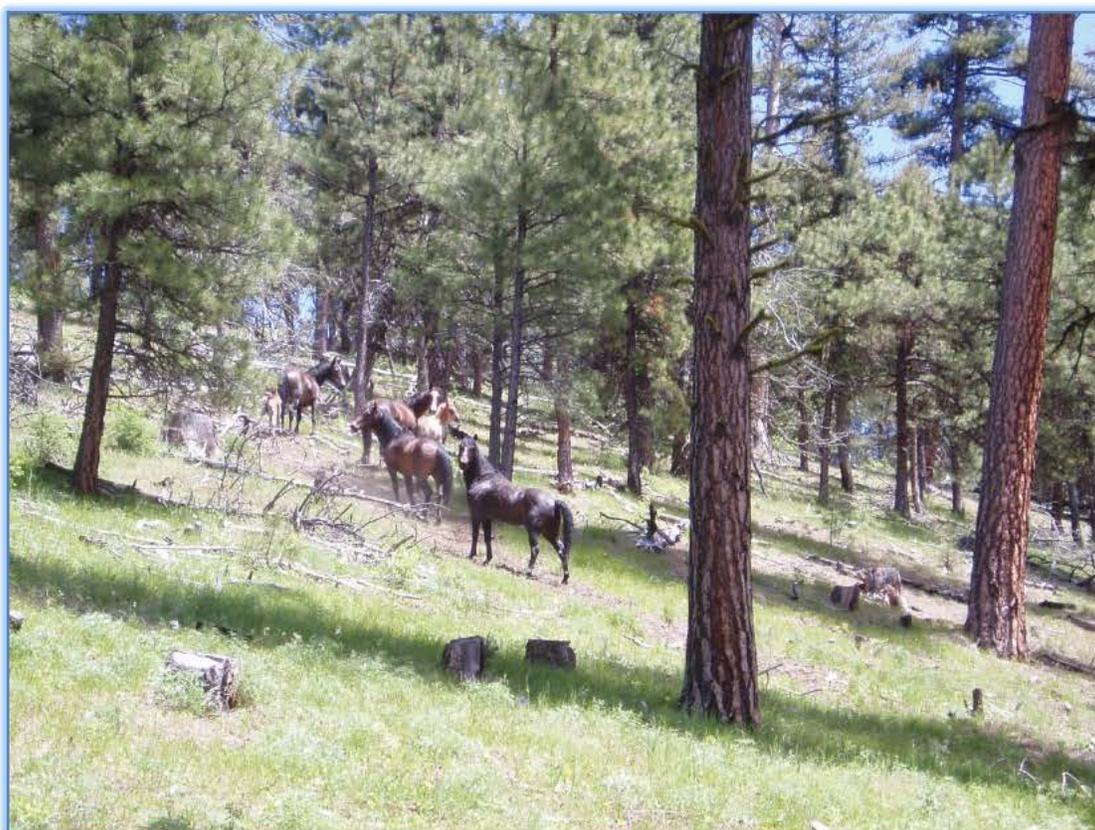


**U.S. Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-OR-P040-2011-0048-EA**

**Murderer's Creek HMA
Wild Horse Gather Plan**



U.S. Department of the Interior
Bureau of Land Management
Prineville District Office
3050 NE Third Street
Prineville, OR 97754

September 2012



This Environmental Assessment (EA) considers the environmental consequences of a proposed action and alternatives to the proposed action to determine if there would be potentially significant impacts. Potentially significant effects would preclude issuance of a Finding of No Significant Impact (FONSI) and require preparation of an environmental impact statement. “Significance” is defined by the National Environmental Policy Act (NEPA) and is found in regulation 40 CFR 1508.27. If a FONSI can be signed after this EA, it may be followed by a decision record (with public appeal period) and implementation of the project. While the BLM may have identified a “proposed action” alternative in the EA, the final decision on this project may include parts of several of the alternatives.

The BLM will accept written comments postmarked or received at the BLM office by November 16, 2012. Send or deliver comments via postal service, Email or FAX to H.F. “Chip” Faver, Field Manager, Prineville District BLM, 3050 NE Third Street, Prineville, Oregon, 97754, FAX 541-416-6798, Email BLM_OR_PR_Mail@blm.gov. Direct questions to the project lead, Justin Rodgers 541-416-6749. The BLM will hold an informational meeting in John Day during the comment period; contact the BLM for details on time and location.

To be most helpful, comments should be as specific as possible. A substantive comment provides new information about the Proposed Action, an alternative or the analysis; identifies a different way to meet the need; points out a specific flaw in the analysis; suggests alternate methodologies and the reason(s) why they should be used; makes factual corrections, or identifies a different source of credible research which, if used in the analysis, could result in different effects.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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1.0 Purpose of and Need for the Proposed Action

1.1 Introduction

The Bureau of Land Management (BLM), Prineville District Office proposes to gather and remove excess wild horses on BLM administered and private lands from within and outside the Murderer's Creek Herd Management Area (HMA) in order to achieve Appropriate Management Levels (AML). In order to slow population growth rates mares would be treated with fertility control and adjustments to sex ratios would be made consistent with objectives in the 2007 Herd Management Area Management Plan (2007 HMAMP). Gather operations would begin following the issuance of the Decision Record.

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result with the implementation of the Proposed Action or alternatives to the Proposed Action. Preparation of an EA assists the BLM authorized officer in determining whether to prepare an Environmental Impact Statement (EIS) if significant impacts could result or a Finding of No Significant Impact (FONSI) if no significant impacts are expected.

1.2 Background

The Murderer's Creek Wild Horse Territory (i.e. portion administered by the Malheur National Forest Service)/Herd Management Area (i.e. portion administered by the Prineville District, BLM) was established in 1972. It is in eastern Oregon near the towns of Dayville, Seneca, and Mt. Vernon (Refer to Map 1, Appendix A). The HMA encompasses approximately 143,000 acres of Malheur National Forest Service (MNF), BLM, Oregon Department of Fish & Wildlife (ODFW), and private lands. The HMA is managed in accordance with the 2007 Murderers Creek Wild Horse Territory/Herd Management Area Plan (2007 HMAMP), with agency management responsibilities identified through a Memorandum of Understanding (MOU) between the MNF and BLM, and applicable laws and regulations. For simplicity in this document, the joint management area (WHT/HMA) managed by both the MNF and BLM would be referred to as the HMA.

The AML for wild horses within the HMA is 50-140 wild horses with an objective of managing for a herd size of 100 animals. The AML upper limit is the maximum number of wild horses that can graze in a thriving natural ecological balance and multiple use relationship on the public lands in the area. Establishing the AML as a population range allows for the periodic removal of excess animals (to the low range) and subsequent population growth (to the high range) between removals.

The AML was established at the planning level and at the site specific level. The John Day Resource Management Plan/Record of Decision (RMP/ROD August 1985) initially set the AML through an in-depth analysis of habitat suitability and resource monitoring and population inventory data, with public involvement. The AML was further documented in the 2007 Murderer's Creek HMAMP.

In 2012, the National Marine Fisheries Service (NMFS) concluded in a Biological Opinion (BiOp) that authorizing grazing on 21 allotments administered by the MNF is not likely to jeopardize the continued existence of Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) or result in the destruction or adverse modification of designated critical habitat (NMFS, 2012). According to the BiOp, monitoring conducted in 2009 and 2010 on MNF allotments indicated heavy concentration areas of wild ungulates and that their use has reached or exceeded the streambank alteration standard prior to livestock turnout. The attributes and endpoint indicators that were monitored for and were identified in the BiOp are:

- 1) *Attribute: Browse; Indicator: 50% Early Season, 40% Late Season*
- 2) *Attribute: Greenline Stubble Height; Indicator: 4" Early Season. 6" Late Season*
- 3) *Attribute: Streambank Alteration (*Not for Sensitive Riparian Areas); Indicator: 20%*
- 4) *Attribute: Upland and Riparian Utilization Indicator: 45%*

According to monitoring analyzed from 2003 – 2010 for the MNF allotments covered under the BiOp, the greenline stubble height and the bank alteration attributes were often exceeded even when pastures were rested from livestock use.

In the winter of 2011/12, the MNF trapped and removed 80 wild horses on lands they administer within the Wild Horse Territory. On March 5, 2012, the BLM and MNF conducted a direct count aerial inventory to estimate wild horse populations within the HMA. The entire HMA was flown and 161 adult wild horses were counted (no foals observed); however, due to steep topography and heavy tree cover within the HMA, it is likely not all horses were observed during this inventory. Recent research (Lubow & Ransom, 2009) suggests undercount bias as high as 32% when conducting aerial population estimates on free-roaming horses in similar environments. Based on this research and previous inventories, populations were estimated at 213 wild horses at the time of the inventory. This inventory was conducted prior to the foaling season and it is projected that the population would increase to approximately 251 wild horses at the time of the gather, after accounting for an 18% or higher population growth rate identified for the Murderer's Creek herd resulting from the 2012 foal crop.

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, management knowledge regarding wild horse population levels has increased. According to studies (cited in more detail in Chapters 3 and 4) conducted on feral horse populations that reside on BLM administered lands in the western United States, growth rates of wild horses are capable of exceeding 20% annually, resulting in the doubling of wild horse populations about every 4 years. This has resulted in the BLM shifting program emphasis beyond just establishing AML and conducting wild horse gathers to include a variety of management actions that further facilitate the achievement and maintenance of viable and stable wild horse populations and a "thriving natural ecological balance" consistent with the WFRHBA. Management actions resulting from shifting program emphasis include: increasing fertility control, adjusting sex ratio and collecting genetic baseline data to support genetic health assessments.

Based on the current estimated population (2012 population inventory) of 213 adult wild horses for the Murderer's Creek HMA, it has been determined there are 113 animals in excess of the objective herd size of 100 horses set in the RMP/ROD and 2007 HMAMP. The amount of excess wild horses is determined by subtracting the current estimated population by the objective herd size of 100 horses.

1.3 Purpose and Need

The purpose of the proposed action is to gather and remove wild horses in excess of AML on the Murderer's Creek HMA. This action is necessary to achieve and maintain a population size within the established AML, protect rangeland resources from further deterioration associated with the current overpopulation, 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 WFRHBA of 1971.

The BLM needs to remove at least 113 excess wild horses currently within the HMA to achieve AML. **This assessment is based on the following factors including, but not limited to:**

- 2012 population estimates for the HMA indicate there are 113 wild horses in excess of the herd size objective of 100 horses as described in the John Day Resource Management Plan/Final EIS.

- ❑ Use by wild horses is exceeding the forage allocated to their use by approximately 110 percent based on the objective herd size of 100 animals.

The purpose of the proposed action is to achieve the following management objectives which are consistent with existing planning documents:

- ❑ Achieve objectives set in the John Day RMP/ROD (1985, Chapter 2, p.12, 21): 1) Adjust herd numbers when target levels are reached, 2) Improve and maintain vegetative condition, 3) Manage for enhancement of natural values, enhance water quality, and manage aquatic habitat, 4) Coordinate with the MNF and continue monitoring herd populations and habitat conditions, and 5) Monitor wild horse forage and water requirements within the HMA.
- ❑ Achieve objectives set in the 2007 HMAMP (chapters IV and V, p. 5-6): 1) Provide the four essential components of wild horse habitat; vegetation, water, cover, and living space, 2) Manage for a herd size or AML of 50-140 animals with an objective for an average of 100 head of wild horses to maintain a thriving natural ecological balance and multiple-use relationship on public lands within the HMA consistent with the provisions of the Wild Free-Roaming Horse and Burro Act (43 USC 1333(b)(2)(iv), 3) Manage horses for a diverse age structure with younger animals representing the larger age class, 4) Manage for a healthy wild horse population by following the Henneke System of Body Condition Scoring, and 5) Wild horses would be managed for appropriate phenotype, distribution (historic use patterns), and genetic diversity.

1.4 Land Use Plan Conformance

The Action Alternatives are in conformance with the decisions made in the JDRMP/ROD, August 1985 (Chapter 2, p. 21): 1) **High Priority**- Remove wild horses outside the HMA and coordinate monitoring of the wild horse population with the MNF, 2) **Medium Priority**- Monitor, maintain or improve forage and water requirements within the HMA, and 3) **Low Priority**- Revise the Murderer's Creek Herd Management Plan

1.5 Relationship to Laws, Regulations, and Other Plans

Statutes and Regulations

The Action Alternatives are in conformance with the provisions of Section 1333(b)(2) of the WFRHBA of 1971 (as amended), applicable regulations at 43 CFR Part 4700, and BLM policies. Actions are necessary to protect rangeland resources from further deterioration associated with the current overpopulation and to restore a thriving natural ecological balance and multiple use relationship on public lands. Included are:

43 CFR 4710.3-1 Herd management areas

Herd management areas shall be established for the maintenance of wild horse and burro herds. In delineating each herd management area, the authorized officer shall consider the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 4710.4. The authorized officer shall prepare a herd management area plan, which may cover one or more herd management areas.

43 CFR 4710.4 Constraints on management

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

43 CFR 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.

43 CFR 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.

1.6 Decision to be made

The scope of the authorized officer's decision is to determine whether to implement proposed population control measures in order to achieve and maintain population size within AML and prevent deterioration of rangeland and riparian resources resulting from the current overpopulation of wild horses. The authorized officer's decision would not set or adjust AML, nor would it adjust livestock use, as these were set through previous decisions.

1.7 Scoping and Identification of Issues

On July 14, 2011, the BLM mailed a scoping letter to interested individuals, groups, and agencies regarding the proposed removal of excess horses from the Murderer's Creek HMA. Letters and e-mails were received from 9 individuals and groups during the 15 day comment period. Many of those comments have been addressed by the BLM interdisciplinary team and are summarized in the Issues and Alternatives Considered but Dismissed from Analysis sections of this EA. In many cases, the comments led to the incorporation of project design features into the action alternatives.

1.8 Issues considered in detail

An issue is a point of disagreement, debate, or dispute with an action based on an anticipated effect. While many issues may be identified during scoping, only some are analyzed in the EA. The BLM analyzes issues in an EA when analysis is necessary to make a reasoned choice between alternatives, or where analysis is necessary to determine the significance of impacts. To warrant detailed analysis, the issue must also be within the scope of the analysis, be amenable to scientific analysis rather than conjecture, and not have already been decided by law, regulation, or previous decision. Significant effects are those that occur in several contexts (e.g., local and regional) and are intense (e.g., have impacts on public health or unique areas). For more information on significance, see pages 70-74 in the BLM NEPA Handbook H-1790-1 (USDI BLM 2008).

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

ISSUE: How are horse population levels affecting mule deer and elk winter range?

ISSUE: What effect would bait trapping have on wintering mule deer and elk?

ISSUE: What effect would helicopter trapping have on wintering mule deer and elk?

ISSUE: What are the impacts to wild horse health as the result of transportation after immediate capture from the wild and the impacts while animals are in short/long term holding?

ISSUE: How would the health and of mares be affected by the administering the PZP fertility control vaccine?

ISSUE: How would the action of capturing and handling **wild horses** impact individual horses or the population?

ISSUE: How would the removal of wild horses effect the amount of forage available to grazing lessees and what effect would this have on the local economy?

1.8.1 Issues considered but eliminated from detailed analysis

While a number of other issues were raised during the scoping period not all of them warranted detailed analysis to make a reasoned choice between alternatives or to determine the significance of impacts. For example impacts to Mid-Columbia Steelhead are not considered in detail and the rationale is discussed in Appendix B. Appendix B describes issues not analyzed in detail or considered further in this EA.

2.0 Proposed Action and Alternatives

2.1 Introduction

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Three alternatives are considered in detail:

Alternative 1: Proposed Action includes (1) a phased-in gather approach in which approximately 263 (number of horses proposed for removal for phase 1 and 2) wild horses would be gathered and removed over a 4-5 year period, and (2) over a period of 6-10 years from when low end of AML is achieved subsequent gathers would occur to remove up to 309 wild horses in order to maintain AML; all mares released back to the HMA would be treated with the fertility control vaccine (PZP) and studs would be released to adjust core breeding population to favor males to slow population growth.

Alternative 2: Removal as described in Alternative 1 with a shortened period for helicopter use.

Alternative 3: No Action — Defer gather and removal.

Alternatives 1 and 2, and management actions incorporated into these alternatives were developed to respond to the identified resource issues and the Purpose and Need to differing degrees. The No Action Alternative would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative does not conform to the WFRHBA which requires the BLM to immediately remove excess wild horses.

2.2 Management Actions Incorporated into Alternatives 1 and 2:

- Animals would be removed using a selective removal strategy. Selective removal criteria for the HMA for the initial 2012 gather and future gathers would be in the following order: (a) First Priority: Age Class - Five Years and Younger; (b) Second Priority: Age Class - Six to Fifteen Years Old; (c) Third Priority: Age Class Sixteen Years and Older.
- Once low range of AML is achieved, all captured mares would be treated with a two-year Porcine Zona Pellucida (PZP-22) or similar vaccine and released back to the range. Fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix D). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).
- Sex ratio for the Murderer's Creek herd would be managed for 50 percent male to female ratio. Adjustments to the ratio would be made to favor males to reduce reproduction and growth rates as well as encourage genetic exchange. Studs would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).
- For maintenance of expectable genetic diversity, mares from HMA's in similar environments would be introduced into the Murderer's Creek HMA at least every generation (every 8-10 years).
- Post-gather, every effort would be made to return released horses to the same general area from which they were gathered.
- Several factors would be considered when scheduling a gather such as animal condition, herd health, and weather conditions.

- ❑ Undisturbed areas identified as potential trap sites or holding facilities would be inventoried for cultural resources. If cultural resources are encountered, these locations would not be utilized unless they could be modified to avoid impacts to cultural resources.
- ❑ Animal and Plant Health Inspection Service (APHIS) representative or veterinarian may be on-site during the gather, as needed, to examine animals and make recommendations to BLM for care and treatment of wild horses.
- ❑ Decisions to humanely euthanize animals in field situations will be made in conformance with BLM policy (Washington Office Instruction Memorandum 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
- ❑ Data including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded, along with the disposition of that animal (removed or released).
- ❑ Hair samples would be collected during future gathers as needed to determine whether BLMs management is maintaining acceptable genetic diversity (avoiding inbreeding depression).
- ❑ Excess animals would be transported to the Burns BLM corral facility where they will be prepared (freeze-marked, vaccinated and de-wormed) for adoption, sale (with limitations) or long-term holding.

2.3 Description of Alternatives Considered in Detail

2.3.1 Alternative 1(Proposed Action): Gather and removal

Under this alternative, the BLM would initially, phase 1 (fall 2012/winter 2013), gather and remove approximately 113 excess wild horses (45% of the existing wild horse herd) from BLM administered and private lands from within and adjacent to the Murderer's Creek HMA to make progress towards achieving low end of AML (50 animals). Over the next two-to-three years and after the initial 2012/13 gather of 113 horses (phase 2), BLM would gather and remove an additional 100-150 excess wild horses, in order to achieve a post-gather population level at or above the low end of AML (50). The total number of wild horses to be removed for phases 1 and 2 would be approximately 263 animals. After the completion of phases 1 and 2 (4-5 years from initial 2012 gather) and when low end of AML is achieved (phase 3), BLM proposes future gathers over a period of 6-10 years to remove up to 309 wild horses in order to continue maintaining population levels within established AML; selective removal criteria, population control measures, and sex ratio adjustment strategies would be implemented as described in section 2.2 above (refer to bullets 2 and 3). Target removal numbers for phase 3 would be determined based on future population inventories for the HMA. Additionally, target removal numbers and the determination if AML has been achieved for the HMA would be coordinated with the MNF taking into consideration gather operations occurring on MNF land within the HMA.

Capture methods include bait and helicopter drive trapping. Capture methods to be utilized are described in more detail in Appendix C. Helicopter gathering would occur between July 1 and February 28 annually in order to avoid the foaling period which occurs from March 1 through June 30. During this proposed period of helicopter use (7/1-2/28), up to 6 trap site locations could be used annually and there would be approximately 2-3 days of helicopter flight time and one week of human activity (i.e. setting up and taking down traps, sorting, feeding, watering, loading, and hauling horses) occurring at each of the trap locations. Helicopter gather operations would occur at one trap location at a time.

Bait trapping would be the primary gather method and would occur throughout the year. For the bait trapping method of capturing wild horses, up to 10 trap site locations could be utilized on an annual basis. Up to 2 bait trap locations could be used at one time to maximize capture efficiency. Human activity associated with utilizing the traps by BLM personnel and contractors would occur over approximately a two-week period. Activities occurring at bait trap sites are similar to those discussed above for helicopter

drive trapping. Frequent monitoring of bait trap locations is necessary to verify if horses are present in the traps.

Trapping of wild horses within the project area would focus on heavily concentrated areas or where resource concerns have been identified and where horses have strayed outside the HMA boundary. To minimize impacts to resource values (natural and cultural), trap sites and holding facilities would be placed in previously utilized locations and accessed by existing routes. When applicable, botanical, wildlife, and cultural clearances would be completed before holding facilities and trap sites are utilized to avoid impacts to identified resources. During gather operations required Standard Operating Procedures (SOP) described in the National Wild Horse and Burro Gather Contract (Appendix C) would be adhered to.

2.3.2 Alternative 2: Gather and removal (as in Alternative 1) but with shortened helicopter use period

This alternative would incorporate the phased-in gather approach and all other actions discussed under alternative 1. In addition, this alternative proposes a shorter time period to utilize the helicopter drive trapping method to capture wild horses. Helicopter trapping would be utilized annually from July 1 through November 30 to eliminate disturbance to Mule Deer and Rocky Mountain Elk inhabiting winter range in the project area. A shortened period for helicopter trapping would also be consistent with a local wildlife closure that is in affect annually from December 1 through April 30.

2.3.3 Alternative 3 (No Action): Defer gather and removal

Under the No Action Alternative, no gathers would occur and no additional management actions would be undertaken to control the size of the wild horse population at this time. Wild horses ranging outside the HMA would remain in areas not designated for their management.

2.4 Alternatives Considered but Dismissed from Detailed Analysis

2.4.1 Gather the HMA to the AML Upper Limit

This alternative was dismissed from detailed analysis because gathering wild horses to achieve a post-gather population size at the upper limit of AML would result in AML being exceeded with the following year's foal crop. Wild horses are capable of increasing their population size by 20 percent per year. Gathering to the upper limit of AML would increase the gather cycles to every two years vs. gathering wild horses to the lower limit of AML which would allow for gather cycle to occur every 4 years. Gathering to the upper limit of AML is ineffective with BLM's limited budget and is likely to result in over utilization of rangeland resources and undue stress to wild horses. Gathering to the upper limit of AML is contrary to the WFRHBA which requires a thriving ecological balance and avoids deterioration of the range. This alternative would not achieve or maintain the objective population size and further deterioration to rangeland resources would be expected; that would not be consistent with the Purpose and Need for Action.

