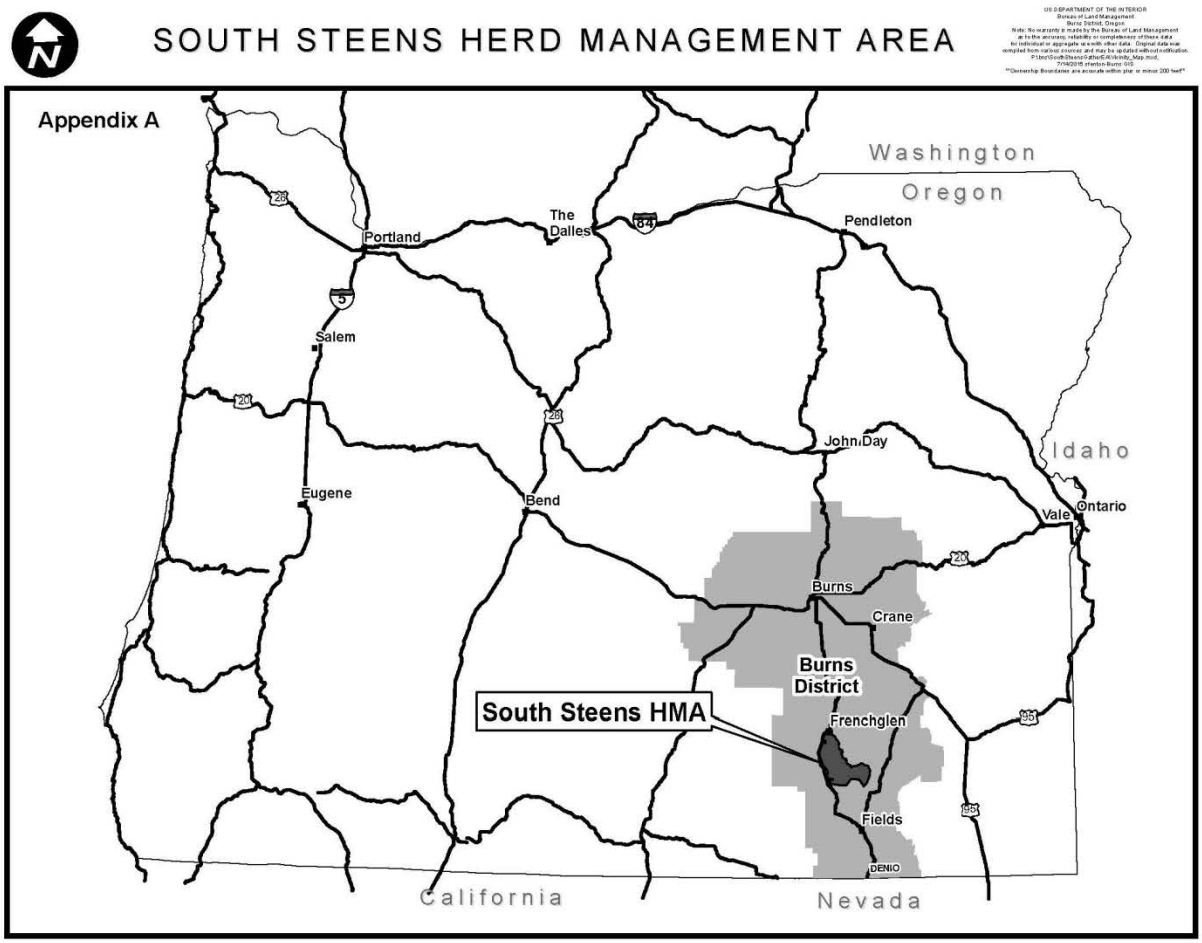
Vallentine, J.F. 1990. *Grazing Management*. Academic Press, Inc. San Diego, California.

Vavra, M. 2005. *Livestock Grazing and Wildlife: Developing Compatibilities*. Rangeland Ecology & Management, 58(2): 128-134.

Vavra, M. and F.A. Sneva. 1978. *Seasonal diets of 5 ungulates grazing in the cold desert biome*, In: D.N. Hyder (ed.), Proc. First Internat. Rangeland Cong., Soc. Range Mange. pp. 435-437.

Whisenant, S. G. 1990. *Changing fire frequencies on Idaho's Snake River plains: ecological and management implications*. In: E. D. McArthur, E. M. Romney S. D. Smith, and P. T. Tuellar [Eds.]. Proceedings: Symposium on Cheatgrass invasion, shrub die-off, and other aspects of shrub biology and management, Las Vegas, NV. General Technical Report INT-276, USDA Forest Service, Ogden, UT.

Williams, J.E., J.E. Johnson, D.A. Hendrickson et al. 1989. *Fishes of North America Endangered, Threatened or of Special Concern*. American Fisheries Society. Bethesda, Maryland, 14(6): 2-20.


SOUTH STEENS HERD MANAGEMENT AREA
Appendix A
Washington
Oregon
Idaho
California
Nevada
Portland
The Dalles
Pendleton
Salem
Eugene
Bend
John Day
Vale
Ontario
Burns
Crane
Burns District
South Steens HMA
Frenchglen
Fields
DENIO

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240
http://www.blm.gov

January 23, 2013

In Reply Refer To:
4710 (NV934) P

EMS TRANSMISSION 01/30/2013
Instruction Memorandum No. 2013-059
Expires: 09/30/2014

To: All Field Office Officials (except Alaska)

From: Assistant Director, Renewable Resources and Planning

Subject: Wild Horse and Burro Gathers: Comprehensive Animal Welfare Policy

Program Area: Wild Horse and Burro (WH&B) Program

Purpose: The purpose of this Instruction Memorandum (IM) is to establish policy and procedures to enable safe, efficient, and successful WH&B gather operations while ensuring humane care and treatment of all animals gathered.

Policy/Action: The Bureau of Land Management (BLM) is committed to the well-being and responsible care of WH&B we manage. At all times, the care and treatment provided by the BLM and our Contractors will be characterized by *compassion and concern* for the animal's well-being and welfare needs. Effective immediately, all State, District, and Field Offices must comply with this IM for all gathers within their jurisdiction.

This IM is part of a package of IMs covering various aspects of managing WH&B gathers.

- IM No. 2013-060, Wild Horse and Burro Gathers: Management by Incident Command System
- IM No. 2013-058, Wild Horse and Burro Gathers: Public and Media Management
- IM No. 2013-061, Wild Horse and Burro Gathers: Internal and External Communicating and Reporting

Roles and responsibilities of all gather personnel are covered in IM No. 2013-060, Wild Horse and Burro Gathers: Management by Incident Command System.

The goal of this IM is to ensure that the responsible and humane care treatment of WH&B remains a priority for the BLM and its Contractors at all times. Our objectives are to use the best available science, husbandry, and handling practices applicable for WH&B and to make improvements whenever and wherever possible, while meeting our overall gather goals and objectives in accordance with current BLM policy, standard operating procedures, and contract requirements.

The Lead Contracting Officer's Representative (Lead COR) is the primary party responsible for promptly addressing any actions that are inconsistent with the expectations set forth below. The Lead COR may delegate responsibility to an alternate COR. The responsibilities of a BLM Project Inspector are assigned by the Lead COR and are limited to performing on-the-job government inspection of work accomplished by the Contractor.

The Lead COR has authority to *suspend* gather operations if he/she believes actions contrary to the humane treatment expectations are taking place or that an unsafe condition exists. The Lead COR will promptly notify the Contractor if any improper or unsafe behavior or actions are observed, and will require that such behaviors be promptly rectified and eliminated. Any observed problems shall be reported at the end of each day. The Lead COR and Incident Commander (IC), through coordination with the Contracting Officer (CO) shall, if necessary, ensure that corrective action has been taken to prevent those behaviors or actions from occurring again and all follow-up and corrective actions shall be reported as a component of the Lead COR's daily reports.

Based on past experience with WH&B gathers and the need to adapt some gather practices to specific local conditions, the following information will be discussed with all gather personnel before gather operations begin and shall be incorporated as management's expectations that is included as an appendix to the documentation supporting the gather and made available on BLM's website. Humane care and handling of WH&B during gather operation is always the primary concern. During the pre-work conference facilitated by the Lead COR, expectations for the humane treatment and care of WH&B during gather operations will be discussed. They include the following expectations:

1. The Lead COR will ensure that the gather helicopter(s) will not be operated in a manner where, for any reason, the helicopter could reasonably be expected to come into contact with a WH&B. In cases when it is necessary during gather operations, hovering by the helicopter over the WH&B is acceptable.

2. Handling aids (including body position, voice, flags, paddles and electric prods) will be used in a manner that is consistent with domestic livestock handling procedures. Flags and paddles will be used as signaling and noise making devices first, with only light contact of the flag or paddle end allowed when necessary. Animals will not be whipped or beaten with these or any handling aids. Flagging and paddles will be used strategically and in a manner that avoids desensitizing the WH&B. While it may be necessary on occasion to use a hand or foot to safely move a WH&B, the Lead COR will ensure that kicking or hitting of WH&B does not occur.

3. Electric prods (hotshots) will not be routinely used on WH&B, but rather should only be used as a last resort when WH&B or human safety is in jeopardy or other aids have been tried and are not working. When used, electric prods will only be used to shock animals, not to tap or hit animals. Similarly, electric prods will not be applied to injured or young animals, nor will they be applied to sensitive areas such as the face, genitals, or anus.

4. Gates can be used to push WH&B but will not be used in a manner that may be expected to catch legs. Gates and doors will not be slammed or shut on WH&B.

5. Only the Lead COR will identify and request the Contractor to pursue and capture a single WH&B. Pursuing a single WH&B should be a rare event and not standard practice. If the animal is identified as a stud, further pursuit should be abandoned unless for management purposes (such as public safety, nuisance animals, or animals outside HMA boundaries or on private lands) it is necessary to capture the animal.

6. The Lead COR will ensure every effort is made to prevent foals from being left behind or orphaned in the field. If a foal has to be dropped from a group being brought to the trap because it is getting too tired or cannot keep up, the pilot will relay to the Lead COR and ground crew the location of the foal and a description of the mare to facilitate "pairing-up" at temporary holding. In this case, the Contractor will provide trucks/trailers and saddle horses for the retrieval of the foal and transport the foal to the gather site or temporary holding. If the helicopter is needed to locate and capture the foal, retrieval of the foal should occur prior to another band being located and driven to the trap. The method of capture will be directed by the Lead COR.

7. The Lead COR will ensure that if during the gather any WH&B (including foals or horses that may be aged, lame, injured or otherwise appear weak or debilitated) appear to be having difficulty keeping up with the group being brought in, the Contractor will accommodate the animals having difficulty to allow for rest before proceeding, drop those animals from the group, or drop the entire group. It is expected that animals may be tired,

sweaty and breathing heavily on arrival at a trap, but they should not be herded in a manner that results in exhaustion or collapse.

8. The need to rope specific WH&B will be determined by the Lead COR on a case-by-case basis.

9. While gathering, a WH&B may escape or evade the gather site while being moved by the helicopter. If there are foals in the band and an animal that has evaded capture has been identified as a mare that might have one of these foals, the Contractor may make multiple attempts to move the mare by the helicopter to the gather site for capture prior to roping or other alternative for capture. In these instances, animal condition and fatigue will be evaluated by the Lead COR on a case-by-case basis to determine the number of attempts that can be made to capture the animal. Animals will not be pursued to a point of exhaustion or distress.

