

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

**Final Environmental Assessment
DOI-BLM-ID-B030-2010-0021**

**Black Mountain and Hardtrigger HMAs
Wild Horse Capture, Treat, and Release Plan**

U.S. Department of the Interior
Bureau of Land Management
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Environmental Assessment # DOI-BLM-ID-B030-2010-0021-EA
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1.0 Purpose of and Need for the Proposed Action

1.1 Background

The Black Mountain Herd Management Area (HMA) comprises 50,611 acres and Hardtrigger HMA includes 66,063 total acres of public and other land. The HMAs are adjacent to each other in Owyhee County and located south of the Snake River between Murphy and US Highway 95 to the west (Map 1).

The Appropriate Management Levels (AMLs) for each HMA were established in 1999 in the Owyhee Resource Management Plan (RMP) following an in-depth analysis of habitat suitability and resource monitoring and population inventory data, with public involvement. The AMLs for wild horses within the Black Mountain and Hardtrigger HMAs are 30-60 and 66-130, respectively. The upper limit of the AML 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 an 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 current estimated population of wild horses is 60 horses in the Black Mountain HMA and 100 horses in the Hardtrigger HMA. This number is based on direct count aerial survey population inventory conducted in July 2009, and includes the addition of the 2010 foal crops. These data indicate wild horse numbers have increased by 29% in Black Mountain and 10.9% in Hardtrigger, per year, since the HMAs were last gathered.

1.2 Purpose of and Need for the Proposed Action

The Wild Free-Roaming Horse and Burro Act of 1971 (WFRHBA) established the framework for managing wild horse and burro populations on public lands. The WFRHBA provides, in part, that the Department of the Interior “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands.” (P.L. 92-195 Section 1332 (b)(2), as amended). The Bureau of Land Management’s (BLM’s) management of wild, free roaming horses must comply with law and policy pertaining to wild, free roaming horses on public lands. The BLM policy BLM addresses a range of topics, including establishment and maintenance of AMLs in a humane, safe, efficient, and environmentally sound manner.

Nationwide, there are more horses and burros on public lands than can “achieve and maintain a natural ecological balance.” To maintain appropriate herd numbers, and to reduce the need for long term pastures nationwide, BLM must manage each of its HMAs to slow population growth.

Wild horse population numbers have the potential to double every four years. With fertility control vaccine treatment, productivity can be reduced substantially in the short-term because treatments are effective for up to three years. Because mares in the Black Mountain and Hartrigger HMAs were not treated in 2007 during the last removal gather, populations would be at the upper limit of AMLs in 2011 (Appendix C). This would result in the need for more horses to be removed and placed for adoption/sale or in long-term pastures. Of the 272 excess wild

horses removed from the Black Mountain and Hardtrigger HMAs in 2007, 82 horses remain unadopted/unsold. Fifty-four of these are in long-term pasture and 28 are in short-term holding.

The boundaries of the HMAs are delineated by fencing which is generally effective in limiting wild horse distribution to the HMAs; however, some wild horses have been observed outside of these boundaries. These animals have caused conflicts with adjacent landowners including trespass on private land, breeding with domestic horses, and property damage.

In order to meet local and national wild horse program goals, the objectives would be to:

- slow population growth to maximize the time between gathers to remove excess horses; reduce the number of wild horses being placed in short-term holding or long-term pastures;
- maintain wild horse populations within AMLs;
- improve the genetic variability in the Black Mountain herd by introducing two male horses from the Hardtrigger HMA.
- remove wild horses outside the HMAs; and
- maintain a thriving, natural ecological balance and multiple use relationship on public lands in the Black Mountain and Hardtrigger HMAs.

1.3 Summary of Proposed Action

The BLM is proposing to gather about 160 wild horses from the Hardtrigger and Black Mountain HMAs, 100 and 60 respectively, in November 2010. Adult mares (approximately 64) would be treated onsite with a fertility control vaccine Porcine Zona Pellucida (PZP-22) to help slow population growth. Approximately 140 horses would be released and up to 15% of gathered horses could be removed.

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result from the implementation of the Proposed Action or alternatives to the Proposed Action. Preparation of an EA assists the BLM authorized officer to determine 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.

1.4 Conformance with Applicable Land Use Plan

The Proposed Action for the Black Mountain and Hardtrigger HMAs is in conformance with the Owyhee RMP (USDI 1999). In this document, objective WHRS #1 states:

“Maintain wild and free-roaming horses in the Owyhee Wild Horse Herd Management Areas (HMAs) at appropriate management levels (AML) within a thriving natural ecological balance.”

The following applicable management actions would apply:

1. Manage the Hardtrigger and Black Mountain HMAs for wild horse population ranges of 66-130 and 30-60 respectively.
4. Manage wild free-roaming horses as a component of the public lands in a manner that maintains or improves the rangeland ecosystem.

Portions of the Squaw Creek Area of Critical Environmental Concern (ACEC) occur in the Hardtrigger HMA. Objective ACEC-1 (pages 47-48) and Table ACEC-1 (pages 129-131) do not identify specific management actions related to wild horses; however, the area does have restrictions or closures that could be affected by gather activities. Gather activities would be in compliance with the restrictions.

1.5 Relationship to Statutes, Regulations, and Other Guidance

Wild Horses

The Proposed Action is in conformance with the WFRHBA (as amended), applicable regulations at 43 CFR § 4700 and BLM policies (USDI 2007a, pages 8 and 9), which include:

- r **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.
- r **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.
- r **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.

Migratory Birds

Executive Order 13186 requires Federal agencies to evaluate the effects of proposed actions on migratory birds (including eagles); restore and enhance the habitat of migratory birds, as practicable; identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations; and, with respect to those actions so identified, the agency shall develop and use principles, standards, and practices that would lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service.

Cultural Resource Laws and Executive Orders

The BLM is required to consult with Native American tribes to “help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed action, would have sufficient opportunity to contribute to the decision, and (2) that the decision maker would give tribal concerns proper consideration” (U.S. Department of the Interior, BLM Manual Handbook H-8120-1). Tribal

coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as “cultural resource authorities,” and under regulations that are not specific which are termed “general authorities.” Cultural resource authorities include: the National Historic Preservation Act of 1966, as amended (NHPA); the Archaeological Resources Protection Act of 1979 (ARPA); and the Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: the American Indian Religious Freedom Act of 1979 (AIRFA); the National Environmental Policy Act of 1969 (NEPA); the Federal Land Policy and Management Act of 1976 (FLPMA); and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities.

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th century, a reservation was established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing on the Duck Valley Indian Reservation today actively practice their culture and retain aboriginal rights and/or interests in this area. The Shoshone-Paiute Tribes assert aboriginal rights to their traditional homelands as their treaties with the United States, Boise Valley Treaty of 1864 and Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

Other tribes that have ties to southwest Idaho include the Bannock and Nez Perce Tribes. Southeast Idaho is the homeland of the Northern Shoshone and Bannock Tribes. In 1867, a reservation was established at Fort Hall in southeastern Idaho. The Fort Bridger Treaty of 1868 applies to BLM’s relationship with the Shoshone-Bannock Tribes. The northern part of the BLM’s Boise District was also inhabited by the Nez Perce Tribe. The Nez Perce signed treaties in 1855, 1863 and 1868. The BLM considers off-reservation treaty-reserved fishing, hunting, gathering, and similar rights of access and resource use on the public lands it administers for all tribes that may be affected by a proposed action.

1.6 Conformance with Rangeland Health Standards and Guidelines

Maintenance of wild horse population size within the AML avoids range damage that results from wild horse overpopulation. Rangeland health assessments completed for the Hardtrigger Allotment (2007) with a total combined population of 366 horses in the Hardtrigger and Black Mountain HMAs); East Reynolds/Rabbit Creek/Peters Gulch allotments (2003) with a total population of 91 horses in the Black Mountain HMA; and Rats Nest/Elephant Butte/Shares Basin Allotments (2002) with a total population of 118 horses in the Hardtrigger HMA document the damage caused by overpopulation. The excess wild horses within these allotments contributed to a failure to achieve and/or allow for progress towards achieving these Standards for Rangeland Health: Standard 1 (Watersheds), Standard 2 (Riparian Areas and Wetlands), Standard 3 (Stream channel/ floodplain, Standard 4 (Native Plant Communities), Standard 7 (Water Quality), and Standard 8 (Threatened and Endangered Plants and Animals).

By contrast, when wild horse numbers are managed within AML, Standards for Rangeland Health are expected to make significant progress towards meeting the Standards (USDI 2007a, pages 21-30).

1.7 Decision to be Made

The authorized officer would determine whether to implement all, part or none of the proposed action as described in Section 2.2.1 to manage wild horses within the HMAs. The authorized officer's decision would not set or adjust AML or adjust livestock use, as these were set through previous decisions.

1.8 Scoping and Development of Issues

A general information letter requesting feedback on the proposed action, possible alternatives, and potential issues that should be addressed in the NEPA process was sent to 60 interested publics, organizations, government agencies, and tribes on June 4, 2010. Comment letters were received from 1,912 individuals and organizations. Of the letters received, 1,908 were form letters. Some of the comments were outside the scope of this EA. Appendix E shows how the comments were addressed.

Based on the comments received, internal scoping, and experience with previous gathers, the following issues have been identified and addressed in this EA:

1. Impacts to individual wild horses and the herd. Measurement indicators for this issue include:
 - Projected population size and annual growth rate (Win Equus population modeling);
 - Expected impacts to individual wild horses from handling stress;
 - Expected impacts to herd social structure;
 - Expected effectiveness of proposed fertility control application;
 - Potential effects to genetic diversity;
 - Potential impacts to animal health and condition.
2. Impacts to vegetation/soils, riparian/wetland, and cultural resources. Measurement indicators for this issue include:
 - Potential impacts to vegetation/soils and riparian/wetland resources.
3. Impacts to wildlife, migratory birds, and threatened, endangered, and special status species and their habitat. Measurement indicators for this issue include:
 - Potential for temporary displacement, trampling, or disturbance;

2.0 Description of the 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. Two alternatives are considered in detail:

- **Proposed Action Alternative:** Capture about 160 wild horses in order to apply PZP-22 fertility control vaccine to all the released mares. Up to 15% of gathered horses could be

removed to insure individual animal welfare and herd health. This treatment would postpone the need for a removal gather until at least 2014.

- **Continue Current Management Alternative:** No capture to apply fertility control vaccine to mares would occur at this time. A removal gather would occur when wild horse populations in the HMAs reach the upper limit of AMLs.

2.2 Description of Proposed Action and Alternatives

2.2.1 Alternative A - Proposed Action

About 160 wild horses would be gathered from within and outside the Black Mountain and Hardtrigger HMAs beginning in November 2010. Up to 140 of the captured wild horses would be released; of these, about 64 mares would be treated with fertility control vaccine as follows:

- All of the released 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 (Appendix A).
- Post-gather, every effort would be made to return the released horses to the same general area from which they were gathered.

Up to approximately 15% of gathered excess wild horses, mostly young foals or yearlings, would be removed to prevent any issue of abandonment that might occur after being released back into the HMA, and to ensure the long-term health and welfare of the horses. Additionally, horses found with injuries needing treatment and any wild horses residing outside the HMA boundary would be removed from the range. These animals would be offered for adoption or sale to individuals who can provide good homes and/or placed in long-term holding pastures out-of-state.

The gather would begin in November 2010 and take about 10 days to complete. Several factors, such as animal condition, herd health, weather conditions, or other considerations, could result in adjustments in the schedule. Gather operations would be conducted in accordance with the Standard Operating Procedures (SOPs) described in the National Wild Horse and Burro Gather Contract (Appendix B).

The primary gather (capture) methods would be the helicopter drive method with some limited helicopter assisted roping (from horseback), if needed, to restrain individual horses. Trap sites and temporary holding facilities would be located in previously used sites or other disturbed areas (Map 1) whenever possible. If gather requirements require a new trap site to be utilized, it would be selected to avoid sensitive resources (Appendix B).

Public access to the HMAs could be restricted during gather operations to ensure public and horse safety and minimize disruption to the gather process. In accordance with BLM policy (IM 2010-164), public viewing times and locations would be provided.

An Animal and Plant Inspection Service (APHIS) or other veterinarian would be on-site during the gather to examine animals and make recommendations to BLM for care, treatment, and if necessary, euthanasia of captured wild horses. Decisions to humanely euthanize animals would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Refer to:

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. In response to the genetic study recommendations, two male horses, less than 5 years old, from the Hardtrigger HMA would be relocated into the Black Mountain HMA to improve the genetic variability of the herd (Appendix D). Hair samples would be collected from about 25-100 animals to assess the genetic diversity of the herd.

During gather operations, vehicle access on the Reynolds Creek Road would be allowed but restricted to accompanying a pilot car. Where necessary to insure public and animal safety, access to all other roads and trails could be temporarily restricted. Restrictions would only occur in the HMA actively being gathered.

2.2.2 Alternative B - Continue Present Management

No gather would occur and fertility control application would not be undertaken to control the size of the wild horse population within the established AML range at this time. However, future gathers to remove excess wild horses would be scheduled when the AML upper limit is exceeded and/or other resource management objectives are not being met. Based on WinEquus modeling, this gather would occur in 2011 (Appendix C). A gather at that time would reduce numbers to the lower level of the AMLs. Gather and treatment activities would be conducted as described in Alternative A. The post-release sex ratios would approximate the desired level of 40% females and 60% males.

2.3 Alternatives Considered but Dismissed from Detailed Analysis

2.3.1 Use of Bait and/or Water Trapping

It would not be timely, cost-effective, or practical to use bait and/or water trapping as the primary gather method. The number of water sources on both private and public lands within and outside the HMA would make it almost impossible to restrict wild horse access to the selected water trap sites. As a result, this alternative was dismissed from detailed analysis.

2.3.2 No Additional Gathers and/or Remove or Reduce Livestock within the HMAs

No gather would take place in the HMAs now or in the future. As wild horse numbers increase, livestock numbers could be reduced or wild horses could be moved into areas occupied prior to passage of the WFRHBA. This alternative was not considered in detail because it would be contrary to previous decisions which allocated forage for wild horse and livestock use. The grazing allotments in the HMAs were designated as open to livestock grazing and forage was allocated to both livestock and wild horses [Objective LVST-1 (pages 23-25, USDI 1999) and forage allocations Table LVST-1 (pages 104-112, USDI 1999)]. Even with complete removal of

livestock, the carrying capacity of the HMAs or Herd Areas (43 CFR 4700.0-5) would eventually be exceeded for wild horses. A thriving, natural ecological balance would not be maintained which would be inconsistent with the WFRHBA.

2.3.3 Gather Using Non-motorized Methods

Gather operations would be conducted using riders on horseback which would require extensive personnel. The level of stress on wild horses would be substantially greater than helicopter gathering because an individual herd is pushed constantly from initial contact to the trap. Gather time for each band of horses would be longer and overall human disturbance would be greater than for the proposed action.

This method would also create a much greater risk to BLM and/or contractor employees working on horseback.

2.4 Summary Comparison of Impacts between Alternatives

Impacts from gather activities would be similar between alternatives A and B (Table 1). Objectives of reducing the number of wild horses placed in adoption/sale or long-term pastures would be met by Alternative A to a greater degree than Alternative B.