2.4.2 Fertility Control Treatment Only (No Removal)

The BLM conducted population modeling to analyze the potential impacts associated with conducting gathers about every 2-3 years over the next 20 year period to treat captured mares with fertility control. Under this alternative, no excess wild horses would be removed. While the population growth would be reduced for the next couple of years, AML would not be achieved and attainment of resource objectives would not be possible due to the reoccurring damage to the range associated with the current wild horse overpopulation. This alternative would not meet the Purpose and Need for the Action, and would be contrary to the WFRHBA, and was dismissed from further analysis.

2.4.3 Remove or Reduce Livestock within the HMA

This alternative was not brought forward for detailed analysis because it is outside the scope of analysis. Livestock grazing is reduced or eliminated through the grazing regulations found at 43 CFR Part 4100 and after consideration of other multiple uses.

3.0 Affected Environment

3.1 Introduction

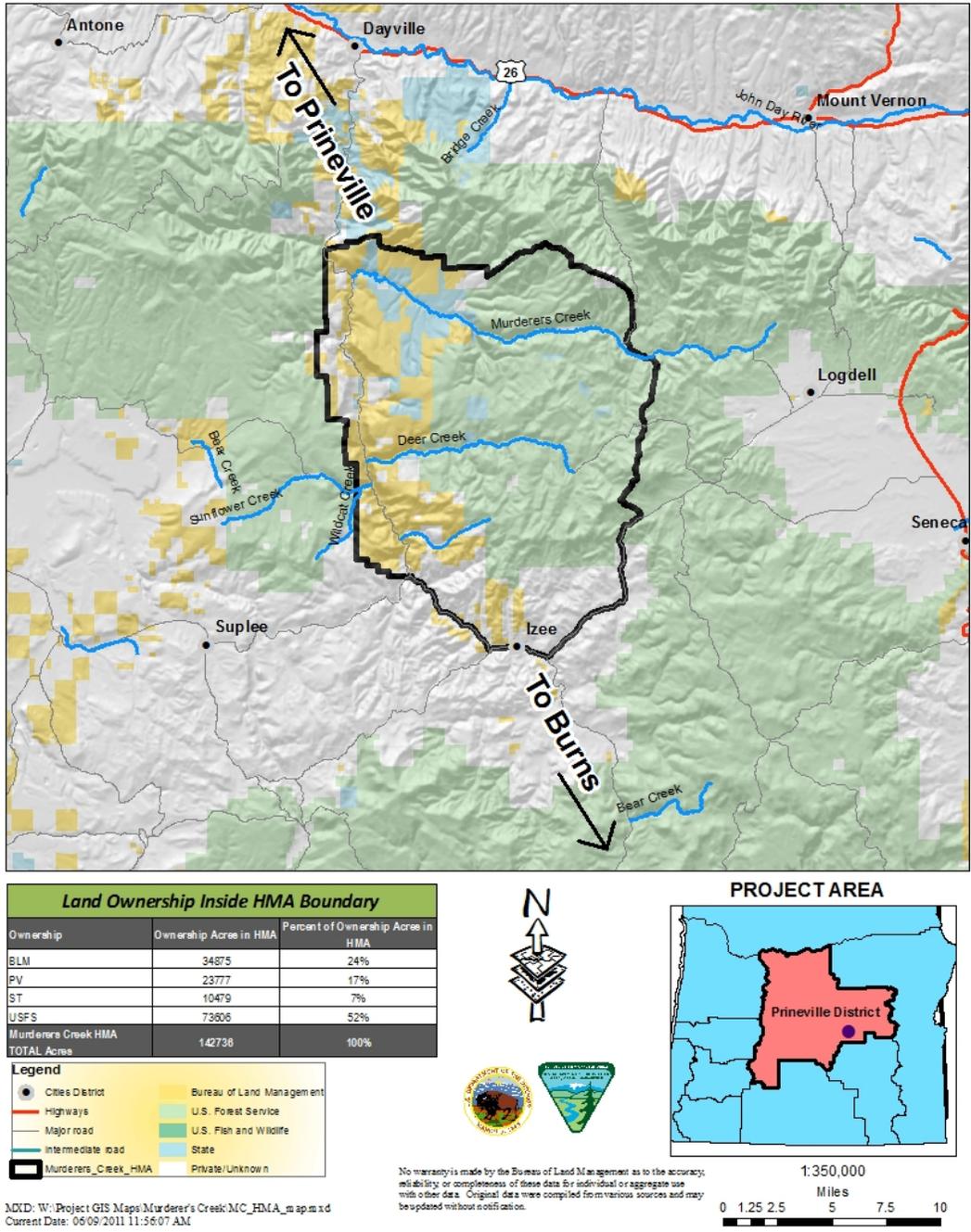
The **affected environment** includes a brief description of the present condition and trend of resources that may be affected by implementing the proposed action or an alternative.

3.2 General Description of the Affected Environment

The Murderer's Creek HMA encompasses approximately 143,000 acres MNF, BLM, ODFW, and private lands within Grant County, Oregon (see figure 1 below).

Figure 1.

MURDERER'S CREEK HMA VICINITY MAP



The vegetation component consists of a mix of timber (coniferous) and a shrubland/grassland community. Topography is moderately steep to steep mountainous terrain with the elevation ranging from 4,500 feet to 6,500 feet. Climate is represented by hot dry summers and cold winters with temperatures ranging from below zero in the winter to 90 degrees Fahrenheit or above in the summer. Annual average precipitation ranges from 11 inches in the lower elevation to 30 inches in the higher elevations. Most precipitation occurs as snowfall between November and April.

3.3 Description of Affected Resources

3.3.1 Livestock Industry

Livestock grazing is an important part of the local economy in Northeastern Oregon and specifically Grant County, Oregon. According to a 2007 study, agriculture in Northeastern Oregon (Wallowa, Union, Baker, and Grant counties) was ranked second to retail sales in terms of employment for the region and was first in 3 of 4 counties (Tanaka, John A, et. al., 2007).

Livestock production (primarily cow-calf operations) is the largest component of agriculture in the region representing more than half of the total agricultural cash receipts. Livestock production is also the dominant agricultural land use in the region. About 2.8 million acres of land in livestock production represent nearly 85% of the total agricultural land in the 4-county region (Tanaka, John A, et. al., 2007). Agricultural operations holding grazing permits, with forage leases primarily from the Bureau of Land Management (BLM) and US Forest Service (FS), account for more than 60% of the agricultural land in the region (Tanaka, John A, et. al., 2007).

According to the study, ranching in the region was estimated to generate \$65 million in gross sales per year. These included production from 122,000 beef cattle (Tanaka, John A, et. al., 2007). These sales resulted in \$115.1 million in economic activity in the region which supported 2,092 direct and secondary jobs and generated \$39.1 million in labor earnings (Tanaka, John A, et. al., 2007).

According to 2010 statistics reported by the Oregon Department of Agriculture, gross farm and ranch sales for the production of approximately 37,500 cattle and calves in Grant County, Oregon, was approximately \$39,134,000 dollars (USDA and ODA, 2011).

Based on the 2010 statistics for Grant County, there was an approximate impact of \$1,043 dollars per AUM (amount of forage for a cow/calf unit per month) to the local economy.

The Murderer's Creek HMA encompasses all or portions of 9 grazing allotments administered by the BLM associated with 9 grazing lessees who are currently authorized to graze livestock in these allotments annually. The 9 grazing leases authorize a total of 3,248 Animal Unit Months (AUMs) of forage each year. Grazing is permitted during the season of use specified on the 10-year grazing lease and season of use varies from year to year as long as the use does not exceed the number of permitted use AUMs and the time periods specified in the lease. Table 1 below summarizes the following information associated with the 10 year grazing leases for the grazing allotments within the HMA: (1) Allotment name/number, (2) authorized season of use and number of livestock, (3) active preference AUMs, and (4) average actual use AUMs over the last 4-5 years. Table 2 summarizes: (1) Total acres within the HMA by land owner, (2) Individual and combined grazing allotment public (BLM), federal (USFS), state (ODFW), and private acres, and (3) percent of each allotment within the HMA.

Table 1. 10-Year Grazing Lease and Grazing Authorization Information

Allotment Name	Allotment Number	Livestock Number	Authorized Season of Use	Active Preference AUMs for Livestock	Average Actual Use AUMs for Livestock (Past 4 5 years)
Morgan Creek	4154	36 Cattle	4/1-11/30	290	55
Soda Creek	4044	50 Cattle	4/1-11/30	309	135
Big Flats	4186	16 Cattle	4/15-11/30	100	58
Cow Creek	4352	16 Cattle	4/1-11/30	10	87
Mahogany	4043	8 Cattle	4/1-11/30	64	303
Rockpile	4103	116 Cattle	4/1-11/30	928	867
Corral Gulch	04164	211	5/1-6/15	211	315
Murderer's Creek	4020	139	5/1-10/30	838	625
Big Baldy	4052	322	4/15-5/31	498	390

Table 2. Land Ownership and Acreage Breakdown within the HMA

<i>Allotment Name</i>	<i>Allotment Number</i>	<i>Ownership</i>	<i>Ownership Acres by Allotment in HMA</i>
Big Baldy	4052	BLM	12175
Big Baldy	4052	PV	2117
Big Baldy	4052	ST	158
Big Baldy	4052	USFS	608
TOTAL ACRES			15057
Big Flats	4186	BLM	924
Big Flats	4186	PV	980
TOTAL ACRES			1903
Corral Gulch	4164	BLM	2952
Corral Gulch	4164	PV	77
Corral Gulch	4164	ST	2576
TOTAL ACRES			5606
Cow Creek	4352	BLM	134
Cow Creek	4352	PV	48
TOTAL ACRES			182
Mahogany	4043	BLM	319
Mahogany	4043	PV	6599
Mahogany	4043	USFS	0
TOTAL ACRES			6918
Morgan Creek	4154	BLM	1411
Morgan Creek	4154	PV	3384
TOTAL ACRES			4796
Murderer's Creek	4020	BLM	9973
Murderer's Creek	4020	PV	969
Murderer's Creek	4020	ST	5919
Murderer's Creek	4020	USFS	27
TOTAL ACRES			16888
Rockpile	4103	BLM	4492
Rockpile	4103	PV	4028
Rockpile	4103	ST	399
Rockpile	4103	USFS	3
TOTAL ACRES			8922
Soda Creek	4044	BLM	1967
Soda Creek	4044	PV	2599
Soda Creek	4044	USFS	0
TOTAL ACRES			4566
TOTAL Acres by Allotment in HMA			64838
Allotment Name	Total Allotment Acres	Total Acres by Allotment in HMA	Percent of Allotment in HMA
Big Baldy	15139	15057	99%
Big Flats	12608	1903	15%
Corral Gulch	5606	5606	100%
Cow Creek	1644	182	11%
Mahogany	9196	6918	75%
Morgan Creek	4796	4796	100%
Murderer's Creek	37019	16888	46%
Rockpile	9832	8922	91%
Soda Creek	6123	4566	75%
TOTAL ACRES	101961	64838	
Ownership	Ownership Acres in	Percent of Ownership	
BLM	34875	24%	
PV	23777	17%	
ST	10479	7%	
USFS	73606	52%	
Murderers Creek HMA	142736	100%	

The August 1985 ROD for the John Day RMP set grazing use levels for the allotments within the HMA. Recent grazing use levels have been lower than grazing use in past decades. In some cases, grazing lessees have taken non-use or rested pastures. This is due to drought, wildfire, annual fluctuations in livestock operations, competition for forage with wild horses, and encroachment of invasive species. Allotments continue to be evaluated to ensure existing management practices are in conformance with 43 CFR Part 4180 and the standards and guidelines for the Oregon/Washington Region. Other adjustments to livestock grazing may occur when the leases are scheduled for renewal. Monitoring may indicate that adjustments to stocking levels, season of use, or grazing rotations need to be implemented to achieve standards for rangeland health and other multiple use resource objectives.

Grazing use on those identified pastures with habitat occupied by Mid-Columbia River summer steelhead in the Murderer's Creek, Rockpile, and Big Baldy Allotments is consistent with the 2011 BiOp and consultation completed with the National Marine Fisheries Service (NMFS) for authorizing grazing on 12 allotments on BLM administered lands in the Prineville District (NMFS, 2011).

3.3.2 Wild Horses

The August 1985 ROD for the John Day RMP designated the Murderer's Creek HMA for long term management of wild horses. AML was formally established at 100 animals in the John Day RMP Plan/Final EIS and the AML range of 50-140 animals was an objective set in the 2007 HMAMP. A Production and Utilization (P&U) study was completed in 1983 on the MNF administered land within the HMA. This study analyzed use levels by wild horses, livestock, and wildlife. Pre and post-use (i.e. before and after authorized use periods) livestock use levels were observed and it was determined that with combining the wild horse and wildlife use with livestock, overall use for the study area was within allowable levels. The study did note that distribution of grazing was an issue and could be improved. Wild horse use accounted for approximately 14-18 percent of the forage utilized within the unit/study area. Based on the 1983 P&U study, a carrying capacity of 100 head of horses was appropriate for the HMA.

The last removal of excess wild horses from the Murderer's Creek HMA was completed by the MNF on forest land and occurred in the winter months of 2011/2012. A total of 80 wild horses were gathered through bait trapping and removed from MNF administered lands. Following the gather, no mares or stallions were released back to the HMA.

Wild horses in the Murderer's Creek HMA are primarily bays and browns. The western and southern portions of the HMA the colors are grays, duns, sorrels, and blacks. The horse herd has a diverse lineage. According to genetic analysis of the herd conducted by Dr. Gus Cothran (Department of Veterinary Integrative Bioscience, Texas A&M University) in 2000 and 2001 and repeated in 2008 and 2010, the herd bears closest genetic resemblance to the American light racing and saddle breeds as well as New World Iberian breeds. The most recent (2010) genetic analysis indicates adequate genetic variability levels within the herd, and noted no management actions are necessary at this time. Census and gather information and field observations have indicated that the Murderer's Creek horses are in fair to good condition (Henneke Score 4-6). For more information on the herd refer to the 2007 HMAMP in Appendix F.

The current estimated population of 213 wild horses, not including the 2012 foal crop, in the Murderer's Creek HMA is based on a direct count aerial population survey conducted by the MNF and BLM in March of 2012. 161 horses were counted an undercount bias correction of 32% was applied due to limitations with terrain, timber canopy, and weather experienced during the flight operations which made it difficult to observe horses. The population is almost 2.5 times over the objective AML (100 animals) and 5 times over the low range of AML (50). Over the last three years, wild horse actual use has averaged 44 percent of forage (1,364 AUMs) above what was allocated in the John Day RMP (600 AUMs).

Water availability within the HMA is generally year-long and is limited to perennial streams, springs sources, or seasonal flow in ephemeral drainages. The major drainages within the HMA are the Murderer’s Creek and Deer Creek drainages. Horses also access the South Fork of the John Day River (western boundary of the HMA). Springs provide a water source and there are a good number that are developed that provide a more reliable water source. During the summer months when temperatures are higher and precipitation levels are minimal, horses travel farther to access water. As smaller water supplies become depleted, wild horse use concentrates around primary more reliable sources causing negative effects to riparian areas. In the late spring and summer months the horses generally utilize the higher elevation areas of the HMA; timber and mountain range sites on forest administered land. During the late fall and winter months, often into early spring, the horses move down to lower elevations south slopes (primarily BLM/private land). When the HMA receives an abundance of precipitation during the growing season, forage production is high and forage is readily available for wild horses. During drought conditions when forage production is low, there is a competition for water and forage resources between wild horses, permitted livestock, and wildlife.

Rangeland resources have been and are currently being impacted within the Murderer’s Creek HMA due to the past and current over-population of wild horses. A Biological Assessment (BA) was completed in 2012 for land managed by MNF and BLM, Prineville District. The BA analyzes the effects of implementing the 2007 HMAMP and analyzes the effects to various aquatic species listed as Threatened (BLM and MNF, 2012).

Riparian effectiveness and implementation stream monitoring on MNF allotments conducted at Designated Monitoring Areas (DMA) from 2004 to 2010 by the MNF has indicated that wild horse use is contributing to the non-attainment of certain riparian vegetation and stream objectives (i.e. stubble height, stream bank alteration, and utilization). In some cases, objectives were exceeded even when pastures were rested from livestock use.

Over the last 5 years wild horses within the Murderer’s Creek HMA have been gathered and removed by means of helicopter and bait trap gathering. During that time period the population was above the high end of AML and no animals were treated with fertility control or returned to the HMA. Table 3 below summarizes the gather history

Table 3. Wild Horse Gather History

HMA	Year	Captured/Removed
Murderer’s Creek	2011	80
	2010	62
	2009	121
	2008	No Gather Operations
	2007	134

3.3.3 Wildlife

The Murderer’s Creek HMA includes three ODFW wildlife management units (WMUs), with the majority of the area located in the Murderer’s Creek WMU (92%; 131,270 acres). The Murderer’s Creek WMU is one of five WMUs in the Oregon Mule Deer Initiative (OMDI) that outlines issues related to declines in mule deer (*Odocoileus hemionus*) populations (ODFW 2011). Historically, the Murderer’s Creek WMU supported as many as 29,000 deer, but the most recent population estimate in 2008 concluded only 5,000 deer were in the area, which is 4,000 below the management goal (ODFW, 2011). Two of several potential limiting factors to deer populations in the Murderer’s Creek area are habitat degradation and human disturbance, especially in winter range (ODFW, 2011).

Mule deer winter range encompasses 86,936 acres (61%) of the herd management area. Winter ranges in Oregon are generally low elevation areas that receive minimal snow cover and provide vegetation for both forage and cover (thermal and escape).

Mule deer densities increase on winter ranges as deer migrate from higher elevations to escape snow cover, thus facilitating foraging opportunities. Nutritional intake is a critical component, especially during winter months when mule deer energy reserves and forage quality are low (Wallmo et al. 1977). Increased energy budgets during severe winters (Hobbs 1989) could lead to higher adult and fawn mortality. The most stressful time nutritionally for mule deer is mid-to-late winter/early spring (December to early May).

Annual grass invasion, western juniper (*Juniperus occidentalis*) encroachment, and bitterbrush (*Purshia tridentata*) loss have led to declines in mule deer winter habitat in recent decades (ODFW 2011). Medusahead rye (*Taeniatherum caput-medusae*) colonized the area in the 1980s and along with cheatgrass (*Bromus tectorum*) and North Africa grass (*Ventenata dubia*) has altered the structure and function of mule deer winter range. A minimum of 3,000 acres (3.5%) of mule deer winter range, predominately in the northern half, is currently dominated (>15% cover) by annual grasses. Another 6336 acres (7%) are threatened (5-14% cover) by annual grasses. During the 1970s and 80s significant declines in antelope bitterbrush (*Purshia tridentata*) occurred from a grasshopper infestation in the Murderer's Creek Basin and has not recovered to pre-infestation levels in part due to the dominance of annual grasses (ODFW 2011). Western juniper (*Juniperus occidentalis*) encroachment continues to degrade mule deer winter range by out competing native shrubs, perennial bunchgrasses, and forbs. Approximately 30,440 acres (35%) of juniper is established across mule deer winter range. The total acres impacted by juniper infill or encroachment are unknown, but through visual observations, the area is extensive.

According to the OMDI, overgrazing by wild horses has contributed to declines in some areas of mule deer winter range in the Murderer's Creek WMU. Existing research indicates very little dietary overlap between wild horses and mule deer (Hanley and Hanley 1982, Hansen and Clark 1977, Hansen et al. 1977, Hubbard and Hansen 1976). Mule deer are considered browsers that forage predominately on forbs and shrubs, while wild horses are grazers of grasses and grass like species. However, it is unclear whether inter-specific competition between the two species increases with habitat decline such as annual grass invasion. If this is the case, then excess wild horses could have a negative effect (e.g. behaviorally and nutritionally) on mule deer populations in the HMA.

Another potential limiting factor for mule deer wintering populations is increasing human activities. Motorized use in the project area has increased significantly over the last 30 years (ODFW 2011). Disturbance related to roads may be more severe during winter and could potentially reduce body reserves from increased flight responses and cause mule deer to use less suitable habitats (ODFW 2011). However, temporary disturbances from motorized use rarely cause any significant population level declines (Cox et al. 2009).

The South Fork John Day River Road receives the highest traffic volumes during the critical wintering period. All other roads in mule deer winter range, including Murderer's Creek, Deer Creek, and Indian Creek roads are considered low volume traffic roads from December 1 through April 15. Table 4 displays the extent of high volume and low volume roads, the area currently affected by road use, and the habitat effectiveness (Gaines et al. 2003).

Table 4. Low and high volume roads within mule deer winter range in the Murderer’s Creek HMA.

	Total Miles	BLM Acres	State Acres	Forest Service Acres	Private Acres	Total Acres	Percent of Winter Range	Habitat Effectiveness
High Volume	18.9	12579	541	14	4204	17338	20	Low
Low Volume	184.2	24879	8155	14977	18509	66520	77	High

There are 101,280 acres of Rocky Mountain elk (*Cervus elaphus nelson*) winter range, covering 71% of the herd management area. The importance of winter habitat for elk is similar to that of mule deer (e.g. forage and cover). The differences between the two species are reflected in their forage type and behavioral responses to motorized disturbance.

Elk are considered grazers that primarily consume graminoids and utilize shrubs less frequently (Hansen and Clark 1977, Hansen and Reid 1975, Olsen and Hansen 1977). Additionally, elk are known to consume high amounts of annual grasses during winter and spring (Kohl et al. 2012). This dietary niche may facilitate elk occupancy in areas otherwise avoided by mule deer due to annual grass dominance. Conversely, significant dietary overlap with wild horses and cattle (Hansen and Clark 1977, Olsen and Hansen 1977) will likely increase grazing pressure in areas that contain suitable grass cover.

Disturbance responses related to off-road recreation use is greater for elk than mule deer (Wisdom et al. 2005). Typically, elk occupancy is directly correlated with increasing distance from open roads (Rowland et al. 2000). Table 5 displays the extent of high volume and low volume roads, the area currently affected by road use, and the habitat effectiveness of elk winter range (Gaines et al. 2003).

Table 5. Low and high volume roads within elk winter range in the Murderer’s Creek HMA.

	Total Miles	BLM Acres	State Acres	Forest Service Acres	Private Acres	Total Acres	Percent of Winter Range	Habitat Effectiveness
High Volume	18.9	12579	541	14	4204	17338	17	Low
Low Volume	251.9	24124	8282	29654	17925	79984	79	High

4.0 Environmental Consequences

4.1 Introduction

An Interdisciplinary Team (IDT) has reviewed and identified issues and resources affected by the alternatives (refer to section 1.8 for issues). This section of the EA analyzes the potential environmental impacts which would be expected with implementation of the Action Alternatives (Alternatives 1-2), and/or the No Action Alternative.