10. Mares and their dependent foals will be separated from other animals at the temporary holding facility and moved to a designated BLM preparation facility. The Lead COR will ensure that any foals that are not weaned and have been maintained with their mares at temporary holding will be transported with their mares to the BLM preparation facilities as soon as practical.

11. The Lead COR will ensure that all sorting, loading or unloading of WH&B will be performed during daylight hours.

12. All handling pens, including the gates leading to the alleyways, should be covered with a material which serves as a visual barrier (plywood, burlap, plastic snow fence, etc.) and should be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses. Perimeter panels on the holding corrals should be covered to a minimum height of 5 feet for burros and 6 feet for horses. Those panels attached to and leading directly into the trailers from the trap will be covered with a material which serves as a visual barrier. Padding should be installed on the overhead bars of all narrow gates used in single file alleys leading or leaving the squeeze chute set up. Screening will be placed on all division gates in the sorting area and solid fencing placed on panels from the working chute to the semi-trailers in an effort to decrease outside stimuli.

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

14. When possible (e.g., soil conditions allow) and as needed (e.g., the WH&B are unwilling to step up), the Lead COR should request that the Contractor will have the trailer floor at ground level to ease the loading of WH&B at the gather site.

15. If the pilot is moving WH&B and observes an animal that is clearly injured or suffering, the animal should be left on the range and its location noted. The BLM Lead COR with veterinary assistance from an Animal Plant Health Inspection Service or locally licensed veterinarian will then go to the identified location as promptly as possible so that any animal that cannot make it to the trap will be inspected to determine the problem. The Lead COR will then decide on the most appropriate course of action.

16. Injuries that required veterinary examination or treatment, deaths and spontaneous abortions that occur will be noted in gather reports and statistics kept by the Lead COR.

17. At the discretion of the Lead COR, if a WH&B is injured or in distress during gather operations and the animal is within the wings or first corral of the trap, gather operations may be temporarily suspended if necessary to provide care for the animal and subsequent removal. Such actions should take place prior to the trapping of additional animals whenever possible.

18. The Contractor shall provide animals held in facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Pens containing more than 50 animals will have water provided in at least two separate locations of the pen (i.e. opposite ends of the pen). 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. If the task order notes that weed free hay is to be used for this gather the Contractor will provide certified weed free hay in the amounts stated above. The Contractor will have to have documentation that the hay is certified weed free. An animal that is held at a temporary holding facility after 5:00 p.m. and on through the night, is defined as a WH&B 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.

19. When extreme environmental conditions exist (such as temperature) during a gather, the overall health and well-being of the animals will be monitored and the Lead COR will adjust gather operations as necessary to protect the animals from climatic and gather related health issues. The Lead COR should be equipped to take air temperatures periodically throughout the day to help with the monitoring of environmental conditions at the gather site. There may be days when the Lead COR determines that gather operations must be suspended or ceased based on temperatures or other environmental conditions.

20. The rate of movement and distance the animals travel shall not exceed limitations set by the Lead COR who will consider terrain, physical barriers, access limitations, weather, extreme temperature (high and low), condition of the animals, urgency of the operation (animals facing drought, starvation, fire rehabilitation, etc.) and other factors. In consultation with the Contractor, the distance the animals may travel will take into account the different factors listed above and other concerns relevant to individual HMAs. With foals, pregnant mares, or horses that are weakened by body condition, age or poor health, the appropriate herding distance and rate of movement will be determined on a case-by-case basis considering the weakest or smallest animal in the group and the range and environmental conditions present. The maximum gather distance will depend on the specific animal and environmental conditions on the day of the gather and direct dialogue with the pilot/ Contractor and Lead COR to provide important information as to numbers, number of foals, locations distance and/or overall animal and/ or environmental conditions. The trap locations will be moved closer to horse locations whenever possible to minimize the distance the animals need to travel.

21. The Lead COR or IC should be available to provide a short briefing to any members of the public that may be present at the end of daily operations, including the preliminary tallies on the total number of animals captured by sex, number of foals, and any incident that required medical attention or euthanasia. This briefing should occur at temporary holding corral after all animals have been sorted, fed and watered and allowed to settle. The public should be clearly informed that such preliminary tallies may change after all the information is processed from the day's gather and that the final results of the day's gather will be posted to the appropriate BLM website.

22. The Lead COR should ensure that holding alleys will not be overcrowded at temporary holding facilities. If there is a risk of overcrowding, gates should remain open to allow animals to move back out of the alley and be reloaded. If an animal falls in the alley no other animals should be moved through the alleyway until the animal stands on its own or the alleyway is clear.

23. The Lead COR should ensure that animals will not be left in alleyways for any extended period of time (greater than 30 minutes). If personnel are not present at the temporary holding corrals to sort animals, the horses should be placed into a holding pen until such time as they can be sorted and placed into the appropriate pen.

24. Bait/water trapping: All traps will be checked a minimum of once every 24 hours when the traps are "set" to capture without human presence (trip trigger traps, finger traps, etc.). All handling procedures outlined above in this document apply to bait trapping to the extent applicable.

Again, at all times, the care and treatment provided by the BLM and our Contractors should be characterized by *compassion and concern* for the animal's well-being and welfare needs. The IC will ensure that everyone involved in gather operations receives a copy of these expectations prior to the start of the gather and the Lead COR and all BLM employees present shall ensure that gather operations are conducted in compliance with these expectations.

Timeframe: This IM is effective immediately.

Budget Impact: Unit costs for conducting gathers as a result of this interim guidance are not expected to increase significantly when compared to existing costs.

Background: The BLM is committed to the humane treatment and care of WH&B through all of the phases of its WH&B program. To ensure a clearer statement of its expectations and greater consistency in the program, the development of a Comprehensive Animal Welfare Policy has been undertaken. In addition to the standard operating procedures (SOP) for capture operations, SOPs for management on the range, capture operations, short- and long-term holding facilities, transportation, and adoption will be developed.

Manual/Handbook Sections Affected: None

Coordination: This IM was coordinated among WO-200, WO-260, WO-600, WO-610, WO-LE, WH&B State Leads, WH&B Specialists, State External Affairs Leads, public affairs and law enforcement staff in the field.

Contact: Any questions regarding this IM can be directed to Joan Guilfoyle, Division Chief, Wild Horse and Burro Program (WO-260) at 202-912-7260.

Signed by:
Edwin L. Roberson
Assistant Director
Renewable Resources and Planning

Authenticated by:
Robert M. Williams
Division of IRM Governance,WO-560

Last updated: 02-01-2013

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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240
http://www.blm.gov

December 18, 2008

In Reply Refer To:
4730/4700 (260) P

EMS TRANSMISSION 12/19/2008
Instruction Memorandum No. 2009-041
Expires: 09/30/2010

To: All Field Officials (except Alaska)

From: Assistant Director, Renewable Resources and Planning

Subject: Euthanasia of Wild Horses and Burros for Reasons Related to Health, Handling and Acts of Mercy

Program Area: Wild Horses and Burros

Purpose: This policy identifies requirements for euthanasia of wild horses and burros for reasons related to health, handling and acts of mercy.

Policy/Action: Final decisions regarding euthanasia of a wild horse or burro rest solely with the authorized officer (43 CFR 4730). It is understood that there will be cases where this decision must be made in the field and cannot always be anticipated. Appropriate wild horse and burro personnel at facilities and in the field should be delegated as the authorized officer regarding euthanasia of wild horses and burros. Euthanasia will be carried out following the procedures described in the 4730 Manual. The death record should specify that euthanasia was performed and the reason that it was performed in the appropriate Wild Horse and Burro automated data system. These systems are the Wild Horse and Burro Information System (WHBIS) or the Wild Horse and Burro Program System (WHBPS).

A Bureau of Land Management (BLM) authorized officer will euthanize or authorize the euthanasia of a wild horse or burro when any of the following conditions exist:

(1) Displays a hopeless prognosis for life;

(2) Is affected by a chronic or incurable disease, injury, lameness or serious physical defect (includes severe tooth loss or wear, club foot, and other severe acquired or congenital abnormalities);

(3) Would require continuous treatment for the relief of pain and suffering in a domestic setting;

(4) Is incapable of maintaining a Henneke body condition score (see Attachment 1) greater than or equal to 3, in its present environment;

(5) Has an acute or chronic illness, injury, physical condition or lameness that would not allow the animal to live and interact with other horses, keep up with its peers or maintain an acceptable quality of life constantly or for the foreseeable future;

(6) Where a State or Federal animal health official orders the humane destruction of the animal(s) as a disease control measure;

(7) Exhibits dangerous characteristics beyond those inherently associated with the wild characteristics of wild horses and burros.

When euthanasia will be performed and how decisions will be made and recorded in a variety of circumstances is described below.

Euthanasia in field situations (includes on-the-range and during gathers):

(A) If an animal is affected by a condition as described in 1-7 above that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the authorized officer must promptly euthanize the animal.

(B) The authorized officer will report actions taken during gather operations in the comment section of the daily gather report (Attachment 2). Documentation will include a brief description of the animal's condition and reference the applicable criteria (including 1-7 above or other provisions of this policy). The authorized officer will release or euthanize wild horses and burros that will not tolerate the handling stress associated with transportation, adoption preparation or holding. However, the authorized officer should, as an act of mercy, euthanize, not release, any animal which exhibits significant tooth loss or wear to the extent their quality of life would suffer.

(C) If euthanasia is performed during routine monitoring, the Field Manager will be notified of the incident as soon as practical after returning from the field.

Euthanasia at short-term holding facilities:

Ideally, no horse or burro would arrive at preparation or other facilities with conditions that require euthanasia. However, problems can develop during or be exacerbated by handling, transportation or captivity. In these situations the authority for euthanasia will be applied as follows:

(A) If an animal is affected by a condition as described in 1-7 above that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the authorized officer must promptly euthanize the animal.

(B) If an animal is affected by a condition as described in 1-7 above, but is not in acute pain, the authorized officer has the authority to euthanize the animal, but should first consult a veterinarian. As an example, if the animal has a physical defect or
deformity that would adversely impact its quality of life if it were placed in the adoption program or on long-term holding, but acute suffering is not apparent, a veterinarian should be consulted prior to euthanasia.

(C) If the authorized officer concludes, after consulting with a veterinarian, that a wild horse or burro in a short-term holding facility cannot tolerate the stress of transportation, adoption preparation, or long-term holding then the animal should be euthanized.

Euthanasia at long-term holding facilities:

This section sets euthanasia policy for the BLM at long-term holding (LTH) facilities including those that may be added in the future.

The BLM Wild Horse and Burro (WH&B) Specialist responsible for oversight of the LTH facility (the Project Inspector) and the LTH contractor will evaluate all horses and their body condition throughout the year. During the year if any animal is affected by any of the conditions listed in 1-7 above, the contractor or other person authorized by the Project Inspector must euthanize that animal. Once a year a formal body condition evaluation as well as a formal count of all horses at long-term holding facilities will be conducted. The action plan for the formal evaluation is as follows:

1. All animals will be inspected by field observation to evaluate body condition and identify animals that may need to be euthanized to prevent a slow death due to deterioration of condition. This evaluation will be based on the Henneke body condition scoring system. The evaluation team will consist of a BLM WH&B Specialist and a veterinarian acceptable to BLM.