Table 1. Summary Comparison of Impacts between Alternatives

Resource	Alternative A Proposed Action	Alternative B Continue Current Management
Soils	Compaction would occur from concentration of horses and vehicles at trap sites. Limited soil disturbance could occur up to 0.25 miles from trap sites. Soil and watershed conditions maintained over long term.	Direct impacts would be similar to Alternative A, but soil and watershed conditions could improve slightly over the short term (4 years) because populations would be at the lower end of AMLs post gather.
Vegetation Including Noxious Weeds and Special Status Plants	Vegetation could be lost or altered in and around trap sites. Noxious weeds could increase in disturbed areas. Special status plants would not be affected.	Direct impacts would be the same as Alternative A. General vegetation conditions could improve slightly over the short term (4 years) where wild horse and livestock use don't overlap.
Wetlands/Riparian Zone and Water Quality	Short-term (up to 3 years) streambank damage and water quality degradation where riparian crossings occur.	Same as Alternative A.
Wildlife/Fisheries	Short-term (up to 10 days) disturbances caused by gather activities would occur when animals are preparing for winter.	Timing of short-term disturbances is unknown, but would likely fall outside critical life history periods.
Wild Horses	Horses would be stressed by gather activities, but would recover quickly. Up to 15% of gathered horses would be added to adoption/sales or long-term pastures by 2010. Genetic variability would be improved in the Black Mountain HMA. The need for a removal gather would be postponed until at least 2014.	Direct impacts from gather would be the same as Alternative A. At least 86 horses would be added to adoption/sales or long-term pastures by 2011. Another removal gather would likely be needed in 2015 to 2017.
Livestock Grazing Management	Gather activities would have short-term impacts on up to three allotments.	Gather activities would have short-term impacts on up to five allotments.
Cultural, Paleontological, and	No impacts to cultural resources within	Same as Alternative A.

Resource	Alternative A Proposed Action	Alternative B Continue Current Management
Historic Resources	the proposed project areas would be anticipated.	
Recreation	Disruption of hunting and recreation access for up to five days in each HMA would occur during November.	Gather activities, if conducted during the summer, would have the least amount of impact to hunting and recreation activities; otherwise impacts would be similar to Alternative A.

3.0 Affected Environment and Environmental Consequences

This section of the EA briefly discusses the relevant components of the human environment which would be either affected or potentially affected by the Proposed Action or No Action. Direct impacts are caused by the action and occur at the same time and place. Indirect effects are also caused by the action, but are later in time or farther removed in distance, but still reasonably foreseeable.

Assumptions for analysis purposes:

Gathers would occur under either alternative when wild horse populations reach the upper limit of the AMLs and a thriving, natural ecological balance is not being maintained.

Based on a median of historic population growth rates in the HMAs and Win Equus population estimates, following fertility treatment, the expected rate of population growth would be normal in 2011, very reduced in 2012 and 2013, and normal in 2014 and beyond.

The expected rate of population growth would be 29% annually where mares are not treated with fertility control vaccines (based on median population growth rates for the HMAs between 2002 and 2009).

The upper limits of AMLs are appropriately set to ensure that resource damage would not occur because of wild horses.

Two to four temporary trap sites would be established or re-established (in areas that avoid sensitive resources).

3.1 Soils

3.1.1 Affected Environment – Soils

Soils within the HMAs formed in alluvium and residuum derived dominantly from welded rhyolitic tuff, basalt and granitic parent materials. These soils occur on foothills, structural benches, and alluvial fan terraces. They are generally shallow to moderately deep, cool, and well drained. Surface textures are mostly gravelly loams (some modified by stoniness) with subsoils ranging from gravelly loam to gravelly clay loams. The water erosion hazard for these soils is slight to high, depending on surface texture and slope. Soils information was gathered from the Soil Survey of Owyhee County Area Soil, Idaho (NRCS, 2003). Detailed soil information can be found at <http://soils.usda.gov/survey>; follow prompts to the above online soil survey.

3.1.2 Environmental Consequences – Soils

3.1.2.1 Alternative A

Direct impacts to soils would be mainly due to surface disturbing activity (e.g., trap construction and use, vehicular travel, wild horse movement) during the gather process. Soil would be displaced and/or compacted on approximately two acres at each site in the construction of the trap panels, use of the access routes, and in the round-up and loading of the wild horses. The area of severe surface disturbance would normally be less than 2,000 square feet. Moderate surface disturbance would occur on narrow corridors within 0.25 miles of trap sites where bands of horses are moved into traps at an increased rate of speed. Precipitation increases in late October and November could result in moist or saturated soil conditions during the gather period. Saturated soils would be more susceptible to damage than dry soils. Minimal surface erosion from wind and water would be expected on these disturbed areas during the vegetative rehabilitation period (approximately one to three years).

3.1.2.2 Alternative B

There would continue to be both direct and indirect impacts to soil site-stability and hydrologic function where animals trail and congregate. Impacts from gather activities would be as described in Alternative A, but would occur in 2011. Reducing numbers to the low end of the AMLs would reduce the degree of overlap between wild horses and livestock, thus reducing adverse impacts to soil-site stability and hydrologic function in concentrated use areas over the short term.

3.2 Vegetation Including Noxious Weeds and Special Status Plants

3.2.1 Affected Environment – Vegetation Including Noxious Weeds and Special Status Plants

Plant Communities

The most common potential plant communities in the HMAs are Wyoming big sagebrush with bluebunch wheatgrass and Thurber needlegrass understories and salt desert shrub plant communities of shadscale, bud sagebrush, and four-wing saltbush with bluebunch wheatgrass, Idaho fescue, and squirreltail understories. The southern portions of the area have potential plant communities of basin big sagebrush and mountain big sagebrush with varying understories of fescue, wheatgrass, or bluegrass species. The upper elevation areas of the HMAs are typically mountain big sagebrush or low sagebrush communities with Idaho fescue or bluebunch wheatgrass understories.

The upland plant communities vary in ecological condition. The lower elevation areas of the HMAs have been noticeably affected by wildfires and historic livestock grazing which helped to promote the establishment of exotic, invasive annual grasses into the area. In 2004-2005, most of the upper elevation sites were in good to excellent condition. The ridgeline areas receive limited wild horse use and infrequent livestock use.

Portions of the Squaw Creek ACEC, comprised of excellent condition, low elevation Wyoming sagebrush and bluebunch wheatgrass communities, occur on the western edge of the Hardtrigger HMA.

Noxious Weeds

Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), perennial pepperweed (*Lepidium latifolium*), whitetop (*Cardaria draba*), spotted knapweed (*Centaurea stoebe*), poison hemlock (*Conium maculatum*), puncture vine (*Tribulus terrestris*), rush skeletonweed (*Chondrilla juncea*), and salt cedar (*Tamarix sp.*) have been recorded primarily in the lower elevation portions of the HMAs. Most of these noxious weeds continue to be treated annually with herbicide (USDI 2007c).

One previous trap site in the Hardtrigger HMA was located adjacent to a whitetop occurrence. Monitoring and treatment of this occurrence is ongoing. Another previous trap site was located within 0.25 miles of three small (<0.1 acres) occurrences of Scotch thistle, reported between 2005 and 2007, while a third trap site is about 0.38 miles from a salt cedar infestation. The remaining trap sites are at least one mile away from known weed occurrences.

Special Status Plants

No federally listed plant species are known or suspected to occur in these HMAs (USFWS 2009). There are many elemental occurrences of BLM special status plant species recorded within the HMAs (Table 2) (Idaho Conservation Data Center 2010). During a travel management planning process in 2006, the BLM conducted systematic surveys for special status plants throughout much of the lower elevation areas of the Hardtrigger HMA. Plant surveys have also been conducted in the past within some of the areas of the HMAs by the Conservation Data Center, for BLM, and by BLM botanists for various projects.

Table 2. Special Status Plant Species Known to Occur within the Herd Management Areas

Species	Hardtrigger	Black Mountain	Status
Cusick's false yarrow (<i>Chaenactis cusickii</i>)	X		2
Dimeresia (<i>Dimeresia howellii</i>)	X		3
desert pincushion (<i>Chaenactis stevioides</i>)		X	4
white-margined waxplant (<i>Glyptopleura marginata</i>)	X	X	4
Stiff milkvetch (<i>Astragalus conjunctus</i>)	X		4
Packard's desert parsley (<i>Lomatium packardiae</i>)	X		2
smooth stickleaf (<i>Mentzelia mollis</i>)	X		2
Malheur phacelia (<i>Phacelia lutea</i> var. <i>calva</i>)	X	X	3
Mulford's milkvetch (<i>Astragalus mulfordiae</i>)		X	2
Janish's penstemon (<i>Penstemon janishiae</i>)		X	3
White eatonella (<i>Eatonella nivea</i>)		X	4
Rigid threadbush (<i>Nemacladus rigidus</i>)		X	4
Cushion cactus (<i>Escobaria vivipara</i>)		X	4
Simpson's hedgehog cactus (<i>Pediocactus simpsonii</i>)		X	4
Earth Lichen (<i>Catapyrenium congestum</i>)		X	4

Species	Hardtrigger	Black Mountain	Status
Snake River milkvetch (<i>Astragalus purshii</i> var. <i>ophiogenes</i>)		X	4

Status – BLM Type (level of sensitivity): 1 – Federally Threatened, Endangered, Proposed and Candidate Species, 2 – Rangewide/Globally Imperiled Species - High Endangerment, 3 – Rangewide/Globally Imperiled Species - Moderate Endangerment, 4 – Species of Concern

Typically, special status plants in this area are most impacted by off-highway vehicles; however, high concentrations of livestock or horses would be expected to impact the plants and their habitat. Previous trap sites were located more than 0.3 miles from known special status plant populations in the Hardtrigger and Black Mountain HMAs.

3.2.2 Environmental Consequences – Vegetation Including Noxious Weeds and Special Status Plants

3.2.2.1 Alternative A

Plant Communities

Damage to vegetation from gather activities would occur on up to two acres in and around each trap site. Damage or mortality would be greatest in areas with repeated, concentrated ground disturbing activities. Concentrated human and wild horse activity would damage or kill non-sprouting shrubs. Shrub damage would be minimal where trap sites are constructed in previously disturbed areas that are dominated by annuals or perennial grasses and forbs. Above ground portions of perennial grasses and forbs would be damaged, but most plants would be expected to survive because disturbance would occur when most species are dormant. Shallow rooted perennials would be most susceptible to mortality. No direct effect on annual plants would be expected due to the timing of the gather. Additional damage or mortality to vegetation would occur from hoof activity on narrow corridors within 0.25 miles of trap sites where bands of horses are moved into traps at an increased rate of speed.

At lower elevations (<5,000 ft), annual invasive species or bare ground could dominate severely disturbed areas over the short and possibly long term (Chambers et. al. 2007). Where perennials dominated areas prior to disturbance, especially at upper elevations, perennial grasses and forbs could recover to pre-disturbance levels within one to three years. Where shrub mortality occurs, recovery could occur between two and 35 years (Baker 2006).

Because of its proximity to perimeter fencing and topographic features, the Squaw Creek ACEC would not be affected by gather activities.

The impact to the plant communities from daily wild horse use within the herd management areas would be within acceptable levels to maintain communities over the long term (USDI 1999). Stocking levels would be at or below the upper end of the AML which would help maintain plant communities.

Noxious Weeds

Areas where substantial vegetation damage or mortality occurs would be susceptible to noxious weed establishment. Noxious weeds could be introduced to these areas during and after capture operations from vehicles or other sources. Weed populations that become established in these areas could spread into adjacent, less disturbed vegetation communities over the long term. Weed establishment and spread could be limited by successful weed control efforts (USDI 2007c).

Special Status Plants

Impacts to special status plants from gather activities would be minimal because of trap site location and timing of the gather. Special status plant populations would be most susceptible to damage where perennial species overlap the narrow corridors leading to trap sites. Because all known special status plant occurrences are at least 0.3 miles from proposed trap sites, they would be beyond the area where concentrated disturbances would be expected. Also, about half of the special status plants in these HMAs are annuals, which would not be directly affected by fall gather activities.

3.2.2.2 Alternative B

Wild horse use would not be expected to adversely affect plant communities when population numbers are maintained below the upper level of the AML. Impacts to vegetation resources from a gather in 2011 would be as described in Alternative A. Reducing wild horse numbers to the lower end of AMLs would benefit vegetation resources over the short term (4 years) by reducing vegetation utilization and levels of mechanical damage in concentrated use areas.

3.3 Wetlands/Riparian Zone and Water Quality

3.3.1 Affected Environment – Wetlands/Riparian Zone and Water Quality

Wetlands/Riparian Zone

There are approximately 34.2 miles of perennial streams (lotic systems) located throughout the two HMAs (Table 3). Reynolds and Rabbit creeks are the primary perennial streams in the Black Mountain HMA. Perennial streams in the Hardtrigger HMA include Hardtrigger, Little Hardtrigger, Macks, Reynolds, Salmon, and Squaw creeks. In addition, there are numerous intermittent and ephemeral drainages throughout both HMAs. The majority of drainages are spatially oriented southwest to northeast and ultimately drain into the Snake River.

Table 3. Perennial Streams and Tributaries in the Black Mountain and Hardtrigger HMAs

Streams	Black Mountain HMA	Hardtrigger HMA
Cottle Creek		1.1
East Fork Squaw Creek		0.6
Hardtrigger Creek		6.3
Little Hardtrigger Creek		2.6
Macks Creek		2.3
North Fork Macks Creek		1.0

Streams	Black Mountain HMA	Hardtrigger HMA
Pole Creek		0.3
Rabbit Creek	2.7	
Reynolds Creek	4.8	2.5
Salmon Creek		3.5
Salmon Creek T15		0.3
South Fork Macks Creek		0.8
Squaw Creek		3.9
Squaw Creek T14		0.9
West Rabbit Creek	0.4	
West Rabbit Creek T3	0.2	
Grand Total	8.1	26.1

Both HMAs have numerous springs, meadows, and seeps (lentic systems) that are mostly located in the upper elevations (>5,000 feet). Many springs have been developed and have small enclosures surrounding the springheads.

Riparian communities in the HMAs are generally comprised of woody vegetation including various willows, cottonwood, and a diversity of other shrubs, with interspersed co-dominant or dominant herbaceous communities consisting of various rushes, sedges and grasses. Woody riparian vegetation tends to occur in upper elevation areas while herbaceous riparian vegetation can occur throughout lotic and lentic areas. Noxious weeds including Canada thistle, Scotch thistle, perennial pepperweed, poison hemlock, tamarisk, and whitetop have been documented on Hardtrigger, Moores, Rabbit, Reynolds, and Squaw creeks.

Condition ratings focused on evaluating stream function characteristics and existing vegetation habitats were completed from 2001 through 2007. Characteristics of a properly functioning riparian area include banks stabilized by riparian vegetation, accessible floodplains, water storage in the banks due to high organic content, high water tables, and the ability to dissipate energy and trap sediment. In general, the condition of streams and springs within the HMAs varies considerably, from properly functioning to non-functioning (USDI 2001, USDI 2007d, USDI 2007 unpublished data A and B). Unstable streambanks, poor riparian vegetation vigor and cover, stream channel widening, and heavy riparian vegetation utilization are common parameters that contribute to functional at-risk and non-functional ratings. Wild horse use has attributed, at least partially, to their present condition.