This chapter of the EA describes past and ongoing actions that contribute to present conditions, and provides a baseline for analyzing cumulative effects.

The effects are the known and predicted effects from implementation of the actions, limited to the identified issues. Direct effects are those caused by the action and occurring at the same time and place.

Indirect effects are those caused by the action but occurring later or in a different location. Cumulative effects result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. The analysis of cumulative effects includes other BLM actions, other federal actions, and non-federal (including private) actions.

The description of the current state of the environment provided in the affected environment section inherently includes the effects of past actions and serves as a more accurate and useful starting point for a cumulative effects analysis than would attempting to establish such a starting point by "adding" up the effects of individual past actions. The importance of "past actions" is to set the context for understanding the incremental effects of the proposed action. This context is determined by combining the current conditions with available information on the expected effects of other present and reasonably foreseeable future actions. By comparing the total effect of the "no action" alternative to the effects of each action alternative, we can discern the "cumulative impact" resulting from adding the "incremental impact" of the proposed action to the current environmental conditions and trends.

4.2 Predicted Effects of Alternatives to Resources

4.2.1 Livestock Industry

Effects Common to Action Alternatives (1-2)

Removing excess horses would directly increase the available forage and water for permitted livestock within the HMA. Reducing wild horses to within established AML would also reduce competition for water and forage between livestock and wild horses. With fewer numbers of horses it is likely less water sources would become depleted and distribution would improve for livestock.

Under the alternatives 1 and 2, at established AML wild horses would utilize approximately 600 AUMs of forage. Livestock would continue to be permitted for 3,248 AUMs for the 9 allotments on BLM land within the HMA. The economic impact of 3,248 AUMs to the local economy in Grant County, Oregon, as a result of the production of cattle would be approximately \$3,387,664 dollars.

Effects of Alternative 3 (No Action)

The No Action Alternative would result in continued competition between wild horses and livestock for limited water and forage resources throughout the allotments within the Murderer's Creek HMA. Wild horse numbers would continue to increase above AML. The current estimated population of wild horses (213 head) is utilizing approximately 1,278 AUMs of forage. At established AML wild horses are allocated 600 AUMs. The No Action Alternative would allow wild horse numbers to continue to increase at exponential rates (doubling their population size every 4 years).

Assumptions

The BLM is likely to continue to authorize up to 3,848 AUMs of forage combined for livestock and wild horses. By 2020, wild horse use is likely to be at 4,068 AUMs which exceeds the combined use allowed for horses and cattle; if this scenario occurs, it is likely BLM would require livestock operators to reduce levels if use or take non-use due to the increased number of wild horses. BLM would also consider a balance of livestock grazing and other multiple uses as well as the stabilization of the livestock industry as stated in the Taylor Grazing Act of 1934 (43 USC 315). Non-use by livestock operators would result in no economic benefits (\$0 dollars) to the local economy.

4.2.2 Wild Horses

Results of Win Equus Population Modeling

Population modeling for the Action Alternatives (1-2) was completed using Version 3.2 of the Win Equus Population Model (Jenkins, 2000). The analysis determines possible differences that could occur to wild horse populations between the different alternatives. The modeling compares effects of Action Alternatives on population size, average population growth rate, and average removal number. Table 6 below summarizes the results for the Murderer's Creek HMA. See Appendix E for additional detail.

Table 6. Average Population Size, Growth Rates, Next Projected Gather Year for Murderers Creek HMA

Alternative	Avg. Pop. Size (11 years)	Avg. Growth Rate Next 10 Years (%)	Next Projected Gather (Year)	Est'd No. to Remove (Next 11 years)
Alternative 1 – Proposed Action	132	16	2015	338
Alternative 2 – Same as Alternative 1	132	16	2015	338
Alternative 3 – No Action	784	20	N/A	N/A

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 established AML.

Effects of Alternatives 1 and 2

Alternatives 1 and 2 would decrease the existing overpopulation of wild horses by approximately 263 head in a 4 to 5 year period. Over a period of 5 to 10 years, when low end of AML is achieved, stallions would be released to skew the sex ratio to favor males and mares would be treated with PZP-22 fertility control and released back to the HMA to slow population growth rates.

Under the action alternatives, removing excess wild horses would improve herd health. Decreased competition for forage and water resources would reduce stress and promote healthier animals. This removal of excess animals coupled with anticipated reduced reproduction (population growth rate) as a result of fertility control should result in improved health and condition of mares and foals as the actual population comes into line with the population level that can be sustained with available forage and water resources, and would allow for healthy range conditions (and healthy animals) over the longer-term. Additionally, reduced population growth rates would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as to the herd social structure over the foreseeable future.

Impacts to individual wild horses could occur as a result of handling stress associated with gathering, processing, and transportation of animals. As indicated by a study conducted in Nevada from 2004-2008, there was a mortality rate of half of one percent (0.5%) with the use of helicopters and motorized vehicles to capture wild horses. Out of 23,000 animals captured in that time period 115 died (BLM, 2012). Mortality rates related to individual animals as a result of kicking, biting, bruises or other injuries does occur in about one half to one percent of wild horses (0.5% to 1%) in any given gather (BLM, 2012).

Based on these statistics, it is likely that under alternatives 1 and 2, at least 1 wild horse death could occur as a result of phase 1 and 2 gather operations on the Murderer's Creek HMA and another 2-3 animals could die or be euthanized due to handling and transporting animals to short-term holding.

Mares selected for release would receive a single dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies; these antibodies bind to the mare's eggs and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible. One-time application at the capture site would not affect normal development of a fetus should the mare already be pregnant when vaccinated, hormone health of the mare, or behavioral responses to stallions (Kirkpatrick et al, 1995). The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner et. al, 1997).

Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration.

A study by U.S. Geological Survey and the BLM was conducted on frequency and type of injection site reactions from delivery of the PZP vaccine (Roelle and Ransom, 2009). The study observed 2 instances out of 100 of swelling at the hand delivered injection site and 1 out of 100 where a tumorous growth was observed. In two herds that received remotely delivered (dart) injections, the frequency of reactions was about 1 and 6 percent for abscesses, 25 percent for nodules (both herds), 11 and 33 percent for swelling, and 1 and 12 percent for stiffness (Roelle and Ransom, 2009).

Most mares recover quickly once released back to the HMA, and none are expected to have long term impact from the fertility control injections. Newly captured mares that do not have markings associated with previous fertility control treatments would be marked with new freeze-mark letters for tracking purposes. This information would also be used to determine the number of mares captured that were not previously treated and would provide additional insight regarding gather efficiency.

A Ransom et al. (2010) study found no differences in how PZP-treated and control mares allocated their time between feeding, resting, travel, maintenance, and social behaviors in three populations of wild horses, which is consistent with Powell's (1999) findings in another population. Likewise, body condition of PZP-treated and control mares did not differ between treatment groups in Ransom et al.'s (2010) study. Turner and Kirkpatrick (2002) found that PZP-treated mares had higher body condition than control mares in another population, presumably because energy expenditure was reduced by the absence of pregnancy and lactation.

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

According to Kirkpatrick and Turner (2002), there was no difference in survival rates between foals born to treated and untreated mares, and PZP treatment of pregnant mares did not affect subsequent fertility of their female offspring.

Wild horses are also subject to the effects discussed in detail below.

Discussion

Over the past 35 years, various impacts to wild horses as a result of gather activities have been observed. Impacts to wild horses, as a result of the Action Alternatives, 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 in the Western United States since the mid-1970s. During this time, methods and procedures have been identified and refined to minimize stress and impacts to wild horses during gather implementation. The SOPs in Appendix C would be implemented to ensure a safe and humane gather occurs and would minimize potential stress and injury to wild horses.

In any given gather, gather-related mortality averages only about one half of one percent (0.5%), which is very low when handling wild animals. Approximately, another six-tenths of one percent (0.6%) of the captured animals could be humanely euthanized due to pre-existing conditions and in accordance with BLM policy (GAO-09-77). These data affirm that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective, and practical means for the gather and removal of excess wild horses (and burros) from the public lands. The BLM also avoids gathering wild horses by helicopter during the 6 weeks prior to and following the peak foaling season (i.e., March 1 through June 30).

Individual, direct impacts to wild horses include the handling stress associated with the roundup, capture, sorting, handling, and transportation of the animals. The intensity of these impacts 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, brush or tree limbs. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are very rarely fatal and are treated on-site 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, the temporary holding corral, 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 1 horse per every 100 captured (BLM, 2012). 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.

The impacts from bait trapping are generally the same as what have been outlined above for helicopter trapping. The stress level to the animals would be lower during the initial gather operation when utilizing bait trapping vs. helicopter drive trapping. This is due to the animals becoming gradually accustomed to the trap whereas helicopter trapping the animals are driven into the trap. However, longer gather operations would be expected with the bait trapping method. As the proposed bait and/or water trapping in the project area is a low stress approach to gathering of wild horses, such trapping can continue into the foaling season without harming the mares or foals.

To minimize the potential for injuries from fighting, the 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. Overall, direct gather-related mortality averages less than 1%.

Indirect individual impacts are those which occur to individual wild horses after the gather event. These may include miscarriages in mares, increased social displacement, and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief 1-2 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 impacts, the frequency of these impacts varies with the population and the individual. Observations following capture indicate the rate of miscarriage varies, but can occur in about 1 to 5% of the captured mares, particularly if the mares are in very thin body condition or in poor 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 mother rejected it or died. These foals are usually in poor, weak and frail body condition. Every effort is made to provide appropriate care to orphan foals. Veterinarians may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home 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.

In some areas, winter gathers are often preferred when terrain and higher elevations make it difficult to gather wild horses during the summer months. Under winter conditions, horses are often located in lower elevations due to snow cover at higher elevations. This typically makes the horses closer to the potential trap sites and reduces the potential for heat related fatigue and stress. While deep snow can tire horses as they are moved to the trap, the helicopter pilots allow the horses to travel slowly at their own pace. Trails in the snow are often followed to make it easier for horses to travel to the trap site. On occasion, trails can be plowed in the snow to facilitate the safe and humane movement of horses to a trap.

In addition, wild horses may be able to travel farther and over terrain that is more difficult during the winter, even if snow does not cover the ground. Water requirements are lower during the winter months, making distress from heat exhaustion extremely rare. By comparison, during summer gathers, wild horses may travel longer distances between water and forage and become more easily dehydrated.

Through the capture and sorting process, wild horses are examined for health, injury 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 is used as a guide to determine if animals meet the criteria and should be euthanized. Animals that are euthanized for non-gather related reasons include those with old injuries (broken or deformed limbs) that cause lameness or prevent the animal from being able to maintain an acceptable body condition (greater than or equal to BCS 3); old animals that have serious dental abnormalities or severely worn teeth and are not expected to maintain an acceptable body condition, and wild horses that have serious physical defects such as club feet, severe limb deformities, or sway back. Some of these conditions have a causal genetic component and the animals should not be returned to the range to prevent suffering, as well as to avoid amplifying the incidence of the problem in the population.

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 impacts have proven to be temporary in nature with most, if not all, impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

It is not expected that genetic health would be impacted by the Proposed Action. The AML range of 50-140 should provide for acceptable genetic diversity. 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 the available habitat and other multiple uses would lessen the 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 the animals and increase the success of these herds over the long-term.

Over the next 10 years, implementation of the Action Alternatives would result in fewer excess wild horses which would require removal from the range. For every excess horse not placed in adoption, sale or long-term holding pastures, a savings to the American taxpayer of up to \$12,000 per animal over 20 years would accrue.

Fertility Control Treatments

Fertility control would be applied to all the released mares to decrease the future annual population growth. The procedures to be followed for the implementation of fertility control are detailed in Appendix D. Each released mare would receive a single dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare’s immune system to produce antibodies and these antibodies bind to the mare’s eggs, and effectively block sperm binding and fertilization (Zoo, Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible.

The highest success for fertility control has been obtained when applied during the timeframe of November through February. The efficacy for the application of the two-year PZP vaccine based on winter applications follows:

Year 1	Year 2	Year 3	Year 4
Normal	94%	82%	68%

One-time application at the capture site would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in 2012 (Year 1).

The injection would be controlled, handled, and administered by a trained BLM employee. Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the HMA, and none are expected to have long term consequences from the fertility control injections.

Under alternatives 1 and 2, some captured wild horses would be released back to the range to achieve a post-gather sex ratio close to 60% studs and 40% mares. Under this alternative, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would

be expected to increase. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Modification of sex ratios for a post-gather population favoring studs would further reduce growth rates in combination with fertility control.

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 to long-term holding (grassland) pastures.

Wild horses selected for removal from the range are transported to the receiving short-term holding facility in a straight deck semi-trailers or goose-neck stock trailers. Vehicles are inspected by the BLM's Contracting Officer's Representative (COR) or Project Inspectors (PIs) prior to use to ensure wild horses can be safely transported and that the interior of the vehicle is in a sanitary condition. Wild horses are segregated by age and sex and loaded into separate compartments. A small number of mares may be shipped with foals. Transportation of recently captured wild horses is limited to a maximum of 8 hours. During transport, potential impacts to individual 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 acceptable to the American Veterinary Medical Association (AVMA). Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to feed. Some of these animals are in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some mares may lose their pregnancies. Every effort is taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

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

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% per year (GAO-09-77, Page 51), and includes animals euthanized due to a pre-existing condition; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation.

Adoption or Sale with Limitations, and Long Term Holding

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six 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 one year and the horse and the facilities are inspected to assure the adopter is complying with the BLM's requirements. After one 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 5750.

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

Between 2007 and 2009, nearly 62% of excess wild horses or burros were adopted and about 8% were sold with limitation (to good homes) to qualified individuals. Animals 5 years of age and older are transported to long-term holding (LTH) grassland pastures. The BLM has maintained LTH pastures in the Midwest for over 20 years.

Potential impacts to wild horses from transport to adoption, sale or LTH are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or LTH, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18-24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and 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 the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

LTH pastures are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. There wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 27,000 wild horses, that are in excess of the existing adoption or sale demand (because of age or other factors), are currently located on private land pastures in Iowa, Kansas, Oklahoma, and South Dakota. Located in mid or tall grass prairie regions of the United States, these LTH pastures are highly productive grasslands as compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 8-10 acres per animal). The majority of these animals are older in age.

Mares and castrated stallions (geldings) are segregated into separate pastures except one facility where geldings and mares coexist. Although the animals are placed in LTH, they remain available for adoption or sale to qualified individuals. No reproduction occurs in the long-term grassland pastures, but foals born to pregnant mares are gathered and weaned when they reach about 8-10 months of age and are then shipped to short-term facilities where they are made available adoption. Handling by humans is minimized to the extent possible although regular on-the-ground observation and weekly counts of the wild horses to ascertain their numbers, well-being, and safety are conducted. A very small percentage of the animals may be humanely euthanized if they are in very thin condition and are not expected to improve to a BCS of 3 or greater due to age or other factors. Natural mortality of wild horses in LTH pastures averages approximately 8% per year, but can be higher or lower depending on the average age of the horses pastured there (GAO-09-77, Page 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 for this purpose. In FY2012 and 2013, no funds have been appropriated for the euthanasia or sale without limitation of healthy wild horses.

Effects of Alternative 3 (No Action)

Under the No Action Alternative, there would be no active management to control the population size within the established AML at this time. In the absence of a gather, wild horse populations would continue to grow at an average rate of 18 % per year. Without a gather and removal now, the population would grow to approximately 432 animals in four years' time based on the average annual growth rate.

Use by wild horses would continue to exceed the amount of forage allocated for their use. Competition between wildlife, livestock and wild horses for limited forage and water resources would continue. Damage to rangeland resources would continue or increase. Over time, the potential risks to the health of individual horses would increase, and the need for emergency removals to prevent their death from starvation or thirst would also increase. Over the long-term, the health and sustainability of the wild horse population is dependent upon achieving a thriving natural ecological balance and sustaining healthy rangelands.

4.2.3 Wildlife

Effects common to Action Alternatives (1-2)

Removing excess horses from the herd management area would increase forage availability for ungulates, particularly elk, on their winter ranges. The present number of horses within the HMA is over two times the objective goal. Vegetation communities within mule deer (86,936 acres) and elk (101,280 acres) winter ranges would maintain or improve ecological function and structure by removing 263 horses. The most significant increases in forage production are likely to occur along the drainages and riparian areas of the HMA. Approximately 1,000 and 1,100 acres of riparian habitat within mule deer and elk winter range, respectively would be enhanced within the HMA.

The removal of wild horses would reduce competitive interactions between horses and ungulates during the critical winter period. Both ungulates and horses migrate to lower elevations during winter where inter-specific competition is likely to increase. Horses have shown to have a competitive advantage over ungulates, particularly deer (Berger, 1985). Displacement can cause ungulates to use less suitable habitats potentially reducing survival (Hobbs, 1989). By reducing horses to 100 animals, mule deer and elk would have less competitive interactions with horses, thus increasing winter survival.

Disturbance related to trapping activities would be spatially and temporally limited throughout the lifespan of the project. The critical winter period of concern for mule deer and elk is from December 1 to April 15. Trapping activities that occur outside this time frame are not expected to negatively impact ungulates, because most of the individuals will be outside of their winter ranges.

Bait trapping is the only trapping method that is common to both alternatives 1 and 2. Although up to 10 bait trap sites may be utilized annually, only one to two trap sites would be used at a time. Each trap site would have a period of installation, gathering, and decommission. Following decommission, new trap sites would be located in a different geographical area from the previous trap site. Mule deer and elk are anticipated to avoid or be displaced by gathering activities at trap site locations. The area effected by on the ground human activities is expected to extend from 502.65 acres (0.5 miles) to 2010.61 acres (1 mile) for each trap site (BLM, 2011) (Table 7). The maximum area affected would be 4022 acres (Table 7). Mule deer and elk would be displaced for 14 days during bait trapping activities and are expected to return to pre-disturbance distributions once trapping activities are completed.

Table 7. Acres impacted by trap sites.

Trap Sites	Miles	Acres	Percent of Mule Deer Winter Range	Mule Deer Habitat Effectiveness	Percent of Elk Winter Range	Elk Habitat Effectiveness
1	0.5	503	< 0.1	Low	< 0.1	Low
1	1	2011	2.3	Low	2.0	Low
2	0.5	1006	1.2	Low	1	Low
2	1	4022	4.6	Low	4	Low

Human disturbance would increase along secondary roads leading to trap sites and areas adjacent trap sites. Gathering activities are not expected to increase the area of disturbance along the South Fork John Day River Road due to the high volume of traffic currently associated with the road (Gaines, 2003). However, all secondary roads that are currently considered low volume will increase to moderate volumes roads during trapping activities. In order to analyze the impacts to areas affected by higher traffic volumes, potential traps sites were located using historic trap locations and existing herd locations. Once trap locations were positioned, the longest secondary road route from the South Fork John Day River Road to a trap location was identified. The longest linear route to a potential trap location was 11.92 miles and would impact 1,298 acres, but would not change the habitat effectiveness of either mule deer or elk winter range (Table 8). In order to analyze road disturbance impacts from two trap sites, the miles (23.84) and acres (16,474) for one trap site were doubled.

Table 8. Road disturbance effects from trapping activities.

	Total Miles	Total Acres	Percent of Mule Deer Winter Range	Mule Deer Habitat Effectiveness	Percent of Elk Winter Range	Elk Habitat Effectiveness
No Action (Low Volume)	11.92	6939	8.0	Low	6.9	Low
Alternatives 1-2 (Moderate Volume) (one trap site)	11.92	8237	9.5	Low	8.1	Low
Alternatives 1-2 (Moderate Volume) (two trap sites)	23.84	16474	18.9	Low	16.3	Low

Effects of Alternative 1

Trap sites installed for helicopter trapping would be installed, decommissioned, and impact the same amount of acres as bait trapping sites (Table 7). The difference between the two methods is the duration of trapping. Bait trapping would last 14 days, while helicopter trapping would last 7 days.

Helicopter trapping is a high intensity, short-duration disturbance that will temporarily displace mule deer and elk. The months which helicopter gathering will be most impactful to mule deer and elk are December through February. Helicopter trapping will conclude at the end of February each year and begin again the following July. Disturbance frequency and intensity from helicopter gathering will decrease with increasing distance from the trap site. Most of the anticipated disturbance will occur within a two mile radius or 8,042 acres (Table 8). Following helicopter gathering (2-3 days), ungulates are expected to return to pre-disturbance distributions.

Table 8. Helicopter gathering impacts to mule deer and elk.

Miles	Acres	Percent of Mule Deer Winter Range	Mule Deer Habitat Effectiveness	Percent of Elk Winter Range	Elk Habitat Effectiveness
0.5	503	0.1	Low	0.1	Low
1	2011	2.3	Low	2.0	Low
1.5	4524	5.2	Low	4.5	Low
2	8042	9.3	Low	7.9	Low

Effects of Alternative 2

Helicopter trapping would not occur during the critical winter period for mule deer and elk. Bait trapping would be implemented and would impact areas adjacent to trap sites and roads (Table 7 and 8).

Effects to Alternative 3 (No Action)

Wild horses would continue to reduce forage that is available to wildlife on 86,936 acres and 101,280 acres of mule deer and elk winter range, respectively. Horse populations would continue to grow at an average rate of 18% per year and exceed 400 animals within four years. Mule deer and elk winter habitat would continue to decline with wild horse populations this size, particularly in riparian areas (USFS and BLM, 2007). Poor habitat conditions could reduce the already stressed nutritional intake of ungulates during winter, thus potentially reducing fitness. Inter-specific competition would likely increase between horses and ungulates, therefore limiting mule deer and elk occupancy in high quality foraging areas.

Under the no action alternative, acres impacted by roads, trap sites, and helicopter use would be less than alternatives 1 and 2 (Table 9).

4.3 Cumulative Effects for All Alternatives

The NEPA regulations define cumulative impacts as impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The cumulative impacts study area (CSA) for the purposes of evaluating cumulative impacts is the Murderer’s Creek HMA.

According to the 1994 BLM *Guidelines for Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance to be analyzed are livestock, wildlife, maintaining rangeland health, and proper management of wild horses.

4.4 Past, Present, and Reasonably Foreseeable Future Actions

4.4.1 Livestock Industry

There are no ongoing or proposed future actions that would have measurable effects; therefore, there are no cumulative impacts on the local livestock industry.

4.4.2 Wild Horses

In 1971, Congress passed the Wild Free-Roaming Horses and Burros Act which placed wild and free-roaming horses and burros, that were not claimed for individual ownership, under the protection of the Secretaries of Interior and Agriculture. In 1976, the Federal Land Policy and Management Act (FLPMA) gave the Secretary the authority to use motorized equipment in the capture of wild free-roaming horses as well as continued authority to inventory the public lands. In 1978, the Public Range Improvement Act (PRIA) was passed which amended the WFRHBA to provide additional directives for BLM's management of wild free-roaming horses on public lands.

