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

Environmental Assessment
DOI-BLM-NV-B010-2012-0045-EA

Final

Diamond Complex
Wild Horse Gather Plan

December 2012

U.S. Department of the Interior
Bureau of Land Management
Battle Mountain District
Mount Lewis Field Office
50 Bastian Road, Battle Mountain NV 89820

BLM

Battle Mountain District

TABLE OF CONTENTS

Photos on cover clockwise from left: Diamond HMA white horse herd, October 2010, A group of wild horses residing outside the Diamond Hills South HMA boundary west of Nevada State Route 892 within the Newark Allotment August 2012, Diamond Hills North HMA general view of the range, helicopter inventory November 7, 2012.

1. Introduction

The Bureau of Land Management's (BLM) Battle Mountain District, Mountain Lewis Field Office (MLFO), Ely District, Egan Field Office (EFO) and the Elko District, Tuscarora Field Office (TFO) are proposing to gather excess wild horses from the Diamond, Diamond Hills North, and Diamond Hills South Herd Management Areas (HMA) and outside the HMAs hereafter referred as the Diamond Complex beginning in January 2013. An on-site wild horse adoption event could also be held in conjunction with the gather. Based on current conditions and monitoring data, the Diamond Complex has been identified as experiencing an escalating situation[1] due to ongoing drought conditions and current years' livestock grazing combined with excessive wild horse populations.

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result from implementation of any one of the Action Alternatives. An EA provides sufficient information and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI)."[2] This EA ensures compliance with the National Environmental Policy Act (NEPA) by providing site-specific analysis of potential direct, indirect, and cumulative effects to the human environment associated with completion of a gather and removal of excess wild horses in the Diamond Complex. Should a determination be made that implementation of the Proposed Action or alternative actions would not result in "significant environmental impacts" a FONSI would be prepared to document that determination, and a Decision Record issued providing the rationale for approving the chosen alternative.

1.1. Background

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, knowledge regarding management of wild horse population levels has increased**.** By law, BLM is required to remove excess animals once a determination has been made that excess animals are present and removal is necessary to address the current overpopulation. In the past two decades, program goals have shifted beyond establishing a "*thriving natural ecological balance*" (i.e. establishing Appropriate Management Level [AML]) for individual herds) and conducting gathers to achieving and maintaining wild horse populations within the established AML so as to manage for a healthy wild horse populations and healthy rangelands. Management actions resulting from shifting the program emphasis include increasing fertility control and adjusting sex ratios to reduce population growth rates and increase gather intervals, improving the accuracy of population inventories and collecting genetic baseline data to support genetic health assessments. Decreasing numbers of excess wild horses removed while reducing population growth rates and ensuring the welfare of wild horses on the range is pertinent to these program goals and consistent with findings and recommendations from the American Horse Protection Association (AHPA), the American Association of Equine Practitioners (AAEP), Humane Society of the United States (HSUS), Government Accountability Office (GAO), Office of Inspector General (OIG) and new draft BLM strategy. BLM's management of wild horses must also be consistent with Standards and Guidelines for Rangeland Health and for Healthy Wild Horse Populations developed by the Northeastern Great Basin Resource Advisory Council (RAC).

1. Per BLM Wild Horse and Burro Management Handbook 4700-1, escalating problems are defined Escalating problems are defined as conditions that deteriorate over time. The key indicator is a decline in the amount of forage or water available for WH&B use, which result in negative impacts to animal condition and rangeland health. Causal factors are normally drought or animal numbers in excess of AML. These situations can be detected in advance (four to six months or longer) and are managed through the normal planning process, The goal is is early detection and monitoring in order to manage the situations so they do not become "Emergency situations."
2. 40 CFR Sec. 1508.9.

To further implement this strategy of increasing population controls as a management tool, the 2012 and 2013 BLM wild horse gather schedule increased emphasis on applying fertility control to reduce growth rates and thus the number of horses that must ultimately be removed from the range and either found adoptive homes or kept in long-term pastures. This strategy's long term goal is to reduce population growth rates so the number of excess wild horses removed are lower and at levels for which adoption demand exists.

Figure 1: Diamond HMA. August 2012.

The Diamond Complex consists of three HMAs encompassing the Diamond Mountain Range, and the Diamond Hills north of Eureka, Nevada in Eureka, White Pine and Elko Counties. The three HMAs fall along the boundaries of the Battle Mountain, Ely and Elko BLM Districts and include the Diamond, Diamond Hills South and Diamond Hills North HMAs. This area is managed as a Complex due to the inherent movement patterns of the wild horses throughout all three HMAs. The MLFO manages the Diamond HMA, EFO manages the Diamond Hills South HMA and the TFO manages the Diamond Hills North HMA. The MLFO is the lead office for preparation of this EA. The Diamond Complex spans 55 miles from north to south, and is approximately 12 miles wide. Map 1 displays the Diamond Complex, and Map 2 displays the grazing allotments within the Complex.