Water Quality

The Idaho Department of Environmental Quality (DEQ) is responsible for implementing the Clean Water Act in Idaho, and has promulgated state water quality rules to meet this responsibility in IDAPA 58.01.02-Water Quality Standards and Wastewater Treatment Requirements (DEQ 1996). Waters are designated as impaired when there is a violation of water quality criteria and are placed on the §303(d) list. All streams within the Black Mountain and Hardtrigger HMAs have general use designations for secondary contact recreation, agricultural

water supply, wildlife habitat, and aesthetics. Additional designated beneficial water uses in Reynolds Creek include primary contact recreation, cold water biota, and salmonid spawning. The following streams are on the State of Idaho's 303(d) list as water quality limited due to sediment: Hardtrigger, Rabbit, Reynolds, and Squaw creeks. Squaw Creek is also water quality limited due to stream temperature. The remaining streams in the HMAs are either meeting the general use standards or have not been assessed for beneficial use.

Water quality monitoring was implemented in 2003 to determine current data trends, status of beneficial uses, and effectiveness of Best Management Practices (BMPs) in meeting water quality standards and protecting existing beneficial uses as set forth by DEQ. Water quality data from various stream segments within the HMAs collected between 2007 and 2009 identify no water quality issues based on *E. coli* and total dissolved solid (TDS) concentrations. The 2003 Mid Snake River/Succor Creek Subbasin Assessment and TMDL (DEQ 2003) proposed de-listing Hardtrigger, Rabbit, Reynolds and Squaw creeks for sediment, and de-listing water temperature for Squaw Creek, which could take effect at the next subbasin review.

3.3.2 Environmental Consequences – Wetlands/Riparian Zone and Water Quality

3.3.2.1 Alternative A

Wetlands/Riparian Zone

Gather operations would have isolated, short-term impacts to wetlands and riparian zones. All potential trap sites are more than 0.25 miles from wetlands and streams. Riparian impacts would be limited damage associated with horse movement to the trap sites. Horses would be moving in small groups primarily across traditional stream crossings and not parallel to streams. Streambank and vegetation damage at crossings would likely be similar to that occurring during normal daily use. Off-trail riparian area crossings would damage relatively short sections of stream (<50 feet). Hoof shearing would damage streambanks, exposing bare soil. Woody and herbaceous vegetation may be damaged, but likely not killed. These areas could be expected to recover within one to three years; however, they could be susceptible to establishment or expansion of noxious weeds.

Maintaining wild horse numbers within AMLs would be expected to promote more seasonality in grazing use patterns by horses, and allow livestock management prescriptions designed to enhance riparian and channel conditions to operate as intended. Grazing use patterns that are more seasonal, of shorter duration, and reduced intensity would improve riparian and channel systems. Over the long-term, the riparian vegetation would develop and expand, slowing water flows and catching sediment, and eventually narrowing and deepening stream channels.

Water Quality

Suspended sediments may increase briefly in a short section of stream below established crossings. Depending on the degree of streambank damage at off-trail crossings, eroding streambanks could add sediments to a stream until vegetation stabilizes streambanks. With limited damage (1-2 crossings), water quality would be adversely affected for a short period (days) and limited distance downstream (<0.25 miles). With more substantial damage, effects could last until damage is stabilized.

Water quality standards for sediment and temperature would be expected to improve or be attained over the long-term, where riparian and channel conditions improve. Improvements in riparian and hydrologic conditions would stabilize streambanks and reduce sediment levels. Shade from overhanging streambanks, riparian vegetation, and deeper stream channels would promote cooler stream temperatures.

3.3.2.2 Alternative B

Wetlands/Riparian Zone

Impacts to wetlands and riparian areas from a removal gather in 2011 would be the same as described in Alternative A. Removing animals to the lower end of the AMLs would promote slightly faster recovery of riparian and stream channel conditions over the short-term than Alternative A. Lower levels of wild horses would reduce overlap with livestock in riparian areas and lessen the amount of impacts from daily use.

Water Quality

Impacts to water quality would be the same as those described in Alternative A.

3.4 Wildlife/Fisheries

3.4.1 Affected Environment – Wildlife/Fisheries

Resident Wildlife

Numerous species of wildlife use the area on a year-round basis. Several special status mammals (e.g., California bighorn sheep, kit fox, pygmy rabbit), birds (e.g., ferruginous hawk, sage-grouse), and reptiles (e.g., Mojave black-collared lizard, western ground snake, longnose snake) occur in the area. Sage-grouse, California quail, and chukar partridge are the primary gamebird species. Primary game species present in the HMAs include mule deer, pronghorn antelope, California bighorn sheep, elk, coyotes, mountain lions, and bobcats. Many non-game species are found in the sagebrush steppe habitat including birds (e.g., horned lark) and burrowing mammals (e.g., squirrel, gopher, mice). Riparian vegetation found along the creeks and around the springs and seeps provide important habitat for riparian-dependent species.

No threatened or endangered animals have been documented at or around trap sites. The majority of the area is considered key sage-grouse habitat. The HMAs contain, or are within two miles of nine sage-grouse leks, two of which were active in 2010. Golden eagles nest in the area and some birds are present in November. Bald eagles may occasionally use the area for foraging.

Big game species generally give birth in the spring, wean their young by late summer, and breed during the fall. November represents the latter part of the breeding season, and animals are shifting their efforts to building fat reserves for winter survival. Birds and reptiles generally breed and lay eggs in the spring. Their young are independent either at birth (most reptiles) or by mid-summer (most birds). By November, most reptiles have entered hibernation (e.g., burrows, hibernacula) and birds are preparing for winter.

Migratory Birds

Neotropical migratory birds generally use the area from late winter through fall for breeding, nesting, brood rearing, and foraging. Neotropical migrants include a variety of special status species (e.g., burrowing owl, gray flycatcher, dusky flycatcher, loggerhead shrike, green-tailed towhee, Brewer's sparrow, sage sparrow, grasshopper sparrow). Most neotropical migrants have left the area by November. Some species migrate into the area from northern latitudes to winter (e.g., some raptors, American robin, northern shrike). Intact shrub steppe and riparian communities are important habitats for migratory birds.

Fisheries

Redband trout is designated as a BLM sensitive species and occurs throughout the area. Populations have been documented in portions of Macks, Reynolds, and Salmon creeks. Other species such as speckled dace also are found in these streams. Trout breed and lay eggs in the spring (April - May), the eggs hatch within 4-7 weeks, and fish reach fingerling size by fall.

3.4.2 Environmental Consequences – Wildlife/Fisheries

3.4.2.1 Alternative A

The primary impacts to wildlife would occur from gather activities. Maintaining wild horse populations within AMLs, and limiting population growth over a three year period would help limit competition for forage between wildlife and wild horses.

Resident Wildlife

Helicopter activity would cause low to moderate disturbances over the short term (one hour to several days) for many species of wildlife. Direct impacts to larger mammals and birds would include elevated heart rates, movement to or use of other habitats, or other irregular behaviors (Bleich et al. 1990, USDI 1994). Because wild horses could be dispersed throughout the HMAs, wildlife would be exposed to single or multiple disturbances during the gather activities. Wildlife would be expected to return to normal behavior and habitat use within days of the cessation of gather activities and removal of traps. Disturbances would occur during a period when animals are building reserves for the winter; however, disturbance events would be relatively short in duration and animals would be expected to recover from slight adverse impacts to physiological condition. Disturbances would occur outside of other critical periods (e.g., breeding, juvenile rearing, winter). Use of helicopters for previous gathers and wildlife surveys (e.g., mule deer, bighorn sheep, sage-grouse) in the area has not adversely affected long-term survival of those species.

Wildlife are habituated to the presence of wild horses in the area; however, localized displacement of wildlife could occur as wild horses are moved to trap sites. Wildlife would have adequate time to react to the horses; therefore, mortality would not be expected from wild horse-wildlife collisions. Increased human activity would cause some wildlife to avoid trap sites until traps are removed.

Gather activities could result in some wildlife mortality. Concentrated wild horse and human activities (e.g., trap sites and horse movement corridors within 0.25 miles of traps) could cause

dens or burrows to collapse resulting in the mortality of occupants. Hibernating reptiles and mammals would be most susceptible to mortality. No collisions have been reported between helicopters and birds during previous gathers in the area; therefore, no take would be expected to occur for sage-grouse or golden or bald eagles.

Impacts to vegetation within 0.25 miles of trap sites described in Section 3.2.2.1 would have limited, short-term adverse effects on wildlife because they would affect relatively small areas. Damage to shrubs would reduce nest habitat for shrub obligate birds. Increases in invasive and noxious weeds would reduce habitat suitability until those areas recover.

Migratory Birds

Impacts to migratory birds that are present during the gather would be the same as those described for resident wildlife. Neotropical migratory birds would experience slight losses of breeding and foraging habitat where gather activities damage or kill shrubs or result in increases in invasive and noxious weeds. These losses would be isolated and persist until native vegetation recovers.

Fisheries

Increases in suspended sediment would have short-term adverse impacts to fish immediately below crossing areas. These impacts would occur when fish are in the fingerling or adult stages and better able to avoid or survive short-term water quality degradation. The impacts could be longer in duration and affect more stream length where wild horse movement causes bank damage and loss of vegetation.

3.4.2.2 Alternative B

Impacts from gather activities would be as described in Alternative A. Removing animals to the lower end of the AMLs would result in short term (4 years) benefits to wildlife through slight improvements in habitat conditions.

3.5 Wild Horses

3.5.1 Affected Environment – Wild Horses

Through the years, a great deal of information has been gained with the completion of gathers and population inventory flights of the HMAs in the Boise District. A summary of current knowledge is given below.

HMA Description - The Owyhee Front in the Owyhee Field Office includes the Black Mountain, Hardtrigger, and Sands Basin HMAs. Generally, Black Mountain and Hardtrigger HMAs are located between Murphy, Idaho and US Highway 95 to the west.

The Black Mountain HMA encompasses 50,611 acres with 46,881 acres of public land, 2,550 acres of State land, and 1,180 acres of private land. The Hardtrigger HMA of 66,063 acres contains 60,061 acres of public lands, 4,418 acres of State lands, and 1,548 acres of private lands.

Elevations in the Black Mountain and Hardtrigger HMAs vary from approximately 2,200 feet in the northern portion to 6,700 feet at Black Mountain. Topographic features are mostly rolling hills and flat plateaus within the Snake River Plains and high, steep, rugged ridges. The wide range in elevation and accessible terrain readily accommodates seasonal migration in the HMAs.

Population Growth Rates (PGR) - The percentage of growth annually in a herd (PGR) varies annually within the HMAs. Population inventory flights have been conducted, as funding allowed, to compile statistics regarding production in herds. Annual PGRs in the HMAs varied from 10.9% to 37% (Table 4). The reasons for the variance in years have not been identified.

Possible reasons include:

- The unauthorized capture or removal (43 CFR 4770.1 (b)) of foals when they are young and easy to catch. Due to the areas' remoteness and lack of personnel, patrolling the HMAs during the spring months when the foals are young and easy to catch is difficult.
- Horses may occasionally be killed by mountain lions or coyotes. Both species would take the opportunity to prey upon weakened, sick, or very young animals. However, neither of these species is believed to have impacted the herd more than minimally through the years.
- Variance in climatic factors affecting foal survival, forage availability or survey accuracy.

Table 4. Population Growth Rates by Herd Management Areas, Owyhee County, Idaho

HMA	2000	2001	2002	2007	2009
Black Mountain	36%	22%	22%	28.1%	29%
Hardtrigger	37%	29%	26%	31.6%	10.9%

In general, wild horses are a long-lived species with documented foal survival rates exceeding 95%, and adult (15 years) survival rates exceeding 90% (Table 5). Much of this research has been compiled into a population modeling program, and is available for use by BLM to model different potential, population changes with management changes (Appendix C).

Table 5. Sample Survival Rates by Age Class for Wild Horse Herds in Montana and Nevada.

Wild Horse Range	Age/Sex Classes	Survival Rate
Pryor Mountain Wild Horse Range, Montana	Foal	>95%
	15 years and younger, except for foals, both sexes	93%
Granite Range HMA, Nevada	Foal	>95%
	15 years and younger, except for male foals	92%
Garfield Flat HMA, Nevada	Foal	> 95%
	24 years and younger, except for foals, both sexes	92%

Herd Dynamics - The sex ratio of the wild horses in the HMAs deviates from a target population of 40% females and 60% males. Of the adult animals gathered in 1997, 67% were females in the Black Mountain HMA and 48% were females in the Hardtrigger HMA. During the 2001 gather, 177 horses were gathered with 160 animals being put up for adoption. Of these,

59% were females and 41% were males. During the most recent gather (July 2007), it was estimated that 50% of the herds were female.

Behavior- The population's social structure has an even, adult sex ratio, year-round breeding groups (bands) with stable adult membership consisting of 1-11 mares, 1-4 stallions, and offspring. In addition to breeding groups, bachelor groups are formed by studs without mares, and have erratic membership. Bands and bachelor males are loyal to undefended home ranges with central core use areas.

Current Population - Based on a population inventory completed in July 2009, there would be an estimated 160 wild horses, including foals, in the HMAs by Summer, 2010.

Appropriate Management Level (AML) - The upper end of the AMLs for the Black Mountain and Hardtrigger HMAs range from 30 to 60 and 66 to 130, respectively. The AMLs were established through the 1999 Owyhee RMP (USDI 1999) based on monitoring data and thorough public review. There is a similar dietary overlap between wild horses and livestock. Therefore, Animal Unit Months (AUMs) were allocated to wild horses on a proportional basis with other uses of the allotments (wildlife, livestock) using the best available utilization data collected within the allotments (Table 6).

Table 6. Wild Horse Forage Allocations and Appropriate Management Levels (AMLs) for the Black Mountain and Hardtrigger Herd Management Areas, Owyhee County, Idaho.

Herd Management Area	Wild Horse Forage Allocation (AUM)	AML Range
Black Mountain	540	30 - 60
Hardtrigger	1,176	66 - 130

An AML range was established for several reasons. Resource degradation would likely occur when wild horse population levels exceed the upper range of an AML. Yearly gathers would be required to maintain the wild horse population at the AML, if a range were not established. A range allows flexibility to gather to a lower number and be able to allow the herd to build over time to the higher number. Horses would be within the AML range for a longer period of time and would be disturbed less often.

The current National Wild Horse and Burro Policy states that periodic removals will be planned and conducted to achieve and maintain AML, and be consistent with AML establishment and removal decisions (Instruction Memorandum No. 2010-135, refer to: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-135.html). The established AML ranges would allow for a three or four year gather cycle and maintenance of a thriving, natural ecological balance.

Ecological carrying capacity of a population is a scientific term, which refers to the level at which density-dependant, population regulatory mechanisms would take effect within the herd. At this level, the herd would show obvious signs of ill fitness, including poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation.

Utilization – Utilization levels by wild horses in the Hardtrigger Allotment (Black Mountain and Hardtrigger HMAs) ranged from 0%-5% (no use) to 40%-60% (moderate use) prior to livestock turnout in 2007. Utilization levels at the end of livestock grazing ranged between 4% and 42% in the HMAs in 2009 and 2010 (Table 7).

Table 7. Post Livestock Grazing Utilization Levels in the Black Mountain and Hardtrigger HMAs, Owyhee County, Idaho.