The John Day RMP designated the Murderer's Creek HMA for the long-term management of wild horses. The HMA established in 1972 is nearly identical in size and shape to the original herd area identified in 1971. Today's management of wild horses at the AML level of 50-140 with an objective herd size of 100 horses within the HMA is guided by the August 1985 John Day RMP ROD.

Today the Murderer's Creek HMA has an estimated population of 213 wild horses. On MNF administered lands within the HMA riparian stream standards are being exceeded within the HMA due to the current overpopulation of wild horses. Consistent with the authority in the WFRHBA and other BLM policies, wild horse management would focus on removing excess wild horses while maintaining a thriving ecological balance and achieve program goals by using a selective removal strategy and implement population control measures to slow growth rates. Current wild horse management would place more emphasis on achieving the Oregon/Washington Standards for Rangeland Health and other multiple use resource objectives. As part of management of the HMA, the BLM would monitor and collect information related to horse numbers, season of use, and use levels.

In addition to the alternatives, the ongoing and future actions that could occur within the CSA are wild horse gathers on MNF administered land and vegetation treatments on ODFW, and private lands. A recent history of wild horse gathers on MNF administered lands is included in Table 3, section 3.2.2. As stated in the wildlife cumulative effects section below, there are 20,000 acres of juniper treatments planned within the Murderer's Creek WMU. The amount and impacts of vegetation treatments on private lands within the CSA are unknown.

The cumulative effects associated with the capture and removal of excess wild horses includes gather-related mortality of less than 1% of the captured animals, about 5% per year associated with transportation, short term holding, adoption or sale with limitations and about 8% per year associated with long-term holding. This compares with natural mortality on the range ranging from about 5-8% per year for foals (animals under age 1), about 5% per year for horses ages 1-15, and 5-100% for animals age 16 and older (Stephen Jenkins, 1996, Garrott and Taylor, 1990). In situations where forage and/or water are limited, mortality rates increase, with the greatest impact to young foals, nursing mares and older horses. Animals can experience lameness associated with trailing to/from water and forage, foals may be orphaned (left behind) if they cannot keep up with their mare, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. Before these conditions arise, the BLM generally removes the excess animals to prevent their suffering from dehydration or starvation.

Application of fertility control and adjustment in sex ratios to favor males should slow population growth and result in fewer gathers and less frequent disturbance to individual wild horses and the herd's social structure. However, return of wild horses back into the HMA could lead to decreased ability to effectively gather horses in the future as released horses learn to evade the helicopter.

The other cumulative effects which would be expected when incrementally adding either of the Action Alternatives to the CSA would include continued improvement of upland vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild horse population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced wild horse population would include fewer animals competing for limited forage and water resources. Cumulatively, there should be more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple use conflicts in the area over the short and long-term. Over the next 15-20 years, continuing to manage wild horses within the established AML range would achieve a thriving natural ecological balance and multiple use relationship on public lands in the area.

Under the No Action Alternative, the wild horse population could exceed the low end of AML by approximately eight to nine times in four years. Movement outside the HMA would be expected as greater numbers of horses search for food and water for survival, thus impacting larger areas of public lands. Heavy to severe utilization of the available forage would be expected and the water available for use could become increasingly limited. Eventually, ecological plant communities would be damaged to the extent that they are no longer sustainable and the wild horse population would be expected to crash.

Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. The No Action Alternative is likely to have compounding effects after considering unknown factors that can occur such as drought and wildfire which are factors for emergency gathers. These emergency removals could occur as early as the summer of FY 13. During emergency conditions, competition for the available forage and water increases. This competition generally impacts the oldest and youngest horses as well as lactating mares first. These groups would experience substantial weight loss and diminished health, which could lead to their prolonged suffering and eventual death. If emergency actions are not taken, the overall population could be affected by severely skewed sex ratios towards stallions as they are generally the strongest and healthiest portion of the population. An altered age structure would also be expected.

Cumulative impacts would result in foregoing the opportunity to improve rangeland health and to properly manage wild horses in balance with the available forage and water and other multiple uses. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health would not be achieved. AML would not be achieved and the opportunity to collect the scientific data necessary to re-evaluate AML levels, in relationship to rangeland health standards, would be foregone.

4.4.3 Wildlife

Mule deer and elk winter ranges in the HMA have been heavily impacted by annual grass and western juniper invasions. Overgrazing from domestic livestock and fire suppression are the two most influential management actions that have facilitated these transitions across the landscape. There is approximately 2992 acres of mule deer and elk winter range that contain >15% cover of cheatgrass and another 6336 acres with 5-14% cheatgrass cover. The OMDI identified efforts to restore areas invaded by annual grasses; however, no action has taken place at this time. Over 20,000 acres of juniper removal are planned within the Murderer's Creek WMU through 2025. Since 2007, approximately 1,400 acres of juniper have been eradicated from mule deer winter range.

All of the objectives described in the Oregon Mule Deer Initiative emphasize enhancing or restoring mule deer populations and seasonal habitats. One of the OMDI objectives specifically targets the removal of wild horses to meet AML goals in order to reduce habitat degradation and improve forage availability for mule deer (OMDI, 2007). The anticipated improvements from re-vegetation efforts and reducing horse AML's are expected to counteract any disturbance issues related to these projects.

In 1972 the Phillip W. Schneider Wildlife Area (PWSWA) was created to protect and enhance mule deer winter range habitat. From February 1 through April 14 each year, all public lands (BLM and State)

within the PWSWA are closed to the public. There are 26,210 acres of public land (17,300 acres of BLM and 8,880 acres of state lands) in the Murders Creek HMA affected by this closure, which is 30 percent and 26 percent of mule deer and elk winter range, respectively.

Several hunting seasons in the Murders Creek WMU extend into mule deer and elk winter periods. Upland game bird season is available until January 31; a youth controlled antlerless elk hunt of approximately 50 tags goes through December; and a youth controlled turkey hunt occurs on April 8-9.

December and January are expected to receive the highest levels of disturbance during the critical winter period. Disturbance associated with gathering activities would be in addition to hunting and other human activities, but is not expected to significantly increase the acres impacted or the habitat effectiveness.

There are several historic and current disturbance factors that shape existing mule deer and elk winter range conditions. Isolated restoration efforts, while beneficial, are inadequate for the scale of restoration needed to resolve these complex issues. Efforts to restore plant community structure and processes are likely to be negated or show little improvement without attaining appropriate management levels for wild horses.

4.5 Summary of effects

Table 9. Summary of Environmental Effects of Alternatives

	Alternative 1 (Proposed Action)	Alternative 2	Alternative 3 (No Action)
Wild Horses Gather Related Mortality: injuries and deaths to wild horses could occur as a result of handling stress associated with gathering, processing, and transportation of animals	Up to 4 deaths	Up to 4 deaths	0 deaths
Livestock Industry Economic impact (\$) as a result of competition between livestock and wild horses for available forage (AUMs)	Wild horse use (600 AUMs) Livestock Use: (3,248AUMs; \$3,387,664)	Wild horse use (600 AUMs) Livestock Use: (3,248AUMs; \$3,387,664)	Wild horse use (4,068 AUMs) Livestock Use (0 AUMs/Non-use; \$0 economic impact)
Mule Deer and Elk Winter Range Road Disturbance (acres) Trap Site Disturbance (acres) Helicopter Disturbance (acres)	6939 0 0	16,474 Up to 4022 Up to 8042	16,474 Up to 4022 0

5.0 Monitoring

The BLM COR and PIs assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the SOPs (Appendix C).

Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, and animal health would continue on the Murderer's Creek HMA.

Fertility control monitoring would be conducted in accordance with the SOPs (Appendix D). Monitoring the herd's social behavior would be incorporated into routine monitoring. The objective of this additional monitoring would be to determine if additional studs form bachelor bands or are more aggressive with breeding bands for the forage and water present.

If genetic monitoring indicates a loss of genetic diversity, the BLM would consider introduction of mares from HMAs in similar environments to maintain expectable genetic diversity.

6.0 List of Preparers

The following BLM interdisciplinary (ID) team provided input for the preparation of this EA:

<i>Name</i>	<i>Resource represented</i>
Justin Rodgers	Team lead, wild horses, livestock grazing, and writer editor
Christopher R. Anthony	Botany and Wildlife
Jimmy Eisner	Fisheries (T&E species consultation)
Terry Holtzapple	Cultural
Teal Purrington	Planning and Environmental Coordination
Berry Phelps	Recreation, Visuals, Wilderness Characteristics
Mike Tripp	GIS (maps and data analysis)
Lisa Clark	Public contact, communications
Rich Pastor	Riparian and Hydrology

7.0 Consultation and Coordination

Scoping of actions were initiated with various interested parties, including those on the District Mailing List; including wild horse and burro interest groups or individuals, state and local government, tribes, and land owners within and adjacent to the Murderer's Creek HMA. Grazing Lessees within the HMA have also been consulted. Refer to section 1.7 of this document for additional information.

Public hearing(s) are held as a single state-wide hearing at the Burns District Office regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During the hearing(s), the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of these methods to capture wild horses (or burros). The Burns BLM Office held a hearing on June 6, 2011 and no members of the public attended the meeting. BLM reviewed its Standard Operating Procedures in response to the views and issues expressed at the hearing and determined that no changes to the SOPs were warranted.

8.0 References

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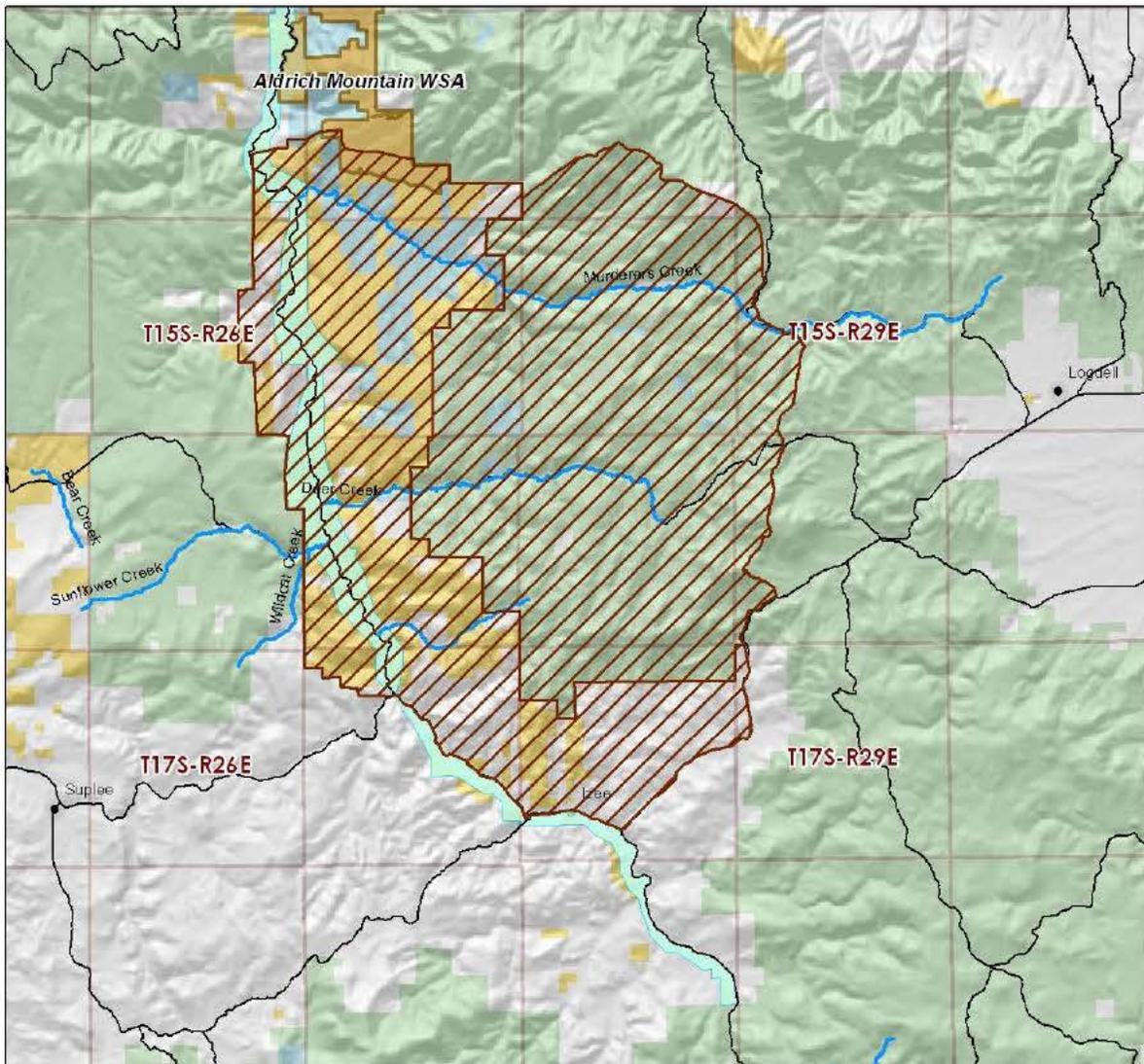
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APPENDIX A

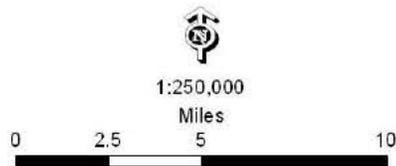
Map 1 - Murderer's Creek HMA Map

Murderer's Creek Herd Management Area



Legend

- Herd Management Areas
- Highways
- Major road
- Intermediate road
- Wilderness Study Areas
- Wild and Scenic River Corridor
- Administered Lands**
- Bureau of Land Management
- U.S. Forest Service
- State
- Private/Unknown



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 were compiled from various sources and may be updated without notification.

PROJECT AREA



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APPENDIX B

Issues Considered but eliminated from detailed analysis and project design features

The following issues were raised by the public or BLM during early scoping for this project. They have been considered but eliminated from further analysis. Issues can often be eliminated because project design features (PDF) added to the action alternatives eliminate or reduce effects on the resource. The issues are described below along with the PDF's.

Botany/Weeds

Issue: Ground disturbing activities, including trap sites, holding facilities, staging areas and campsites, may trample or kill John Day milkvetch plants.

Astragalus diaphanus var. *diurnus* (John Day or transparent milkvetch) is an annual (biennial) milkvetch found along the northern portion of the South Fork John Day River in openings within western juniper woodlands. Soils are generally "barren", thin, and well-drained, comprised of gravels over basalt with a low nutrient level. A member of the pea family, it is a Bureau Sensitive species and listed as threatened by the State of Oregon. Due to its habitat, it is not generally affected by most land uses, other than those that would greatly impact the soil surface.

PDF: To ensure the project would not have potential significant negative effects on the John Day milkvetch, a project design feature would conduct botanical inventory for the presence/absence of special status plants prior to all project implementation. Inventory would be conducted during the season(s) appropriate for species identification. Known populations would be avoided from ground disturbing activities such as: trap sites, holding facilities, staging areas and campsites.

Issue: Ground disturbing activities including trap sites, holding facilities, staging areas and campsites, may introduce or increase the spread noxious weeds.

Whenever reasonable, historic trap sites would be used to minimize new ground disturbing activities. The following PDFs would eliminate any measurable issues related to gathering activities.

PDF: All equipment (e.g. vehicles, fences) would be weed free or at least attempted to be weed free prior to entering the project area.

PDF: Gatherings would be monitored for the spread of weeds or new populations. If weeds are detected, appropriate corrective action would be applied as described in the Prineville District Integrated Weed Management Plan Environmental Assessment: OR-053-3-062 or subsequent weed management plan.

Issue: Hay, straw, or other vegetation material supplied to feed horses may introduce noxious weeds.

PDF: All hay, hay cubes, straw, and mulch possessed, used, or stored on BLM lands must have proof of weed-free certification. Certification must meet or exceed the state or North American Weed Management Association (NAWMA) Weed-Free Forage certification standards. Anyone using hay, straw, or mulch on BLM lands in Oregon and Washington will be required to show proof of certification or be subject to fine. IM-OR-2011-019.

Wildlife

How would helicopter trapping affect sage-grouse?

Greater Sage-grouse (*Centrocercus urophasianus*) is currently a BLM special status species. The United States Fish and Wildlife Service declared the species warranted for listing under the Endangered Species Act (ESA), but precluded due to higher priority listing actions. Sage-grouse is a sagebrush (*Artemisia* spp.) obligate species that occupies multiple sagebrush habitats to meet lifetime requirements. According to the John Day Resource Management Plan (JDRMP) there is potential sage-grouse habitat in the uplands along the South Fork John Day River. However, an ODFW survey (2005) did not find any evidence of use in the area. The project area is several miles (>3.5 miles) from Preliminary Priority Habitat, Preliminary General Habitat or any established leks. Historically, the project area may have provided suitable habitat for sage-grouse, but due to annual grass and western juniper invasion over the past century, significant habitat loss has occurred. Small fragmented areas of suitable or marginal habitat may be provided in the project area, however use of these areas is expected to be low to none. Due to the current habitat conditions and isolation of the project area, the actions of this project are not expected to measurably impact sage-grouse.

How would bait and helicopter trapping impact California bighorn sheep?

In 1978 and 1981, California bighorn sheep (*Ovis canadensis*) were reintroduced in the Aldrich Mountain Territory. Herds are released in areas that provided yearlong habitat and therefore are typically non-migratory. The current population estimate of 100 animals occupies 16,394 acres. The project area contains a total of 1,843 acres (11%) of the bighorn Aldrich Mountain territory. The herd territory is located along the northern project boundary and extends several miles north of the project area. No trap sites would be located in bighorn sheep habitat. Consequently, helicopter use in bighorn territory will be low or none and not expected to cause any measurable impacts.

PDF: Trap sites would be located outside of California bighorn sheep territory.

How would raptor nest success be affected by helicopter trapping?

American Peregrine Falcon (*Falco peregrinus anatum*) is protected under the Migratory Bird Treaty Act. Nest sites are a critical habitat component for this species. Typically, nests are located on cliffs adjacent to open areas with abundant food. Peregrine falcons occupy cliffs within 0.25 – 1 mile of riparian areas. Breeding begins in March, and young are fledged by late August. Surveys conducted in 2001 found no evidence of use, but identified 6 potential nest sites in the project area along the South Fork John Day River. Each site had a rating for potential: 1 high, 4 medium, 1 low (Pagel 2001).

PDF: Surveys would be conducted in order to identify occupied nest in the fly zone prior to helicopter trapping. If an occupied nest is located a spatial buffer of 0.75 mile would be enforced from January 1 – August 15 (JDRMP 2012). This PDF will eliminate any measurable effects to peregrine falcons from helicopter trapping, therefore the issue is not analyzed in the EA.

Golden Eagle (*Aquila chrysaetos*) is protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Nests are built on cliffs or in tall ponderosa pine (*Pinus ponderosa*). Nesting season occurs from January 15 through July 15, but may extend to August 31. No nests have been identified in the project area, although several occurrences have been documented.

PDF: Surveys would be conducted to identify occupied nest in the fly zone prior to helicopter trapping. If an occupied nest is located a spatial buffer of 0.5 mile would be applied from January 1 – August 31.

Northern Bald Eagle (*Haliaeetus leucocephalus*) is protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Typically, nests are located in tall conifers within a half mile of water and occupied from January 1 to July 15, although nesting may extend through August. There are no nests known to occur in the project area.

PDF: Surveys would be conducted to identify occupied nest in the fly zone prior to helicopter trapping. If an occupied nest is located a spatial buffer of 0.25 mile non-line of sight and 0.5 mile line of sight would be enforced from January 1 – August 31 (JDRMP 2012).

How would bait and helicopter trapping activities affect Bald Eagle Winter Roosts?

The project area provides winter roosting habitat for bald eagles from November through March. Roosts occur in large cottonwoods and conifers along the South Fork John Day River. Bald Eagles may travel up to 10 miles between roosts during winter (Csuti 1997).

PDF: In order to protect bald eagle winter roosts, no traps would be located in areas identified as primary winter roosting areas along the South Fork John Day River from November 1 through April 30.

How would bait and helicopter trapping affect Lewis's Woodpecker?

Lewis's Woodpecker (*Melanerpes lewis*) is a designated BLM sensitive species that nests in the cavities of trees associated with ponderosa pine and cottonwood (*Populus spp.*) riparian vegetation communities. Several sightings along the South Fork John Day River have been documented, however no nest have been located. The four main drainages in the project area provide optimal foraging habitat for Lewis's woodpeckers. Typically, birds arrive in the project around late April to early May and return to their southern ranges by late August to early September (Tobalske 1997). Primary breeding season occurs during May and June, but varies with elevation and latitude.

Human disturbance effects on nest success are inconclusive. Nest abandonment may occur from human activities near the nest (Brock 1970), whereas population dynamics may remain stable (Siddle and Davidson 1991).

PDF: Trap sites that would be used during the breeding season (late April – July) would have surveys conducted prior to trap placement to identify any occupied nest. If nests are located, trap sites would be placed at least 250 feet from the nest.

Helicopter use in a particular area is expected to last from two to three days. Then helicopter activity will be halted for several days before resuming in a different geographical location from which the previous two to three days disturbance occurred. Frequency and intensity of disturbance is expected to increase with proximity to the trap site. Helicopter trapping would begin during the late breeding season (nestling and fledgling stages). The disturbance due to helicopter trapping would be temporary and is not expected to have any measurable impacts.

How would bait and helicopter trapping affect migratory birds?

Peak activity for migratory birds occurs during the breeding season (May-July). The multitude of plant associations expresses the diversity of bird species found in the project area. There are six major plant associations within the Murders Creek HMA (western juniper woodlands, shrub-steppe, grassland, ponderosa pine forest, mixed conifer forest, and riparian) that influence migratory bird occupancy.

Disturbance connected with bait trapping would occur over two week intervals at localized sites during the breeding bird season. Although there would be disturbance associated with trapping activities, the impact to migratory bird habitat and populations is not expected to be measurable, and is not considered an issue.

Helicopter trapping would tentatively begin in the final breeding month (July) for the majority of species in the project area. Helicopter use is not expected to peak until following the breeding bird season. Additionally, helicopter disturbance would be a short-duration disturbance in a given area and not expected to affect migratory bird populations.

Wild and Scenic River

Issue: Ground disturbance resulting from gathering wild horses in riparian areas may result in effects to the Outstandingly Remarkable Values of the South Fork John Day River, which as a Recreation classification. Scenery, Recreational Opportunities, Fish, Wildlife, and Botany have been identified as Outstandingly Remarkable Values associated with this 47 mile river segment. There are also excellent opportunities for big game hunting, hiking, swimming and camping, from Smokey Creek upstream to the Malheur National Forest boundary (river mile 6 to river mile 52). Changes in vegetation and possible soil erosion are expected to occur from vehicle use associated with gathering and especially wild horse trapping facilities in riparian areas. Changes in vegetation and possible soil erosion are expected to occur from vehicle use associated with gathering and especially wild horse trapping facilities in riparian areas.