The evaluations should be conducted in the fall (September through November) to identify horses with body condition scores of 3 or less.

2. Animals with a body condition score less than 3 will be euthanized in the field soon after the evaluation by the authorized officer or a designated representative such as the contractor. Horses with a score of 3 will remain in the field and will be re-evaluated by the contractor and the Project Inspector for that contract in 60 days to see if their condition is improving, staying the same or declining. Those that are declining in condition will be euthanized as soon as possible after the second

evaluation.

3. Euthanasia will be carried out with a firearm by the authorized officer or a designated representative. Field euthanasia does not require that the animals are gathered which would result in increased stress and could cause injury to the horse being euthanized or other horses on the facility.

4. Documentation for each animal euthanized will include sex, color, and freeze/hip brand (if readable). Copies of all documentation will be given to the contractor and retained by the BLM.

5. Arrangements for carcass disposal for euthanized animals will be in accordance with applicable state and county regulations.

Euthanasia of Unusually Dangerous Animals:

Unusually aggressive wild horses or burros can pose an unacceptable risk of injury when maintained in enclosed spaces where some level of handling is required. When a horse or burro is unusually dangerous, it is reasonable to conclude that an average adopter could not humanely care for the animal as required by the regulations (e.g., provide proper transportation, feeding, medical care, and handling 43 CFR 4750.1). The BLM cannot solve the problem by removing unusually dangerous animals from the adoption system and placing them in a LTH facility because this resolution also poses significant risk of injury, both to animals in transport, and to BLM personnel and LTH operators.

When deciding to euthanize an animal because it is unusually dangerous, the authorized officer, in consultation with a veterinarian, extension agent, humane official, or other individual acceptable to the authorized officer, must determine that the animal poses a significant and unusual danger to people or other animals beyond that normally associated with wild horses and burros. The authorized officer must document the aspects of the animal's behavior that make it unusually dangerous.

Euthanasia of a Large Number of Animals for Reasons Related to Health, Handling and Acts of Mercy

When the need for euthanasia of an unusually large number of animals is anticipated, the likely course of action should be identified and outlined in advance whenever possible. When field monitoring and pre-gather planning identify an increased likelihood that animals may need to be euthanized during a gather, this should be addressed in the gather plan. In an on-the-range or facility situation where a gather is not involved, advanced planning should also be done whenever possible. Arrangements should be made for a USDA Animal and Plant Health Inspection Service (APHIS) or other veterinarian to visit the site and consult with the authorized officer on the euthanasia decisions. This consultation should be based on an examination of the animals by the veterinarian. It should include a detailed, written evaluation of the conditions, circumstances or history of the situation and the number of animals involved.

Where appropriate, this information should be specific for each animal affected. During this planning stage, it is critical that the Authorized Officer include the State Office WH&B Program Lead; appropriate State Office, District Office, and Field Office Managers; the WH&B National Program Office (NPO); and any contractors that may be involved.

A euthanasia plan of action will include practical considerations including: (1) who will destroy the affected animals, (2) what method of euthanasia will be used, and (3) how carcasses will be disposed of. A communications plan for internal and external contacts (including early alerts to State, National Program and Washington Offices) should be developed in advance or concurrently while addressing the situation at hand. The communications plan should address the need for the action, as well as the appropriate messages to the public and the media. This will include why animals are being euthanized and how the action is consistent with BLM's responsibilities and policy.

Timeframe: This policy is effective upon issuance.

Budget Impact: Implementation of these actions would not result in additional expenditures over present policies.

Manual/Handbook Sections Affected: No manual or handbook sections are affected.

Background: The authority for euthanasia of wild horses or burros is provided by the Wild Free-Roaming Horses and Burros Act of 1971, Section3(b)(2)(A) 43 CFR4730.l and BLM Manual 4730, *Destruction of Wild Horses and Burros and Disposal of their Remains*.

Decisions to euthanize require that BLM evaluate individual horses or burros affected by injury, physical defect, chronic or incurable disease, severe tooth loss, poor condition or old age. BLM should consider the animal's ability to survive the stress of removal and/or its probability of surviving on the range if released or transported to a BLM facility, adoption or long-term holding. Humane, long-term care of these animals requires periodic evaluation of their condition to provide for their well-being. These evaluations will, at times, result in decisions that will require euthanasia.

Coordination: This document was coordinated with the Wild Horse and Burro Specialists in each affected state and the National Program Office.

Contact: Questions regarding this memorandum should be directed to Lili Thomas, Wild Horse and Burro Specialist, Wild Horse and Burro National Program Office, at (775) 861-6457.

Signed by:
Edwin L. Roberson
Assistant Director
Renewable Resources and Planning

Authenticated by:
Robert M. Williams
Division of IRM Governance,WO-560

2 Attachments
1 – Henneke body condition (1 p)
2 – Gather Summary Report (2 pp)

Issues Considered But Not Analyzed in Detail

The following issues were raised by the public or Bureau of Land Management (BLM) during scoping and internal reviews for the project. These issues have been considered but eliminated from detailed analysis because they are outside the scope of this analysis or do not relate to how the Proposed Action or alternatives respond to the purpose and need:

- ***Can livestock AUMs be reduced to raise wild horse AUMs? As a result, can internal fences then be removed?***
  Response: The appropriate management level (AML) for wild horses as well as the livestock forage allocations were reaffirmed in the 2005 Steens Mountain Cooperative Management and Protection Area Resource Management Plan/Record of Decision (CMPA RMP/ROD) and the Andrews Management Unit (AMU)/RMP/ROD (August 2005), and those decisions are not being reconsidered in this environmental assessment (EA). The purpose of this EA is to consider the wild horse population of the South Steens Herd Management Area (HMA) and adopt a population management plan for the wild horses within the guidelines of current planning documents. Fence management would be addressed in an Allotment Management Plan (AMP) EA or a Herd Management Area Plan (HMAP) EA, not a Gather EA.

- ***What is the justification for each fence within the HMA?***
  Response: Fence management would not be analyzed in this EA as it does not fit the purpose and need.

- ***Will real-time cameras be installed during gather operations?***
  Response: No, BLM will not be installing real-time cameras during gather operations.

- ***Where will the "removed" horses go if long term holding facilities are full?***
  Response: BLM has never faced the situation where there is absolutely no facility to send horses. BLM will ensure there is room at the Burns Facility and other nearby facilities when this gather is conducted. Adoption programs would continue and are expected to provide the needed space for horses gathered from the South Steens HMA.

- ***Can a spreadsheet be included on the disposition and status of each horse captured in 2009 so the impacts of the roundup on horses can be adequately assessed?***
  Response: The information normally collected during gathers (including the 2009 South Steens HMA gather) is age, sex, and color of each animal. This information is available at the Burns District Office through the Freedom of Information Act (FOIA). The FOIA gives you the right to request access to any agency record. This does not mean, however, that an agency will disclose every record requested. There are statutory exemptions that authorize the withholding of information of an appropriately sensitive nature. For information on how to write your FOIA request and who to submit it to, please go to: www.blm.gov/wo/sT&En/res/FOIA/filing_request.html. Further behavioral information could be useful for wild horse management. Determination of the true

disposition of a horse is a lengthy process and Burns District BLM does not have the staff or funding for such work.

- ***Can the BLM remedy the conditions that cause horses to leave the HMA?***
  Response: Normally horses leave an HMA because the resources necessary for a thriving natural ecological balance are not present. Generally this occurs when horse numbers exceed the high end of AML or the vegetative or water resources within the HMA have changed (e.g. due to juniper expansion, wildfire, etc.). It is known that South Steens HMA lacks reliable water sources. One additional water source, a well, was authorized under the July 16, 2014, South Steens AMP/EA Decision.

  In addition to planning for improved, permanent water sources, BLM has available the use of Categorical Exclusions[9] (CX) that allow placement and use of temporary water troughs, (providing no new road construction is needed) and temporary emergency feeding of livestock or wild horses and burros during periods of extreme adverse weather conditions.

- ***Can the EA disclose water usage of each oil and gas rig, wind turbine and geothermal plant; the number of acres designated for buildings/equipment associated with them; and their effects on sage-grouse, wildlife and wild horses?***
  Response: This issue is outside the scope of the analysis as there are no oil/gas rigs, wind turbines, or geothermal plants within the vicinity of the HMA.

- ***Can cattle guards be retrofitted to allow horses to cross them safely?***
  Response: This has been done in other areas and horses are able to cross safely. Unfortunately, horses get accustomed to crossing over the retrofit cattle guards and cannot differentiate between a retrofit cattle guard and one that is unaltered. Horses then attempt to cross the unaltered cattle guard and fall in leading to injuries and often death. Burns District does not have funds to retrofit all the cattle guards within South Steens HMA, however we will continue to monitor cattle guards and modify or remove those that are found to be dangerous to wild horses or other species.

- ***Are SOPs available to maintain the integrity of social bands during all aspects of the gather operation?***
  Response: No. BLM aims to keep mares and their dependent foals together during gathers and at traps and holding facilities, but not social bands. Once horses are brought to a trap during a gather, it is safer for BLM personnel and for the wild horses if adult stallions are separated from the mares and foals as they would continue to fight to protect their harem.

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[9] CXs are categories of actions that Federal agencies have determined do not have a significant effect on the quality of the human environment (individually or cumulatively) and for which, neither an EA nor an Environmental Impact Statement (EIS) is required (40 CFR 1508.4). A CX is a form of National Environmental Policy Act (NEPA) compliance without the analysis that occurs in an EA or an EIS. It is not an exemption from the NEPA.

- ***Can BLM work with Oregon Department of Fish and Wildlife (ODFW) to limit or eliminate the hunting of mountain lions in the South Steens HMA so they can be used as a natural method of population control?***
  Response: Population management techniques for mountain lions in the State of Oregon are determined by ODFW. In 2011, ODFW released its Mule Deer Initiative (MDI) with a goal to bring mule deer numbers up to the population management objective (the number of animals considered compatible with habitat and primary land uses). The Steens Mountain wildlife management unit, which encompasses South Steens HMA, was one of five in the State of Oregon to be chosen for initial efforts of the MDI. ODFW has committed additional personnel and resources to actions including predator management which entails implementing mountain lion target areas in Steens Mountain unit; continuing coyote control in mule deer winter range and fawning areas; and encouraging more public hunting of predators.

- ***Could the horse population be managed within AML by catching, treating with available and approved fertility control vaccines, and releasing all mares over one year of age without having to remove horses from the HMA?***
  Response: Fifty-nine mares were administered PZP-22 during the 2009 South Steens HMA gather and returned to the HMA. There were 79 mares total remaining in the HMA when the gather was complete; 75 percent had been treated with PZP. Following the gather there was a total of 168 horses remaining in the HMA. Based upon the direct count census of the HMA that occurred in June 2012, the wild horse population was already 79 horses over the high end of AML (304 horses). If the number of horses remaining in the HMA following the 2009 gather was truly 168, the annual reproductive rate between fall 2009 and spring 2012 would have been approximately 35 percent. It is possible that the total number of horses remaining in the HMA following the 2009 gather was higher than the 168 recorded. Burns District BLM found the results from the PZP-22 administered to the mares returned to the HMA was ineffective and that a catch, treat, and release approach to managing wild horse population in South Steens HMA would also be ineffective.