HMA	Livestock Grazing Allotment	Year	
		2009	2010
Black Mountain	East Reynolds		16%-36%
	Hardtrigger	4%-38%	
	Rabbit Creek/Peters Gulch	33%-42%	27%-33%
Hardtrigger	Elephant Butte		24%
	Hardtrigger	4%-38%	
	Rats Nest		20% 27%
	Reynolds Creek	12%-30%	
	Shares Basin		

HMA Genetic Diversity and Viability - Blood or hair samples are important to determine genetic diversity and viability of the horse herds to ensure population diversity. After the 2000 gather, blood samples were taken on 17 horses from the Owyhee Front HMAs (Cothran 2002, Appendix D). The following summarizes current knowledge of genetic diversity as it pertains to the HMAs:

- It is possible that small populations would be unable to maintain self-sustaining reproductive ability over the long-term, unless there is a natural or management-induced influx of genetic information from neighboring herds. An exchange of only 2-3 breeding age animals per generation would maintain the genetic resources in small populations of about 100 animals.
- The small sample size makes it difficult to interpret the population variation levels.
- The Black Mountain herd should be closely monitored because of low genetic variability.
- Hardtrigger animals have sufficient diversity and would be a good source of individuals for introductions.
- Naturally occurring ingress and egress occurs between the Black Mountain and Hardtrigger HMAs.

3.5.2 Environmental Consequences – Wild Horses

Impacts to wild horses would occur on either the individual or the population as a whole. Direct impacts are those which are caused by the action and occur at the same time and place.

Examples include stress or injuries associated with gathering, sorting, and handling of animals.

Indirect impacts are caused by the action and are later in time or farther removed in distance.

Examples include changes in herd dynamics or population numbers.

3.5.2.1 Alternative A

Individual animals would experience moderate levels of physical and psychological stress for short periods of time during gather operations. Heart rates would be elevated, especially during the final move into a trap site; however, animals would be moving at a walk/trot during most of

the gather and would not be moving more than seven miles. Wild horses in the HMAs are habituated to low levels of human activity (e.g., recreationists); however, higher levels of disturbance related to gather operations could cause anxiety in individuals. Because all phases of the process would be carried out according to Bureau policy, individual stress would be minimal. Animals would be expected to recover from stress within 24 hours.

Some animals would be expected to be injured during gather and preparation operations in the HMAs or while at the holding facility. Traumatic injuries do not occur in most cases; however, injuries typically involve a bite and/or kicking with bruises which don't break the skin. Lacerations have been the most common injury when the skin is broken. Because animals injured during gather and preparation operations are removed and treated, recovery rates are very high.

The peak foaling for horses in the HMAs is mid-April to mid-May; however, some foaling does occur year long. Gathering the HMAs more than 6 weeks outside the peak foaling period (March 1 to June 30) will minimize the number of young foals being stressed.

Foals could be separated from their mothers during capture and treatment. Although efforts would be made to re-form pair bonds in holding pens, some of these foals would be orphaned. Removal of orphaned foals would insure their long-term welfare.

Implementation of the standard operating procedures related to capture, handling, and transport would result in minimal impacts to individuals over the short- and long-term. Well-constructed traps, safety-conscious corral construction at the holding facility, well-maintained equipment, and additional pens to isolate aggressive or potentially sick animals would greatly decrease stress and the potential for injury and illness. Previous gathers in the Boise District have resulted in <2% mortality of captured animals.

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 would be expected to have long-term consequences from the fertility control injections.

A one-time application at the capture site would not affect normal development of a fetus, hormone health of the mare or behavioral responses to stallions should the mare already be pregnant when vaccinated (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 would foal normally in 2011 (Year 1). Once past the effectiveness of the vaccine, data indicate a lack of effect of PZP contraception on season of birth or foal survival (Kirkpatrick et al, 2003).

Population-wide (i.e., wild horses within an HMA) impacts would occur during or directly following capture activities. They include the displacement of bands during capture and the associated re-dispersal which occurs following release, temporary separation of members of

individual bands of horses, re-establishment of bands following releases, and the removal of animals from the population.

During gather operations, individual bands become mixed with other bands. Dominance hierarchies would be temporarily disrupted, and would be re-established in the trap and after release. Brief skirmishes would occur between mature studs following sorting and release into the stud pen. These interactions generally last less than two minutes and end when one stud retreats. After release from the trap sites, dominant males could establish new bands within the first day.

Stud horses, less than five years old, relocated into the Black Mountain HMA would initially have increased stress from the transport and relocation. The relocated animals would likely be integrated into bachelor bands within two days.

Population-wide impacts have proven to be temporary in nature, with most 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 a heightened awareness of human presence.

Capture-related, spontaneous abortion events would be very rare, but could occur up to three weeks following capture. This would have a negligible effect on population levels in the HMAs over the short-term.

Removal of a portion of the 2010 foals would have a minor affect on population dynamics over the long-term. A substantial reduction in foal production for up to three years after fertility control treatment would result in fewer foals being born over the midterm (up to six years). The change in age class herd dynamics would lower the PGR in the midterm because the number of breeding age mares would be lower.

Population levels within HMAs would be reduced slightly over the short-term by the removal of up to 15% of the animals. These animals would largely be replaced by the foals born in 2011. Based on the expected rate of population growth, total population in the HMAs would be at or above the AMLs by 2014 (Appendix C). The number of animals removed in 2010 would slightly increase the number of animals available for adoption/sale or placed in long-term pastures; however, reduction in midterm productivity would result in a greater long-term reduction in animals removed, relative to Alternative B. Slight to moderate utilization levels would be expected to continue over the long-term, when populations are maintained within the AMLs.

Genetic variability within the Hardtrigger herd would be unchanged. The introduction of individual animals from the Hardtrigger herd into the Black Mountain herd would improve genetic variability within the Black Mountain herd.

Win Equus population modeling predicts a 2.9% annual PGR over 10 years with implementation of fertility control (Table 8) (Jenkins 1996). The highest success for fertility control has been

obtained when applied during the timeframe of November through February. If no horses were removed over this 10-year period, the wild horse population in the HMAs would be 222 animals.

Table 8: Summary of Population Modeling Results for the Black Mountain and Hardtrigger HMAs, Owyhee County, Idaho

Alternative	Ave. Pop. Size (11 years)	Ave. Growth Rate Next 10 Years (%)	Next Projected Gather (Year)	Estimated No. to Remove (10 years)
Proposed Action	222 ^a	2.9%	2010	15%
Continue Present Management	190	17.1%	2011	86

^a This number does not reflect removal of up to 15% of wild horses.

Sex ratios in the HMAs would remain the same after the release. Formation of new bands after release could help slightly improve genetic diversity after the effectiveness of fertility control vaccine decreases, but herd genetic diversity would remain similar to current conditions.

Of the 15% of animals removed, adoption age wild horses (under five years) would not be expected to be held over eight months in short-term corrals. Historically wild horses one and under from the Owyhee Front are readily adopted. The BLM policy, of only horses five years old or older and horses that have been to three adoption events, which can be taken to long-term pasture, would result in very few gathered horses being placed in long-term pastures.

Animals in holding facilities would no longer be wild and free roaming. Stress levels would be elevated over the short-term as wild horses become habituated to a new environment. Animals would be in a confined area that would limit their ability to avoid more dominant animals. This could increase the potential for injury and illness over the short-term. Segregating animals by sex and age could affect short-term socializing behaviors by requiring new dominance hierarchies to be formed. Regular feeding and consistent medical treatment of adopted horses or those in long-term pastures would promote long-term survival that could be greater than those in the wild.

3.5.2.2 Alternative B

Herd dynamics and sex ratios would remain stable over the short-term. Based on expected production rates, the upper limits of the AMLs would be reached in 2011. Impacts to wild horses from a removal gather in 2011 would be similar to those described in Alternative A. The gather would be to the lower ends of the AMLs, resulting in a total population of 96 animals. The post-release sex ratios of 40% females and 60% males and fertility control would help reduce PGR; however, PGR would still be greater than Alternative A. A lower percentage of mares would be treated with fertility control vaccine because of capture dynamics associated with larger gathers. Population numbers would reach the upper limits of AMLs between 2015 and 2017, depending on the percentage of mares treated with fertility control vaccine.

The Win Equus population model predicts a 17.1% annual PGR. Approximately 86 animals would be removed in 2011. Approximately 66 wild horses would be put up for adoption/sales and 20 would be placed in long-term pastures. The additional wild horses placed for adoption/sales would likely leave 30 horses in short-term corrals one year after the removal

gather is conducted, and would add to the national overpopulation of wild horses in short-term corrals and long-term pasture.

3.6 Livestock Grazing Management

3.6.1 Affected Environment – Livestock Grazing Management

The rangeland management program includes seven grazing allotments within the HMAs currently under deferred or rest rotation grazing systems with use periods of spring, summer, fall and winter (Table 9). Water for livestock and wild horses is mainly available from springs and reservoirs during late winter to early summer. Throughout the summer, spring flow and reservoir storage diminish. By the late part of the grazing season, most water resources become dry, thus causing some excessive use in and around perennial riparian areas.

Table 9. Livestock Grazing Allotments within the Black Mountain and Hardtrigger HMAs

HMA	Allotment - #	Season of Use	Avg. Actual Use for allotment (AUM)	Active Preference
Black Mountain	East Reynolds (0651)	04/05 – 06/30	1,577	1,981
	Rabbit Cr./Peters Gulch (0517)	05/01 – 08/08 11/01 – 02/28	2,108	2,193
	Hardtrigger (0516)	04/01 – 10/31	1,261	1,560
Hardtrigger	Rats Nest (0522)	04/01 – 05/27	298	557
	Shares Basin (0556)	04/01 – 11/30	1,486	2,838
	Hardtrigger (0516)	04/01 – 10/31	1,261	1,560
	Reynolds Creek (0508)	03/15 – 02/28	3,380	3,874
	Elephant Butte (0513)	03/15 – 05/31 11/01 – 12/31	Not Calculated	390

3.6.2 Environmental Consequences – Livestock Grazing Management

3.6.2.1 Alternative A

Livestock could be present in the HMA portions of the Rabbit Creek/Peters Gulch, Shares Basin, and Elephant Butte allotments during the gather. Because gates would be opened between allotments to facilitate movement of wild horses to trap sites, livestock could move between allotments during the gather. This would cause the permittee to move livestock out of the pasture that horses are being gathered from and stress may put on the livestock when the helicopter is in the area. This would put an additional burden on the livestock operator to ensure his cattle are out of the area, but impacts would be slight and only for a short time per trap site (up to three days).

Maintaining wild horse numbers within AMLs would result in slight to moderate wild horse forage utilization levels over a four year period. Overlap between wild horse and livestock use areas would be limited; therefore, areas where livestock graze could make progress toward meeting Standards for Rangeland Health.

3.6.2.2 Alternative B

Wild horse forage utilization would be below or at acceptable levels until the gather in 2011. Impacts to livestock from the 2011 gather would be similar to those described in Alternative A. Depending on what time of the year the gather occurred (generally after July 1), up to five of the allotments could be actively used by livestock. Impacts to livestock and permittees would increase proportionally with increases in the number of allotments in use. Reductions of wild horses to the lower end of AMLs would benefit livestock by reducing forage use by wild horses over the short-term and reducing use area overlap between livestock and wild horses (USDI 2007a).

3.7 Cultural, Paleontological, and Historical Resources

3.7.1 Affected Environment – Cultural, Paleontological, and Historical Resources

Class III inventories were conducted at the trap sites prior to the 2007 gathers and no cultural, paleontological, or historical resources were identified. Some cultural resources are likely to occur in the HMAs, especially adjacent to natural water sources. The BLM is not aware of any traditional cultural properties in the HMAs.

3.7.2 Environmental Consequences – Cultural, Paleontological, and Historical Resources

3.7.2.1 Alternative A

Minimal impacts to cultural resources within the HMAs would be anticipated. Existing and newly identified trap sites have been inventoried for cultural resources. No cultural sites exist at these locations. Surveys conducted prior to the establishment of any additional trap sites would ensure that cultural resource damage would be avoided or mitigated. Access by tribal members to the HMAs could be restricted during the gather. Surface cultural resources that may occur in riparian area crossings or in the narrow corridors of horse movement within 0.25 miles of trap sites would be susceptible to hoof damage. Hunting, gathering, and similar rights of access and resource use in the HMAs could be affected for up to 10 days.

Maintaining wild horse numbers within AMLs would help maintain soil, vegetation, and riparian resources, and, therefore, cultural resources, until the next removal gather.

3.7.2.2 Alternative B

Impacts to cultural resources from a 2011 removal gather would be as described in Alternative A. Improvements to soil, vegetation, and riparian resources realized by removing horses to the lower limit of AMLs would slightly benefit cultural resources over the short-term.

3.8 Recreation

3.8.1 Affected Environment – Recreation

The level of use from motorized and non-motorized recreationists in the HMAs varies, depending upon the season. Currently, the spring and fall seasons attract more visitors to these areas than do the summer and winter seasons, due to the more desirable weather conditions.

Recreationists visit the two HMAs, on occasion, to view the wild horses in their natural environment for photographs and sightseeing.

There are a number of trailheads located within the proposed project areas. The Black Mountain HMA contains Hemmingway Butte, Chalky Butte, Kane Springs, and Black Mountain trailheads. The Hardtrigger HMA contains the Wilson Creek trailhead. All trailheads provide parking, information, and access to the existing trail system. Off-highway vehicles (OHVs) are a major component of recreation in this area, especially in the Wilson Creek and Hemmingway Butte trailheads. An increasing amount of OHV and motorized use is occurring in the area. There are 62 miles of designated roads and trails in the Hardtrigger HMA, 347 miles in the Black Mountain HMA, and 533 miles in the remainder of the Owyhee Front.

The HMAs are included in the Idaho Department of Fish and Game (IDFG) big game management Unit 40. The unit extends from the Snake River south to the Owyhee Upland Backcountry Byway and west to the Oregon border, and includes approximately 1.45 million acres of public, private, and State lands. The unit is close to a major population area and is popular with hunters. The unit supports a variety of hunts for big game, furbearer, and upland game species (Table 10).

Table 10. Idaho Department of Fish and Game 2010 Hunting Season by Species for Unit 40, Owyhee County, Idaho

Species	Type of Hunt	2010 Seasons
Mule deer	Archery	8/30 – 9/30
	General	10/10 - 10/24
	Controlled ^a	11/1 – 11/24
Elk	Controlled	8/15 – 11/24
	Antlerless	10/15 – 11/24
Pronghorn	General	9/25 – 10/24
Mountain lion	General	8/30 – 3/31 ^b
California quail	General	9/19 – 1/31 ^b
Sage-grouse	General	10/1 – 10/31 ^b
Chukar	General	9/19 – 1/31 ^b
Mourning dove	General	9/1 – 9/30 ^b
Rabbit	General	9/1 – 2/28 ^b

^a 195 permits

^b Seasons for these species have not been set, these dates are from the 2009 season and would be expected to be similar for 2010.

3.8.2 Environmental Consequences – Recreation

3.8.2.1 Alternative A

Access restrictions would adversely affect recreationists during the 10-day gather. Access to trailheads in the HMAs would be restricted; therefore, OHV and non-motorized trail users could be displaced to other areas in the Owyhee Front for the duration of the gather. Because only one HMA would be gathered at a time, 7%-37% of the total designated trails could be restricted. Access to areas south of the HMAs could occur on the Reynolds Creek Road, but travelers could expect minor delays of up to 30 minutes. For a few weeks after the horse gather, it would also

be more difficult for the public to view wild horses in the HMAs. This may cause some recreationists to increase their search time for the horses. Wildlife could also be more wary of human disturbance and would be more difficult to view over the short-term.