PDF: To ensure the project would not have potential effects on the river ORV's all wild horse trapping locations would be located outside of the South Fork Wild & Scenic River Boundary. Associated camping would be located on existing campsites. Vehicles would only park on hardened surfaces void of vegetation.

Visual Resource Management

Issue: According to the 2008 BLM Prineville District Draft John Day Basin Resource Management Plan/Environmental Impact Statement VRM Map 8, public lands within the Aldrich Mountain Wilderness Study Area, along the South Fork John Day River are classified as Visual Resource Management Class I.

“Natural ecological changes and very limited management activities are allowed. Any contrast created within the characteristic landscape must not attract attention...” BLM VRM Program Management manual, page 25, 1980.

According to this same RMP VRM map, public lands within the South Fork Wild & Scenic River are classified as VRM Management Class II.

“Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.” BLM VRM Program Management manual, page 26, 1980.

Almost all remaining public lands outside of the South Fork John Day River boundary and Aldrich Mountain WSA are classified as VRM Management Class IV;

“Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but is should repeat the form, line, color and texture of the characteristic landscape” BLM VRM Program Management manual, page 28, 1980.

PDF: To ensure the project would not have potential effects on the visual resources particularly in the Aldrich Mountain WSA and South Fork John Day Wild & Scenic River area, all wild horse trapping locations would be located outside of these two areas. Existing and new horse trapping facilities could be located on public lands classified as VRM Management Class IV, providing visual impacts are temporary and disturbed areas are rehabilitated to match adjacent landform contours and native vegetation.

If continued wild horse trapping is expected to occur in these locations, rehabilitation would be deferred until the site no longer is needed, provided no noxious weed interdiction occurs. Associated camping would be located on existing campsites. Vehicles would only park on hardened surfaces void of vegetation.

Recreation

Issue: Gathering of wild horses during the late summer/fall /winter deer and elk bow hunting and rifle seasons are expected to reduce the quality and success of these hunters. This reduction would be due to horse gathering activities that spook these big game animals, making more difficult or impossible for these hunters to participate in quality hunting experiences that include filling their hunting tag. In addition, wild horse gathers may compete for the same campsites along the South Fork John Day River as bow and rifle hunters, and also other recreationists during the summer/fall months.

PDF: Avoid gathering wild horses during bow and rifle seasons. If horse gathering occurs during the summer/fall months, limit gathering to week days.

Wilderness Study Areas

Issue: Wild horse gathering may affect the naturalness, Solitude and Primitive Recreation of the Aldrich Mountain WSA. Wild Horse gathering activities may not meet the WSA Interim Management Guidelines for activities being allowed in a WSA if they are temporary and non-impairing to WSA Values.

PDF: Do not have any wild horse facilities within this WSA. Any activity within the Aldrich Mountain WSA will comply with BLM IMP Manual H-8550-1. Complying with the Wild & Scenic/Visual Resource Mitigations will not affect visitor expectations for outstanding solitude or primitive, unconfined recreation.

Wilderness Characteristics

Issue: Wild horse gathering activities are expected to occur on public lands outside of Aldrich Mountain WSA that were found by the BLM to possess wilderness character.

PDF: The Prineville BLM district updated its wilderness inventory through the John Day Basin RMP. The evaluations found that a portion of the public lands located within the HMA do possess wilderness character (see wilderness character inventory file Wylie Gulch OR-054-032, on file in the Prineville District Office). The actions proposed in this EA are not expected to have an effect on the wilderness character of these lands. However, it is recommended that motorized use be limited to designated routes wherever possible, and motorized travel should not occur off of existing routes, so as not to create new surface disturbance.

Cultural Resources

Issue: Ground disturbing activities, including trap sites, holding facilities, staging areas and campsites, may damage cultural or paleontological resources. Damage to the site surface and artifacts would be expected in areas where animals or associated human activities are concentrated. This issue was considered and eliminated from further analysis by designing the project with a best management practice for cultural and paleontological resources.

PDE: Cultural and paleontological resources will be managed in accordance with current laws, policy and agreements for protection and enhancement of cultural and paleontological resources. Prior to implementation of the proposed action, field inventory and reporting will be completed in consultation with the Oregon State Historic Preservation Office to complete the Section 106 process of the National Historic Preservation Act. Known cultural resource properties and paleontological localities would be avoided from ground disturbing actions like trap sites, holding facilities, staging areas and camping sites to avoid impacting cultural properties or paleontological resources.

Mid-Columbia River summer steelhead - Issue considered but eliminated

How would removal of horses affect Mid-Columbia River summer steelhead habitat?

There is some concern that if the horse population continues to increase, horses will concentrate in the riparian areas, on BLM lands, negatively affecting Mid-Columbia River summer steelhead (MCR Steelhead) which are listed as threatened under the Endangered Species Act. If this were to occur, potential impacts could include removal of shade, channel instability due to hoof action, and increased sediment into the streams due to the removal of vegetation.

No effects have been observed or documented due to increased horse numbers on MCR steelhead or their habitat on BLM lands. Previous Proper Functioning Condition assessments and direct observations during spawning surveys have not indicated that horse use has been detrimental. Generally horse use on BLM lands with MCR summer steelhead occurs in the late winter and early spring when, due to higher stream flow levels, the riparian areas are under water and not available for horse impacts. As flow levels recede, temperatures increase, and the horses migrate uphill to Forest Service lands for thermal regulation and palatable forage. No measurable effects are expected on MCR summer steelhead from removing or not removing horses; therefore the issue is not considered in detail in this EA.

Riparian

Issue: Ground disturbing activities for gathering wild horses, including trap sites, holding facilities, staging areas and campsites could result in negative effects to riparian, fish habitat, vegetation, soils, and stream banks.

PDE: To avoid impacts to riparian resources, project related activities including trap sites, holding facilities, staging areas and campsites should be located outside of designated Riparian Management Areas (RMAs), as described in the John Day Basin RMP (2012 draft) and indicated on EA project maps (7/26/2011 draft). Specifically, EA project map #2 indicates several historic trap locations along the South Fork John Day River and on lower Deer Creek possibly on BLM land. These trap sites and associated project facilities should be re-located outside of RMAs..

Driving horse herds into or through designated RMAs to trap sites should also be avoided to protect riparian resources and fish habitat.

Water Quality

Issue: Water quality in project area streams, wetlands, and springs could be impacted by project related activities due to soil erosion and sedimentation, and possible direct contamination. Project related activities that may negatively affect water quality include horse gathering and holding, off-road vehicle use, and associated camping,

PDF: To avoid possible negative effects to water quality in project area streams, wetlands, and springs due to soil erosion and sedimentation, vehicles should be restricted from driving through these areas and their designated Riparian Management Areas (RMAs). ORVs and other vehicles used by project contractor(s) should stay on designated roads and parking locations. If possible, any associated camping should be located at existing campgrounds or other designated sites.

Temporary horse feeding and watering sites and holding facilities should be located outside of designated RMAs. Feed and water from sources outside of RMAs should be hauled to temporary holding and trap sites if necessary.

Fueling sites for project contractor vehicles, including aircraft, should be located within hardened parking areas if possible. Contractor(s) should provide a hazardous materials spill plan, and have adequate spill containment materials and disposal equipment available at all fueling sites.

APPENDIX C

Standard Operating Procedures for Wild Horse (or Burro) Gathers

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

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

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

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

Helicopter Drive Trapping. This capture method involves utilizing a helicopter to herd wild horses into a temporary trap.

Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.

Bait Trapping. This capture method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary trap.

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

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

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

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

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

All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the

animals in a safe and humane manner and be in accordance with the following:

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

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

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

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

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

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

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

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

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

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

feed day.

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

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

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

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

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

Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.

All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.

Traps shall be checked a minimum of once every 10 hours.

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

A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.

The contractor shall assure that foals shall not be left behind, and orphaned.

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

Under no circumstances shall animals be tied down for more than one hour.

The contractor shall assure that foals shall not be left behind, or orphaned.

The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

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

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

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

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

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

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

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

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

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

D. Safety and Communications

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

The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

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

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

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

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

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

G. Site Clearances

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

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

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

H. Animal Characteristics and Behavior

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

I. Public Participation

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

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

J. Responsibility and Lines of Communication

Contracting Officer's Representative/Project Inspector

Rob Sharp/Justin Rodgers

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Central Oregon Resource Area Assistant Field Manager and Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

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

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

The contract specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced.

Should the Contractor show negligence and/or not perform according to contract stipulations, he will be issued written instructions, stop work orders, or defaulted.

APPENDIX D

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 Freund's 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.

APPENDIX E
Murderer’s Creek HMA WinEquus Population Modeling Results

Population Data, Criteria, and Parameters utilized for Population Modeling: All simulations used the survival probabilities, foaling rates, and sex ratio at birth that was supplied with the WinEquus population for the Garfield HMA 1997.

Sex ratio at Birth: 43% Females 57% Males

The following percent effectiveness of fertility control was utilized in the population modeling for Alternative I (This assumes returned mares are treated during the December-February period):

Year 1: 94%, Year 2: 82%, Year 3: 68%

The following table displays the contraception parameters utilized in the population model for Alternative I:

Contraception Criteria (Alternative I) Age	Percentages for Fertility Treatment
1	0%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10-14	100%
15-19	100%

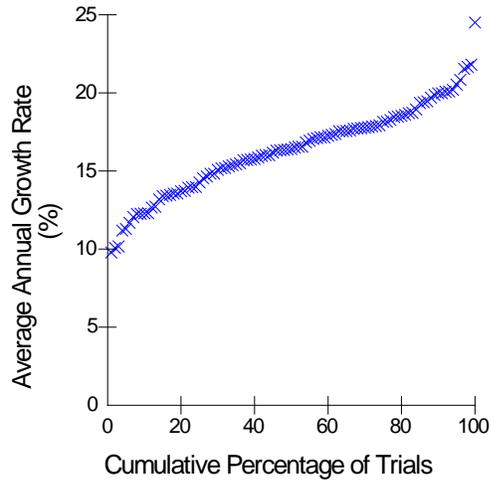
Population Modeling Criteria: The following summarizes the population modeling criteria used in analysis of Alternative I:

- Starting Year: 2012
- Initial Gather Year: 2012
- Gather interval: regular interval of three years
- Gather for fertility treatment regardless of population size: No
- Continue to gather after reduction to treat females: Yes
- Sex ratio at birth: 58% males
- Percent of the population that can be gathered: 65%
- Minimum age for long term holding facility horses: Not Applicable
- Foals are not included in the AML

Gathers would reach low AML of 50 horses

Simulations were run for 10 years with 100 trials each

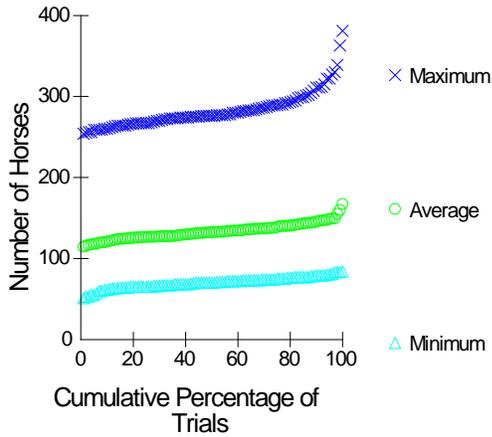
Alternative I-Proposed Action:



Average Growth Rate (%) in 10 Years

Lowest Trial	9.8
10th Percentile	12.3
25th Percentile	14.4
Median Trial	16.5
75th Percentile	18.2
90th Percentile	20.0
Highest Trial	24.5

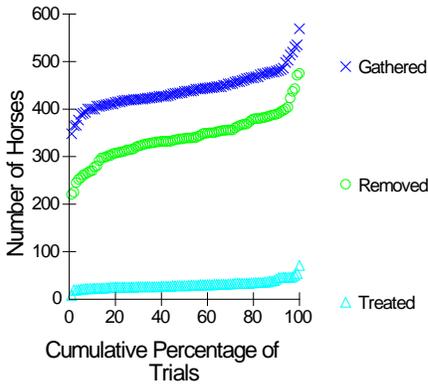
0 to 20+ year-old horses



Population Sizes in 11 Years

	Min	Avg	Max
Lowest Trial	55	107	256
10th Percentile	63	121	262
25th Percentile	66	126	268
Median Trial	72	134	276
75th Percentile	77	142	294
90th Percentile	81	147	310
Highest Trial	89	162	360

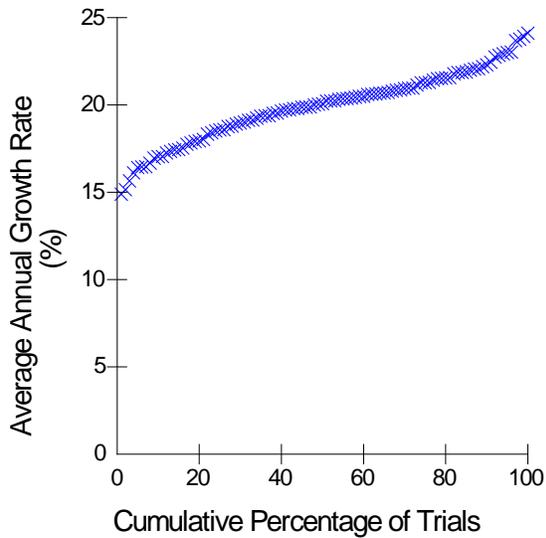
0 to 20+ year-old horses



Gathered/Removed in 11 Years

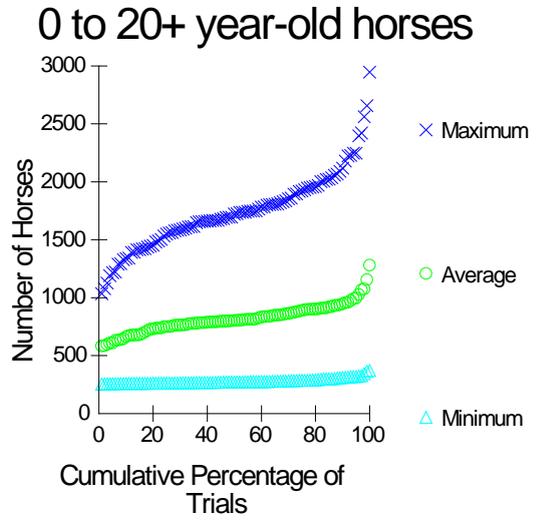
	Gathered	Removed	Treated
Lowest Trial	348	220	8
10th Percentile	400	274	22
25th Percentile	419	314	25
Median Trial	438	338	28
75th Percentile	460	368	33
90th Percentile	480	390	43
Highest Trial	569	475	71

No Action Alternative:



Average Growth Rate in 10 Years

Lowest Trial	14.9
10th Percentile	17.0
25th Percentile	18.6
Median Trial	20.1
75th Percentile	21.3
90th Percentile	22.4



Population Sizes in 11 Years*

	Min	Avg	Max
Lowest Trial	249	571	1082
10th Percentile	259	673	1280
25th Percentile	265	727	1490
Median Trial	274	784	1632
75th Percentile	291	860	1812
90th Percentile	304	921	2062
Highest Trial	350	1084	2628

**MURDERERS CREEK WILD HORSE
TERRITORY/HERD MANAGEMENT AREA
MANAGEMENT PLAN**

Approved by /s/ Brooks Smith
Brooks Smith
Blue Mountain District Ranger
Malheur National Forest

9/4/2007
Date

Approved by /s/ Christina Welch
Christina Welch
Central Oregon Resource Area Field Manager
Bureau of Land Management

10/23/2007
Date

Approved by /s/ Craig Ely
Craig Ely
North East Regional Manager
Oregon Department of Fish and Wildlife

9/10/2007
Date

MURDERER'S CREEK WILD HORSE TERRITORY/HERD MANAGEMENT AREA MANAGEMENT PLAN

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I. Introduction

This document provides the management objectives and guidelines for managing wild horses on the Murderers Creek Wild Horse Territory/ Herd Management Area (HMA) in eastern Oregon. Appropriate management levels (AML) are expressed as a range with the upper limit representing the optimum wild horse population which will not degrade the rangeland resource and will provide for the attainment of habitat objectives in correlation with other acceptable multiple uses and the lower limit maintaining a healthy population while incorporating gather cycle considerations. The Murderers Creek Wild Horse Territory/ Herd Management Area is the only designated wild horse territory on the Blue Mountain Ranger District of the Malheur National Forest. Wild horse management within designated wild horse territories is prescribed through Acts of Congress (laws) and their implementing regulations. These laws and documents include:

- Wild Horse Protection Act of 1959
- Wild Free-Roaming Horses and Burros Act of 1971, as amended by Federal Land Policy Management Act of 1976 and Public Rangelands Improvement Act of 1978
- Management of Wild Free-Roaming Horses and Burros – 36 CFR 222 Subpart B
- Forest Service Manual (FSM) Chapter 2200 (Range Management) and Chapter 2260 (Wild Free-Roaming Horses and Burros)
- Malheur National Forest Land and Resource Management Plan (herein called Forest Plan)
- Wild horses may also be managed outside the designated territory as described in the 1971 Wild Free-Roaming Horses and Burros Act and under FSM 2264.3
- Bureau of Land Management Manual Direction
- John Day Basin Resource Management Plan currently being developed.

II. Location

The Murderers Creek Wild Horse Territory/ HMA is located in eastern Oregon between the towns of Dayville, Mount Vernon and Seneca. The original designated territory encompasses approximately 143,000 acres of Forest Service, Bureau of Land Management (BLM), Oregon Department of Fish and Wildlife (ODFW), and private lands. The actual range of the herd adds an additional 37,000 acres of Forest Service ground. Approximately 75% of the lands within the territory are on the Malheur National Forest. On Forest Service land, the designated territory includes all of the Murderers Creek and Rosebud Allotments, as well as part of the Snowshoe Allotment (Tamarack pasture) of the Blue Mountain Ranger District. The extended territory includes more of the Snowshoe Allotment (Snowshoe pasture), all of the Flagtail Allotment and part of the Field's Peak/Deadhorse/Hanscomb Allotment (Tex Creek and Murderers Creek pastures). On Bureau of Land Management Land the territory includes the Big Baldy #4052, Big Flats #4186, Rock Pile #4403, Soda Creek #4044, Morgan Creek #4154, Mahogany #4043, Corral Gulch #4164 and Murderers Creek #4020 allotment. Elevation ranges from 3250 to 6500 feet.

Aldrich Mountain, 6987 feet, is the highest point. Climate is represented by hot, dry summers and cold winters with temperatures ranging from below zero in the winter to 90+ F in the summer. Average annual precipitation ranges from 11.5 inches in the lower elevations to about 30 inches along Aldrich Ridge. Most precipitation occurs as snowfall between November and April.

III. History

The lineage of the Murderers Creek horses is diverse and quite debatable. Although it is likely that horses found in the area by early explorers (probably escaped from Native American herds) left their mark in the area, there can be no dispute that many of the Murderers Creek horses are descendants of animals lost or turned loose by settlers and ranchers. Prior to 1971 (when the Wild Free-Roaming Horse and Burro Act was enacted) ranchers managed the wild herds by turning out their own stallions to bring certain characteristics into the bands, then gathered the young horses in the spring.

The Murderers Creek horses are generally small animals, 13 to 14 hands in size. More than 50% of the horses of Murderers Creek are “timber horses”. They live in heavily timbered areas of ponderosa pine and mixed conifer. These horses tend to be bay or brown in color while the horses that inhabit the western, more open part of the territory have more color variety with grays, duns and sorrels added to the bays, browns and blacks. In 1997 five stallions from two different BLM Herd Management Areas were introduced to the BLM portion of the territory to increase the size and color variation of the herds. This met with limited success as the introduced horses failed to assimilate into the existing herds and therefore did not contribute as they were intended.

IV. Standards, Goals and Objectives

The Malheur National Forest Land and Resource Management Plan (LRMP) sets fourth the direction for managing the land and resources of the Malheur National Forest. The following LRMP standards, goals and objectives relate specifically to Wild Horse Habitat and Management.

- A. Forest-wide Standard #83 (LRMP IV-34) – Conduct livestock management on the Murderers Creek Wild Horse Territory to ensure that resource conditions meet management goals and standards. Resolve conflicts between livestock, big game, and wild horses in accordance with the maintenance of a wild horse herd averaging 100 head.
- B. Forest-wide Goal #23 (LRMP IV-2) – Conduct livestock management on the Murderers Creek Wildhorse Territory to ensure maintenance of a wild horse herd averaging 100 head.
- C. Forest-wide Objective (LRMP IV-18) – Provide Forage to maintain the Murder’s Creek wild horse herd at 100 animals and meet big game population objectives agreed upon between the Forest Service, Oregon Department of Fish and Wildlife, and the Oregon Wildlife Commission.

V. Desired Condition

The following project specific desired future conditions for wild horse habitat and management were developed by comparing LRMP standards (LRMP IV-34), goals (LRMP IV-2), and objectives (LRMP IV-18) described above with the existing conditions described on pages 8-10 of this plan. In summary, the wild horse herd would average 100 head to maintain ecological balance with other approved multiple uses to manage habitat conditions in a stable or upward trend. Wild horse management should be consistent with the Aquatic Conservation Strategy.

A. Habitat

1. Vegetation – Vegetation is one of the essential components of wild horse habitat, providing forage and cover for the animals. Vegetation will be managed for a thriving natural ecological balance. Rangeland health will meet Malheur Forest Plan objectives while providing sufficient forage to maintain appropriate management level of wild horses in a moderately thin or better condition. Sufficient quantity of forage will be 950 lbs dry matter forage per horse per month.
2. Water – Water is an essential component of wild horse habitat. Sufficient water will be available to sustain the appropriate management level of wild horses. Sufficient quantity of water will be 15 gallons per horse per day. Available water will meet state water quality standards for livestock.
3. Cover – Cover is an essential component of wild horse habitat. Murderers Creek Wild Horse Territory has a rich and diverse amount of cover for wild horses. There are areas of rolling to flat lands bisected by very steep rocky canyons covered with Juniper, sage, bunchgrass and ponderosa pine. Also, steep, timbered slopes bisected by relatively narrow stream channels. In these areas the north slopes are usually densely timbered with mixed conifer while the south slopes are more open and may contain rock outcrop or serpentine soils.
4. Living Space – Ample open space within the territory will be available to facilitate a wild free-roaming nature for wild horses. Fences and other human induced barriers to movement within the territory will not impede traditional distribution or seasonal migration of wild horses.