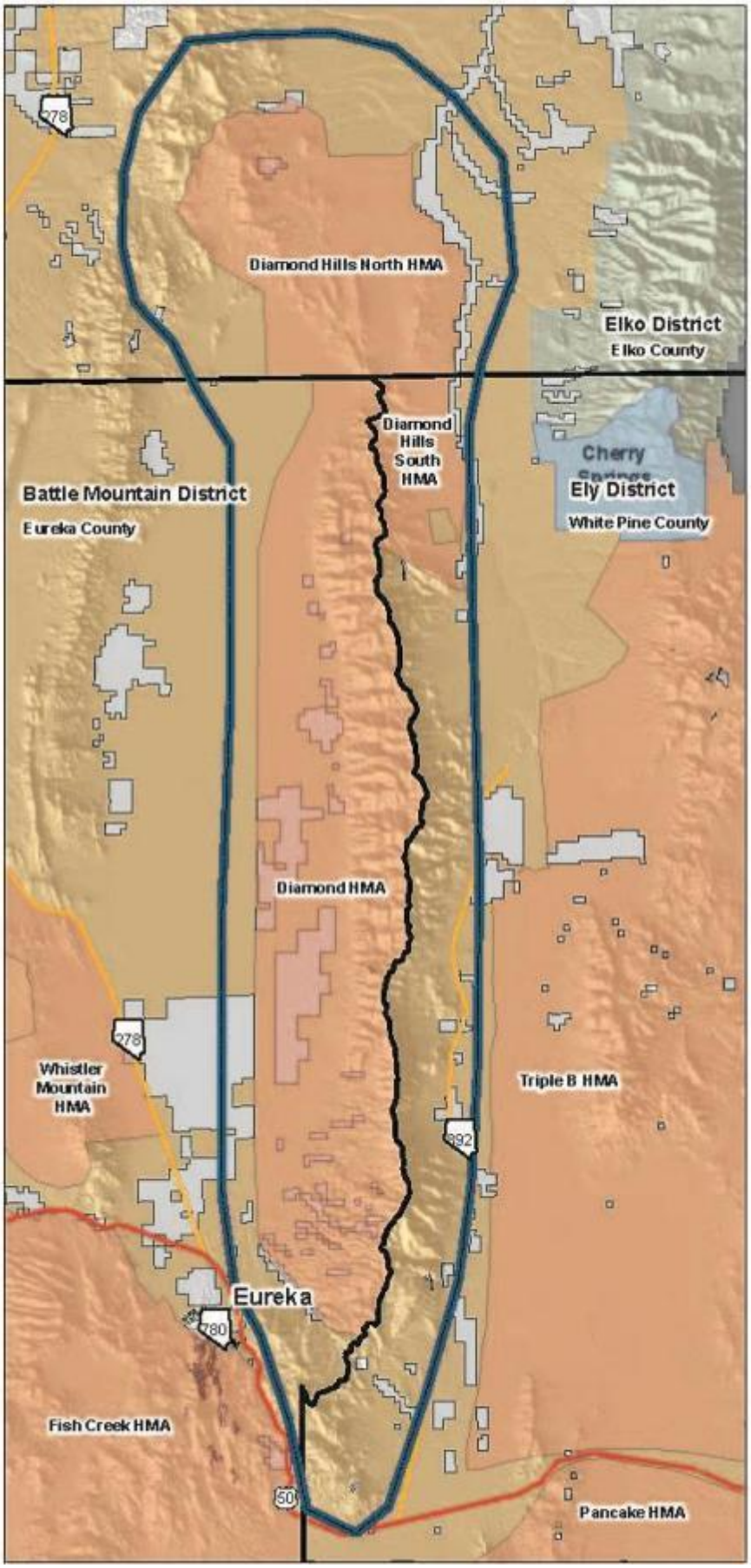
The AML is defined as the number of wild horses that can be sustained within a designated HMA which achieves and maintains a thriving natural ecological balance[3] in keeping with the multiple-use management concept for the area. The AMLs for the Diamond Complex were established through Final Multiple Use Decisions (FMUDs), Resource Management Plans (RMPs), Livestock Use Agreements or Land Use Plan (LUP) Amendments following consultation with permittees and the interested public. AMLs were established following the collection, analysis, and interpretation of monitoring data, which included precipitation, use pattern mapping, trend, production, census/inventory, and carrying capacity analysis. Monitoring data including vegetation trend, utilization, riparian functioning condition, wild horse inventory and distribution, actual use and climate data has been collected through an ongoing monitoring program since the AMLs were established. Refer to Appendix B for more detailed information about the designation of the HMAs in the Diamond Complex and the establishment of the AMLs.