Gather activities would limit hunting access to small portions (<5%) of Unit 40 for up to five days in each HMA. Hunters seeking mule deer (controlled permit), upland game, and furbearers would be affected. Because gather activities could increase mule deer sensitivity to human activity, hunters may have more difficulty locating animals for up to a week following gather activities.

With the exception of when aerial operations occur during the gather, there would be no impacts expected to other recreational opportunities in these areas. Short-term impacts to recreation, as a result of the proposed project, would be minimal. There are no long-term impacts expected as a result of the proposed action. OHV use generally occurs near the trailheads, areas that wild horses do not typically utilize.

3.8.2.2 Alternative B

Impacts from a removal gather would be similar to Alternative A. Depending on the time of year the gather occurs, different segments of the hunting population could be affected. A gather in the summer would have less impact on OHV and mountain bike recreationists than Alternative A. Opportunities to view wild horses could be more limited over the short-term when herd numbers are nearer the lower limit of the AMLs.

3.9 Cumulative Impacts

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

Cumulative impacts are not addressed for resources where impacts from the proposed action were not identified (i.e., cultural resources) or where impacts were minimal in context, intensity, and duration (e.g., wetland/riparian zones, water quality, livestock grazing management).

3.9.1 Soils/Vegetation Resources

3.9.1.1 Scope of Analysis – Soils/Vegetation Resources

The analysis area, approximately 285,000 acres, includes grazing allotments on the northeast face of the Owyhee Front from the Oregon border south to the eastern edge of the Rabbit Creek drainage. It includes all or portions of 31 grazing allotments [10 of which are Fenced Federal Range (FFR)]. This area includes watersheds associated with the HMAs. The time period considered begins in 1997 when Idaho Standards and Guidelines were initiated and ends in 2015 when all grazing permits within the area should be implementing changes required by the Standards and Guidelines.

3.9.1.2 Current Conditions – Soils/Vegetation Resources

Soil and vegetation conditions throughout the analysis area are similar to those described in sections 3.1 and 3.2, and are generally related to elevation, precipitation, and animal use levels. Lower elevations with low precipitation (7"-10" annually) are dominated by shrubs with annual grass understories. Upper elevation areas with moderate precipitation (11"-16") are dominated by shrubs and perennial grasses. Within the upper elevation areas, increaser grasses (Sandberg bluegrass, squirreltail) are more prevalent in areas receiving moderate to heavy use from livestock and/or wild horses, and decreaser grasses (Idaho fescue, bluebunch wheatgrass) are more prevalent in areas receiving none to slight use.

Between 2002 and 2006, Standards and Guidelines assessments and determinations were completed for many of the grazing allotments in the analysis area. Where standards were not being met and livestock grazing was a significant factor, new grazing systems are being implemented to help make progress toward meeting standards. Most systems also included rangeland management projects such as changes in fencing (e.g., new construction, repair, removal) and maintenance or development of water sources.

Proliferation of unauthorized OHV routes has been responsible for loss of vegetation, accelerated soil erosion, and establishment and spread of invasive and noxious weeds in the analysis area. The Wilson Creek and Murphy Subregion travel management plans (TMPs) were completed in 2007 and 2009, respectively. The plans designated 975 miles of roads and trails for various uses and closed 468 miles in a 262,000 acre area, approximately 50% of which overlaps the analysis area. Route designation for the remaining area should be completed within two years. The BLM, Owyhee County, and private landowners regularly maintain some roads within the analysis area.

3.9.1.3 Environmental Consequences – Cumulative Impacts – Soils/Vegetation Resources

Overall soil and vegetation conditions would be expected to be maintained or improved over the long-term. Changes in grazing systems would result in slight (lower elevations) to moderate (upper elevations) increases in the cover and vigor of desirable plants which would help stabilize soils and reduce the potential for noxious weed establishment and spread. The alteration or loss of soil and vegetation associated with the construction and use of rangeland management projects would continue to occur in very localized areas throughout the analysis area. As routes are closed and rehabilitated, vegetation would help stabilize soils and reduce the potential for noxious weeds. Limited amounts of vegetation (mostly invasive species) would be removed during road maintenance activities and the disturbed areas would be susceptible to noxious and invasive weeds.

The effects from either alternative would be relatively minor compared to the other reasonably foreseeable actions.

3.9.2 Wildlife/Fisheries

3.9.2.1 Scope of Analysis – Wildlife/Fisheries

The area considered for cumulative impacts includes the Owyhee Front from the Oregon border on the west to Castle Creek on the east. Possible impacts were considered between 2010 and 2014 when impacts from the proposed action and alternatives would be expected to be negligible.

3.9.2.2 Current Conditions – Wildlife/Fisheries

The analysis area provides habitat for a variety of wildlife species. Elevations range from 2,500 feet along the Snake River to over 8,000 feet in the Owyhee Mountains. Habitat types represented are as described above. Vegetation conditions, generally, are poor to fair below 5,000 feet and fair to excellent above 5,000 feet. Habitat conditions are influenced by current human activities (e.g., livestock grazing, OHV activity, hunting) and historic influences (e.g., conversion of low elevation habitat into cultivated fields, grazing practices that reduced desirable species and introduced invasive species, mining, timber harvest). Lower elevation habitats are highly fragmented by OHV routes and historic habitat degradation. Upper elevations generally provide more intact habitats.

Human activities that disturb wildlife generally fall into short-term, potentially high intensity, concentrated disturbances (e.g., competitive OHV events, hauling mineral material on Silver City Road, wild horse gathers) and short to long term, low intensity, dispersed disturbances (e.g., casual OHV use, wildlife viewing, hunting). Because of weather conditions, both types of disturbances are greatest during the spring and fall. Approximately 2-3 competitive events lasting 1-3 days are scheduled annually during the fall. There are a variety of hunting seasons scheduled during the year, primarily during the late summer and fall (Table 10).

Activities that result in the direct loss of habitat include construction (e.g., range management projects, met towers, urban development), maintenance (e.g., road, range management projects), and casual (e.g., OHV route proliferation) activities and natural (e.g., fire) and human (e.g., introduction and expansion of noxious and invasive plants) influenced processes. No range management projects are proposed for construction in the area. Five met towers are being proposed for construction west of the Hardtrigger HMA in Fall, 2010. Travel management planning is completed for approximately one-half of the analysis area, and is expected to be completed for the remaining area within two years. Based on previous efforts, approximately one-third of the existing routes could be closed in the remaining analysis area. With the exception of the area north of Highway 78, fires are relatively infrequent. Introduction and expansion of noxious and invasive species would most likely occur in lower elevation areas in poor condition or in recently disturbed areas.

3.9.2.3 Environmental Consequences – Cumulative Impacts - Wildlife/Fisheries

Because of its proximity to population centers, the level of human disturbances related to OHV use and wildlife viewing in the analysis area would be expected to increase over the short- and long-term, and level of hunting activity would be expected to remain relatively stable. As route closures in the area are implemented, levels of disturbance could be slightly reduced.

Competitive events are not allowed in the HMAs; therefore, disturbances from those activities

would not overlap spatially with gather activities. Other disturbance activities that would overlap temporally with gather activities would generally be low intensity, dispersed activities. Wildlife, to a degree, has become habituated to these levels of disturbance. Because of the short duration and limited extent of the disturbance, the proposed action would not be expected to add substantially to disturbance levels in the analysis area.

Isolated habitat losses associated with construction and maintenance activities would be offset, to some degree, by re-vegetation of closed routes and associated reductions in habitat fragmentation. Introduction and expansion of noxious and invasive weeds would be expected to continue along the remaining routes. Because of the limited area affected, habitat loss associated with gather activities would not be expected to substantially change habitat quantity or quality.

3.9.3 Wild Horses

3.9.3.1 Scope of Analysis – Wild Horses

The analysis area, approximately 131,251 acres, includes the three HMAs in the Owyhee Front (Black Mountain, Hardtrigger, and Sands Basin). These HMAs represent all herds identified in the Owyhee RMP (USDI 1999). Horses are not known to naturally move between the Sands Basin HMA and the Black Mountain/Hardtrigger HMAs; however, horses may be moved between HMAs during gathers to increase genetic variability. The time period analyzed includes the period 1997 through 2012, when the impact of gather activities is most apparent.

3.9.3.2 Current Conditions – Wild Horses

Nationally, there are approximately 10,000 excess wild horses above AML. Removal gathers place these horses up for adoption/sales and into long-term pastures. Currently, there are 35,000 horses in short-term corrals and long-term pastures. The annual cost to feed and care for horses held in corrals or pastures is \$29 million. Additionally, adoption numbers are down nationally and a greater number of adoptable age, excess wild horses (0-4 years old) are being held in short-term corrals.

Of 102 horses gathered from the Sands Basin HMA in 2009, 15 (5 females and 10 males) were returned to the HMA, 64 were prepared for adoption, and 15 were shipped to long-term pasture. The post gather population was returned to a low AML of 33 animals. All returned mares received fertility vaccine.

Horses in the Owyhee Front HMAs are regularly exposed to hunters, OHVs, mountain bikes, and other recreational activities. Pressure from recreation occurs primarily in spring and late fall. The horses have become habituated to these activities, which generally result in a low degree of stress.

3.9.3.3 Environmental Consequences – Cumulative Impacts - Wild Horses

The number of horses added to long-term pastures from the proposed action would be negligible relative to typical yearly additions. The addition of 50 horses to short-term corrals and long-term pastures from Alternative B would also be negligible at the National level.

Changes in grazing management that would result in improved habitat conditions would have negligible (lower elevations) to slight (upper elevations) benefits to wild horses over the long-term. Changes in OHV management would not be expected to occur in the Sands Basin area before 2011; therefore, benefits from improved OHV management would be as described in Section 3.8.

Wild horses in the HMAs are habituated to low levels of human activity (e.g., recreationists); however, higher levels of disturbance related to gather operations could cause anxiety in individuals. Because all phases of the process would be carried out according to Bureau policy, individual stress would be minimized. Animals would be expected to recover from gather-related stress within 24 hours.

3.9.4 Recreation

3.9.4.1 Scope of Analysis – Recreation

The analysis area is the same as that described for Wildlife/Fisheries (Section 3.9.2.1).

3.9.4.2 Current Conditions – Recreation

Travel management planning is the primary activity that affects recreation access in the analysis area. The Hemingway Butte Play Area Mitigation Project (USDI 2006), the Wilson Creek TMP (USDI 2007b), and the Murphy TMP (USDI 2009b) are recent planning documents affecting the Owyhee Front. The Omnibus Public Lands Management Act of 2009, Title I, Subtitle F, Owyhee Public Land Management, requires BLM to complete: (1) a transportation plan for the Owyhee Front by no later than one year after enactment of the Act; and (2) a transportation plan for BLM land in the county outside the Owyhee Front by no later than three years after enactment of the Act.

Travel management planning would limit motorized and mechanized uses to designated routes and, in some cases, reduce the current mileage available; however, over the long-term, travel planning would help protect and ensure recreational access to the area. Routes are closed primarily because they are redundant or a seasonal or permanent closure is needed to protect sensitive resources. Access across private lands has been limited seasonally or over the long-term. There are relatively few activities that restrict access across public lands for short periods of time (e.g., road maintenance, construction, mineral material hauling on the Silver City Road). These restrictions are limited to routes and not cross-country, non-mechanized access.

3.9.4.3 Environmental Consequences – Recreation

By improving OHV management through route designation, BLM would maintain a wide range of OHV and recreational opportunities over the short- and long-term. The actual number of miles of available routes would be reduced from current levels, but the quality of experience would be maintained or enhanced. Route closures in the Murphy and Wilson Creek subregions would overlap with gather operations; however, none of the short-term access restrictions would. Because of their short duration and limited extent, restrictions to recreational access caused by the gather activities would not add substantially to overall changes in access in the analysis area.

4.0 Consultation and Coordination

4.1 List of Preparers

Beth Corbin	Botanist/Ecologist
Brian McCabe	Archaeologist
Chris Robbins	Rangeland Management Specialist
Jason Sutter	Wildlife Biologist
Lonnie Huter	Weed Specialist
Matt McCoy	NEPA Specialist
Richard Jackson	Hydrologist
Ryan Homan	Outdoor Recreation Planner
Steve Leonard	Wild Horse and Burro Specialist, Team Lead

4.2 List of Agencies, Organizations, and Individuals Consulted

Animal Welfare Institute
Friends of Mustangs
Idaho Department of Fish and Game
Owyhee County
Owyhee County Natural Resources Committee
Resource Advisory Council
Sabrina Amidon
Shoshone-Paiute Tribes

4.3 Public Participation

Initial notification of the general public occurred on May 13, 2010 when a web page was posted on the BLM NEPA Register

(https://www.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do) that summarized the proposed action and how members of the public could become involved in the process.

A general information letter requesting feedback on the proposed action, possible alternatives, and potential issues that should be addressed in the NEPA process was sent to 60 interested publics, organizations, government agencies, and tribes on June 4, 2010.

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6.0 Appendices

Appendix A – Standard Operating Procedures for Population-level Fertility Control Treatments

Appendix B – Standard Operating Procedures for Wild Horse (or Burro) Gathers

Appendix C – Population Modeling

Appendix D – Genetic Analysis

Appendix E – Responses to Comments

Appendix F – Map

APPENDIX A

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 would 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 would 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 would 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 would 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 would 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 would 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 would submit a PZP Application Report and accompanying narrative and data sheets would be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken would be maintained at the field office.

4. A tracking system would 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 B

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 would be conducted in conformance with the *Wild Horse Aviation Management Handbook* (January 2009).

Prior to any gathering operation, the BLM would provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation would 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 would determine whether the proposed activities would 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 would be apprised of all conditions and would be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

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

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

New trap sites would also meet the following criteria:

Wildlife

- Avoid new disturbance in productive sage-grouse habitat (i.e., 10-30% cover, 25-35” height)
- Avoid new disturbance in big game preferred browse habitat (i.e., bitterbrush, mtn. shrub vegetation communities)
- >0.25 miles from documented pygmy rabbit occurrences

Botany (BLC 6/16/10)

- >0.25 miles from known special status plant occurrences
- >0.25 miles from known noxious weed infestations
- Preferably in a previously surveyed location and/or previously disturbed location
- >0.25 miles from Squaw Creek ACEC

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

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

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

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

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

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

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who would consider terrain, physical barriers, weather, condition of the animals and other factors. Under normal circumstances this travel should not exceed 10 miles and may be much less dependent on existing conditions (i.e. ground conditions, animal health, extreme temperature (high and low)).
3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
 - a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes larger than 2"x4".
 - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in

concurrence with the COR/PI.

- d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.
4. No modification of existing fences would be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.
 5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.
 6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays or other animals the COR determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government would 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 would 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 would be at the discretion of the COR.
 7. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor would supply certified weed free hay if required by State, County, and Federal regulation.

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

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

9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI would determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
10. Animals shall be transported to their final destination from temporary holding facilities as quickly as possible after capture unless prior approval is granted by the COR for unusual circumstances. Animals to be released back into the 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 would be at the discretion of the COR/PI or Field Office horse specialist.