B. Population

1. Population Demographics
 - a. Appropriate Management Level (AML) – The AML has been determined to be 50-140 horses. The 1983 Utilization and Distribution Study included in the 2210 Analysis File concluded that with 100 head of horses the natural elevation, seasonal migration, and the scattered territoriality of the bands, no significant problems would be expected related to the proper use of the forage species. When the herd was around the 200 head level (1979), significant use (and damage) occurred at Vester Meadows and the South Fork of Murderers Creek while at 100

head few areas of concentrated use were found and no areas of damage were found.

- b. Sex Ratio – The sex ratio in an undisturbed population normally favors the female slightly: 52% female, 48% male. Slight adjustments in the sex ratio favoring the male may significantly reduce reproduction, particularly when accompanied with fertility control, and may result in more male participation in breeding thus encouraging genetic exchange. Sex ratio will be managed for a normal distribution, 50% male and 50% female.
 - c. Age Structure – Murderers Creek horses will be managed for a normal age structure with representation from each age class in a pyramidal structure with young animals representing the largest age class at the base of the pyramid.
 - d. Recruitment Rate – Average recruitment rate for wild horses is 18% per year. This can be reduced through sex ratio adjustments and fertility control. Murderers Creek horses will be managed for a normal recruitment rate of 18% or less.
 - e. Animal condition – Murderers Creek horses will be managed for a healthy population with the majority of the wild horses in the population moderately thin to moderately fleshy (Henneke body condition score of 4-6).
2. Phenotype – Wild horses will be managed for historic characteristics. Horses will be generally small (13-14 hands in height), most frequently bays and browns but with a mix of black, gray, sorrel and dun. They are reported to be very sure footed which is a benefit to an animal living in the rugged terrain these horses inhabit.
 3. Distribution – Wild horses will be managed for historic patterns of use within the Murderers Creek Wild Horse Territory, preserving the free-roaming behavior.
 4. Genetic Diversity – Manage for a high level of genetic diversity in wild horses. Management will allow for a 90% probability that 90% of the existing genetic diversity within each herd is conserved over a 200 year period. If genetic diversity within the herd narrows greater than 10%, action will be taken to restore diversity by introducing other wild horses of similar phenotype from another wild horse population. “Only one to two breeding animals per generation (=about every 10 years in wild horses) would maintain the genetic resources in small populations of about 100 animals, thus obviating the need for larger populations in all cases.” (BLM Resource Notes No. 29). Managers are faced with conflicting needs to minimize population size to control habitat damage or forage use, and to maximize population size to preserve genetic variation (BLM Resource Notes No. 34).

VI. Existing Condition

A. Habitat

1. Vegetation – The predominant vegetation types on the Wild Horse Territory are Douglas-fir/ Elk sedge, and Grand fir/ Elk sedge with canopy covers of up to 80 and 84% respectively. Other vegetation types of significant size include Ponderosa pine/ Elk sedge (canopy cover 0-67%), Grand fir/ Pinegrass (canopy cover 0-78%), and Ponderosa pine/ Mountain mahogany/ Idaho fescue-bluebunch wheatgrass (canopy cover 0-57%). Herbage production ranges in these vegetation types from a low of 50 lbs/acre up to 800lbs/acre. There are also significant acreages of shrubland and bunchgrass-type grasslands, but the territory as a whole is dominated by coniferous vegetation.
2. Water – Water is easily accessible throughout the Murderers Creek Wild Horse Territory all year long. The two major drainages include Murderers Creek and Deer Creek. Additional creeks include: Thorn, Fields, Tex, the South Fork of Murderers, Beaver Dam, Bark Cabin, Crazy, Morgan, Dry Soda, Poison, Rosebud, Caps, Indian and Pewee. Several hundred troughs, springs and ponds are also maintained by grazing permittees to provide off-stream water for livestock, wildlife and wild horses.
3. Cover - Murderers Creek Wild Horse Territory has a rich and diverse amount of cover for wild horses. There are areas of rolling to flat lands bisected by very steep rocky canyons, covered with Juniper, sage, bunchgrass and ponderosa pine. Also, steep, timbered slopes bisected by relatively narrow stream channels. In these areas the north slopes are usually densely timbered with mixed conifer while the south slopes are more open and may contain rock outcrop or serpentine soils.
4. Living Space - Ample open space within the territory is available to facilitate a wild free-roaming nature for the wild horses. Fences and other human induced barriers to movement within the territory do not impede traditional distribution or seasonal migration of wild horses. .

B. Population

1. Population Demographics – Additional population information can be found in Appendix B.

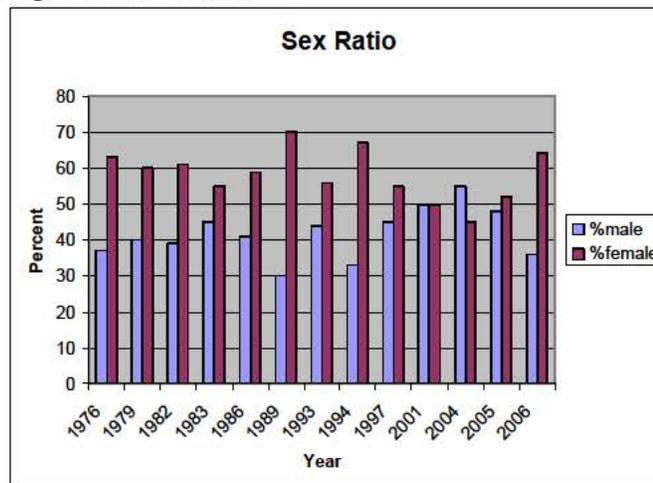
The results of the 2006 summer census are as follows:

- a. Population size: 436 horses were counted
- b. Age structure: 336 adults, 15 yearlings, 85 foals
- c. Sex ratio: of the adults identified to gender, 36% were male, 64% female (52 adults and 100 young were not sexed). The following table shows the sex ratio as it has been noted during gather operations from 1976 to 2005. This is usually the only time that an accurate sex ratio can be determined, however, data from adoptions may be biased against older unadoptable studs and the lesser gathering of younger studs occurring in bachelor bands. The data from 2006 is included since this was a ground survey and the gender of horses was often able to be determined during the count.

Table 1. Estimated Sex Ratio

Year	%male	%female	Notes
1971	42	58	Best guess from graph in 1984 territory management plan
1976	37	63	Actual data from 1976 gather report
1979	40	60	Best guess from graph in 1984 territory management plan
1982	39	61	Best guess from graph in 1984 territory management plan
1983	45	55	Only 9 horses gathered
1986	41	59	
1989	30	70	
1993	44	56	
1994	33	67	
1997	45	55	
2001	50	50	
2004	55	45	
2005	48	52	Of those identified to gender
2006	36	64	Of those identified to gender

Figure 1. Sex Ratio



- d. Recruitment rate: 19% of the horses counted in the 2006 census were foals. It can be reasonably expected that survival rates are high for these foals as there are few predators in the territory and the relatively mild winters mean there is usually readily available forage year round. Data from gathers since 1976 indicate a recruitment rate from 20 to 31% based on the percent of yearlings and younger in the gather.

Table 2. Number of Wild Horses that are Yearlings or Younger

Year	Yearling or Younger	
1971	25	from graph in 1984 TMP
1974	20	from graph in 1984 TMP
1976	24	from graph in 1984 TMP
1979	27	from graph in 1984 TMP
1993	31	from master list data from Burns adoption center
1994	23	from master list data from Burns adoption center
1997	31	from master list data from Burns adoption center
2001	21	from master list data from Burns adoption center
2004	21.5	from master list with horses turned back added to total
2005		request master list to calculate this

- e. Condition: Fair to good on most animals (See Appendix A Henneke 4-6).
2. Phenotype - Horses are generally small (13-14 hands in height), most frequently bays and browns but with a mix of black, gray, sorrel and dun. They are reported to be very sure footed which is a benefit to an animal living in the rugged terrain these horses inhabit.
3. Distribution – The elevational migration of these bands is relatively minor. For example, most of the bands never leave the National Forest, even during the most severe winters. Bands have been observed in the upper elevations in mid-winter, yarded in fir thickets or traversing 4 feet deep snow despite a plowed road accessing the lower elevations.
The “normal” pattern is for the bands to move to the south slopes as winter progresses and to move back as spring comes on. It appears that the bands generally remain within a roughly defined territory throughout the seasonal “migrations”. These territories are somewhat distinct from each other with low populations but overlap more as populations increase. In addition, lone horses or small groups of bachelor bands will operate within band territories.
4. Genetic Diversity – Doctor Gus Cothran performed genetic analysis of this herd in 2000-2001, checking on genetic health as well as possible ancestry. He found that this herd – which is physically isolated from other herd areas – is the most unique, bearing the least similarity to the other Oregon herds studied. He also found that it was not inbred, that genetic health was good, and he predicted no inbreeding issues in the near future if population levels are maintained.

VII. Population Control

A. Natural Population Controls – The rate at which wild horse herds naturally increase or decrease is affected by factors including the quality and quantity of forage and water, the ability to find essential habitat components unhindered, weather, disease, and predation. Knowledge gained in managing wild horses indicates that soil, vegetation, and water resources are almost always severely damaged before the lack of forage and water has a major effect on the rate of population growth. Consequently, when natural population controls do not exert sufficient influence to maintain the population of wild horses at AML, human intervention is necessary. Sometimes mountain lion predation is sufficient to maintain populations at AML. In the Murderers Creek Wild Horse Territory/HMA, mountain lion predation is a small factor but not enough to maintain population at AML.

B. Gather and Removal:

The Authorized Officer shall gather and remove excess wild free-roaming horses in the following order and priority:

1. Emergencies: Extraordinary circumstances such as natural disasters (wild fire, extreme drought, etc.) may require wild horse population adjustments to maintain an ecological balance. Immediate action is normally required to protect the health and welfare of the population and its habitat.
2. Court Orders: Gather and remove excess animals to comply with court orders.
3. Strays: If wild horses stray outside of their designated territory, and the land owner (private, state, or other agency) requests their removal, gather and remove or relocate the offending animals.
4. Appropriate Management Level: Wild horses shall be managed at population levels within the appropriate management level range (50-140). Once the estimated population reaches or exceeds the upper level of AML, excess animals will be humanely gathered and removed. The number of excess animals to be removed will equal the number in excess of the lower level AML.
5. Periodic unscheduled removals of limited numbers of horses (5-20) if concentrations of horses develop along the South Fork of the John Day River where Wild and Scenic values or steelhead habitat exists.

Occasional herd census would be conducted so that the wild horse population would not fall below 50 or exceed 140 horses. Several gathers would be initiated to bring the population within the range, with strong emphasis on horse health and safety as well as safety of contractors, Forest Service personnel, and the public. Contraception could be an important part of long term population control after the population is brought down to the AML.

The following criteria would trigger the need for an adjustment in horse numbers and a subsequent gather and adoption and/or other population control measures:

1. Drought conditions. The Standardized Precipitation Index (SPI) or its successor will be used to define drought conditions. SPI values are available monthly from the Western Regional Climate Center at www.wrcc.dri.edu. Conditions will be determined by the size of the negative number. The larger the negative number, the more severe the drought. SPI values of -0.75 or less for the past month signal drought conditions. SPI values of positive 1.0 or more for the past 12 months signal the end of drought.
2. Herbaceous plant utilization in key wild horse grazing areas exceeding 30 percent utilization standards for two consecutive years.
3. Key grazing areas are sampled for range/ecological conditions and show that range and soil stability conditions are trending downward.
4. Forage production, based on forage production samples in key areas, does not show sufficient forage to support the present population.
5. The number of horses exceeds 140 (determined generally by ground survey).
6. Management of the Murderers Creek Wild Horse Territory/Herd Management Area is not meeting Pacfish/Infish guidelines or the Aquatic Conservation Strategy for listed fisheries.

Generally, a combination of gather methods is used. Weather conditions and snow load along with location, condition and habits of individual horse bands will determine which method would be most humane and appropriate. Drive trapping or running by horseback or helicopter and low stress bait trapping (attracting horses into an area with molasses or alfalfa) are the three most common methods of capture. Motor vehicles would not be used to chase horses during the gather operations. Horses would be gathered into existing or portable holding pens which are approximately 20' by 50' feet. The holding pens would be placed in areas as proposed by the contractor and approved by the Forest Service. Holding pens would be located away from sensitive water sources, springs and outside of Riparian Habitat Conservation Areas. Holding pens will not be located near heritage sites or near locations with sensitive plant species. No ground disturbing activities would be required to place the pens. Once in the holding pens, horses would be promptly transported to the Bureau of Land Management Adoption Facility in Burns, Oregon. Horses are typically not in the holding pens for longer than one day. Horses typically are not gathered in the late spring when foals are being born. All gather operations will be restricted to existing roads on USDA Forest Service, USDI Bureau of Land

Management and Oregon State Department of Fish and Wildlife lands. No new roads would be created. See Appendix C and D for more information.

C. Humane Destruction

Euthanasia may be authorized for a wild horse with any of the following conditions:

1. Displays a hopeless prognosis for life;
2. Suffers from a chronic or incurable disease or serious physical defect;
3. Requires continuous treatment for the relief of pain and suffering;
4. Incapable of maintaining a Henneke body condition score greater than two in a normal rangeland environment;
5. Suffers from a traumatic injury or other condition that causes acute pain.

Animals will be euthanized using the most humane manner possible.

Destruction of an animal will be documented to describe the health of the animal, reason for its destruction, and cause of injury or circumstances leading to the animal's condition.

D. Fertility Control

Since 1997, the unadoptable older male horses that are released back to the territory have been gelded. There were two geldings returned in 1997 and 15 in 2004. Fertility control may be used as a tool to reduce the rate of population growth. Fertility control may extend gather cycles resulting in fewer disturbances to populations, reduced budgetary demands, and may help achieve the goal of minimum feasible level of management. For most wild horse populations, about 70% of all reproductively active females will need to be maintained in an infertile state to achieve a stable population size (BLM Resource Notes No. 34).

Fertility control on mares is more effective than fertility control on stallions to reduce population growth rates because a larger percentage of mares participate in breeding. Thus far, research has shown that porcine zonae pellucidea (PZP) is most effective for meeting objectives of fertility control in wild horses. PZP must be used under an Investigational New Animal Drug Exemption (INAD #8857) and is termed field research with certain specific requirements. If PZP is used on wild horses within the Murderers Creek Wild Horse Territory, 50%-80% of the breeding age mares will be treated with one shot of the 2-year ZP. This treatment level should result in approximate herd growth rates of 18% in year one (as mares are already pregnant when drug is given), 2% in year two, 7% in year 3, 12% in year 4, and normal recruitment levels in year 5. The 2-year PZP may be administered to the same mares not more than every 4 years.

The cost of gathering 70% of breeding mares to treat with the contraceptive every two years could render contraception alone impractical since most of the horse population would need to be gathered to access the breeding mares. The most practical control program would likely involve both contraceptives and periodic removals. Contraceptives

could reduce growth rate and are likely to be cost effective while removals permit management to rapidly adjust overall population size. (BLM Resource Notes)

Permission to conduct research using PZP is covered under an Investigational New Animal Drug Exemption (INAD#8857) filed with the Food and Drug Administration (FDA) by the Humane Society of the United States (HSUS). All BLM wild horse management areas must provide approved gather plans and environmental assessments detailing the contraception research before the research can be initiated in any specific area. Permission must be granted by the HSUS. The BLM is currently working with HSUS to put in place a Field Trial Plan for Wild Horse Fertility Control for the use of PZP under the stated guidelines. To date, the Forest Service has not entered into any research program for the use of the PZP vaccine. However, the opportunity may exist to initiate a research program under existing BLM protocol established in their Field Trial Plan for Wild Horse Fertility Control. Implementing a research program would require working closely with HSUS and the maker of the vaccine. The actual research plan would require the approval of HSUS.

VIII. Improvement Projects

Range improvements including stock ponds, troughs, springs, fences, cattle guards and corrals are maintained by Term Grazing Permit holders on livestock allotments within the Murderers Creek Wild Horse Territory/HMA. Water developments are designed to be used by livestock, wildlife and wild horses.

A range analysis in 1982 addressed the impact of fences in the movement of wild horses. Horses typically return to their traditional areas prior to the closing of gates and maintaining of fences by the grazing permittees in early May and June. The horses typically remain in the unit until the fall when the gates are thrown open. There is some movement between units through breaks in the fences. It appears that wild horse band territories adjust to coincide with allotment unit fences. For this reason, it is important to ensure that fences do not totally cut off normal travel routes, that unit (pasture) sizes remain large enough to provide summer forage for the bands involved and that strategic gates are kept open when livestock are not on the forest (October until May).

The large corrals at the Oregon Department of Fish and Wildlife Murderers Creek Ranch (Phillip W Schneider Management Area) were constructed/reconstructed for roundup use. Prior to use, permission must be obtained from Oregon Department of Fish and Wildlife. There is also an old pole corral at the junction of Buck Creek and Deer Creek that may be available for use.

There are currently sixteen traps throughout the Murderers Creek Wild Horse Territory/ HMA that have historically been used to gather horses. Many of these traps need repair prior to use. Additional temporary traps may also be erected during gather operations. Trap locations include: Thorn, North Shake Table, South

Shake Table, Cougar Mountain, North West Maggot, South East Maggot, Blue Ridge, South West Maggot, Youngs Creek, Dewey/Dugout, Dewey/Buck, Upper Buck, Frenchy Butte, Vester/Buck, Deer Creek Section 7, South Fork Murderers Creek/Murderers Section 14.

IX. Monitoring

A. Habitat

1. Upland trend is generally monitored on the territory and associated grazing allotments through condition and trend plots; riparian trend is monitored through Proper Functioning Condition Assessments (PFC), Designated Monitoring Areas (DMA), and Winward Greenline Assessments. Camera points are used in both upland and riparian monitoring. Generally, the Proper Functioning Condition (PFC) surveys conducted on streams in the Murderers Creek Allotment showed streams in functional at risk to proper functioning condition. No streams were found to be nonfunctional. Trend was upward for streams at risk on all locations but one where the trend was not apparent. DMA monitoring showed near natural rates of recovery at all locations. Greenline showed two locations at potential natural community, one at late seral and one early seral. Condition and Trend transect monitoring results showed plant communities in a range from poor to excellent. Poor conditions were noted in areas with heavy horse grazing impacts. Multiple indicator monitoring at DMAs in 2005 on the Murderers Creek Allotment found that no effects from grazing would carryover to the next year. See Appendix E and F for more information.
2. Climate –The territory is part of NOAA zone 7. More information on the precipitation and timing can be found on the Oregon Climate Service website: <http://ocs.orst.edu>
3. Water – The Murderers Creek Wild Horse Territory/HMA is well watered through a series of free flowing streams. Several hundred troughs, springs and ponds are also maintained by grazing permittees to provide off-stream water for livestock, wildlife and wild horses. An inventory was conducted in 1990 to review the condition of off-stream water sources. A grant was received in 2006 to maintain or repair several water troughs throughout the territory.
4. Utilization levels and distribution patterns will be monitored.

B. Animal

1. Census information has been collected throughout the years. Census methods shall be selected to utilize the most effective and cost efficient techniques. Census of wild horse herds are to be conducted by trained personnel using methods accepted in the scientific community, and techniques should be consistent with current research. To assure a current assessment of population size and growth rates, a census of a territory should be conducted at least every 3 or 4 years. A census rarely determines the exact number of animals within a territory, so population

estimates will be developed from the census results as determined by current research.

Census data collection shall be conducted in a manner which avoids under/over counting due to animal movement. To the extent possible, each census of a territory should be conducted during the same time of the year, using the same type of equipment, and the same personnel to facilitate comparison with prior census data and detect trends in the herd.

At a minimum, the following data shall be recorded during each census: Territory name, date of the census, observer(s) name, weather conditions, type of aircraft used, time of day, location of animals, number of adults, and basic herd health and condition.

Helicopter surveys are believed to under report wild horse numbers due to the heavy timber and rough terrain throughout the territory. In 2006, an extensive on the ground census conducted on foot and horseback was conducted in a systematic fashion throughout the territory. Contractors used terrain, pasture fences and other natural boundaries to stratify their census pattern. Only the horses actually seen were counted. If horse sign was observed in an area but no horses were seen, the contractors would return to the area until a positive sighting was made. Each horse sighting during the 2006 census included the following information where possible: date, location, number, description, gender, age class, and color. This information was reviewed following the census to determine if any horses were counted more than once. In 2006, 436 total horses were identified on the Murderers Creek Wild Horse Territory/ HMA.

2. Seasonal Distribution of Animals – Seasonal distribution may vary over the years, but movement is normally related to abundance and quality of forage, climate, weather patterns, availability of water or some disturbance. Records of movements and identification of seasonal use areas are important in evaluating the impact of wild horses and burros on their habitat and determining the impact of proposed range improvement projects on the population. Data collection over a period of 2 to 4 years may be adequate to establish a pattern of movement that is representative of the animals' seasonal needs or the climatic pressures on the populations. Long term storage of data is required, as is periodic evaluation of the historical data collected, to effectively manage populations for the long-term. A distribution map was created following the 2006 Wild Horse Census. Areas of high and moderately high concentrations and significant wild horse impacts were identified. This map will be used to help plan future gather operations.

3. Condition – The horses of the Murderers Creek Wild Horse Territory/ HMA are generally reported to be in good condition. There was one

gather (1993) that was discontinued in mid-operation in the middle of a particularly harsh winter. That year horses were reported as being severely weakened by the conditions and eight winter kills were located during the gather process. The gather was halted to preclude any further stress on the already weakened animals. All other data from gathers and census operations has shown horses to be in fair to good condition.

4. Reproduction/foaling period – early May is the peak foaling time however, the mares have been observed to foal year round.

5. Mortality - Land Managers document and record dead horses. Law Enforcement Officers and Game Managers notify the Forest Service of any wild horses poached or accidentally shot during hunting seasons. Injured horses that need to be euthanized are also recorded.

Table 3. Mortality

Year	Number	Cause of Death
1976	6	Euthanized for medical reasons
	6	Destroyed unadoptable
1977	3	Destroyed
1978	2	Destroyed
1979	10	Gather operations
1981	1	Destroyed
1982	3	Gather operations
1989	1	apparent winterkill
1990	1	Caught in cattleguard
1991	1	Natural causes
1992	3	Natural causes
	1	Gun shot
1993	1	Euthanized due to broken leg
	1	Euthanized due to weakened condition during gather
	12	Winter kill
1994	1	Euthanized due to injuries in corral
	1	Euthanized due to complications during foaling
	1	Winter kill
1996	1	Puncture or gun shot wound
	1	Broken leg
1997	1	Euthanized due to hopeless prognosis for life
	1	Euthanized due to infected wounds and broken shoulder
	1	Gun shot
	1	Euthanized due to hopeless prognosis
1998	1	Tangled in fence
	1	Unknown
2001	1	Gather operations
2004	2	Gather operations
2005	1	Natural causes
	1	Cattle guard

2006	4	Poached
	2	Broken leg

6. Genetics – Blood samples for monitoring genetic data should be collected from 25% of the estimated population from each territory. These animals, targeted for release, should be gathered during normal gather/removal operations. Blood should be drawn from both mares and studs, of any age class, in a ratio similar to the estimated sex ratio of the herd. The genetic data will be used to identify genetic drift and any narrowing of diversity through inbreeding. Genetic analysis will determine diversity, the presence of rare alleles, and the historic origin of the herd. Blood samples shall be drawn and handled by any veterinarian or trained individual in a manner that is consistent with current laboratory processes and procedures.