3. The Interior Board of Land Appeals (IBLA) defined the goal for managing wild horse (or burro) populations in a thriving natural ecological balance as follows: "As the court stated in Dahl v. Clark, supra at 594, the 'benchmark test' for determining the suitable number of wild horses on the public range is 'thriving ecological balance.' In the words of the conference committee which adopted this standard: 'The goal of WH&B management ***should be to maintain a thriving ecological balance between WH&B populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses and burros.' " (Animal Protection Institute of America v. Nevada BLM, 109 IBLA 115, 1989).

Diamond Complex Wild Horse Gather Area

Map 1

Herd Management Areas



Legend

- Proposed Gather Area
- Districts
- Nevada USFS Territories

Highways

- US Highway
- State Route
- Herd Management Areas

Land Status

- Bureau of Land Management
- Forest Service
- Private

N
W E
S

0 2.5 5 10 Miles

No Warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Mount Lewis Field Office 2012

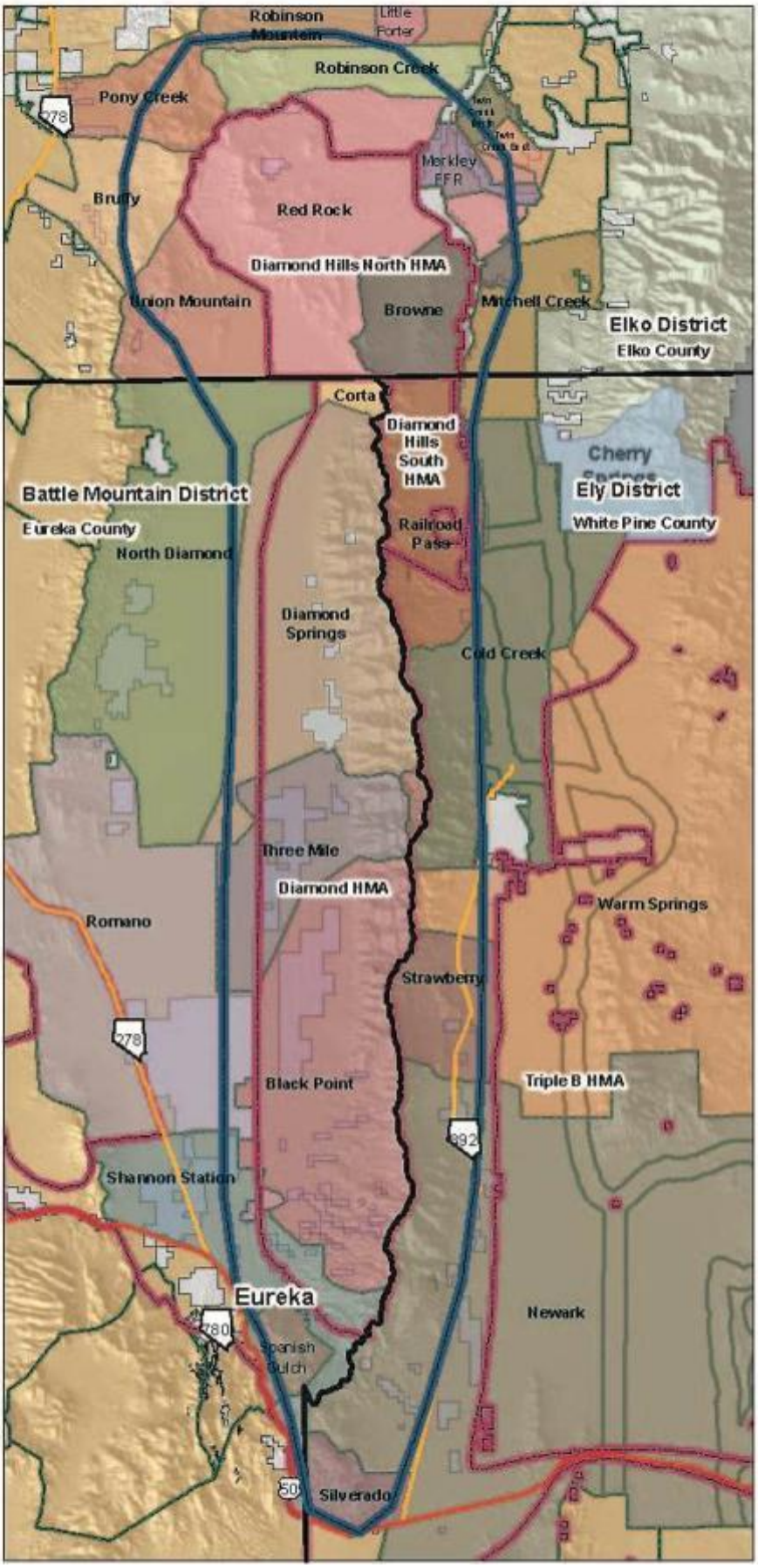
Diamond Complex Wild Horse Gather Area

Map 2

Grazing Allotments

No Warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Mount Lewis Field Office 2012