- ***How will the wild horse gather affect wilderness characteristics?***
  Wilderness characteristics outside of designated wilderness and existing Wilderness Study Areas (WSA) will not be analyzed in this EA for the following reasons:

  In 2003, BLM reviewed current conditions and citizen information submitted for the lands that currently do not have a WSA or wilderness designation within the South Steens Allotment, including the BLM lands contained in three citizens' wilderness proposals, and updated the wilderness inventory. Pursuant to 40 Code of Federal Regulations (CFR) § 1502.21, the BLM hereby incorporates its wilderness inventory update by reference. The wilderness inventory update considered the standard wilderness criteria of size, naturalness, and outstanding opportunities for solitude or primitive and unconfined recreation, as described in Section 2(c) of the Wilderness Act. The BLM used multiple resources to complete the wilderness inventory update, including an in-house interdisciplinary team (IDT) with field knowledge of the areas, aerial photographs, BLM databases containing records of Rights-of-Way (ROW), mineral leases, mining claims,

road improvements, and vegetation treatments, and other tools to make their findings. BLM staff made site visits to the field where more information was needed to validate their inventory findings. No changes to conditions within South Steens Allotment were identified that would modify the findings of the 1980 intensive inventory that had evaluated the presence of wilderness characteristics on BLM-administered lands. The CMPA RMP confirmed no new areas within South Steens Allotment were found to have wilderness characteristics, but if parcels with wilderness characteristics were present, they would not be provided any additional special management status as the protection afforded by the CMPA was considered sufficient protection to properly protect and manage any wilderness characteristics that might be present (2005 CMPA RMP, RMP-81). In addition, the 9th Circuit Court of Appeals, in December 2010, upheld BLM's findings that these parcels do not possess wilderness values.

Those portions of the citizen proposed areas that were determined by BLM to lack wilderness characteristics were eliminated by BLM primarily due to the lack of outstanding opportunities for solitude or primitive and unconfined recreation. Within four of the citizen proposals, the BLM wilderness inventory update did not find wilderness characteristics to be present.

Summary Comparison of Citizen's Proposed WSAs and BLM's Findings:

- Blitzen River South - Only subunit B was evaluated. Subunit A does not meet the acreage threshold. Subunit B is generally natural, but lacks outstanding opportunities for primitive and unconfined recreation or solitude.
- Roaring Springs - The inventory team could not reach consensus as to the naturalness of the unit. However, it does not possess outstanding opportunities for solitude or primitive and unconfined recreation.
- West Blitzen River - The entire unit was evaluated as an addition to the Blitzen River WSA. The inventory team could not reach consensus as to the naturalness of subunit, but it does not possess outstanding opportunities for solitude or primitive and unconfined recreation. Therefore, the unit does not qualify as wilderness and would not enhance the wilderness values present in the Blitzen River WSA.

The area east of Hwy 205, in P-Hill Pasture, also does not possess wilderness characteristics because the units do not meet the size requirements

Therefore, wilderness characteristics have been determined not to be present and will not be analyzed in this EA.

Attachment 1: Standard Operating Procedures for Population-level Fertility Control Treatments

One-year liquid vaccine:

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

1. PZP vaccine would be administered through darting by trained BLM personnel or collaborating research partners only. For any darting operation, the designated personnel must have successfully completed a Nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
3. The liquid dose of PZP vaccine is administered using 1.0 cc Pneu-Darts with 1.5" barbless needles fired from either Dan Inject® or Pneu-Dart® capture gun.
4. Only designated darters would mix the vaccine/adjuvant and prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a capture gun.
5. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the mare is standing still.
6. Safety for both humans and the horse is the foremost consideration in deciding to dart a mare. The Dan Inject® gun would not be used at ranges in excess of 30 m while the Pneu-Dart® capture gun would not be used over 50 m, and no attempt would be taken when other persons are within a 30-m radius of the target animal.
7. No attempts would be taken in high wind or when the horse is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.
8. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.
9. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.
10. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.
11. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the horse at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine.
12. All mares targeted for treatment will be clearly identifiable through photographs to enable researchers and HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.
13. Personnel conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with the Project Veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the Project Veterinarian, providing all available information concerning the nature and location of the incident.

14. In the event that a dart strikes a bone or imbeds in soft tissue and does not dislodge, the darter would follow the affected horse until the dart falls out or the horse can no longer be found. The darter would be responsible for daily observation of the horse until the situation is resolved.

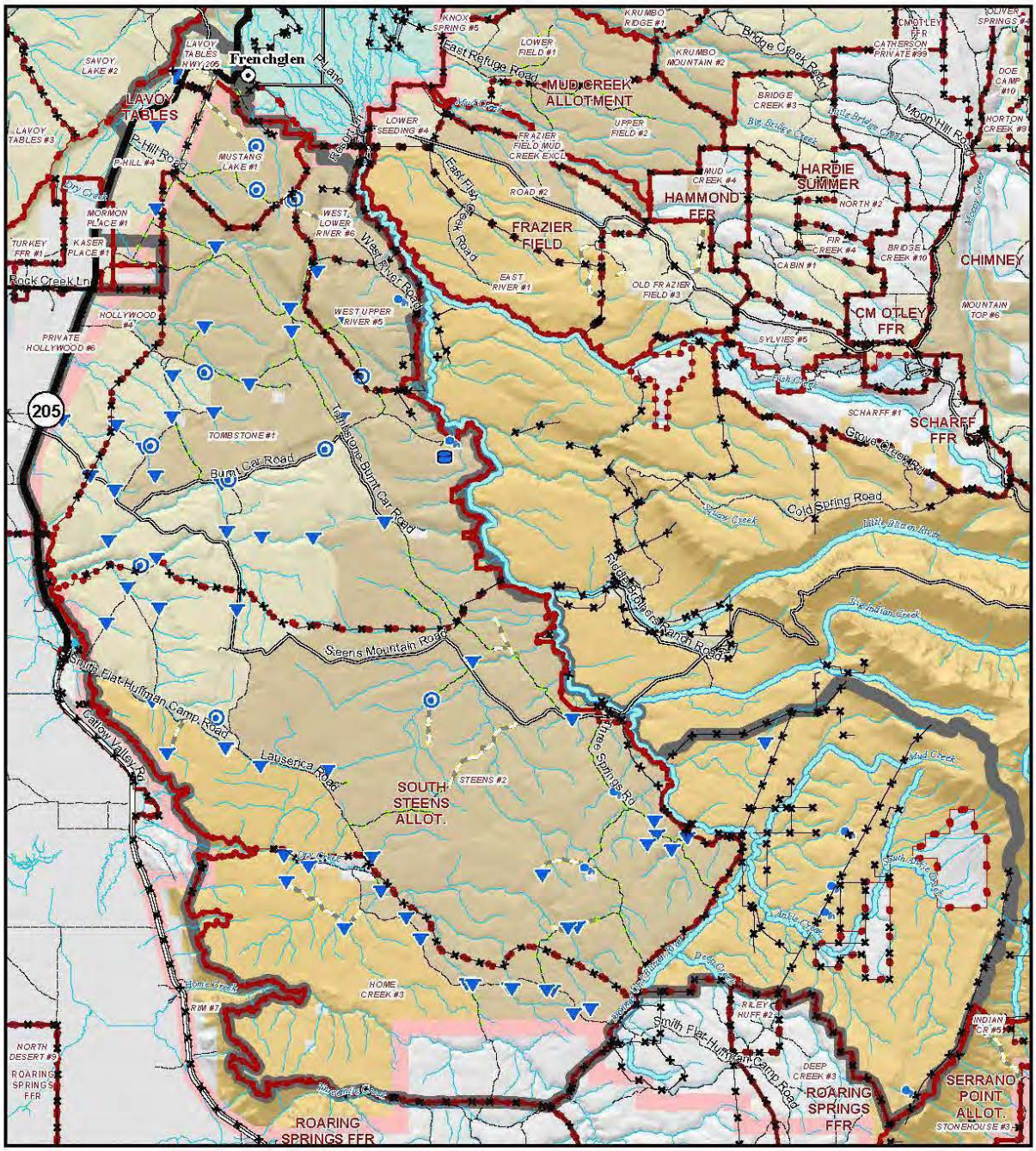
22-month time-release pelleted vaccine:

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

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.
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 delivered using a modified syringe and jabstick to inject the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time-release cold capsule.
3. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of Freunds Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
4. In the future, the vaccine may be administered remotely using an approved long range darting protocol and delivery system if or when that technology is developed.
5. All treated mares will be freeze-marked on the hip or neck HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

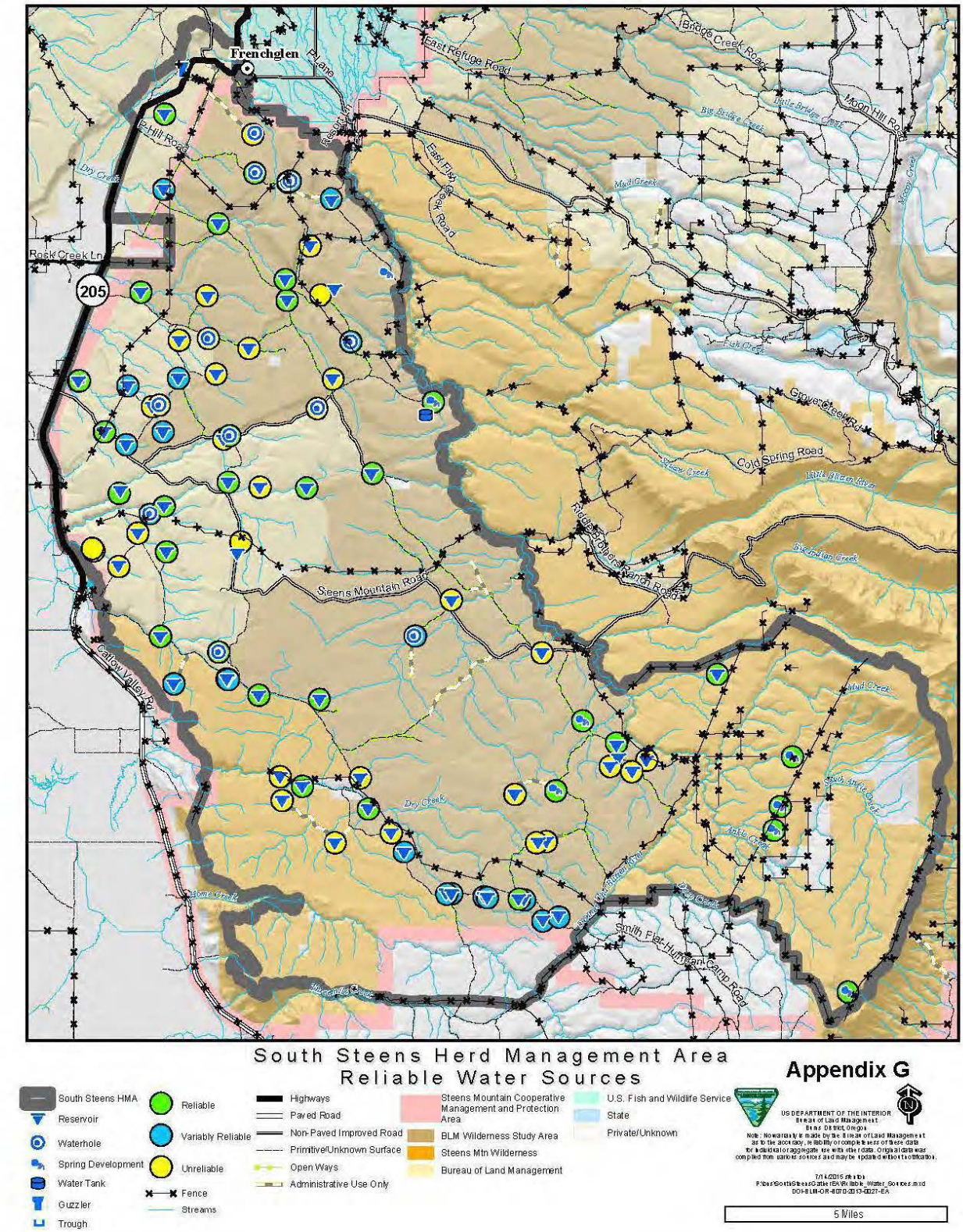
Monitoring and Tracking of Treatments:

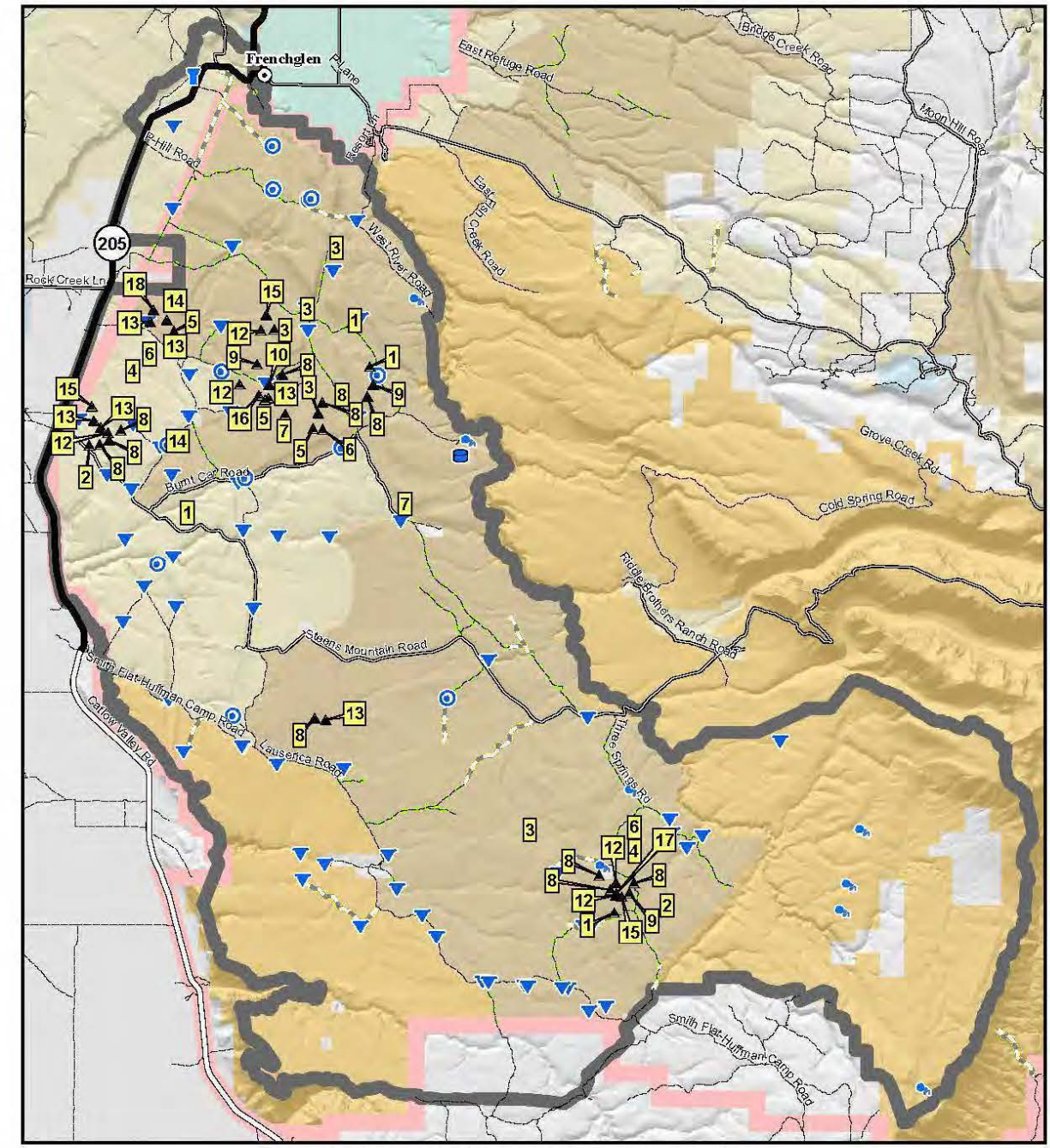
1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e. # of foals to # of adults).
2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine HMA field monitoring (on-the-ground), data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.
3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
4. 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 HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.



South Steens Herd Management Area

Appendix F


Frenchglen
P-Lane
East Refuge Road
Bridge Creek Road
Moon Hill Road
Big Bridge Creek
Little Bridge Creek
P-Hill Road
Dry Creek
East Fish Creek Road
Mud Creek
Rock Creek Ln
205
Fish Creek
Grove Creek Rd
Cold Spring Road
Little Blitzen River
Big Indian Creek
Steens Mountain Road
Catlow Valley Rd
Mud Creek
Dry Creek
Home Creek
Smith Flat-Hurricane Camp Road
South Steens Herd Management Area
Reliable Water Sources
Appendix G
South Steens HMA
Reservoir
Waterhole
Spring Development
Water Tank
Guzzler
Trough
Reliable
Variably Reliable
Unreliable
Fence
Streams
Highways
Paved Road
Non-Paved Improved Road
Primitive/Unknown Surface
Open Ways
Administrative Use Only
Steens Mountain Cooperative Management and Protection Area
BLM Wilderness Study Area
Steens Mtn Wilderness
Bureau of Land Management
U.S. Fish and Wildlife Service
State
Private/Unknown
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Burns District, Oregon
Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.
7/14/2015 sfenton
P:\bus\SouthSteensGatherEA\Reliable_Water_Sources.mxd
DOI-BLM-OR-8070-2013-0027-EA
5 Miles



South Steens Herd Management Area
June 21, 2012 Inventory

Appendix H

Number of Horses Observed
South Steens HMA
Reservoir
Waterhole
Spring Development
Water Tank
Guzzler
Trough
Highways
Paved Road
Non-Paved Improved Road
Primitive/Unknown Surface
Open Ways
Administrative Use Only
Steens Mountain Cooperative Management and Protection Area
BLM Wilderness Study Area
Steens Mtn Wilderness
Dureau of Land Management
U.S. Fish and Wildlife Service
State
Private/Unknown

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Burns District, Oregon
Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.
7/14/2015 stenton
P:\bns\SouthSteensGather\EXInventory_Census.mxd
DOI-BLM-OR-B070-2013-0027-EA

5 Miles

Appendix I

South Steens HMA Gather Population Management Plan EA
WinEquus Population Modeling
December 20, 2013

These population models were run based on the June 2012 direct count aerial inventory of 383 wild horses plus a 20% population growth rate to account for the 2013 foal crop. Therefore, at the time these models were run there were an estimated 460 horses in South Steens HMA.

No Action

Average Growth Rate in 10 Years	
Lowest Trial	14.2
10th Percentile	17.0
25th Percentile	18.3
Median Trial	**19.6**
75th Percentile	20.7
90th Percentile	21.8
Highest Trial	23.3

Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	410	1112	1959
10th Percentile	472	1236	2474
25th Percentile	483	1315	2738
Median Trial	499	**1444**	3012
75th Percentile	535	1591	3355
90th Percentile	569	1709	3811
Highest Trial	678	2170	4738

* 0 to 20+ year-old horses

Proposed Action

Average Growth Rate in 10 Years	
Lowest Trial	10.2
10th Percentile	14.2
25th Percentile	15.7
Median Trial	**17.5**
75th Percentile	19.0
90th Percentile	19.6
Highest Trial	23.2

Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	136	272	481
10th Percentile	159	294	544
25th Percentile	172	305	560
Median Trial	180	**318**	599
75th Percentile	188	350	646
90th Percentile	194	363	686
Highest Trial	207	402	800

* 0 to 20+ year-old horses

Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	897	484	54
10th Percentile	1026	558	69
25th Percentile	1060	604	80
Median Trial	**1115**	**676**	**87**
75th Percentile	1230	764	95
90th Percentile	1284	824	101
Highest Trial	1408	927	113

* 0 to 20+ year-old horses

Alternatives B, C, and D

Average Growth Rate in 10 Years	
Lowest Trial	13.3
10th Percentile	16.4
25th Percentile	18.4
Median Trial	**19.9**
75th Percentile	21.4
90th Percentile	22.3
Highest Trial	25.5

Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	134	279	466
10th Percentile	162	297	530
25th Percentile	173	303	565
Median Trial	181	**310**	601
75th Percentile	188	318	632
90th Percentile	195	326	683
Highest Trial	204	348	904

* 0 to 20+ year-old horses

ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKBOOK

"...except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act..."

-- The Wilderness Act of 1964

Project Title: South Steens HMA Gather 2014

MRDG Step 1: Determination

Determine if Administrative Action is Necessary

Description of the Situation

What is the situation that may prompt administrative action?

see "Description of the Situation South Steens HMA Gather"

Description of the Situation
South Steens HMA Gather 2014

The Burns District Bureau of Land Management (BLM) proposes to gather and remove excess wild horses and implement population control measures on wild horses from the South Steens Herd Management Area (HMA) in order to achieve a thriving natural ecological balance and manage the wild horse population within Appropriate Management Level (AML) over a ten year time frame. Various methods of gathering and removal of wild horses are available (i.e. helicopter drive trapping, bait/water trapping, horseback drive trapping). The method(s) to be used would be determined by the authorized officer.

South Steens HMA is located in Harney County approximately 75 miles south of Burns, OR. The HMA contains 126,732 acres and is bordered by Catlow Valley to the west and the top of Steens Mountain to the east. Topography varies from slightly rolling hills to steep mountainous country.

The AML for South Steens HMA was previously established, based on monitoring data and following thorough public review, as a range from 159-304 wild horses. This AML was most recently reaffirmed in the 2005 Steens Mountain Cooperative Management and Protection Area Resource Management Plan/Record of Decision (CMPA RMP/ROD) and the Andrews/Steens RMP/ROD (August 2005).

The South Steens HMA was last gathered in 2009. A June 2012 helicopter inventory documented a total of 383 wild horses (333 adults and 50 foals), within the HMA. Assuming a 20% population growth rate each year, the estimated wild horse population at the time of the gather would be approximately 460 wild horses.