Two tubes of blood need to be collected from each horse (one red top and one yellow top vacutainer). The red is the clot sample and the yellow contains an anticoagulant and needs to be inverted several times to mix the anticoagulant with the blood. The sample needs to be drawn directly into the vacutainer.

After the samples have been collected, individual animal tubes should be placed in a zip lock bag along with a data sheet describing as a minimum: 1. Date collected, 2. Territory name, 3. Animal age, sex, and color. The bag should be rolled up and placed in the refrigerator pending shipment. Do not freeze the samples. Samples should be shipped to the laboratory within two weeks of collection. Samples should be shipped in coolers with blue ice, placing newspaper between the blue ice and samples to prevent freezing. Samples should be shipped overnight mail to arrive during working hours Monday to Friday.

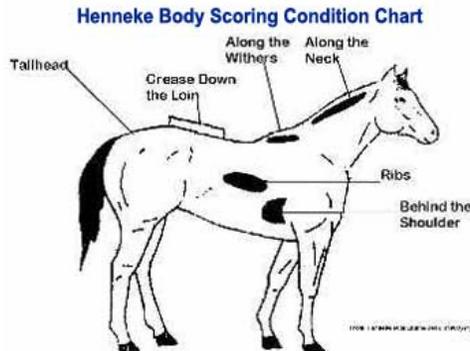
Other scientifically approved methods for monitoring genetic information, in lieu of blood samples, may also be considered, such as hair samples with root follicle. This method requires at least 3 hair samples with root follicle per individual, although 10 samples is preferred. Samples from at least 25% of the estimated population are recommended. Place individual animal hair samples in an envelope and record on the envelope the date collected, territory name, and if known, the animal age, sex, and color.

APPENDIX A

Henneke Body Condition Score

CONDITION	NECK	WITHERS	LOIN	TAILHEAD	RIBS	SHOULDER	NOTES
1 POOR	Bone structure easily noticeable	Bone structure easily noticeable	Spinous processes project prominently	Tailhead (pinbones) and hook bones projecting prominently	Ribs projecting prominently	Bone structure easily noticeable	Animal extremely emaciated; no fatty tissue can be felt
2 VERY THIN	Faintly discernible	Faintly discernible	Slight fat covering over base of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent.	Tailhead prominent	Ribs prominent	Faintly discernible	Animal emaciated
3 THIN	Neck accentuated	Withers accentuated	Fat buildup halfway on spinous processes but easily discernible. Transverse processes cannot be felt	Tailhead prominent but individual vertebrae cannot be visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable	Slight fat cover over ribs. Ribs easily discernible	Shoulder accentuated	
4 Moderately THIN	Neck not obviously thin	Withers not obviously thin	Negative crease along back	Prominence depends on conformation, fat can be felt. Hook bones not discernible	Faint outline discernible	Shoulder not obviously thin	
5 MODERATE	Neck blends smoothly into body	Withers rounded over spinous processes	Back level	Fat around tailhead beginning to feel spongy	Ribs cannot be visually distinguished but can be easily felt	Shoulder blends smoothly into body	
6 Moderately FLESHY	Fat beginning to be deposited	Fat beginning to be deposited	May have slight positive crease down back	Fat around tailhead feels soft	Fat over ribs feels spongy	Fat beginning to be deposited	
7 FLESHY	Fat deposited along neck	Fat deposited along withers	May have positive crease down back	Fat around tailhead is soft	Individual ribs can be felt, but noticeable filling between ribs with fat	Fat deposited along shoulder	
8 FAT	Noticeable thickening of neck	Area along withers filled with fat	Positive crease down back	Tailhead fat very soft	Difficult to feel ribs	Area behind shoulder filled in flush with body	Fat deposited along inner buttocks
9 Extremely FAT	Bulging fat	Bulging fat	Obvious positive crease down back	Building fat around tailhead	Patchy fat appearing over ribs	Bulging fat	Fat along inner buttocks may rub together. Flank filled in flush.

From: Henneke et al. Equine Vet J. (1983) 15(4), 371-372



APPENDIX B

Table A. Wild Horse Population

Year	Base number	+20%	-capture*	carryover
FY 2007	436	87	0	523
FY 2008	523		279	244
FY 2009	244	49	120	173
FY 2010	173	35	100	108
FY 2011	108	22		130

*anticipated capture/removal number subject to change due to budgets, territory conditions, national priorities, etc.

The census at the end of 2006 was 436 animals. Since there are no gather operations scheduled for the winter of 06-07, it is assumed that this number will carryover and be available for the 2007 breeding season. At a recruitment rate of 20%, this will add 87 animals to the total going into the winter of 07-08. A gather of 279 horses is scheduled to start in November 2007 (in FY2008) which will bring numbers down to 244 going into the breeding season. Adding 20% (49) to this number means 293 in the fall, then gathering 120 in the winter (FY2009) leaves 173 for the next breeding season. Again, add 20% (35) and subtract 100 for the next scheduled gather and the number going into the 2011 breeding season is 108. This is the first year that numbers will be within AML but at the end of the year will be up to 130 with the recruitment. This very clearly demonstrates the need for active management of the numbers of horses and a commitment to a regular gather schedule. In the 1976 Roundup Notes prepared by Al Meyer after the first official Murderers Creek Territory Roundup, the recommended gather plan was to reduce the herd size to 70 horses every 3rd or 4th year. This is a reasonable plan that would mean less costs in annual roundup expenses but would rely on accurate counts and estimates of the existing population.

Table B.

Year	Base number	20% increase	Carryover
0	70	14	84
1	84	17	101
2	101	20	121
3	121	24	145
4	145	29	174

If 75 horses are gathered in year 3, then the table resets back to year 0. If no gather until year 4 then 104 horses will need to be gathered and the territory will have been over the AML for a year.

APPENDIX C

Gather/Removal of Excess Animals

This section provides guidance on methods used to capture and transport wild horses. Each capture event has its own special set of circumstances. The terrain, temperament of the animals, weather, equipment, personnel, and a host of other variables will affect the selection of the capture technique and procedures. The level of expertise of the personnel is a major consideration in selection of the capture techniques.

Wild horses may be captured and transported using contract personnel, BLM employees (FS Agreement #05-MU-11132421-013-11/17/04), or Forest Service employees. Available techniques for capture are discussed below.

A. Capture Methods

1. Helicopter Drive Trapping: This method uses a helicopter to herd horses into a trap. Wings are constructed off the ends of the trap to aid in funneling horses into the trap. A helicopter moves the animals into the wings, which funnels the animals into the trap. This method would be conducted by personnel experienced in the humane capture and handling of wild horses. Stipulations for using this method include: a) a minimum of two saddle horses shall be immediately available at the trap site to accomplish roping if necessary; roping shall be done as determined by the authorized officer; under no circumstances shall animals be tied down for more than one hour, b) animals will be herded in such a manner as to assure that bands remain together and no foals are left behind, c) domestic saddle horses may be used as a pilot (i.e. parada or judas) horse to lead the wild horses into the trap; individual ground hazers may also be used to assist in the gather.
2. Horseback herding to a trap: This method is similar to helicopter drive trapping, except horseback riders are used to move the wild horses into the trap. This method is an alternative to helicopter drive trapping in areas of tall timber, steep terrain, or high winds. Horseback herding can also be used in support of helicopter drive trapping. Close radio coordination between the riders and the helicopter pilot is necessary at all times in this situation.
3. Roping: Roping may be accomplished with or without the support of a helicopter. A helicopter may be used to herd wild horses to ropers. Roping can be used to capture escaped animals at the trap, retrieve animals that have escaped from adopters or adoption facilities, or gather a small number of animals from an area. Foals shall not be left behind. Under no circumstances shall animals be tied down for more than one hour.
4. Bait trapping: This method utilizes bait (water, feed, mineral/protein supplements, etc.) to lure wild horses into a trap. Finger gates shall not be constructed of materials that may be injurious to animals, such as T-posts, sharpened willows, etc. All trigger and/or trip gate devices must be approved by the authorized officer prior to capture of animals.

Traps shall be checked a minimum of once every 10 hours. Bait trapping is the least stressful method of capture.

5. Chemical capture: This method uses an immobilizing drug to capture a wild horse. Injection may be administered from a helicopter or the ground. A veterinarian or other trained personnel use a dart gun to shoot a projectile with an immobilizing drug into the muscle of a wild horse, injecting the animal on impact. A professional experienced in the use of immobilizing drugs on large animals shall determine the type of drug used. Chemical capture should be used only as a last resort. Because appropriate chemical dosage is usually based on animal weight, there is a possibility of killing the animal through an overdose. The animal may also suffer a fatal allergic reaction or a fatal reaction from stress combined with the chemical. An underdose may only partially sedate the animal, which would reduce its faculties and make it prone to injury.
6. Net gun: This method uses a net gun to capture a wild horse. This is a very specialized method of capture and shall only be attempted by experienced and trained personnel. Net gun capture may be employed either in combination with other capture methods or as the primary capture technique if it is the only feasible option. Operational guidelines for using this method include: 1) use only pilots and aircraft that are carded for Net Gun Operations; 2) use, at a minimum, a 25 foot lead line for sling load operations; 3) blindfold animals until removed from the net; 4) sling only one animal at a time; 5) minimize the time netted animals spend on the ground; 6) within 8 hours of capture, remove the captured animals to temporary or permanent holding pen with shade and water available; 7) cease net gun operations if the temperature equals or exceeds 100 degrees.
7. Unacceptable methods: Inhumane methods of capture, such as the use of snares or creasing, shall not be considered or implemented for the capture of wild horses. To do so would be a violation of the Wild Free-Roaming Horse and Burro Act of 1971.

B. Trapping and Care

1. Pre-capture Evaluation: Prior to any gathering operation, evaluate the existing conditions in the gather area. The evaluation should include animal condition, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. If the evaluation determines that there is an eminent risk to the health of the animals, such as poor animal condition, extreme temperatures, etc., obtain the presence of a veterinarian during gather operations. Notify the State Brand Inspector of the planned gather and removal of wild horses 30 days prior to the event. Removed horses should be inspected by a qualified brand inspector to verify the absence of brands. Personnel conducting the gather will be apprised of all

conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

2. **Trap Site Location:** All trap and holding facility locations must be approved with the necessary clearances (archaeological, T&E, etc.). All traps and holding facilities not located on public land must have prior written approval of the land owner. Trap sites and temporary holding sites will be located to reduce the likelihood of undue stress and injury to the animals, and to minimize potential damage to the natural resources. Where possible, trap sites should be established on areas of previous soil or vegetation disturbance, such as gravel pits or roads, to avoid impacts to unaltered vegetation and soils. A winter gather may minimize soil and vegetation impacts due to frozen ground and dormant vegetative conditions. Trap sites should be located on or near existing roads to facilitate transport.
3. **Trap and Holding Pen Specifications:** All pens shall be constructed of stout material capable of withstanding the escape attempts of a wild horse. No barbed wire shall be used in the construction of pens. All traps and holding facilities shall have a top rail of not less than 72 inches, and the bottom rail shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design. The number or size of pens shall be sufficient to accommodate the maximum number of animals to be held at any particular time without overcrowding.

All loading chute sides shall be a minimum of 6 feet high and shall be fully covered with plywood or like material.

All runways shall be a minimum of 30 feet long and a minimum of 6 feet high and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 6 feet.

All crowding pens, including the gates leading to the runways, shall be covered with a material which prevents the animals from seeing out (plywood, burlap, snow fence, etc.) and shall be covered a minimum of 2 feet to 6 feet above ground level. Eight linear feet of this material shall be capable of being removed or let down to provide a viewing window.

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

4. **Animal Care:** When dust conditions occur within or adjacent to the trap or holding facility, the area should be wet down with water. Within the holding facility, animals should be sorted as to age, size,

temperament, sex, and condition to minimize injury due to fighting and trampling. Animals held in traps and/or holding facilities shall be provided a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Water troughs shall be constructed of such material (e.g. rubber, galvanized metal with rolled edges, rubber over metal) so as to avoid injury to the animals. 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 2 pound of hay per 100 pounds of estimated body weight per day.

In the absence of more stringent State or local health department requirements, the remains of animals that die or must be euthanized as a result of any infectious, contagious, or parasitic disease will be disposed of by burial to a depth of at least 3 feet. The remains of animals that must be euthanized as a result of age, injury, lameness, or non-contagious disease or illness will be disposed of by removing them from the capture site or holding corral and placing them in an inconspicuous location to minimize visual impacts, or disposed of in any customary manner acceptable under applicable state sanitary statutes including disposal through a rendering plant (36 CFR 222.30). Remains will not be placed in drainages regardless of drainage size or downstream destination.

C. Transport

Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap sites to temporary holding facilities, and from temporary holding facilities to final destinations. Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the vehicle floor. Single deck tractor-trailers 40 feet or longer shall have two partition gates providing three compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two compartments within the trailer to separate animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have at the minimum of 5 foot wide swinging gate. The use of double deck trailers is unacceptable and shall not be allowed.

The rear door of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of the trailer must be strong enough so that the animals cannot push their hooves through the side.

Animals loaded and transported in any trailer shall be provided the following minimum square feet per animal:

- 11 square feet/adult horse (1.4 linear feet in an 8 foot wide trailer)
- 6 square feet/horse foal (0.75 linear feet in an 8 foot wide trailer)

APPENDIX D

Disposition of Excess Animals

- A. Adoption – Excess wild horses under the age of 10 years shall be offered to the public for adoption at a maximum of 3 adoption events. Adoptions shall be in accordance with FSM 2265.5.
1. Qualification Standards for Adoption – Written application for adoption and title must be submitted to the Authorized Officer. To qualify to receive a wild horse for private maintenance, and individual shall:
 - a. Be of legal age in the state in which the applicant resides (FSM2265.56);
 - b. Have no prior conviction for inhumane treatment of animals or violation of the PL 92-195;
 - c. Have adequate feed, water, and facilities to provide humane care to the number of animals requested. Facilities shall be in safe condition and of sufficient strength and design to contain the animals. The following standards apply:
 - i. A minimum space of 144 square feet shall be provided for each animal maintained, if exercised daily; otherwise, a minimum of 400 square feet shall be provided for each animal;
 - ii. Until fence savvy, adult, ungentled horses shall be maintained in an enclosure at least 6 feet high, and horses less than 18 months old and adults adopted through gentling programs in an enclosure at least 5 feet high. Materials shall be protrusion-free and shall not include large-mesh woven or barbed wire;
 - iii. Shelter shall be available to mitigate the effects of inclement weather and temperature extremes;
 - iv. Feed and water shall be adequate to meet the nutritional requirements of the animals, based on their age, physiological condition and level of activity.
 - d. Have obtained no more than 4 wild horses and burros within the preceding 12 month period, unless authorized in writing by the authorized officer.
 2. Adoption Fee – Standard base adoption fees for wild horses and burros shall be \$125 for each animal, except as follows:
 - a. There shall be no adoption fee for orphaned foals;
 - b. Adoption fees may be increased through holding a competitive bid adoption event. At competitive adoptions, qualified adopters set adoption fees through competitive bidding. For these adoptions, the fee is the highest bid received over the base fee of \$125 for each horse or burro. Horses or burros remaining at the end of a competitive adoption event may be available for adoption at the established fee;

- c. Adoption fees may be decreased to \$25 for each animal under special circumstances:
 - i. Animal has been offered unsuccessfully at two previous adoption events.
 - ii. Untitled adopted animal has been relinquished to or repossessed by the Forest Service and is in need of a new adopter.
 - iii. Animal has a limiting physical defect (such as blindness, club foot, etc.), or an injury or health condition, at the time of the adoption event, that will require further medical attention.
 - iv. Organizations may adopt trained or ungentled horses or burros at the reduced fee when the adoption of the animal will generate positive recognition and advertisement of the adoption program.
3. Private Maintenance and Care Agreement – To obtain a wild horse or burro, a qualified applicant shall execute a Private Maintenance and Care Agreement and agree to abide by its terms and conditions, including but not limited to the following:
- a. Title to wild horses and burros covered by the agreement shall remain in the Federal Government for at least 1 year after the Private Maintenance and Care Agreement is executed and until a Certificate of Title is issued by the authorized officer.
 - b. Wild horses and burros covered by the agreement shall not be transferred for more than 30 days to another location or to the care of another individual without the prior approval of the authorized officer.
 - c. Wild horses and burros covered by the agreement shall be made available for physical inspection within 7 days of receipt of a written request by the authorized officer.
 - d. The authorized officer shall be notified within 7 days of discovery of the death, theft, or escape of wild horses and burros covered by the agreement.
 - e. Adopters are financially responsible for the proper care and treatment of all wild horses and burros covered by the agreement.
 - f. Adopters are responsible, as provided by state law, for any personal injury, property damage, or death caused by animals in their care; for pursuing animals that escape or stray; and for costs of recapture.
 - g. Adopters shall notify the authorized officer within 30 days of any change in the adopter's address; and
 - h. Adopters shall dispose of remains in accordance with applicable sanitation laws.
4. Compliance with Private Maintenance and Care Agreement – An adopter shall comply with the terms and conditions of the Private Maintenance and Care Agreement,

- a. The authorized officer may verify compliance by visits to an adopter, physical inspections of the animals, and inspections of the facilities and conditions in which the animals are being maintained. The authorized officer may authorize a cooperative extension agent, local humane official or similarly qualified individual to verify compliance.
 - b. The authorized officer shall conduct an investigation when a complaint concerning the care, treatment, or use of a wild horse or burro is received by the Forest Service.
 - c. The authorized officer may require, as a condition for continuation of a Private Maintenance and Care Agreement, that an adopter take specific corrective actions if the authorized officer determines that an animal is not receiving proper care or is being maintained in unsatisfactory conditions. The adopter shall be given reasonable time to complete the required corrective actions.
- 5. Request to terminate Private Maintenance and Care Agreement – An adopter may request to terminate his/her responsibility for an adopted animal by submitting a written relinquishment of the Private Maintenance and Care Agreement for that animal. The authorized officer shall arrange to transfer the animal to another qualified applicant or take possession of the animal at a location specified by the authorized officer within 30 days of receipt of the written request for relinquishment.
- 6. Application for title to wild horses and burros
 - a. The adopter shall apply for title in writing.
 - b. The authorized officer shall issue a Certificate of Title after 12 months if the adopter has complied with the terms and conditions of the agreement and the authorized officer determines, based either on a field inspection or a statement provided by the adopter from a veterinarian, extension agent, local humane official, or other individual acceptable to the authorized officer, that the animal or animals covered by the Agreement have received proper care and humane treatment.
 - c. An adopter may not obtain title to more than 4 animals per 12 month period of private maintenance. Effective the date of issuance of the Certificate of Title, Federal ownership of the wild horse or burro ceases and the animal loses its status as a wild horse or burro and is no longer under the protection of the Act.
- B. Sale – The Fiscal Year 2005 Omnibus Appropriation Act (PL 108-447) amended the 1971 Wild Free-Roaming Horse and Burro Act (PL 92-195), requiring the sale of excess wild horses and burros that are more than 10 years of age or have been offered unsuccessfully for adoption at least three times. Animals that meet sale criteria are no longer available for adoption and must be sold.
 - 1. Sale Eligibility Criteria
 - a. Horse or burro that becomes 11 years of age as of January 1. (Example: Animals born in 1994 are sale eligible on January 1, 2005), or

- b. Horse or burro that has been offered unsuccessfully for adoption at three adoption events. Each adoption event will count as one time no matter how many consecutive days the event lasted or the number of times competitive bidding was conducted during a multi-day adoption event. Records must be maintained to track the number of adoptions an animal has attended.
- 2. Preparation Requirements
 - a. Freeze marking – All sale eligible animals will be marked with the standard alpha angle animal identification freeze mark applied to the left side of the neck. In addition to this freeze mark, all sale eligible animals will be freeze marked with a 3-inch L[symbol on the left side of the neck, immediately to the right, adjacent to and on the same level as the identification freeze mark. This extra symbol will distinguish between animals that are sold and those adopted.
 - b. Age determination – Animals will be aged by a veterinarian or other individual determined to be qualified.
- 3. Sale Methods – Animal sales are to be conducted separately and not as a part of adoption events. Funds generated from the sale of excess animals will be collected and deposited by the Bureau of Land Management to be used for the costs relating to the marketing and adoption of wild free-roaming horses and burros, as directed by the FY 2005 Omnibus Appropriation Act amendment. Sales may occur through two methods:
 - a. Negotiated sales through the Bureau of Land Management’s National Point of Contact (NPOC) – The NPOC will negotiate the purchase price. The NPOC will fax or send an electronic signed approval for each negotiated sale to the appropriate Authorized Officer to provide notification of sale terms and conditions, and to authorize completion of the sale.
 - b. Direct sales at local holding facilities by authorized Forest Service officers:
 - i. Sale eligible wild horses or burros may be offered at an established fee or to the highest bidder.
 - ii. No more than four animals will be sold per purchase. Refer the prospective purchaser’s request for additional animals to the NPOC for further consideration.
 - iii. Purchasers shall provide transportation.
- 4. Sale Requirements
 - a. Each purchaser will be provided a Bill of Sale and an individual wild horse and burro health and identification report. Animal ownership will be transferred by the original bill of sale issued to purchasers, and a copy will be maintained for Forest Service records.
 - b. No Certificate of Title will be issued for any animal that is sold. The bill of sale will be proof that the purchaser owns the animal.

- c. Sales are final upon pick-up when animals leave a facility.
Purchased animals will not be held after a sale is finalized.
- d. Payment is due at the time of purchase.