The following table displays the acreages of the Diamond Complex, established AMLs, and 2012 estimated population based on the direct count obtained during a comprehensive helicopter inventory completed November 6-7, 2012.

Table 1: Diamond Complex Overview

HMA	District/Field Office	Acres	AML	Estimated 2012 Population	% of AML
Diamond	Battle Mountain/Mount Lewis	164,929	151	298	197%
Diamond Hills North	Elko/Tuscarora	71,534	37	174	470%
Diamond Hills South	Ely/Egan	19,000	10-22	30	1550%
Outside HMA	Ely/Egan	99,500	0	311	
Total		354,963	198-210	813	387%

As noted in the table, there is a considerable land area in the Complex (99,500 acres) that is located outside of the HMA boundaries, south of the Diamond Hills South HMA on the east side of the Diamond Mountain Range. The total acreage of the HMAs excluding the non-HMA area is approximately 257,378 acres. The area outside of the HMA boundaries has not been designated as Herd Areas. Use in these areas has not been allocated for management of wild horses.

The upper levels of AML established for the HMAs represent the maximum population for which a thriving natural ecological balance and multiple use relationship on the public lands can be maintained. The lower level represents the number of animals that should remain in the HMAs following a wild horse gather in order to allow for a periodic gather cycle. "*Proper range management dictates removal of horses before the herd size causes damage to the range land. Thus, the optimum number of horses is somewhere below the number that would cause resource damage*" (118 IBLA 75).

The AML for the Diamond Hills South HMA was established as a range which allows for the periodic removal of excess animals (to the low range) and subsequent population growth (to the high range) between removals. The BLM's current guidance is to establish AMLs as a range; however the AML for the Diamond and Diamond Hills North HMAs were established prior to this guidance and were set as a single number, which represents the upper limit of AML. Therefore, removal of excess wild horses from the range would involve removal of a number of animals below the AML so as to allow for population increase between gathers without exceeding the AML. The decisions establishing these AMLs have already been made through previous processes and this EA is for actions to implement those prior decisions.

The most recent gather of the Diamond Complex was completed in summer 2004. A total of 603 wild horses were gathered, with 473 removed from the range and transported to BLM facilities. A total of 117 were released to the range, including 86 mares vaccinated with fertility control. The post gather population of the Complex was estimated to be approximately 161 wild horses, including both released wild horses and those that evaded capture.

Through the review of monitoring data including trend, utilization, actual use and climate, wild horse inventory flights and field observations, the BLM has determined that 690 excess wild horses are present within the Diamond Complex and need to be removed in order to achieve the low range of AML, restore a thriving natural ecological balance and prevent further degradation of the range caused by an

overpopulation of wild horses.

The current population of wild horses in the Diamond Complex is causing impacts to rangeland health including heavy and severe utilization of key perennial forage species, trailing and erosion, trampling and heavy use of riparian areas and damage to water developments. Monitoring since 2004 has shown that as the population increased, the degree of impacts also increased. More detail about monitoring in the Diamond Complex is presented in Appendix C.

2012 presented severe and extreme drought conditions throughout Nevada, including the Diamond Complex, compounding the impacts by the current over population of wild horses. Lack of precipitation resulted in no growth of perennial vegetation in many areas, especially low elevations. Many springs dried up and water availability at perennial sources was substantially reduced. In addition to increased trailing, utilization and impacts to riparian areas by wild horses, concerns also include considerably reduced forage in the lower elevations foothills and valleys which will limit forage availability to wild horses during the coming fall and winter. Furthermore, monitoring indicates that a large number of wild horses are already using this winter range habitat in search of sufficient forage.

As a result of the drought monitoring, in order to protect resources, encourage drought recovery and protect wild horses, livestock operators voluntarily agreed to remove livestock from the Diamond HMA in August and September, 2012. Though additional moisture was received in the way of isolated thundershowers beginning in late August, the additional precipitation was not sufficient to provide adequate growth or recovery of forage. Some flush of green growth occurred and waters were able to maintain levels. The additional late summer rains essentially slowed the progression of the drought issue rather than resolving it. Monitoring of these escalating issues has been ongoing as the forage and water availability threatens to lead to declining wild horse body condition and potential emergency situation.