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

1. Capture attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap. If this capture method is selected, the following applies:
 - a. Finger gates shall not be constructed of materials such as "T" posts, sharpened wouldows, etc., that may be injurious to animals.
 - b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
 - c. Traps shall be checked a minimum of once every 10 hours.
2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:
 - a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.
 - b. The contractor shall assure that foals shall not be left behind, and orphaned.
3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the

following applies:

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

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI, if requested, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.
2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have at least two (2) partition gates providing at least three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing at least two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.
4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.
5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping as much as possible during transport.

6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:
 - 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
 - 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
 - 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
 - 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).
7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor would be instructed to adjust speed.

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

The contractor would restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction would be done by the most humane method available. Authority for humane destruction of wild horses is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed in Instructional Memorandum No. 98-141.

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

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

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

E. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses utilizing a VHF/FM Transceiver or

VHF/FM portable Two-Way radio. If communications are ineffective the government would take steps necessary to protect the welfare of the animals.

- a. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor would be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.
 - b. The Contractor shall obtain the necessary FCC licenses for the radio system
 - c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.
2. Should the contractor choose to utilize a helicopter the following would apply:
- a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.
 - b. Fueling operations shall not take place within 1,000 feet of animals.

F. 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 would 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.

G. 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.

H Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations would be made available to the extent possible; however, the primary considerations would 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 would not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

I. Responsibility and Lines of Communication

Contracting Officer's Representative

Clif Hall

Project Inspector

Steve Leonard

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 Owyhee Field Manager would 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 would keep the best interests of the animals at the forefront at all times.

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

The COR would 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 would be vigorously enforced.

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

APPENDIX C

Population Modeling

The Wild Horse Population Model Version 3.2 developed by Dr. Steve Jenkins was used to estimate the population growth and size of herds five years after the gather. The data used in the statistical analysis of the Black Mountain and Hardtrigger HMAs was extrapolated from the July of 2009 Census and the age and sex structure of the FY2007 gather.

The environmental and demographic model option was selected as a means to project population growth while weighing both environmental and demographic variables during “good” and “bad” years. Results of the Jenkins population model are not considered a “prediction” of what will happen to the herds in the future. Results of the model are being used as an aid to evaluate the management practices that are identified in this document and to project population growth.

The modeling analysis made the following assumptions:

1. The current age selection policy would continue through the lifetime of the modeling analysis. The model was run on a 10 year cycle to see what the population would do in out years.
2. Mares would be treated with fertility control in Alternative A and released back into the HMAs. Gathers would be completed every two years with the herds and mares would be treated again. In alternative B the HMAs would be gathered when high end of AML is reached and lowered to the low AML limit.
3. The herd would rise to at least the high AML limit prior to a gather (Alternative B).
4. Foals are included in the appropriate management level.
5. 80% of the herd can be located during gather operations; 20% are not found.
6. Fertility control only is being used as a management tool in Alternative A.
7. Fertility control is 92% effective in year 1, 84% effective in year 2, and 68% effective in year 3.

Population Size Graph

The population size summary graph shows cumulative frequency distributions across trials of minimum population sizes, average population sizes, and maximum population sizes. Suppose you ran 100 trials in a simulation. The minimum population size in each trial is the smallest number of horses that were present in the population in any year of that trial. This might have been the first year, or the last, or some intermediate year, and the year in which the minimum occurs is not the same for all trials. The graph will show 100 points in a light blue color, each point representing the minimum for one trial. These points are arranged in order from smallest to largest, so the leftmost point of this sequence is the minimum of the population sizes, or the smallest population size ever seen in five years of 100 trials.

Growth Rate Graph

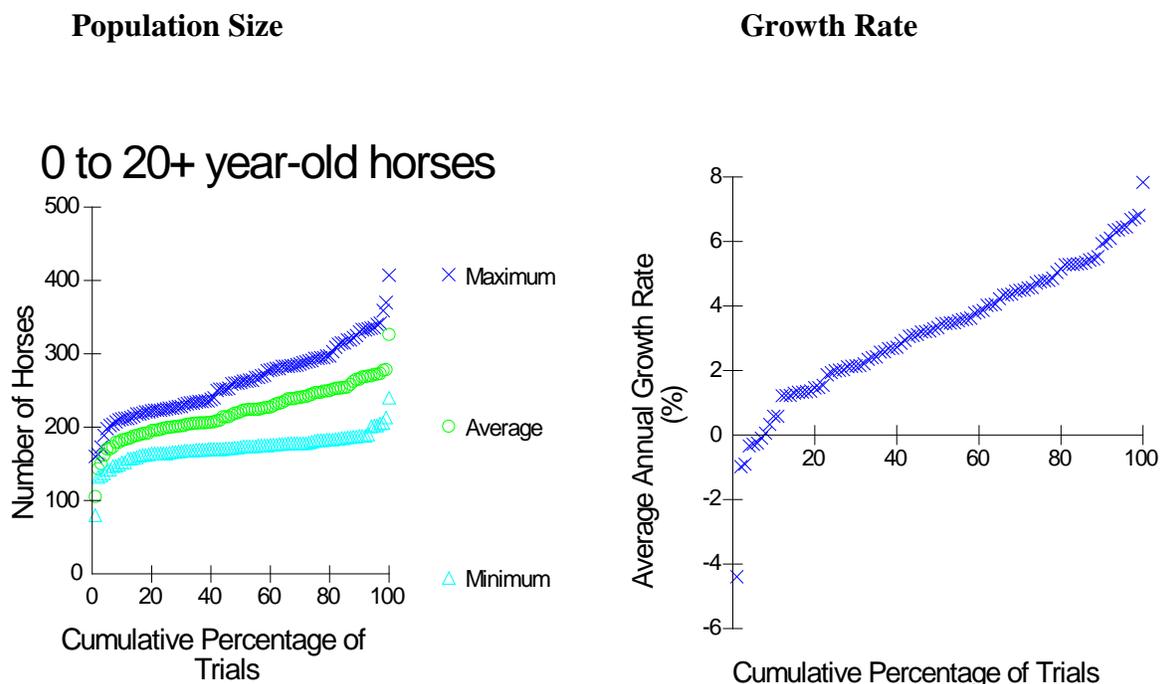
The growth rate graph shows the distribution of average growth rate across all trials in graphical format. The direct effects of removals are not counted in computing annual growth rates, although a selective removal may change the average foaling rate or survival rate of individuals in the population and may indirectly affect the growth rate.

A. Black Mountain and Hardtrigger HMAs

1. Proposed Action (Alternative A)

With no removal of animals, in eleven years and 100 trials, the average population size across eleven years ranged from 80 to 407 with a median of 222.

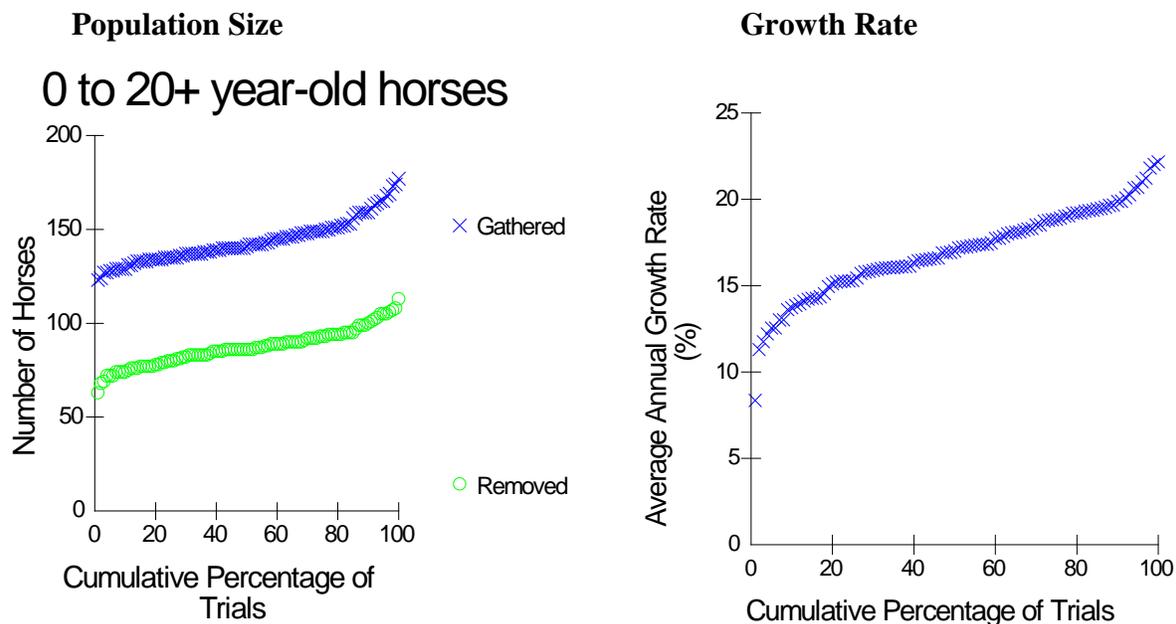
The population growth graph indicates the average growth rate over eleven years. In 100 trials, the tenth percentile growth rate was -0.8%, while the 90th percentile growth rate was 12%. The median growth rate was 5.4%.



2. Alternative B - Continue Present Management

In eleven years and 100 trials, the minimum tenth percentile of 0 to 20+ year old horses removed was 63 and the maximum 90th percentile was 100. The average population size across eleven years ranged from 80 to 268 with a median of 121.

The population growth graph indicates the average growth rate over eleven years. In 100 trials, the tenth percentile growth rate was 8.4%, while the 90th percentile growth rate was 19.9%. The median growth rate was 17.1%. The calculated annual population gain rate historically has been 22% to 26% for the two HMAs.



Summary

The population model predicts a median population growth rate of 17.1% without fertility control. The observed median population growth rate was 29% between 2002 and 2009 for the two HMAs.

Based on the model, Alternative A would have a lower average population over 11 years and lower growth rate over 10 years than Alternative B.

APPENDIX D

Genetic Analysis

Genetic analysis of feral horses
from three Idaho HMAs

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April 22, 2002

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The following is a report of the genetic analysis of feral horses from three Idaho Herd Management Areas.

METHODS

A total of 18 blood samples were received by the Univ. of Kentucky on May 10, 2001. Three different HMAs were represented. These were Sands Basin (N = 7), Black Mountain (N = 5) and Handtrigger (N = 6) HMAs.

Seventeen genetic marker systems were analyzed. Seven systems were red blood cell alloantigen loci (*A*, *C*, *D*, *K*, *P*, *Q* and *U* horse blood groups) tested by standard serological methods of agglutination and complement mediated hemolysis. The other 10 systems were biochemical polymorphisms detected by electrophoretic techniques. These systems were Albumin (*ALB*), Alpha-1-beta Glycoprotein (*A1B*), Serum Cholinesterase (*ES*), Vitamin D Binding Protein (*GC*), Glucose Phosphate Isomerase (*GPI*), Alpha Hemoglobin (*HB*), Phosphoglucosmutase (*PGM*), Phosphogluconate Dehydrogenase (*PGD*), Protease Inhibitor (*PI*), and Transferrin (*TRF*). In addition to the above genetic systems, DNA was extracted from the blood samples and tested for variation at 12 equine microsatellite (mSat) systems. These were *AHT4*, *AHT5*, *ASB2*, *ASB17*, *ASB23*, *HMS3*, *HMS6*, *HMS7*, *HTG4*, *HTG10*, *LEX33*, and *VHL20*. These systems were tested using an automated DNA sequencer to separate Polymerase Chain Reaction (PCR) products.

A variety of genetic variability measures were calculated from the gene marker data. Values were calculated for the combined sample and each HMA separately. The measures were observed heterozygosity (*Ho*) which is the actual number of loci heterozygous per individual and is based upon biochemical loci only; expected heterozygosity (*He*) which is the predicted number of heterozygous loci based upon gene frequencies and was calculated for biochemical

loci and all marker systems (*Het*); effective number of alleles (*Ae*) which is a measure of marker system diversity; total number of variants (*TNV*); and estimated inbreeding level (*Fis*) which is calculated as $1-Ho/He$. These same measures were calculated for the mSat data.

Genetic markers also can provide information about ancestry in some cases. Genetic resemblance to domestic horse breeds was calculated using Rogers' genetic similarity coefficient *S*. This resemblance was summarized by use of a restricted maximum likelihood (RML) procedure.

RESULTS AND DISCUSSION

Variants present and allele frequencies for the blood group and biochemical markers are given in table 1. No variants were observed which have not been seen in horse breeds. Table 2 gives the values for the genetic variability measures of the Idaho horse herds. Also shown in Table 2 are values from a representative group of domestic horse breeds. The breeds were selected to cover the range of variability measures in domestic horse populations. Mean values for feral herds (based upon data from 54 herds) and mean values for domestic breeds (based upon 118 domestic horse populations) also are shown.

Mean genetic similarity of the combined Idaho herd to domestic horse breed types are shown in Table 3. A dendrogram of relationship of the Idaho herds to a standard set of domestic breeds is shown in Figure 1. This is a consensus tree from 20 individual RML runs. The numbers in the tree are the number of runs where the grouping to the right of the number occurred.

Genetic variants. No unusual variants were observed in this sample. The total number of variants observed was just slightly below the average for feral horses. Considering that the

sample size was fairly small it is likely that the combined group has an allelic diversity within an average range.

Genetic variation. Overall genetic variability is low with an H_o value right at the level that is proposed as the critical level. It is difficult to assess the populational variation measures (H_e , H_{et} , A_e and TNV) because of the small sample size, especially within HMAs. However, H_o is relatively independent of sample size so I will focus on this measure. H_o is usually correlated with the other measures to some extent.

H_o of the Sands Basin and Black Mountain herds are critically low, especially the Black Mountain herd. In contrast, the Hardtrigger herd has individual variability that is above average for feral horses. For all three populations, expected heterozygosity (H_e) is less than H_o . This may partially be due to sample size but it also suggests that there is little or no inbreeding. The most probable explanation for the low variability is small population size which will, eventually, result in inbreeding. It is difficult to access whether there is any gene flow among the populations. There are similar collections of variants within each sample at most systems (see Appendix 1). There are some clear differences at the PI and D systems. The allele distributions at these two systems suggest that there is limited gene flow among all three populations.

The DNA microsatellite data also shows an H_o level for the combined Idaho herds that is less than the mean for feral herds (0.667 compared to 0.696), however, the difference is not as great as for the blood marker data.

Genetic similarity. Genetic similarity of the combined Idaho samples was greatest with the Light Racing and Riding breeds. This also is reflected in the RML tree (Figure 1). This may be due to input from Quarter Horse and other ranch stock. Only the combined data was used for

the calculation of S and the tree, again, because the sample size of the individual HMAs was too small.

SUMMARY

Genetic variability of the combined three Idaho feral horse populations was low and at the level that is currently considered critical. The Sands Basin and Black Mountain HMAs had especially low variation. It is difficult to interpret the populational variation levels due to the sample size and the fact that these measures are influenced by sample size. However, based upon the H_o measures, heterozygosity is low but allelic diversity is about normal for feral horses. The low variability is most likely due to small population size, either in recent years or a severe bottleneck at sometime during the past. The three populations appear to be somewhat differentiated but this could be an artifact of the limited number of individuals sampled. There does appear to be some limited gene flow among the three herds based upon the sampled horses. However, the evidence for gene flow could just represent shared origins rather than current migration. The herd appears to be derived from ranch stock.