Site-specific removal criteria were never set for South Steens HMA, therefore animals removed from the HMA would be chosen based on a selective removal strategy set forth in BLM Manual Section 4720.33. Wild horses would be removed in the following order: (1) First Priority: Age Class – Four Years and Younger; (2) Second Priority: Age Class – Eleven to Nineteen Years; (3) Third Priority: Age Class Five to Ten Years; and (4) Fourth Priority: Age Class Twenty Years and Older should not be permanently removed from the HMA unless specific exceptions prevent them from being turned back to the range. In general, this age group can survive in the HMA, but may have greater difficulty adapting to captivity and the stress of handling and shipping if removed. BLM Manual Section 4720.33 further specifies some animals that should be removed irrespective of their age class. These animals include but are not limited to; nuisance animals and animals residing outside the HMA or in an area of an inactive HA. One caveat to these selective removal criteria would be the release of existing geldings back to the HMA. Following the last gather in 2009, 15 stallions were gelded and released back into the HMA. If recaptured during future gather operations, these geldings would be returned to the range regardless of age.

The purpose of the proposed action is to protect rangeland resources from deterioration by returning and maintaining the wild horse population within the established AML on South Steens HMA, and restore a thriving natural ecological balance and multiple use relationship on public lands in the area consistent with the provisions of Section 1333(b)(2) of the Wild Free-Roaming Horse and Burro Act (WFRHBA) of 1971. The 1995 South Steens HMA Plan Update set an objective to "Manage wild horse populations at an appropriate management level of between 159 and 304 animals to maintain a thriving natural ecological balance within the HMA. Provide adequate quality forage for 3,648 AUMs of wild horse use" (1995 South Steens Allotment Management Plan).

Options Outside of Wilderness

Can action be taken outside of wilderness that adequately addresses the situation?

☐ YES

☑ NO **EXPLAIN & COMPLETE STEP 1 OF THE MRDG**

Explain:

The South Steens HMA is located within portions of the Steens Mountain Wilderness. Wild horses roam freely through the wilderness, South Fork Donner und Blitzen WSA, Bltizen River WSA and private lands. The capture of wild horses may take place in the wilderness thru the use of bait traps or helicopter traps. Location of the traps would be dependent on where the horses were located. Placement of traps in the wilderness would reduce the hazards associated with herding wild horses across rough terrain and more adequately address the situation in terms of the health and safety of the wild horse and the people doing the work.

Criteria for Determining Necessity

Is action necessary to meet any of the criteria below?

A. Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that ***requires*** *action? Cite law and section.*

☐ YES ☑ NO

Explain:

There are no special provisions in the Wilderness Act of 1964 or the in the Steens Act of 2000 that require action in response to the increasing population of wild horses.

B. Requirements of Other Legislation

Is action necessary to meet the requirements of other federal laws? Cite law and section.

☑ YES ☐ NO

Explain:

Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) as amended.
Code of Federal Regulations (CFR): Wild Free-Roaming Horse and Burro Management (43 CFR 4700). The following are excerpts from the 43 CFR 4700:

1) 4720.1 – **Removal of excess animals from public lands.** "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."

2) 4710.3-1 – **Herd Management Areas.** "Herd Management Areas shall be established for maintenance of wild horse and burro herds."

3) 4740.1 – **Use of motor vehicles or aircraft.** (a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner. (b) 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.

C. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: Untrammeled, Undeveloped, Natural, Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation, or Other Features of Value?

UNTRAMMELED

☐ YES ☑ NO

Explain:

No action is nescessary to preserve the untrammeled character of the wilderness. At this time the horse herd is free of manipulation and control. the horses grow and thrive in the wilderness environment.

UNDEVELOPED

☐ YES ☑ NO

Explain:

No action is nescessary to maintain the undeveloped character of the wilderness. There are no developments or installations existing in the wilderness which require a horse gather, nor are there any activities associated with the undeveloped character, such as motorized activities which would allow humans to occupy the land, present at this time in the HMA portion of the wilderness.

NATURAL

☑ YES ☐ NO

Explain:

Controlling the herd size protects the naturalness characteristic by reducing damage to sensitive ecosystems such as springs and streams. Wild horses can cause resource damage through over-grazing and hoof damage. Stream bank damage can introduce sediment into the water and affect fishery spawning as well as the water quality of wild & scenic rivers. An increasing population of wild horses can also displace wildlife by competing for the same forage types.

SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

☐ YES ☑ NO

Explain:

No action is nescessary to maintain Outstanding opportunities for solitude or a primitive and unconfined type of recreation in the wilderness. Visitors to the area would continue to have outstanding opportunities for solitude whether the horses are there or not.

OTHER FEATURES OF VALUE

☑ YES ☐ NO

Explain:

Wild horses are a unique value of the Steens Mountain Wilderness; however, unchecked population growth can create resource problems for other unique components of the wilderness. Controlling the wild horse herd size is important for the over-all health of the wilderness ecosystem.

Step 1 Determination

Is administrative action necessary in wilderness?

Decision Criteria	Summary Responses
A. Existing Rights or Special Provisions	Action IS NOT necessary to meet this criterion.
B. Requirements of Other Legislation	Action IS necessary to meet this criterion.
C. Wilderness Character	
Untrammeled	Action IS NOT necessary to meet this criterion.
Undeveloped	Action IS NOT necessary to meet this criterion.
Natural	Action IS necessary to meet this criterion.
Outstanding Opportunities	Action IS NOT necessary to meet this criterion.
Other Features of Value	Action IS necessary to meet this criterion.

Is administrative action necessary in wilderness?

☑ YES

EXPLAIN & PROCEED TO STEP 2 OF THE MRDG

☐ NO

Explain:

Wild horse populations in the Steens Wilderness have increased. The wild horses roam freely in the wilderness and through the South fork of the Donner und Blitzen WSA and the Bltizen River WSA as well as the wild & scenic rivers found in the HMA. Monitoring of herd populations and their effects on resources indicate the need for a gather. In order to maintain a thriving natural ecological balance and prevent degradation of wilderness character, watershed function, and ecological processes the herd population must not exceed the productive capacity of the wilderness habitat. Therefore an administrative action is necessary to remove a limited number of wild horses from the wilderness.

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Alternatives

Alternative 1: Proposed Action - Remove excess wild horses, apply available and approved fertility treatment (Preferred A

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?

Alternative A. Proposed Action - Remove Excess Wild Horses and Apply Available and Approved Fertility Treatment *(Preferred Alternative)*

Alternative A is designed to manage wild horse populations over a ten year time frame and would incorporate two to three gather cycles. The first portion of the proposed action would be to gather approximately 432 adult horses, roughly 90 percent of the estimated herd size based on current estimates, using the helicopter drive method. Approximately 321 excess wild horses would be removed from the South Steens HMA, included those that have strayed outside the HMA boundary, to re-establish the herd size at the low end of AML (159 animals). The number of horses gathered and removed would be adjusted based upon the estimated herd size at the time of the gather. Each helicopter gather would capture 90% of the herd and remove horses down to the low end of AML. Each helicopter gather would take approximately one week. BLM would plan to gather as soon as holding space becomes available and BLM's Washington D.C. Office gives authorization. The gather would be initiated following public notice on the Burns District web page http://www.blm.gov/or/districts/burns/index.php. Horses are territorial creatures who establish home ranges. Once horses move outside of an HMA and establish a home range there, it is expected that they would return to the new home range even after being gathered and returned to the HMA they are supposed to be in. Therefore, no horses found outside of the HMA would be returned to the range .

Bait, water and horseback drive trapping would be available for use as a tool to remove excess horses in areas where concentrations of wild horses are detrimental to habitat conditions or other resources within the HMA, or to remove wild horses from private lands or public lands outside the HMA boundary. Bait, water or horseback drive trapping would be conducted as needed between helicopter drive gathers at any time throughout the year. Bait, water trapping and horseback drive trapping operations could take anywhere from one week to several months depending on the amount of animals to trap, weather conditions, or other considerations could result in adjustments in the schedule. Operations would be conducted either by contract or BLM personnel.

Trap sites would be selected within the pastures and areas where horses are located to the greatest extent possible and would follow the appropriate Wilderness guidance set forth in BLM Manual 6340 Section 1.6(C) 20(d) (p.1-55)

Component Activities

How will each of the components of the action be performed under this alternative?

Component of the Action		Activity for this Alternative
X	*Example: Transportation of personnel to the project site*	*Example: Personnel will travel by horseback*
1	Transport traps and personnel to project site	Transport would occur in motorized vehicles on administratively closed routes through wilderness
2	Set up traps at project site	Traps would be set up near or on existing vehicle route
3	Herd wild horses to traps	Helicopter would herd the wild horses
4	Transport traps, personnel and captured horses out of project site.	Transport would occur in motorized vehicles on administratively closed routes through wilderness
5	Rehabilitate site disturbance	Hand seeding with backpack spreader, seeds raked into soil
6		
7		
8		
9		

Wilderness Character

What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?

UNTRAMMELED

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
2	Traps would be set up near or on existing vehicle route	☐	☐	☑
3	Helicopter would herd the wild horses	☐	☑	☐
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
5	Hand seeding with backpack spreader, seeds raked into soil	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	1	NE
Untrammeled Total Rating			-1	

Explain:

The untrammeled character of the wilderness is unaffected by transporting equipment and personnel or the operation of motorized vehicles because those actions make no attempt to manipulate or control the ecological processes of the environment.
The untrammelled character of the wilderness is affected by the the helicopter herding of the wild horses . Forcing movement of the herd by helicopter , directing the herd into traps and removing excess numbers from the wilderness diminishes the untrammelled character while at the same time enhancing other wilderness characteristics such as Naturalness (see Naturalness character for further detail)

UNDEVELOPED

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☑	☐
2	Traps would be set up near or on existing vehicle route	☐	☑	☐
3	Helicopter would herd the wild horses	☐	☐	☑
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☑	☐
5	Hand seeding with backpack spreader, seeds raked into soil	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	3	NE
Undeveloped Total Rating			**-3**	

Explain:

The undeveloped character of the wilderness is affected by the use of motor vehicles or structures and installations. Transporting equipment and personnel to the project site on administratively closed roads in the wilderness diminishes the undeveloped character of the wilderness. Traps set up in the wilderness on the road or along the road would impair the undeveloped character as well. Helicopters herding the wild horses would not affect the undeveloped character of the wilderness because they do not land, are not intended as mechanical transport and wilderness has no definitive flight ceiling over it so overflights do not apply to the undeveloped character of the wilderness.

NATURAL

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
2	Traps would be set up near or on existing vehicle route	☐	☑	☐
3	Helicopter would herd the wild horses	☑	☑	☐
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
5	Hand seeding with backpack spreader, seeds raked into soil	☑	☐	☐
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		2	2	NE
Natural Total Rating			**0**	

Explain:

Naturalness would be affected in the following ways: Transport of equipment and personnel in motorized vehicles over administratively closed roads would increase the surface disturbance along the road and make the route more evident. Should the route need some form of maintenance in specific areas to enable the truck and horse trailer to use the route to safely transport the wild horses from the capture site to the designated holdiing facility, than new surface disturbances would be created, diminishing naturalness. Checking bait traps multiple times per day would add to the surface disturbance because vehicles using the route would define the route more as they used it. Setting up the traps would likely create surface disturbance in the vegetation and soil crusts in and around the structure. Herding wild horses with helicopters affects naturalness because the horses are guided and pushed by mechanical means into installations (traps). However, while the gather activities diminish naturalness in the period of time the action is taking place, approximently two weeks, after the gather is complete naturalness would be improved and enhanced because of the smaller population of wild horses which remain. The small population would create less riparian damage, hence less impact to water quality, and there would be less competition for the same forage as other wildlife in the area.
Mitigation by seeding and raking, of the surface disturbances created by the traps and associated activities would enhance naturalness by helping remove the marks of human intervention.

SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☑	☐
2	Traps would be set up near or on existing vehicle route	☐	☑	☐
3	Helicopter would herd the wild horses	☐	☑	☐
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☑	☐
5	Hand seeding with backpack spreader, seeds raked into soil	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	4	NE
Solitude or Primitive & Unconfined Recreation Total Rating			-4	

Explain:

Outstanding opportunities for solitude are affected by encounters with others, signs of modern civilization , facilities. and management restrictions on visitor behavior. Solitude does not need to be present everywhere, however where it is present, its preservation becomes important to wilderness character as a whole. Motorized vechicles traveling on administratively closed roads, traps set up near or on the road, and helicopters traversing the area, would diminish the outstanding opportunities for solitude normally found in the wilderness. These conditions would last as long as the traps are set up. During the time the helicopters are searching for and herding the horses, restrictions on visitors would be in affect because of safety concerns, which would also diminish outstanding opportunities for solitude.

OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
2	Traps would be set up near or on existing vehicle route	☐	☐	☑
3	Helicopter would herd the wild horses	☐	☐	☑
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☑	☐	☐
5	Hand seeding with backpack spreader, seeds raked into soil	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		1	0	NE
Other Features of Value Total Rating			**1**	

Explain:

Wild horses are a unique value of the Steens Mountains Wilderness and BLM goal is to: manage and maintain healthy wild horse herds in established HMAs at AMLs to ensure a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values. These goals would be accomplished through the following objectives:
Objective 1. Designate HMAs.
Objective 2. Designate/retain Herd Areas in inactive status.
Objective 3. Designate AMLs for each HMA and allocate year long forage for wild horses.
Objective 4. Manage wild horse numbers within established HMAs to ensure a thriving natural ecological balance.
Objective 5. Provide adequate year-round water sources to sustain wild horse herds.
Objective 6. Maintain herd viability and genetic diversity.

Managing AMLs through a gather would enhance this unique value of the Steens Mountain Wilderness.

Traditional Skills

What is the effect of each component activity on traditional skills?

TRADITIONAL SKILLS

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☑	☐	☐
1	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
2	Traps would be set up near or on existing vehicle route	☐	☐	☑
3	Helicopter would herd the wild horses	☐	☐	☑
4	Transport would occur in motorized vehicles on administratively closed routes through wildernes	☐	☐	☑
5	Hand seeding with backpack spreader, seeds raked into soil	☑	☐	☐
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		1	0	NE
Traditional Skills Total Rating			**1**	

Explain:

This alternative would provide no opportunities to practice traditional skills such as horsemanship. Risk assesments analzyed for this type of work have shown a clear risk to horse and rider when engaged in herding wild horses over the terrain anticipated to be found in the wilderness. Examples would be areas where dense juniper growth impede travel or a riders sight line. Rocky terrain that may cause the horse to stumble, endangering the horse and rider. While helicopter herding creates some risk for the wild horses, it is still the safest manner of herding for both the wild horse and the person doing the herding.

Hand seeding of areas impacted by the traps or motorized traffic would be rehabilitated by hand with seeding and raking. While the traditional skill of seeding by hand is a small part of the whole event, the skill does exhibit a non-motorized, labor intensive interaction with the land which enhances the traditional skills criteria.

Economics

What is estimated cost of each component activity?

COST

	Component Activity for this Alternative	Estimated Cost
X	*Example: Personnel will travel by horseback*	*$1,900*
1	Transport would occur in motorized vehicles on administratively closed routes through wilderness	
2	Traps would be set up near or on existing vehicle route	
3	Helicopter would herd the wild horses	$400,000
4	Transport would occur in motorized vehicles on administratively closed routes through wilderness	
5	Hand seeding with backpack spreader, seeds raked into soil	
6		
7		
8		
9		
Total Estimated Cost		**$400,000**

Explain:

The cost of the gather is scaleable from $10,000 to $400,000

At the low end, BLM specialists would set up a trap, monitor it, and remove the horses in the trap to the holding facility. Potential catch would be around 40 wild horses.

At the high end, contractors would set up the trap, use helicopter herding methods and remove the wild horses to the holding facility. Potential catch would be around 400 (or the number required to bring the herd to the lower level of the AML.)

Safety of Visitors & Workers

What is the risk of this alternative to the safety of visitors and workers? What mitigation measures will be taken?

RISK ASSESSMENT

Severity of Accident	Probability of Accident				
	Frequent	Likely	Common	Unlikely	Rare
Catastrophic: Death or permanent disability	☐	☐	☐	☐	☑
Critical: Permanent partial disability or temporary total disability	☐	☐	☐	☐	☑
Marginal: Compensable injury or illness, treatment, lost work	☐	☐	☐	☑	☐
Negligible: Superficial injury or illness, first aid only, no lost work	☐	☐	☑	☐	☐
Risk Assessment	**Low Risk**				

Explain:

Safety of visitors is a high level concern to event organizers because of the hazards presented when visitors are in close proximity to wild horses during the gather. Strict guidlines are followed to ensure visitors are kept away from the area during operations.

Helicopter pilots may encounter a rare or catrastrophic event due to machine or pilot malfunction.. Contractors must follow strict guidelines to ensure the safety of all concerned.

Summary Ratings for Alternative 1

Wilderness Character	
Untrammeled	-1
Undeveloped	-3
Natural	0
Solitude or Primitive & Unconfined Recreation	-4
Other Features of Value	1
Wilderness Character Summary Rating	**-7**

Traditional Skills	
Traditional Skills	1

Economics	
Cost	$400,000

Safety of Visitors & Workers	
Risk Assessment	Low Risk

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Alternatives

Alternative 5: No Action - Defer gather and removal

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?

Alternative E: No Action – Defer Gather and Removal

Under Alternative E, No Action Alternative, no gather would occur and no additional management actions would be undertaken to control the size or sex ratio of the wild horse population at this time. Current estimates of wild horses on the range indicate there are 460 horses within the HMA. Within one normal gather cycle, 4 years, wild horse numbers would increase to approximately 952 horses under the no action alternative. Wild horses ranging outside the HMA would remain in areas outside the HMA not designated for their management.

Component Activities

How will each of the components of the action be performed under this alternative?

Component of the Action		Activity for this Alternative
X	*Example: Transportation of personnel to the project site*	*Example: Personnel will travel by horseback*
1	Transport traps and personnel to project site	no traps and no personnel would be required
2	Set up traps at project site	no traps would be set up
3	Herd wild horses to traps	no wild horses would be gathered
4	Transport traps, personnel and captured horses out of project site.	There would be no traps or personnel to remove
5	Rehabilitate site disturbance	There would be no site disturbance to rehabilitate
6		
7		
8		
9		

Wilderness Character

What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?

UNTRAMMELED

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	no traps and no personnel would be required	☐	☐	☑
2	no traps would be set up	☐	☐	☑
3	no wild horses would be gathered	☐	☐	☑
4	There would be no traps or personnel to remove	☐	☐	☑
5	There would be no site disturbance to rehabilitate	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	0	NE
Untrammeled Total Rating			**0**	

Explain:

UNDEVELOPED

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	no traps and no personnel would be required	☐	☐	☑
2	no traps would be set up	☐	☐	☑
3	no wild horses would be gathered	☐	☐	☑
4	There would be no traps or personnel to remove	☐	☐	☑
5	There would be no site disturbance to rehabilitate	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	0	NE
Undeveloped Total Rating			**0**	

Explain:

NATURAL

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	no traps and no personnel would be required	☐	☐	☑
2	no traps would be set up	☐	☐	☑
3	no wild horses would be gathered	☐	☑	☐
4	There would be no traps or personnel to remove	☐	☐	☑
5	There would be no site disturbance to rehabilitate	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	1	NE
Natural Total Rating			**-1**	

Explain:

SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	no traps and no personnel would be required	☐	☐	☑
2	no traps would be set up	☐	☑	☐
3	no wild horses would be gathered	☐	☑	☐
4	There would be no traps or personnel to remove	☐	☐	☑
5	There would be no site disturbance to rehabilitate	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	2	NE
Solitude or Primitive & Unconfined Recreation Total Rating			**-2**	

Explain:

OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	no traps and no personnel would be required	☐	☑	☐
2	no traps would be set up	☐	☑	☐
3	no wild horses would be gathered	☐	☑	☐
4	There would be no traps or personnel to remove	☐	☑	☐
5	There would be no site disturbance to rehabilitate	☐	☑	☐
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	5	NE
Other Features of Value Total Rating		**-5**		

Explain:

Traditional Skills

What is the effect of each component activity on traditional skills?

TRADITIONAL SKILLS

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☑	☐	☐
1	no traps and no personnel would be required	☐	☐	☑
2	no traps would be set up	☐	☐	☑
3	no wild horses would be gathered	☐	☐	☑
4	There would be no traps or personnel to remove	☐	☐	☑
5	There would be no site disturbance to rehabilitate	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	0	NE
Traditional Skills Total Rating			**0**	

Explain:

Economics

What is estimated cost of each component activity?

COST

	Component Activity for this Alternative	Estimated Cost
X	*Example: Personnel will travel by horseback*	*$1,900*
1	no traps and no personnel would be required	
2	no traps would be set up	
3	no wild horses would be gathered	$0
4	There would be no traps or personnel to remove	
5	There would be no site disturbance to rehabilitate	
6		
7		
8		
9		
Total Estimated Cost		**$0**

Explain:

Safety of Visitors & Workers

What is the risk of this alternative to the safety of visitors and workers? What mitigation measures will be taken?

RISK ASSESSMENT	Probability of Accident				
Severity of Accident	Frequent	Likely	Common	Unlikely	Rare
Catastrophic: Death or permanent disability	☐	☐	☐	☐	☑
Critical: Permanent partial disability or temporary total disability	☐	☐	☐	☐	☑
Marginal: Compensable injury or illness, treatment, lost work	☐	☐	☐	☐	☑
Negligible: Superficial injury or illness, first aid only, no lost work	☐	☐	☐	☑	☐
Risk Assessment	**Low Risk**				

Explain:

Summary Ratings for Alternative 5

Wilderness Character	
Untrammeled	0
Undeveloped	0
Natural	-1
Solitude or Primitive & Unconfined Recreation	-2
Other Features of Value	-5
Wilderness Character Summary Rating	**-8**

Traditional Skills	
Traditional Skills	0

Economics	
Cost	$0

Safety of Visitors & Workers	
Risk Assessment	Low Risk

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Alternatives

Alternative 6: Gather by Horseback only

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?

Gather by Horseback Only

Use of horseback drive-trapping to remove excess wild horses can be effective on a small scale (less than 50 horses); but due to the large geographic size of the HMA (126,732 BLM managed acres), access restrictions (i.e. limited roads, WSA and Wilderness designations, etc.) and approachability of the horses this technique would be ineffective and impractical. Horseback drive-trapping is also labor intensive as compared to helicopter drive trapping. Helicopter drive trapping would require approximately 7 days to gather this HMA vs. 2-3 months with 5 or more people during horseback drive-trapping. Horseback drive trapping can also be dangerous to the domestic horses and riders herding the wild horses.