During the helicopter inventory completed November 6-7, 2012, observers documented substantially depleted forage conditions especially within winter range/low elevations of the Diamond HMA, Diamond Hills South HMA, and the Diamond Hills North HMA. Heavy use and trailing near riparian areas, was also identified. Declining wild horse body condition in the Diamond HMA was also documented with numerous mares with nursing foals exhibiting accentuated backbone and hip bones (refer to photo, Figure 20, Section 3.2). Additional information about the 2012 inventory is available in Section 3.2, Appendix B and C of the EA.

Figures 2-7 display representative forage and water conditions as documented during the 2012 field season. Additional photos taken during the 2012 field season and the November 2012 inventory are located throughout the EA. The table located in Section 9, displays information about the photos including HMA, subject matter, location and the month/year taken.

Figure 2: Diamond Hills South HMA, 7/25/12. Key Area RR-01. Crested wheat grass and basin wildrye in the Big Burn that occurred in the mid 1970's which shows severe use by wild horses.

Figure 3: Diamond Hills South HMA, 7/25/12. Key Area RR-03. The Key Area is located in a reseeded small burn which shows heavy/severe use by wild horses.

Figure 4: June 7, 2012. Diamond HMA. Three-Mile Canyon Spring.

Figure 5: July 2, 2012. Diamond HMA. Three-Mile Canyon Spring, dry.

Figure 6: June 26, 2012, Diamond HMA. Walters Canyon Spring

Figure 7: June 26, 2012, Diamond HMA. One of several groups of wild horses using the spring (at left) trail away as BLM staff approach.

In addition to impacts by wild horses and rangeland degradation within the Diamond Complex, wild horses have moved outside of designated Diamond Complex boundaries onto private and public lands as observed by BLM staff since 2006. As the overpopulation of wild horses increases within the Diamond Complex, this results in wild horse movement beyond the HMA boundaries in search of forage, water, and space. During 2012, that movement has been further documented. Between the August 2012 over flight of the Diamond HMA and the November 2012 inventory, approximately 70 wild horses left the Diamond HMA with most moving onto the Ely District to the non-HMA areas south of the Diamond Hills South HMA. A total of 311 wild horses were observed outside of HMA boundaries during the inventory, an increase from 127 observed in the 2006 inventory. Under regulations at 43 CFR § 4710.4, BLM is required to manage wild horses within their HMAs and to remove wild horses that take up residence outside of the Diamond Complex HMA boundaries. Additionally, numerous wild horses have likely moved north onto the Diamond Hills North HMA in search of more adequate forage and water as indicated by wild horse characteristics noted during the November 2012 inventory which are typical of wild horses from the Diamond Hills South HMA.

Comments received from the public for BLM gathers over the past few years have emphasized the desire for BLM to increase the use of fertility control in order to reduce the number of wild horses that have to be removed from the range or maintained in Long Term Pastures (LTPs). This proposed gather is the result of National BLM direction to increase the use of fertility control to maintain wild horses within AML with fewer necessary removals.

The following is a message from the previous BLM Director Bob Abbey: *"The BLM finds itself in the predicament of needing to gather overpopulated herds from the Western range each year while its holding costs keep rising – with no end in sight. Recognizing this unsustainable situation, the Government Accountability Office, in a report issued in October 2008, found the Bureau to be at a "critical crossroads" because of spiraling off-the-range holding costs and its limited management options concerning unadopted horses.*

In response, Secretary of the Interior Ken Salazar and I announced on October 7, 2009, a new and sustainable *way forward for managing our nation's wild horse horses and burros. We recommended* ***applying new strategies aimed at balancing wild horse and burro population growth rates with public adoption demand to control holding costs*** [emphasis in original]. *This effort would involve slowing population growth rates of wild horses on Western public rangelands through the aggressive use of fertility control, the active management of sex ratios on the range, and perhaps even the introduction of non-reproducing herds in some of the BLM's existing Herd Management Areas in 10 Western states"*. Refer to the entire message at http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/national/about/director.html

The following is a quote from the Humane Society for the United States (HSUS): *"The HSUS strongly supports an increase in the use of fertility control – specifically the Porcine Zona Pellucida (PZP) immunocontraception vaccine – and sex ratio adjustments to slow population growth. This work should immediately be expanded to as many herds as possible as an alternative to gathers and long term holding. With an efficacy rate of over 90%[2], a comprehensive contraception program could dramatically reduce the financial burden on the agency and allow the BLM to once again focus its resources and efforts on range management programs" (HSUS 2010).*