RECOMMENDATIONS

The Sands Basin and Black Mountain herds should be closely monitored, especially the Black Mountain herd as it has extremely low variability. If it is possible for migration among the herds this should be encouraged. There is sufficient diversity within the three herds that with accelerated gene flow all three herds could increase variability levels. If natural migration is not practical then introductions should be considered. No action is needed for the Hardtrigger herd at this time. This herd would be a good source of individuals for introduction into either the Sands Basin or Black Mountain herds. Exchange between these two herds also should increase variability within these herds.

Table 1. Allele frequencies for variants found in three Idaho feral horse herds and combined data.

System	Allele	Combined Data	Black Mountain	Hard-trigger	Sands Basin
Tf	D	.167	.000	.333	.143
	F2	.444	.500	.333	.500
	H2	.167	.200	.083	.214
	O	.028	.000	.000	.071
	R	.194	.300	.250	.071
A1B	K	1.000	1.000	1.000	1.000
Es	G	.056	.100	.000	.071
	I	.888	.900	.833	.929
	S	.056	.000	.167	.000
Al	A	.250	.000	.250	.429
	B	.750	1.000	.750	.571
Gc	F	.944	1.000	.917	.929
	S	.056	.000	.083	.071
PGD	F	.833	.800	.667	1.000
	S	.167	.200	.333	.000
PGM	F	.028	.000	.000	.071
	S	.972	1.000	1.000	.929
GPI	I	1.000	1.000	1.000	1.000
Hb	BI	.278	.300	.250	.286
	BII	.722	.700	.750	.714
Pi	F	.083	.000	.250	.000
	I	.167	.400	.167	.000
	L	.250	.200	.000	.500
	N	.139	.300	.000	.143
	P	.028	.000	.000	.071
	R	.083	.100	.083	.071
	S	.083	.000	.083	.143
	T	.111	.000	.333	.000
	U	.056	.000	.083	.071
A	adf	.433	.612	.299	.466
	b	.059	.118	.089	.000
	-	.508	.270	.612	.534
C	a	.423	.368	.423	.466
	-	.577	.632	.577	.534
D	ad	.056	.000	.083	.071
	dk	.332	.400	.166	.409
	dghm	.056	.200	.000	.000
	de	.111	.000	.250	.000
	deo	.111	.000	.084	.214
	dek	.000	.000	.000	.090
	bcm	.306	.400	.333	.214
cgm	.028	.000	.083	.000	

K	a	.057	.106	.087	.000
	-	.943	.894	.913	1.000
P	ac	.149	.485	.160	.037
	ad	.149	.485	.160	.037
	b	.152	.000	.461	.074
	-	.550	.030	.218	.851
Q	abc	.293	.000	.423	.465
	c	.084	.106	.000	.157
	-	.623	.894	.577	.377
U	a	.423	.552	.591	.244
	-	.577	.448	.409	.756

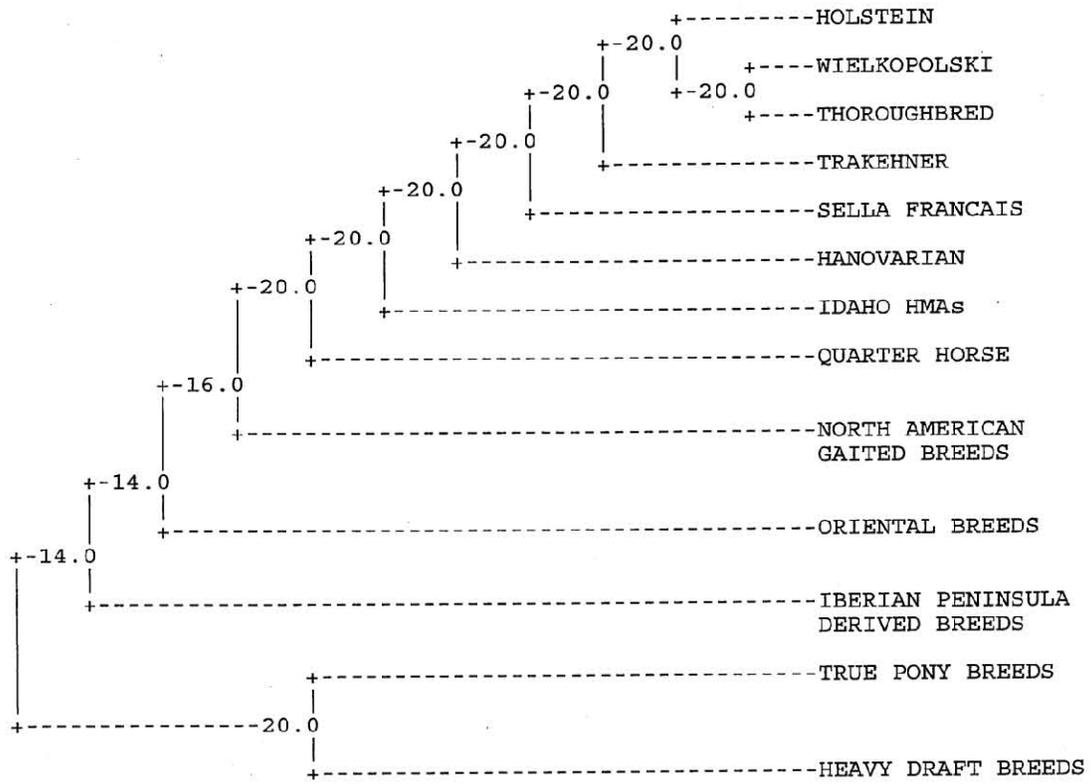
Table 2. Genetic variability measures.

	<i>N</i>	<i>Ho</i>	<i>He</i>	<i>Fis</i>	<i>Het</i>	<i>Ae</i>	<i>TNV</i>
Idaho Herds total sample	18	0.311	0.298	-0.044	0.413	2.283	52
Sands Basin	7	0.300	0.266	-0.129	0.373	1.961	43
Black Mountain	5	0.260	0.224	-0.161	0.360	1.692	35
Hardtrigger	6	0.367	0.311	-0.180	0.451	2.194	44
Thoroughbred	265	0.294	0.288	-0.019	0.325	2.009	64
Arabian	117	0.307	0.327	0.061	0.376	2.132	67
Andalusian	140	0.348	0.362	0.039	0.425	2.508	75
Shetland Pony	50	0.368	0.407	0.095	0.452	2.595	71
Welsh Pony	42	0.388	0.387	-0.002	0.453	2.603	76
American Saddlebred	259	0.404	0.409	0.013	0.435	2.625	96
Peruvian Paso	141	0.451	0.445	-0.014	0.469	2.761	77
Belgian Draft	82	0.427	0.415	-0.028	0.451	2.386	66
Feral Horse Mean	54	0.360	0.351	-0.035	0.385	2.218	53.5
Standard Deviation		0.051	0.053	0.118	0.067	0.339	12.5
Domestic Horse Mean	118	0.371	0.365	-0.014	0.414	2.398	65.4
Standard Deviation		0.049	0.043	0.065	0.039	0.253	11.1

Table 3. Rogers' genetic similarity of the combined data from three Idaho feral horse herds to major groups of domestic horses.

	Mean <i>S</i>	Std	Minimum	Maximum
Light Racing and Riding Breeds	0.856	0.019	0.829	0.884
Oriental and Arabian Breeds	0.831	0.023	0.794	0.872
Old World Iberian Breeds	0.809	0.033	0.757	0.849
New World Iberian Breeds	0.831	0.037	0.770	0.872
North American Gaited Breeds	0.829	0.032	0.769	0.869
Heavy Draft Breeds	0.797	0.028	0.742	0.833
True Pony Breeds	0.791	0.036	0.739	0.873

Figure 1. Partial RML tree showing genetic similarity of the combined Idaho HMAs feral horses to domestic horse breeds and breed groups.



Appendix 1. Biochemical genetic and blood group data for the individuals from three Idaho HMAs.

	T	A	E	A	G	P	P	G	H	P	A	C	D	K	P	Q	U
	R	1	S	L	C	G	G	P	B	I							
	F	B	T	B		D	M	I									
Sands Basin																	
17819	id4	D	F2	KK	GI	AB	FF	FF	SS	II	B1B2	LP	a--d-f-	a	---de----	k	--o - -b abc -
17820	id4	D	H2	KK	II	AB	FF	FF	SS	II	B1B2	LU	a--d-f-	a	-bcde-----	m-o	- - - abc -
17822	id4	F2O		KK	II	BB	FF	FF	SS	II	B1B2	LL	a--d-f-	a	a--de-----	--o	- - - abc -
17823	id4	F2F2		KK	II	BB	FF	FF	SS	II	B1B2	LL	-----	-	---d-----	k	--- - - -c a
17824	id4	F2H2		KK	II	AA	FS	FF	SS	II	B2B2	NS	a--d-f-	a	-bcd-----	k	m-- - - - abc -
17829	id4	H2R		KK	II	AB	FF	FF	FS	II	B2B2	LR	-----	a	-bcd-----	k	m-- - - - - a
17831	id4	F2F2		KK	II	AB	FF	FF	SS	II	B2B2	NS	a--d-f-	-	---de-----	k	--- - a- abc a
Black Mountain																	
17816	id6	F2R		KK	II	BB	FF	FF	SS	II	B2B2	IR	-b-----	a	-bc-----	m--	- a- - - - a
17817	id6	H2R		KK	II	BB	FF	FF	SS	II	B1B2	IN	a--d-f-	-	---d--gh-k	m--	- a- - - - a
17818	id6	H2R		KK	II	BB	FF	FS	SS	II	B1B2	LN	a--d-f-	-	-bcd-----	k	m-- a a- -c a
17828	id6	F2F2		KK	GI	BB	FF	FS	SS	II	B2B2	LN	a--d-f-	a	---d--gh-k	m--	- a- - - - -
17832	id6	F2F2		KK	II	BB	FF	FF	SS	II	B1B2	II	a--d-f-	a	-bcd-----	k	m-- - a- - - - a
Hardtrigger																	
17821	id7	D	H2	KK	IS	BB	FF	FF	SS	II	B2B2	FU	-----	-	---de-----	k	--o - a- - - - a
17825	id7	F2F2		KK	II	AB	FS	FF	SS	II	B2B2	RT	-b-----	a	a--de-----	---	- a- abc a
17826	id7	F2R		KK	II	AB	FF	FS	SS	II	B1B2	IT	a--d-f-	a	-bcde-----	m--	- -b abc -
17827	id7	D	F2	KK	IS	AB	FF	FF	SS	II	B2B2	ST	-----	-	---cd--g--k	m--	a ab - - - a
17830	id7	D	R	KK	II	BB	FF	FS	SS	II	B1B2	FI	a--d-f-	a	-bcde-----	m--	- -b abc a
17833	id7	D	R	KK	II	BB	FF	SS	SS	II	B1B2	FT	a--d-f-	a	-bc-----	m--	- -b abc a

Appendix 2. DNA data for the Idaho 2001
 feral horse herds.a.

ID	Microsatellite Loci												
	V	H	A	H	A	H	A	H	H	A	A	L	
	T	H	M	H	M	S	T	M	S	S	E		
	L	G	T	S	T	S	B	G	S	B	B	X	
	2	4	4	7	5	6	2	1	3	1	2	3	
	0							0		7	3	3	
01-07816	id18	II	KP	IO	PP	JJ	MP	NQ	IO	OP	NS	JJ	LL
01-07817	id18	MO	KL	HO	KN	JJ	OP	PR	IO	MN	NR	SU	LL
01-07818	id18	OP	**	**	**	JJ	**	**	OR	**	FF	**	**
01-07819	id18	LM	**	HH	NN	JO	MP	**	RR	OP	NR	GL	**
01-07820	id18	OP	MP	HH	LN	NO	KP	KQ	RR	OP	NR	LR	LL
01-07821	id18	OP	MP	HJ	MN	NO	KP	KQ	NR	OP	FN	GJ	LL
01-07822	id18	MP	PP	HJ	MN	NO	MP	NQ	KR	OQ	NN	GR	LL
01-07823	id18	IM	**	**	**	KM	**	**	**	IO	FF	**	**
01-07824	id18	MM	KL	HH	**	KM	KL	**	LO	OR	FF	IL	**
01-07825	id18	II	MM	IJ	NP	JO	KK	IO	KR	MO	PS	GI	LQ
01-07826	id18	IP	MM	IO	NP	JJ	KM	IO	NO	MM	NR	GU	QQ
01-07827	id18	IM	KO	HK	**	JJ	**	**	IS	MP	**	SU	**
01-07828	id18	MO	MM	HJ	KM	KN	PP	KQ	IL	PR	FN	IK	KL
01-07829	id18	IO	KM	JJ	NO	KM	KM	NR	IO	MP	**	LS	LL
01-07830	id18	**	**	**	**	JM	**	**	**	MP	**	**	**
01-07831	id18	MM	KK	**	**	MM	**	**	OO	**	**	**	**
01-07832	id18	LP	**	**	**	**	PP	**	**	MP	**	**	**
01-07833	id18	**	**	**	**	**	**	**	**	**	FF	**	**

APPENDIX E

Responses to Comments

No.	Commenter	Comment	BLM Response
1	1,908 comment letters	I oppose the dangerously low "appropriate management levels" (AMLs) for the two HMAs.	Establishing an AML is a planning decision (EA, 1.4 Conformance with Applicable Land Use Plan, p. 2) and is outside the scope of this environmental analysis. Due to the fact that the two HMAs are adjacent, and exchange of animals does occur to a limited extent, the current AML targets, when considered as a whole, do provide for a viable population. Because genetic studies have shown that the exchange of animals between bands and geographic areas is not as frequent as would be desired for optimal genetic mixing, the Proposed Action has been modified to include the relocation of two studs from within the Hardtrigger population to the Black Mountain population to enhance genetic exchange.
2	1,908 comment letter	The Proposed Action will jeopardize the herd's long-term genetic viability.	<p>The genetic variability of the HMAs was analyzed in 2002 (page 21, and Appendix C). The EA has been modified to address low genetic variability in the Black Mountain HMA (EA, p. 6, 7, 12, 21, 22, and 23) by a new action introducing animals from the Hardtrigger HMA.</p> <p>To determine if sufficient genetic diversity is being maintained, hair samples will be taken from horses in both HMAs (page 7).</p> <p>If, after genetic testing, genetic variability remains low, additional management actions will be developed in subsequent gather EAs.</p>
3	1,909 comment letters (1,908 form letters, and WWP)	Horse population numbers are kept so low to accommodate livestock grazing.	The current forage allocations provide for the needs of wildlife, a viable wild horse population and authorized livestock grazing. AMLs were set to provide for wild horse viability, not to accommodate livestock grazing. Allocation of available forage is a land use planning decision (EA, p. 2) [Objective LVST-1 (pages 23-25, USDI 1999) and forage allocations Table LVST-1 (pages 104-112, USDI 1999)], and is outside the scope of this environmental analysis.
4	1,908 comment letters	I oppose the use of a helicopter to roundup the horses.	The BLM has developed, refined, and implemented standard operating procedures (SOPs) over the past 35 years. These SOPs are designed to minimize stress and impacts to wild horses during implementation of gather operations. Among these is a requirement that helicopters be used to herd wild horses in a manner that allows foals to remain with their mares whenever possible (BLM Manual Section 4740.11). Also see EA, Appendix B. The use of helicopters for gathering horses allows them