APPENDIX E

Summary of 2004 monitoring information for Murderers Creek Allotment

Method	Location	Unit	Result	Recommendation
Multiple Indicator Monitoring	North Fork Deer Creek	Deer Creek	Near natural rate of recovery	Continue current management
	Main stem Deer Creek	Deer Creek	Near natural rate of recovery	Continue current management and watch for increased composition and structure
	South Fork Murderers Creek	John Young Meadow	Near natural rate of recovery	Continue to focus on maintaining strong vegetative community
	Main stem Deer Creek	Frenchy Butte	Near natural rate of recovery	Continue to focus on maintaining strong vegetative community
	Main stem Murderers Creek	Murderers Creek Holding	Near natural rate of recovery	Continue to focus on site potential
PFC	South Fork Murderers Creek	John Young Meadow	Functional at risk upward trend	Repair headcut and provide hardened watering access
	South Fork Murderers Creek	ODFW	Functional at risk upward trend	Arrest headcut and prevent animal crossing old beaverdam
	South Fork Murderers Creek	Horse Mountain	Functional at risk upward trend	Needs large wood
	Beaverdam Creek	Dans Creek	Functional at risk upward trend	Repair lower headcut and provide hardened crossing
	Deer Creek	Frenchy Butte	Functional at risk no apparent trend	Evaluate log structures for modification or removal to allow stream to further recover, reduce road system and reduce horse numbers
	Deer Creek	Deer Creek	Functional at risk upward trend	Needs large wood. Small area may need more intensive management to prevent degradation
	Buck Creek	Frenchy Butte`	Proper functioning condition	
	Murderers Creek	Oregon Mine	Proper functioning condition	Review log structures for modification or removal. Look for source of sediment.
	Murderers Creek	Murderers Creek Holding	Proper functioning condition	Provide hardened crossing.
	North Fork Deer Creek	Deer Creek	Proper functioning condition	Monitor for streambank trampling
	North Fork Deer Creek	Deer Creek	Proper functioning condition	Monitor

	North Fork Deer Creek	Deer Creek	Proper functioning condition	Review rock checkdams for modification
	North Fork Deer Creek	Deer Creek	Functional at risk upward trend	Monitor vegetation on point bars and sedge/rush community for continued improvement
	Corral Creek	Deer Creek	Functional at risk upward trend	Early stage of recovery so monitor closely for continued improvement. Close roads and reduce wild horse numbers
Winward Greenline	South Fork Murderers Creek	Horse Mountain	Greenline early seral, moderate bank stability. Cross section early seral	
	South Fork Murderers Creek	John Young Meadow	Greenline late seral, moderate bank stability. Cross section early seral	
	Beaverdam Creek	Dans Creek	Greenline at potential natural community, good bank stability. Cross section late seral	
	Upper Deer Creek	Deer Creek	Greenline at potential natural community, good bank stability. Cross section not assessed	
Fred Hall Report		Horse Mountain	Increase in riparian condition	Reduction in ungulate use will increase rate of recovery
		Deer Creek	Vegetation recovery	Continue livestock management changes and do not extend grazing season
Permit Administration Monitoring			Overall compliance with AOI for Murderers Creek Allotment	
Pat Larson Report			Plant communities at site potential, grazing not creating cumulative or negative impacts	
Condition and Trend Study	Cluster 15 Beaverdam Creek	Horse Mountain/Dan's Creek	Vegetation condition score: poor Soil condition rating: fair	Last surveyed in 1968, conditions were poor/good for veg/soil 2004 notes lots of bare soil, loss of A horizon,

				encroachment of Juoc. Heavy horse use noted in the survey but this area not highlighted as such by 2006 census.
	Cluster 14 Antelope Spring	Blue Ridge/ Frenchy Butte	Vegetation condition score: fair Soil condition rating: fair	Heavy horse use noted in 2004 although area not highlighted by 2006 census. High percentage of bare soil, Juoc encroachment relative to 1970 plot reading
	Cluster 4A Junction of Alder and Corral Creeks	Deer Creek	General poor condition	Heavily impacted by horses and ungulates. Dominant grasses are <i>Poa pratensis</i> and <i>Stipa occidentalis</i> .
	Cluster 16 North of Flagtail Mountain	Deer Creek	Vegetation condition score: fair Soil condition rating: excellent	Timber increasing on site. Not much impact from grazing Introduced species on site
	Cluster 13 Big Ridge/ Thorn Creek area	Martin Corrals	Vegetation condition score: excellent Soil condition rating: good	Localized weedy species pose a threat to this site. Not a heavy horse use area.
	Cluster 8 Thorn Creek Butte	Oregon mine	Vegetation condition score: excellent Soil condition rating: good	Watch for more Pose and some Daun, could mean change in plant association. Not a heavy horse use area.
	Cluster 7 Tex Creek	Oregon Mine	Vegetation condition score: poor Soil condition rating:excellent	Not a high horse use area however, grazing damage noted. Creek is downcut which has dewatered the meadow, vegetation is predominantly increaser.
	Cluster 5 Dan's Creek	Dan's Creek	Overall adequate condition	Wet meadow with some elk use noted. Weedy species present in large quantities in some locations.
	Cluster 2A Junction of South Fork Deer Creek and Deer Creek	Deer Creek	Generally good condition	Meadow is completely exclosed at present time.

APPENDIX F

EXCERPT FROM THE 2005 MALHEUR NATIONAL FOREST END OF YEAR GRAZING REPORT

Multiple Indicator Monitoring

USFS Multiple Indicator Monitoring: Note all Designated Monitoring Areas are unit specific.

Deer Creek Unit

Designated Monitoring Area #1 located along North Fork of Deer Creek, south of the 24 road, near the junction with FS road 2400650 was established in 2004. The implementation monitoring part of the Multiple Indicator Monitoring consisting of stubble height, bank alteration and woody species incidence of use monitoring was conducted on October 19, 2005. Based on the results of this monitoring we *believe no effects from grazing will carryover to next year*. It is recommended that management continue to focus on maintaining strong vegetative communities and functional stream attributes. Management should also focus on increasing the structural diversity of shrubs and riparian woody species. For further information on Designated Monitoring Areas see the 2210 files.

Designated Monitoring Area #2 located along the main stem of Deer Creek, just north of FS road 24, between the 173 and 174 spur roads was established in 2004. The implementation monitoring part of the Multiple Indicator Monitoring consisting of stubble height, bank alteration and woody species incidence of use monitoring was conducted on October 19, 2005. Based on the results of this monitoring we *believe no effects from grazing will carryover to next year*. It is recommended that management continue to focus on maintaining strong vegetative communities. Management should focus on: 1) increasing bank stability to 80 percent or greater 2) decreasing greenline to greenline widths and 3) decreasing width/depth ratio. For further information on Designated Monitoring Areas see the 2210 files.

John Young Meadows Unit

Designated Monitoring Area #1 located along South Fork of Murderers Creek, west of FS road 2480 road and south of the junction with FS road 2480266 was established in 2004. The implementation monitoring part of the Multiple Indicator Monitoring consisting of stubble height, bank alteration and woody species incidence of use monitoring was conducted on October 19, 2005. Based on the results of this monitoring we *believe no effects from grazing will carryover to next year*. It is recommended that management continue to focus on maintaining strong vegetative communities and functional stream attributes. For further information on Designated Monitoring Areas see the 2210 files.

Frenchy Butte Unit

Designated Monitoring Area #1 located along the main stem of Deer Creek, just south of FS road 2400, approximately $\frac{3}{4}$ miles west of the unit boundary was established in 2004. The implementation monitoring part of the Multiple Indicator Monitoring consisting of

stubble height, bank alteration and woody species incidence of use monitoring was conducted on September 21, 2005. Based on the results of this monitoring we believe *no effects from grazing will carryover to next year*. It is recommended that management continue to focus on maintaining strong vegetative communities and functional stream attributes. For further information on Designated Monitoring Areas see the 2210 files.

Murderer's Creek Holding Unit

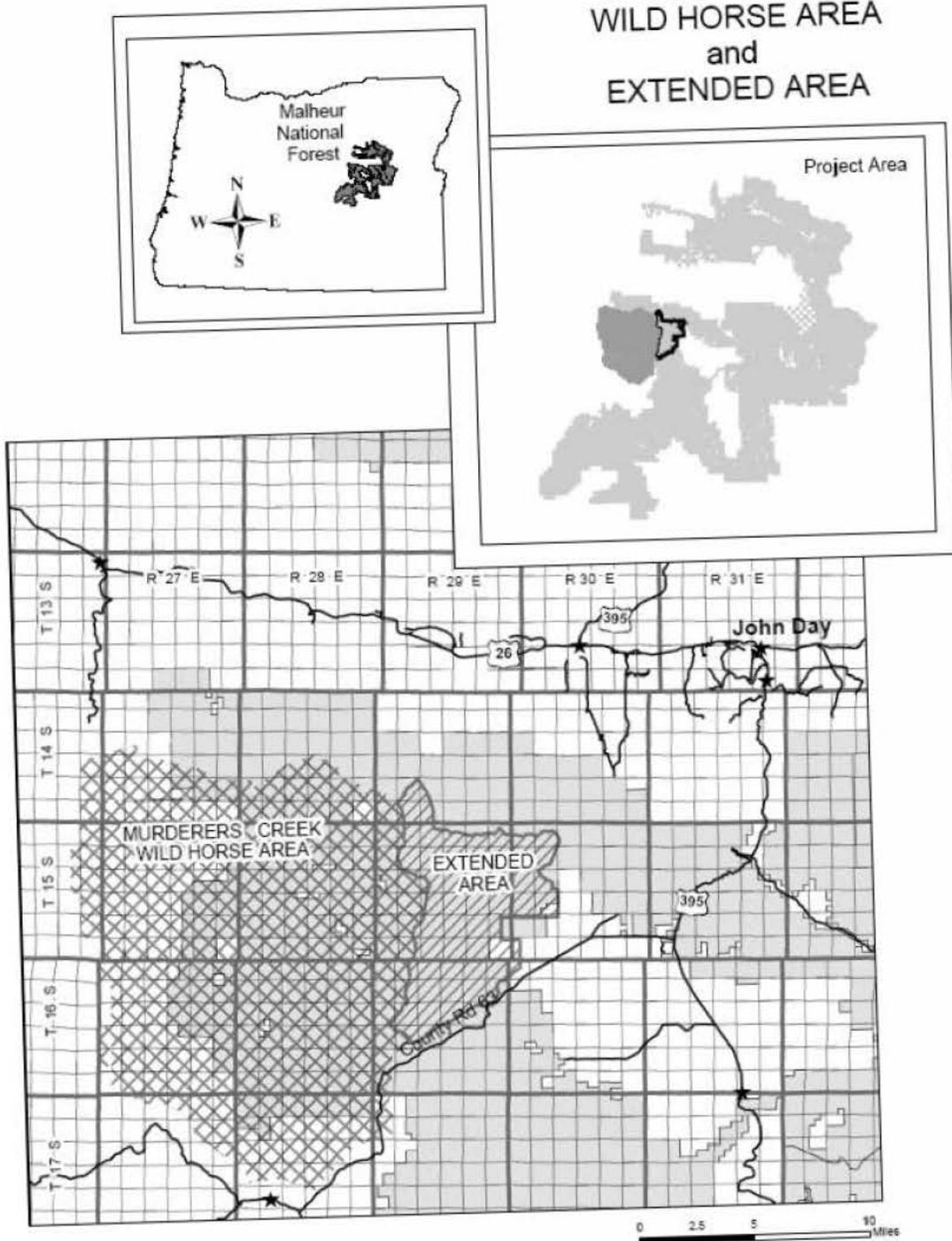
Designated Monitoring Area #1 located along the main stem of Murderers Creek, just south of the FS road 2100, approximately 1/3 miles east of the Oregon Department of Fish and Wildlife land boundary was last monitored in 2004. For further information on Designated Monitoring Areas see the 2210 files.

Permittee Monitoring

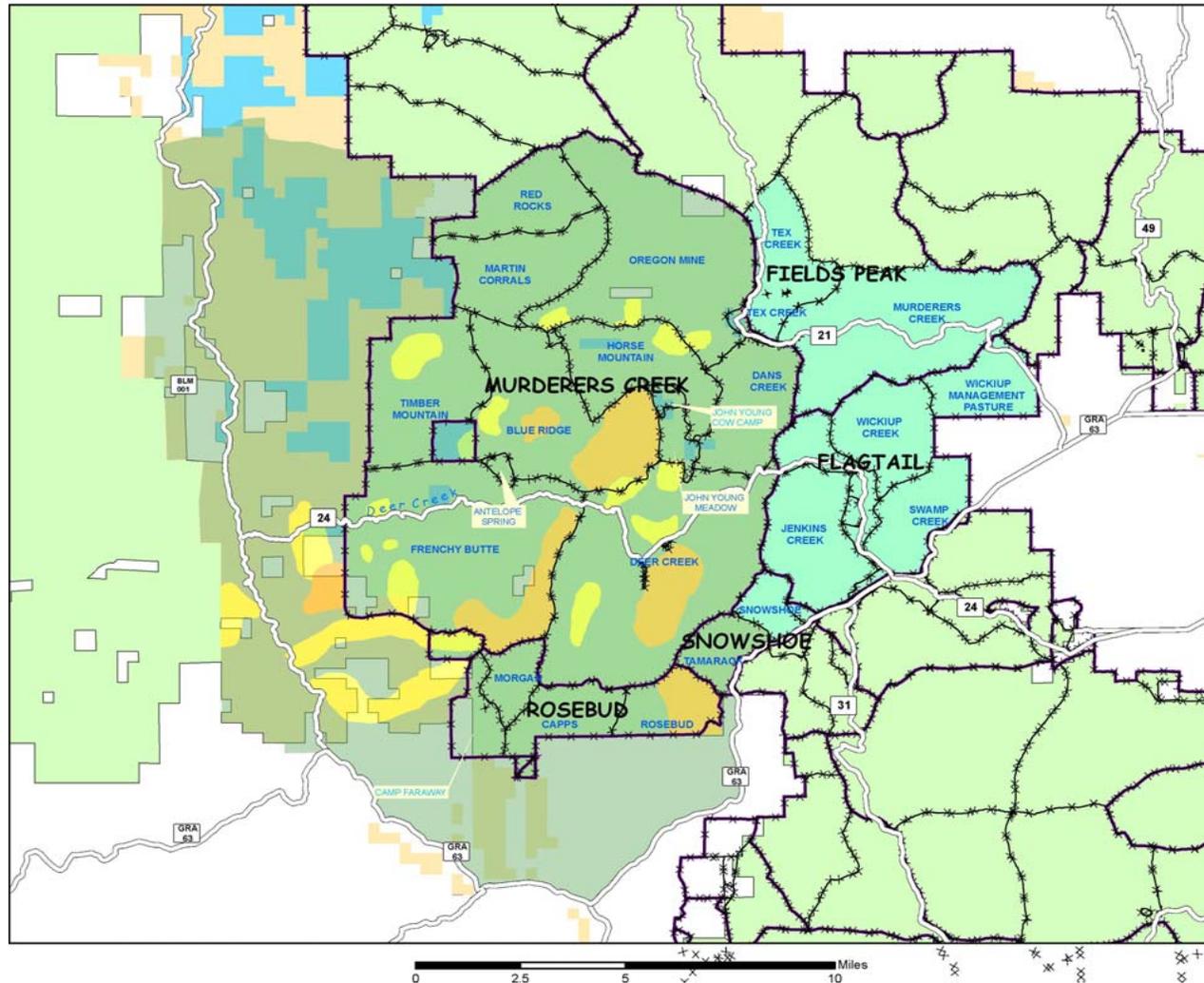
Consultants for the Dayville Grazing Association monitored grazing on the Murderer's Creek Allotment in 2005. Monitoring occurred before, during and after livestock were placed on the allotment. Height-Weight curves were developed and used to monitor stubble heights and sampling was conducted to assess bank alteration. For more information on this monitoring see the 2005 Larson Report in the 2210 files.

APPENDIX G

MURDERERS CREEK
WILD HORSE AREA
and
EXTENDED AREA



2007 Wildhorse Area



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Finding of No Significant Impact

Murderer's Creek Herd Management Area Wild Horse Gather

Environmental Assessment
DOI-BLM-OR-P040-2011-0048-EA

US Department of the Interior, Bureau of Land Management
Prineville District Office, Oregon

Introduction

The Bureau of Land Management (BLM) has completed an Environmental Assessment (EA No. DOI-BLM-OR-P040-2011-0048-EA) that analyzes the effects of two action alternatives to gather and remove wild horses in excess of Appropriated Management Levels (AML) from within and adjacent to the Murderer's Creek Herd Management Area (HMA).

The current population of wild horses within in the HMA is estimated to be 213 animals. The AML for the herd is 50-140 wild horses with an objective herd size of 100 animals. The current population of wild horses is approximately 113 animals in excess of the objective herd size (100).

The actions are to: 1) gather (phase 1) approximately 113 wild horses in the fall of 2012/winter of 2013 to achieve an objective herd size of 100 animals, 2) following completion of phase 1, gather (phase 2) 100-150 wild horses over a 3-4 year period to achieve low end of AML (50), and 3) gather (phase 3) up to 309 wild horses over 6-10 years and implement selective removal criteria, population control measures, and sex ratio adjustments to the Murderer's Creek herd. The actions would slow population growth and maintain a healthy population within the established AML, protect rangeland resources and other critical species and their habitat from further deterioration associated with the current overpopulation, and restore a thriving natural ecological balance and multiple use relationship on public lands in the area consistent with the provisions of Section 3(b)(2) of the WFRHBA of 1971.

The EA is incorporated by reference in this Finding of No Significant Impact (FONSI).

The Council on Environmental Quality (CEQ) regulations state that the significance of impacts must be determined in terms of both context and intensity (40 CFR 1508.27).

Context

The action alternatives are limited to the portion of Grant County where the Murderer's Creek HMA is located near the eastern Oregon towns of Dayville, Seneca, and Mt. Vernon. The action alternatives would have local impacts on affected interests, lands, and resources similar to and within the scope of those described in the 1985 John Day Resource Management Plan (RMP)/Record of Decision (ROD). The actions described in the EA represent anticipated program adjustments complying with the 1985 John Day RMP/ROD and implementation of the wild horse management program within the scope and

context of this document and there would not be international, national, regional, or state-wide importance not previously considered in the NEPA analysis for the John Day RMP.

The gather has been planned with input from interested public and users of public lands.

Intensity

I have considered the potential intensity and severity of the impacts anticipated from implementation of a Decision on this EA relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

1. Would any of the alternatives have significant beneficial or adverse impacts (40 CFR 1508.27(b)(1))?

No.

Rationale: The action alternatives would impact resources as described in chapter 4 of the EA. The removal of excess wild horses is expected to meet BLM's objectives for wild horse management of maintaining a thriving natural ecological balance consistent with other multiple uses. Although the gathering and removal of excess wild horses is expected to have short-term impacts on individual animals, it is expected to ensure the long-term diversity of the wild horse herd and help to improve forage and critical habitat conditions in the HMA. Project Design Features (PDFs) were incorporated into the action alternatives to reduce ground disturbing activities and impacts to resources. PDFs are included in Appendix B of the EA. None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed those described in the relevant RMP/EISs.

2. Would any of the alternatives have significant adverse impacts on public health and safety (40 CFR 1508.27(b)(2))?

No.

Rationale: There are no known effects to public safety as a result of capturing and removing wild horses from and adjacent to the Murderer's Creek HMA.

3. Would any of the alternatives have significant adverse impacts on unique geographic characteristics (cultural or historic resources, park lands, prime and unique farmlands, wetlands, wild and scenic rivers, designated wilderness or wilderness study areas, or ecologically critical areas (ACECs, RNAs, significant caves)) (40 CFR 1508.27(b)(3))?

No.

Rationale: The action alternatives would have no measurable impacts on the unique geographic characteristics listed above. Parklands, prime and unique farm lands, ecologically critical areas (ACECs), and wilderness areas are not present within the project area. Wetlands, wild and scenic rivers, and a portion of a wilderness study area which has found to have wilderness characteristics exist within the project area. The action alternatives are not expected to have adverse effects on the resources listed above. PDFs have been incorporated into the EA's action alternatives to

eliminate or reduce the effects to resources of concern. Standard Operating Procedures (SOPs) would also be implemented to reduce impacts to resources.

4. Would any of the alternatives have highly controversial effects (40 CFR 1508.27(b)(4))?

No.

Rationale: The effects of the action alternatives (gather activities) are well known and have been documented and studied, primarily from past BLM gather projects. No unique or appreciable scientific controversy has been identified; therefore, there are no highly controversial effects.

5. Would any of the alternatives have highly uncertain effects or involve unique or unknown risks (40 CFR 1508.27(b)(5))?

No.

Rationale: There are no unique or unusual risks. The environmental effects are fully analyzed in chapter 4 of the EA. There are no predicted effects on the environment that are considered to be highly uncertain or involve unique or unknown risks.

6. Would any of the alternatives establish a precedent for future actions with significant impacts (40 CFR 1508.27(b)(6))?

No.

Rationale: The action is compatible with future consideration of actions required to improve wild horse management and provide for other habitat needs and multiple use objectives within the HMA. The Proposed Action does not set a precedent for future actions. Future actions would be subject to evaluation through the appropriate level of NEPA documentation.

7. Are any of the alternatives related to other actions with potentially significant cumulative impacts (40 CFR 1508.27(b)(7))?

No.

Rationale: The actions were considered by the interdisciplinary team within the context of past, present, and reasonably foreseeable future actions. Significant cumulative effects are not predicted. An analysis of the effects of the action alternatives described in the EA.

8. Would any of the alternatives have significant adverse impacts on scientific, cultural, or historic resources, including those listed or eligible for listing on the National Register of Historic Resources (40 CFR 1508.27(b)(8))?

No.

Rationale: The project will not adversely affect scientific, cultural, or historic resources, including those eligible for listing in the National Register of Historic Places. Any cultural or historic resource identified within the project area would be avoided so that the project would not result in any adverse impacts to that resource.

9. Would any of the alternatives have significant adverse impacts on threatened or endangered species or their critical habitat (40 CFR 1508.27(b)(9))?

No.

Rationale: The EA's Appendix B (Issues Considered but eliminated from detailed analysis and project design features) includes PDFs which eliminate or reduce effects to threatened or endangered species which could occur from implementing the action alternatives. Botanical and wildlife clearances would be completed prior to any gather activities.

10. Would any of the alternatives have effects that threaten to violate Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10))?

No.

Rationale: The proposed gather conforms to the approved 1985 John Day RMP/ROD. Further the proposed gather is consistent with other Federal, State, local, and tribal requirements for protection of the environment to the maximum extent possible.

Finding

On the basis of the information contained in the EA, the consideration of intensity factors described above, all other information available to me, it is my determination that: (1) implementation of the alternatives would not have significant environmental impacts beyond those already addressed in the 1984 John Day RMP/Final EIS; (2) the alternatives are in conformance with the approved 1985 John Day RMP/ROD; and (3) neither alternative would constitute a major federal action having a significant effect on the human environment. Therefore, an EIS or a supplement to the existing EIS is not necessary and will not be prepared.

H.F. "Chip" Faver
Field Manager, Central Oregon Resource Area

Date

*NOTE: Prineville District policy is to issue an **unsigned FONSI** with the EA, allowing public input, then issue the signed FONSI with the Decision.*