The American Association of Equine Practitioners (AAEP) issued a BLM Task Force Report in August 2011 following their evaluation of handling procedures and animal welfare at wild horse gathers, and

short and long term holding facilities. In the Executive Summary of this report is stated: "*Clearly the mission of the BLM Program – Healthy Ranges, Healthy Horses – is not a simple one. A central issue for all discussions involving the care and management of the wild horse population is controlling the reproductive rate of the wild horses on the range. The AAEP encourages the BLM to prioritize research and application of effective fertility control methods in order to reduce the foaling rate in wild herds".*

1.2. Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to remove excess wild horses from within and outside the Diamond Complex, to manage wild horses at the established AML ranges for the HMAs, to reduce the wild horse population growth rates in order to prevent degradation of the public lands by protecting rangeland resources from deterioration associated with excess wild horses within and outside the HMA boundaries within the Complex, and to restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 1333 (a) of the WFRHBA of 1971.

The Need for the Proposed Action is to protect rangeland resources and to prevent degradation associated with excess population of wild horses within the Complex and use of rangeland resources by wild horses outside the Complex boundary. The need for the Action Alternatives is based on BLM's obligations established by the provisions of the WFRHBA which mandates management of wild horses in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands and to prevent the unnecessary death of wild horses resulting from conditions due to drought and lack of forage.

1.3. Land Use Plan Conformance

Battle Mountain District/Mount Lewis Field Office

The Proposed Action is in conformance with the Shoshone-Eureka Resource Area (SERA) Resource Management Plan (RMP) Objectives (Shoshone-Eureka RMP Record of Decision (ROD) dated 1986 and SERA RMP Amendment, ROD dated 1987).

Wild Horse & Burro Management Objectives:

1) To manage viable herds of sound, healthy wild horses in a wild and free roaming state.
2) To initially manage wild horse populations at existing numbers based on the 1982 aerial counts and determine if this level of use can be maintained.
3) To manage wild horses within the areas which constituted their habitat at the time the Wild and Free-Roaming Horse and Burro Act became law in 1971.

Ely District/Egan Field Office

The Proposed Action is in conformance with the 2008 Ely District ROD and Approved RMP (August 2008) on page 46, as required by regulation (43 CFR 1610.5-3(a)) as follows:

- Goal: "Maintain and manage healthy, self-sustaining wild horses herds inside herd management areas within appropriate management levels to ensure a thriving natural ecological balance while preserving a multiple-use relationship with other uses and resources."
- Objective: "To maintain wild horse herds at appropriate management levels within herd management areas where sufficient habitat resources exist to sustain healthy populations at those levels."

Elko District Office/Tuscarora Field Office

The Elko RMP ROD dated March 11, 1987 provided for four wild horse Herd Areas (HAs) and "gatherings as needed to maintain numbers." In 2003, the Elko RMP was amended for wild horse management to establish four current HMAs (Diamond Hills North, Little Humboldt, Owyhee, and Rock Creek) and their boundaries, to identify the AML for the four HMAs within the Elko Resource Area, and to establish a process for modifying AMLs for wild horses through monitoring, evaluation, and Herd Management Area Plans.

This EA tiers to the documents identified above, as appropriate.

1.4. Relationship to Statutes, Regulations, Policy, Plans or Other Environmental Analysis

The Proposed Action is in conformance with the WFRHBA of 1971 (Public Law 92-195, as amended), Section 302 (a) and (b) of the Federal Land Policy and Management Act (FLPMA) of 1976, the Public Rangelands Improvement Act (PRIA) of 1978 (Pub. L. 95-514, Sec. 4), the Code of Federal Regulations (CFR) at 43 CFR §4700, case law and policies. Applicable excerpts are as follows:

Where the Secretary determines . . .that an overpopulation exists . . . he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken . . . until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation (WFRHBA).

FLPMA amended the WFRHBA with "*In administering this Act, the Secretary may use or contract for the use of helicopters or, for the purpose of transporting captured animals, motor vehicles. Such use shall be undertaken only after a public hearing and under the direct supervision of the Secretary or of a duly authorized official or employee of the Department".*

Figure 8: Diamond Hills North HMA, November 7, 2012 Inventory. This area was burned by wildfire in 1999. Seeded native grasses and crested wheatgrass has been impacted by drought and use by livestock and wild horses, supporting very little forage at this time.

PRIA directs the continued *"policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values*".