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No.	Commenter	Comment	BLM Response
			<p>to be moved at a slower rate. This reduces the stress level on animals and fewer injuries occur.</p> <p>The use of non-motorized methods was considered and dismissed due to increased stress on horses, increased chance of injury to BLM personnel and wild horses, and the impracticality for large scale gathers (EA, section 2.3; Alternatives Considered but Dismissed from Detailed Analysis, page 8).</p>
5	1,908 comment letters	I oppose the removal of any horses from these HMAs, especially given the dangerously low number of horses currently on the range.	<p>A No Action (no removal of excess wild horses) alternative has been analyzed. See EA, section 2.3; Alternatives Considered but Dismissed from Detailed Analysis, p. 7 and 8.</p> <p>Ultimately, however, horse numbers will exceed AML, and removals would be required to avoid damaging rangeland health. See BLM's response to # 3.</p> <p>Under the proposed action, orphan foals, injured animals requiring treatment, and animals outside the HMA are the only horses to be removed.</p>
6	WWP	Are there a range of alternatives that would better enable stable bands, also thought to help regulate populations, to persist? Please provide a review of scientific information on how band size may best be stabilized.	<p>The most effective fertility vaccine is a one-year vaccination, but due to the need to be administered annually, it is not feasible.</p> <p>In 2008, BLM approved a research proposal from the Humane Society of the United States to study the efficacy of the 22-month vaccine, the means of applying it, and behavior of the treated mares. More information on this research is available on the BLM's Wild Horse and Burro website http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro.html</p> <p>The University of Nevada, Reno, is working in cooperation with the Nevada Department of Wildlife and Wildlife Conservation Society on a 4 year project examining mountain lion ecology in Nevada. This project is examining movements, test corridor models, and examining predation rates and prey selection.</p> <p>Removal of excess horses, adjusting the sex ratio to reduce fertile females (objectives of removal gathers), and contraception are approved ways to regulate populations. A removal gather is outside the scope of this EA. We are unaware of any additional ways to stabilize the herds.</p>
7	WWP	Could removal of adverse cattle fencing increase band ability to persist, and populations to stabilize or grow at a slower rate?	There is no evidence that existing fencing is impacting the ability of individual bands to persist or that removal of fencing would have any impact on horse numbers, population stability or cause the population to grow at a slower rate.

No.	Commenter	Comment	BLM Response
8	WWP	How do livestock facilities in these HMAs hamper wild and free roaming horses?	See BLM's response to comment 7.
9	WWP	How can healthy predator populations be maintained?	This issue is outside the scope of the environmental analysis. Management of predators is the responsibility of the Idaho Department of Fish and Game (IDFG) and U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). See BLM's response to comment 6.
10	WWP	Is the current AML still appropriate?	See BLM's response to comments 1 and 3 above.
11	WWP	We still believe this is an opportunity for BLM to examine AML, identify fences or other harmful facilities for removal, and adjust livestock use. Please fully describe how the current AML was established, and provide all data and analysis used in that process.	Decisions to close areas to livestock grazing and changes in AMLs are made during the Land Use Planning process. Livestock grazing management decisions are made during the grazing permit renewal process. Issues such as livestock facilities and numbers, wildlife movement, changes in AML, removal of rangeland facilities, etc. are outside the scope of this EA. See BLM's response to comments 1 and 3.
12	WWP	The EA refers to removing a percentage of the horses. How will that be determined? Certainly older horses deserve to stay on the range – rather than be removed. What criteria would be used to determine what horses get removed?	In accordance with BLM policy, when gathers are conducted, emphasis is placed on the removal of younger animals (BLM Manual Section 4720.33). Animals to be removed under the proposed action (EA, section 2.2.1, p 10) include orphan foals, injured animals needing treatment, and horses outside the HMA only.
13	WWP	We urge you to follow the most humane policies possible, and conduct a fall round up to minimize stress.	See BLM's response to comment 4 above.
14	WWP	Could the vaccine be administered alternatively through placement at watering sites?	The application of PZP-22 requires that mares be captured and vaccinated (EA, Appendix A).
15	WWP	If helicopters are used, will disturbance be minimized to important sagebrush habitat areas (better condition, structurally complex big sagebrush pygmy rabbit habitats, or sage grouse nesting habitats, for example)? What about impacts to other sensitive species and their habitats?	The use of helicopters will cause less disturbance to vegetation, in comparison to using entirely ground-based gathering methods (trucks, ATVs, motorcycles, horseback, etc.).
16	WWP	Are there any harmful chemical byproducts from the vaccine excreted in urine? For example, can any chemicals affect developing amphibian or other aquatic species eggs?	The antibody development in reaction to the injection of the PZP and adjuvant is the initial response of the body. This is followed by the development of the eggs in the ovaries where the antibodies prevent the sperm from attaching to the sperm receptors of the egg. Being a protein, PZP

No.	Commenter	Comment	BLM Response
			breaks down through normal body processes, and as such, there are no known byproducts that would affect developing aquatic species.
17	WWP	When was PZP administered in the past?	PZP was administered to mares in the HMAs in 2004.
18	WWP	EA at 11: one-time treatment of white top does not typically do very much	White top near the trap site was retreated in 2010 and will continue to be monitored.
19	WWP	We continue to be greatly concerned about the harmful impacts of cattle.	<p>The management of livestock grazing is outside the scope of this EA.</p> <p>Impacts from cattle are analyzed through the permit renewal process. Listed below is a list of permits in the HMAs and their decision dates. These new permits are expected to make significant progress toward meeting rangeland health standards.</p> <p>East Reynolds (00651)/Rabbit Creek-Peters Gulch (00517) ~Final Decision Date December 31, 2003. Hardtrigger (00516) ~Final Decision Date December 31, 2007. Rats Nest (00522) /Shares Basin (00556) /Elephant Butte (00513) ~Final Decision Date March 22, 2002.</p>
20	WWP	How do horses use the landscape differently than cattle and sheep? How does that factor into carrying capacity? Into AML? How does grazing (timing, use levels, management) here affect horse use and movement? Is there competition?	This question is outside the scope of the EA. The proposed action is to slow population growth, not remove animals to maintain AML; however, there is no competition between livestock and horses when forage is available.
21	WWP	BLM's Table 7 makes no sense.	Table 7 has been changed in the EA (p. 21) to clarify the information being represented.
22	WWP	An EIS should be prepared.	According to the Council on Environmental Quality (CEQ) NEPA Regulations, an EA is a concise public document prepared by a Federal agency when a proposed action is not covered by a categorical exclusion or otherwise exempt from NEPA. Federal agencies use the EA to determine whether the proposed action has the potential to cause significant environmental effects [40 C.F.R. 1508.9(a)]. That decision will be made once the EA is completed.
23	WWP	Exactly what policies are in place?	See Appendix A and B for gather-related policies.
24	WWP	Where are all the monitoring sites? How is livestock use differentiated from horses? Please provide all of this monitoring data over the past 20 years.	This question is outside the scope of this EA. The purpose of the proposed action is to reduce population growth rates and extend the time between removal gathers (EA, section 1.2, p. 4 and 5.)

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No.	Commenter	Comment	BLM Response
25	WWP	Does APHIS flyover and disturb horses? Does APHIS conduct Mormon cricket/grasshopper spraying here? If so, does this startle horses, or how may insecticides affect them?	This question is outside the scope of this EA..
26	WWP	How often does BLM check on gates? Are the cattleguards Horse-safe? If not when are you going to fix them	This question is outside the scope of this EA.
27	WWP	Where are all the OHV trails located that have been driven into the landscape? Where are all the “authorized” OHV race trails?	This question is outside the scope of this EA.
28	WWP	Where is the current Travel Plan of roading? What roads were present at the passage of the WHB vs. now? How have range developments contributed to roading?	This question is outside the scope of this EA. Information on the Travel Management Plan can be found at http://www.blm.gov/id/st/en.html .
29	WWP	How are livestock salting sites promoting weeds?	This question is outside the scope of this EA.
30	WWP	How were all the monitoring sites selected?	This question is outside the scope of this EA. Monitoring sites are based on distribution and vegetative communities.
31	WWP	How have fences increasingly concentrated horses in smaller and smaller areas—especially during winter and other periods?	This question is outside the scope of this EA. Gates are left open when livestock are not present.
32	WWP	It appears horses are going to be herded down low in Hardtrigger into sites from which they are usually displaced by closed gates, OHVs, grazing – or a combination.	Yes, horses would be gathered in the mid to low elevation areas within the HMAs. Horses use the lower elevation areas seasonally, and are likely to be in the mid to lower elevation sites at the time of gather. Having traps lower down will reduce stress on animals. Horses are not excluded from these areas. Gates are open outside of the grazing season. The majority of the population resides, during winter, within two miles of the low elevation trap sites.
33	WWP	At the WHB meeting in Denver, a new AML policy - wrongly not subjected to NEPA - was discussed. Please provide us with that document as soon as possible. What does it say? When will NEPA be conducted on it?	The BLM’s Strategy Development Document is still receiving comments at https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=4900
34	WWP	How will helicopter use may horses more frightened of all the small plane activity here? Are other Gather methods feasible?	Horses will likely be more sensitive to helicopters in the short-term. The EA was modified to reflect this (EA, p. 23). Other gather methods are not feasible (EA, pages 7 and 8).

No.	Commenter	Comment	BLM Response
35	WWP	The 29% population growth rate under No Action seems way too high.	Annual population growth rate in the HMAs varied from 10.9% to 37% (Table 4, page 19). The 29% under the No Action is based on median population growth rates for the HMAs between 2002 and 2009.
36	WWP	How do both cattle and horses affect sage grouse? During various times of the year?	Cattle and horses can directly impact sage-grouse by trampling nests and eggs. Cattle and horses can indirectly impact sage-grouse by reducing cover and forage through grazing activity. No direct effects are expected because the gather will take place during the non-breeding season. Cattle and horse grazing is an on-going activity, so no additional impacts are expected due to this proposed action (EA, section 3.4.2.1, Resident Wildlife, p 20).
37	WWP	How will this Gather disturbance affect sage grouse? What season of year will disturbance be the least? Fall?	Sage-grouse may be temporarily displaced from locations in the path of the horse gather. Sage-grouse could return to areas from which they were displaced within a few minutes to a few hours. It is highly unlikely that sage-grouse would suffer any mortality due to collisions with horses being gathered because of the specie's acute avoidance behavior, quick take-off, and strong, direct flight abilities. Disturbance would be least during the non-breeding season because there would be no probability of trampling nests, eggs, chicks or early fledglings. Disturbance during winter creates additional stress to sage-grouse, depending on the severity of temperatures, snow cover, and depth. Because the gather is planned for the fall, impacts that might occur during the breeding season or the winter are not expected (EA section 3.4.2.1, Resident Wildlife, p 20).
38	WWP	When was the most recent baseline survey for Kit fox and other rare and sensitive species?	Baseline surveys for sensitive species in the Owyhee Front are on-going
39	WWP	BLM must take great care to not stampede helicopter-driven horses through mature structurally diverse big sagebrush, to avoid destruction of loggerhead shrike nesting habitat. The Owyhee Front is a "Hotspot" for shrikes. Please identify these habitats, and avoid them. The same with pygmy rabbit habitats, where stampeding may collapse burrows. Please provide Baseline inventories and mapping based on current site-specific data, and address status of all rare and sensitive species.	Loggerhead shrikes are found throughout the Owyhee Front; landscape-scale nesting habitat mapping has not been conducted for the species. Disturbance to sagebrush communities is expected to be negligible, and abundant nesting habitat exists outside of areas that may be disturbed. Pygmy rabbits have not been documented within either HMA where the gathers are planned. Although targeted surveys for pygmy rabbits are warranted for much of the Owyhee Field Office, suitable pygmy rabbit habitat within the Owyhee Front is limited. The probability of pygmy rabbit burrows collapsing due to horse trampling is extremely low.

No.	Commenter	Comment	BLM Response
40	WWP	What is the current status of the sage-grouse habitats and populations? Please provide detailed mapping and analysis-overlaid with livestock facilities and roading/OHV trail mapping.	Four sage-grouse leks have been documented within the HMAs where the gathers are planned. Two leks have not been counted since 2001; the other two were counted in 2009 and 2010. No lek had more than 11 displaying males, based on the latest counts. The IDFG, which is responsible for managing and monitoring sage-grouse populations, does not have consistent monitoring data for these leks. However, the Owyhee Front population may be declining much like other sage-grouse populations throughout the county and region.
41	Steenhof	Approach outlined in the EA appears reasonable to limit wild horse population.	This comment is noted.
42	Steenhof	Concerned about target goal of 60% males/40% females. The impact of aggressive stallions on recreational riders was not addressed in the EA.	<p>The ratio of 60% males/40% females could only be adjusted during a removal gather because female horses would need to be removed. The only horses to be removed under the proposed action are horses being removed for their welfare. The ratio will not be adjusted during a CTR gather and, therefore, is outside the scope of this EA.</p> <p>Recreational riders would not experience a change in the current level of aggressive stallions under the proposed action. The sex ratio would remain the same, mares would still cycle, and stallions would continue to breed mares.</p>
43	Steinhoff	Disagree with statement "pressure from recreation occurs primarily from late spring to late fall" This statement contradicts the statement "currently the spring and fall seasons attract more visitors... than do the summer and winter" BLM should collect quantitative data on recreation use to detect seasonal and yearly trends.	<p>While recreation is occurring during the months of January and February, the primary use periods are, according to traffic counter data, April/May in the spring and October in the fall.</p> <p>The EA has been modified to clarify recreation use periods (EA, p.31)</p>
44	Steenhof	I support the proposal to remove horses from outside the HMA.	This comment is noted.
45	Steenhof	BLM should repair and maintain boundary fences. Gates should be signed to remain closed.	This comment is noted.
46	Owyhee County Board of Commissioners	Support all efforts which are taken to manage the Wild Horse Herds within Owyhee County so as to keep horse numbers at the appropriate management levels.	This comment is noted.

No.	Commenter	Comment	BLM Response
47	Shoshone-Paiute Tribes	The analysis and management of wild horses should consider that focusing on the stud/mare ratio is a better method of managing populations than fertility treatments.	<p>See BLM's response to comment 32 above.</p> <p>Midterm (3 years) fertility control effectiveness is for year 1, 92%; year 2, 84%; and year 3, 68%.</p> <p>In the short-term, contraception would be the most effective. In the mid-term, fewer mares having foals would result from adjusting the sex ratio, due to the lower number of mares in the HMAs. It is likely the percent of mares with successful births would remain the same. In the long-term, the ratios would return and there would be no permanent reduction.</p> <p>A sex ratio of 60% males/40% females would slow population growth to a lesser extent in the short- to mid-term, but would be an effective management tool for the mid-term.</p> <p>Sex ratio adjustment may be considered in future EAs.</p>
48	Shoshone-Paiute Tribes	The analysis and management of wild horses should consider the dynamics or behavior of "stud bunches."	The EA has been modified to address dynamics of "stud bunches" (EA, p.22).
49	Shoshone-Paiute Tribes	Horses are cultural resources.	This comment is noted. BLM Consultation efforts included Wings and Roots, interested public and a public hearing for the use of helicopters and motorized vehicles for wild horse management.

APPENDIX F

Map