Component Activities

How will each of the components of the action be performed under this alternative?

Component of the Action		Activity for this Alternative
X	*Example: Transportation of personnel to the project site*	*Example: Personnel will travel by horseback*
1	Transport traps and personnel to project site	traps would be located outside of wilderness, personnel would ride into the wilderness to find the wild horses
2	Set up traps at project site	traps would be located outside of wilderness, personnel would ride into the wilderness to find the wild horses
3	Herd wild horses to traps	Wild horses would be herded to the trap site by horsemen on domestic horses
4	Transport traps, personnel and captured horses out of project site.	Once the horses are driven out of the wilderness into the traps the gather would be done
5	Rehabilitate site disturbance	Rehabilitation would follow the same guidelines as those in alternative 1
6		
7		
8		
9		

Wilderness Character

What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?

UNTRAMMELED

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☐	☑	☑
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	1	NE
Untrammeled Total Rating			**-1**	

Explain:

Herding the wild horses to the trap sites is a trammelling and diminishes the untrammeled character of the wilderness. The horses are being controlled and manipulated to control their population, however without this trammel taking place, other wilderness characteristics such as naturalness could be affected.

UNDEVELOPED

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☐	☐	☑
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	0	NE
Undeveloped Total Rating			**0**	

Explain:

There are no activities in this alternative that would affect the undeveloped character of the wilderness because the traps are not in the wilderness.

NATURAL

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☑	☐	☐
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		1	0	NE
Natural Total Rating		**1**		

Explain:

Removing enough wild horses to bring the population down to the AML could reduce potential impacts to riparian areas and water quality. Reducing the wild horse population could also reduce the pressure on wildlife which compete for forage.

SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☐	☐	☑
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☐	☑	☐
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		0	1	NE
Solitude or Primitive & Unconfined Recreation Total Rating			**-1**	

Explain:

Encounters with visitors could affect solitude, however the encounters would likely occur on the trails near the South Steens Campground as the riders drove the horses towards the Steens Mountain road.

OTHER FEATURES OF VALUE

Component Activity for this Alternative		Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☐	☐	☑
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☑	☐	☐
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☑	☐	☐
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☑	☐	☐
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		3	0	NE
Other Features of Value Total Rating			**3**	

Explain:

Features unique to the Steens Mountain Wilderness are the Redband Trout Reserve and the No livestock Grazing Area. Removing excess wild horses to control the population would reduce potential impacts to riparian areas and as a result of that, there would be an increase in water quality, which would enhance the Redband Trout Reserve. The No Livestock Grazing Area (NLGA) has been livestock free since 2004, which has allowed the banks of the wild and scenic rivers to heal themselves of the riparian damage caused by livestock grazing. Reducing the wild horse population would continue that healing, and enhance the NLGA.

Traditional Skills

What is the effect of each component activity on traditional skills?

TRADITIONAL SKILLS

	Component Activity for this Alternative	Positive	Negative	No Effect
X	*Example: Personnel will travel by horseback*	☑	☐	☐
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☑	☐	☐
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find th	☑	☐	☐
3	Wild horses would be herded to the trap site by horsemen on domestic horses	☑	☐	☐
4	Once the horses are driven out of the wilderness into the traps the gather would be done	☐	☐	☑
5	Rehabilitation would follow the same guidelines as those in alternative 1	☐	☐	☑
6		☐	☐	☐
7		☐	☐	☐
8		☐	☐	☐
9		☐	☐	☐
Totals		3	0	NE
Traditional Skills Total Rating			**3**	

Explain:

Gathering wild horses by horseback enhances the traditional skills used by horsemen to do the gather. Traditional skills would include horseback riding and herding of livestock.

Economics

What is estimated cost of each component activity?

COST

	Component Activity for this Alternative	Estimated Cost
X	*Example: Personnel will travel by horseback*	*$1,900*
1	traps would be located outside of wilderness, personnel would ride into the wilderness to find the wild horses	
2	traps would be located outside of wilderness, personnel would ride into the wilderness to find the wild horses	
3	Wild horses would be herded to the trap site by horsemen on domestic horses	$80,000
4	Once the horses are driven out of the wilderness into the traps the gather would be done	
5	Rehabilitation would follow the same guidelines as those in alternative 1	
6		
7		
8		
9		
Total Estimated Cost		**$80,000**

Explain:

cost estimates for this alternative indicate the time to complete the task may take much longer than the helicopter herding alternatives.

Safety of Visitors & Workers

What is the risk of this alternative to the safety of visitors and workers? What mitigation measures will be taken?

RISK ASSESSMENT	Probability of Accident				
Severity of Accident	Frequent	Likely	Common	Unlikely	Rare
Catastrophic: Death or permanent disability	☐	☐	☐	☐	☑
Critical: Permanent partial disability or temporary total disability	☐	☐	☐	☑	☐
Marginal: Compensable injury or illness, treatment, lost work	☐	☐	☑	☐	☐
Negligible: Superficial injury or illness, first aid only, no lost work	☑	☐	☐	☐	☐
Risk Assessment	**Moderate Risk**				

Explain:

Riders on domestic horses are more apt to encounter a probility of an accident during a gather in this alternative.

Summary Ratings for Alternative 6

Wilderness Character	
Untrammeled	-1
Undeveloped	0
Natural	1
Solitude or Primitive & Unconfined Recreation	-1
Other Features of Value	3
Wilderness Character Summary Rating	**2**

Traditional Skills	
Traditional Skills	3

Economics	
Cost	$80,000

Safety of Visitors & Workers	
Risk Assessment	Moderate Risk

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Alternatives Not Analyzed

Alternatives Not Analyzed

What alternatives were considered but not analyzed? Why were they not analyzed?

Alternatatives were developed by the project proponent that included different methods of processing the horses after capture, which would have no affect to wilderness characteristics.

Alternative A is the Proposed Action, the following alternatives were considered but not analyzed in this document.

Alternative B would follow the same actions proposed in Alternative A (*Preferred Alternative*) with the exception of applying fertility treatment. None of the animals returned to the HMA would have any fertility treatments conducted on them.

Alternative C would be the same as Alternative A (Proposed Action) with the addition of the gelding of 30 stallions selected to be returned to the range.

Alternative D includes the same Gather SOPs (CAWP, 2013) as the Proposed Action, but would only gather excess horses down to the low AML (159 animals) and end the gather

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Alternative Comparison

Alternative 1: Proposed Action - Remove excess wild horses, apply available and approved fertility treatment (Preferred Alter

Alternative 2:

Alternative 3:

Alternative 4:

Wilderness Character	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Untrammeled	0	1	0	0	0	0	0	0
Undeveloped	0	3	0	0	0	0	0	0
Natural	2	2	0	0	0	0	0	0
Solitude/Primitive/Unconfined	0	4	0	0	0	0	0	0
Other Features of Value	1	0	0	0	0	0	0	0
Totals	3	10	0	0	0	0	0	0
Wilderness Character Rating	-7		0		0		0	

Traditional Skills	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Traditional Skills	1	0	0	0	0	0	0	0
Traditional Skills Rating	1		0		0		0	

Economics	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Cost	$400,000	$0	$0	$0

Safety of Visitors & Workers	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Risk Assessment	Low Risk	Low Risk		

Alternative 5: No Action - Defer gather and removal

Alternative 6: Gather by Horseback only

Alternative 7:

Alternative 8:

Wilderness Character	Alternative 5		Alternative 6		Alternative 7		Alternative 8	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Untrammeled	0	0	0	1	0	0	0	0
Undeveloped	0	0	0	0	0	0	0	0
Natural	0	1	1	0	0	0	0	0
Solitude or Primitive & Unconfined Rec.	0	2	0	1	0	0	0	0
Other Features of Value	0	5	3	0	0	0	0	0
Totals	0	8	4	2	0	0	0	0
Wilderness Character Rating	-8		2		0		0	

Traditional Skills	Alternative 5		Alternative 6		Alternative 7		Alternative 8	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Traditional Skills	0	0	3	0	0	0	0	0
Traditional Skills Rating	0		3		0		0	

Economics	Alternative 5	Alternative 6	Alternative 7	Alternative 8
Cost	$0	$80,000	$0	$0

Safety of Visitors & Workers	Alternative 5	Alternative 6	Alternative 7	Alternative 8
Risk Assessment	Low Risk	Moderate Risk		

Project Title: South Steens HMA Gather 2014

MRDG Step 2: Determination

Refer to the **MRDG Instructions** before identifying the selected alternative and explaining the rationale for the selection.

Selected Alternative

- ☐ Alternative 1: Proposed Action - Remove excess wild horses, apply available and approved ferti
- ☐ Alternative 2:
- ☐ Alternative 3:
- ☐ Alternative 4:
- ☐ Alternative 5: No Action - Defer gather and removal
- ☐ Alternative 6: Gather by Horseback only
- ☐ Alternative 7:
- ☐ Alternative 8:

Explain Rationale for Selection:

The selected alternative is Alternative 1, the Proposed Action. The proposed action provides for a range of options from bait trapping to helicopter herding. The wild horse population must be controlled. An increasing population of wild horses has created resource issues such as trampling of riparian areas, a potential decrease in water quality of the wild and scenic rivers in the wilderness, and potentially affecting the habitat of the Redband Trout Reserve. In addition the wild horses compete for water and forage with wildlife. Bringing the population of wild horses down to the AML would assure they are in balance with other uses and the productive capacity of their habitat. BLM is required to manage wild horses and burros, within herd management areas (HMAs) designated for their long-term maintenance, in a manner designed to achieve and maintain a thriving natural ecological balance (TNEB) and multiple use relationships on the public lands.

The No Action alternative does not contribute any solution to the real problems posed by a growing population of wild horses and actually makes the problem worse through inaction.
Alternative 6 the gather by horseback only alternative, was considered, however this method takes much longer and there are safety issues that eliminated the alternative from consideration in this document.

The Proposed Action would protect and enhance unique wilderness values by managing the wild horse population in a manner that imposes the least impact onto wilderness character.

If more space is needed, continue on the next page...

Explain Rationale for Selection, Continued:

Describe Monitoring & Reporting Requirements:

Approvals

Which of the prohibited uses found in Section 4(c) of the Wilderness Act are approved in the selected alternative and for what quantity?

Prohibited Use	Quantity
☐ Mechanical Transport:	vehicle would use Ankle Creek road to place bait trap
☐ Motorized Equipment:	
☐ Motor Vehicles:	
☐ Motorboats:	
☐ Landing of Aircraft:	
☐ Temporary Roads:	
☐ Structures:	
☐ Installations:	Bait traps in the wilderness

Record and report any authorizations of Wilderness Act Section 4(c) prohibited uses according to agency policies or guidance.

Refer to agency policies for the following review and decision authorities:

Prepared	Name	Position	
	Tom Wilcox	ORP - Wilderness Specialist	
	Signature		Date
			12/30/2014
Recommended	Name	Position	
	Gerry Magee	OR/WA Wilderness Lead OSO	
	Signature		Date
Recommended	Name	Position	
	Signature		Date
Approved	Name	Position	
	Rhonda Karges	Andrews Field Manager	
	Signature		Date
			12/19/14