BLM policy IM 2010-135, states at Section E: "*During gather or herd management area planning, the authorized officer will consider a range of alternatives to reduce (slow) population growth rates and extend gather cycles for all wild horse herds with annual growth rates greater than or equal to 5%. These alternatives may include (but are not limited to): fertility control, adjustments in the sex ratio in favor of males, a combination of fertility control and sex ratio adjustment, and management of selected HMAs for non-reproducing wild horses".* Similar direction is also located at Section 4.5.3 of the Wild Horses and

Burros Management Handbook H 4700-1.

Additionally, federal regulations at 43 CFR 4700.0-6 (a) state "*Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat* (emphasis added)."

The Interior Board of Land Appeals (IBLA) in Animal Protection Institute et al., (118 IBLA 75 (1991)) found that under the WFRHBA "excess animals" must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.

Washington Office Instruction Memorandum 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures directs the BLM to manage wild horses and burros within the established AMLs and to prioritize removals of excess wild horses in priority habitat. The policy also emphasizes habitat protection and management actions to improve degraded habitat.

The Proposed Action is consistent with the following Federal, State, and local plans to the maximum extent possible:

- White Pine County Portion (Lincoln/White Pine Planning Area) Sage Grouse Conservation Plan (2004)
- State Protocol Agreement Between the Bureau of Land Management, Nevada and the Nevada Historic Preservation Office (2012)
- Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines (February 12, 1997)
- White Pine County Elk Management Plan (2006 revision)
- Endangered Species Act – 1973
- Migratory Bird Treaty Act (1918 as amended) and Executive Order 13186 (1/11/01)
- White Pine County Public Land and Natural Resource Management Plan as adopted by the Board of County Commissioners of White Pine County (2007)
- Bureau of Land Management "Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada: (October 2000)
- Eureka County Master Plan (2010)
- Western Association of Fish and Wildlife Agencies (WAFWA) Guidelines to Manage Sage Grouse Population and their Habitats (2004)
- 2008 Elko County Public Lands Policy Plan.

1.5. Conformance with Rangeland Health Standards and Guidelines

The Proposed Action is in conformance with the Northeastern Great Basin RAC Standards and Guidelines for Rangeland Health, and Wild Horses and Burros.
http://www.blm.gov/nv/st/en/res/resource_advisory/northeastern_great/s_gs/wild_horses.html

1.6. Decision to be Made

The authorized officer(s) shall determine whether or not to implement a wild horse gather to remove excess wild horses and to return the wild horse population to AML. The authorized officer(s) may utilize portion(s) of any alternative to make their decision that they feel will fulfill the purpose and need for the action at hand.

The decision would not establish or adjust the AML, which was established through previous planning-level decisions. Monitoring and other available information confirms that an excess population of wild horses exists within the Diamond Complex and need to be removed in order to preserve a thriving natural ecological balance. Based on the available monitoring information that shows the excess wild horses are impacting rangeland resources, it is not appropriate at this time to make adjustments to AML. Future decisions regarding long-term management within the Diamond Complex would continue to be accomplished with public involvement through a Herd Management Area Plan or other activity level management plans specific to the HMAs based on available monitoring data. Additionally, the decision would not adjust livestock use, which also has been allocated through prior planning-level processes and decisions, and for which any adjustments must be made through the applicable regulatory procedures set forth at 43 C.F.R. Part 4100.

1.7. Scoping and Identification of Issues

The MLFO mailed a scoping letter dated June 4, 2012 to 165 individuals, agencies and organizations on the interested public list for the Diamond Complex. Among these was the Nevada State Clearinghouse which made the scoping letter available for review by Nevada State Agencies. The scoping documents were also posted on the Diamond Complex web page and a news release was issued informing the public of the opportunity to submit comments, recommendations and alternatives for the completion of the Diamond Complex EA. Letters were also sent to Native American Tribal Representatives throughout Central Nevada on June 12, 2012, informing them of the proposed gather. Comments received through September 12, 2012 were considered in completion of the Preliminary Diamond Complex Gather EA and summarized in Appendix F of the Preliminary EA. As a result of the scoping comments received, additional information and photos were added to the Preliminary EA to provide clarification or facts of interest that would help the reader better understand the Affected Environment and Environmental Consequences of the proposed gather.

Figure 9: Ely District, outside of HMA boundaries, south of the Diamond Hills South HMA. Helicopter inventory November 6, 2012.

The Preliminary Diamond Complex Gather EA was made available to the public for 30 day comment on October 19, 2012. The Preliminary EA was also made available to the Nevada State Clearinghouse which made the notification letter and EA available for review by over 50 different local, county, state, and federal agencies from around the state. The Preliminary EA was posted on the Diamond Complex website and NEPA Register.

All comments were reviewed in preparation of the Final Diamond Complex Gather EA. These comments are summarized within Appendix F of the Final EA. The overwhelming majority of these comments were fashioned from a mass form letter generated from an animal welfare organization. These "form letters" were reviewed and considered, however, only yielded 19 distinct comments. Unique comments or letters were received from approximately 20 individuals, agencies or organizations. Comments ranged from questions seeking additional information or clarification to comments for or

against the gather. Many comments were not specific to this Proposed Action but generally addressed the BLMs wild horse and burro program. Most comments reviewed fell among but were not limited to the following themes:

Support the action/importance of maintaining AMLs
Inventory/animal numbers
Genetic health
AMLs should be increased
Effectiveness/reversibility/undesirable effects of PZP and or sex ratio adjustment
Adequacy of alternatives
Outside of scope of analysis
Viewpoint/matter of opinion
Concerns/effects of use of helicopters
Public viewing opportunities during gathers
Manage primarily for wild horses/remove or reduce livestock

As a result of the comments received, some additions were made to the EA for clarification purposes; including discussion in Section 2.1 and Appendix A.III regarding safety and humane treatment of the wild horses, and information throughout the document and Appendix B and C regarding the results of the wild horse inventory in November 2012. Additionally, photos were added throughout the document with a key to the photos inserted in Section 9.0 to further illustrate conditions of the range, wild horse condition, resource issues and inventory methods. Beyond these changes, no substantial modifications were made to the EA as a result of the comments received.

A public hearing is held annually on a state-wide basis regarding the use of motorized vehicles in the management of wild horses (or burros) (inventory, gather operations, and transport). During this hearing, the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of motorized vehicles in the management of wild horses and burros. The Carson City District Office held the 2012 Nevada state-wide hearing on May 29, 2012.

2. Description of the Proposed Action and Alternatives

The following section details the Proposed Action and Alternatives that will be analyzed in this EA, as well as alternatives considered, but not carried forward for analysis.

The Proposed Action and sequential alternatives were developed to meet the Purpose and Need (i.e. to remove excess wild horses, manage wild horses within identified HMA boundaries, reduce herd growth rates, maintain AML and ensure a thriving natural ecological balance). Additionally, these alternatives considered current National WH&B Program direction that directs the BLM to implement population control measures during gathers in an effort to reduce population growth rates so as to reduce gather frequency and the number of excess wild horses that ultimately must be removed from the range in future gathers in order to maintain populations at AML. The Proposed Action and Alternatives were developed in consideration of the issues presently and previously identified during internal and external scoping and agency consultation. The following section provides a brief overview of the Alternatives which are further described in detail in Section 2.1 and 2.2.

Proposed Action: Use multiple gathers over a 10-year period for selective removal of excess wild horses to achieve low range of AML (123 wild horses), and to implement population growth control

using fertility control treatments (PZP-22 or most current formulations) and sex ratio adjustments. Under the Proposed Action, the BLM would continue with this treatment protocol over the next 10 years by conducting maintenance gathers in the Diamond Complex to continue the population growth control protocols and remove primarily adoptable excess wild horses to maintain AML. Sex ratio adjustment to favor studs would be implemented during gathers in which the low AML is not achieved. If gather efficiencies utilizing a helicopter do not achieve the desired goals of the Proposed Action, water/bait trapping may be utilized during the life of the plan to remove sufficient numbers of excess wild horses to achieve the management targets, to relieve resource concerns and/or remove concentrated groups of excess wild horses both inside and outside the HMA boundaries within the Diamond Complex.

Alternative 1: Use an initial gather and selective removal of excess wild horses to achieve a post gather population of 123 wild horses (low AML) within the Diamond Complex without implementation of fertility control. Under Alternative 1, the BLM would continue with this follow-up gathers over the next 10 years. The BLM would conduct maintenance gathers in the Diamond Complex to remove adoptable, excess wild horses to maintain AML. If gather efficiencies utilizing a helicopter do not achieve the desired goals of Alternative 1, water/bait trapping may be utilized during the life of the plan to remove sufficient numbers of wild horses to achieve the management targets, to relieve resource concerns and/or remove concentrated groups of excess wild horses both inside and outside the HMA boundaries within the Diamond Complex.

Alternative 2: Use an initial gather and selective removal of excess wild horses, implementation of fertility control and adjustment of sex ratios to favor males, achieving a post-gather population of 210 wild horses (high AML) within the Diamond Complex. Under Alternative 2, the BLM would continue with this treatment protocol over the next 10 years by conducting maintenance gathers in the Diamond Complex to continue the population growth control protocols and remove adoptable, excess wild horses to maintain AML. If gather efficiencies utilizing a helicopter do not achieve the desired goals of Alternative 2, water/bait trapping may be utilized during the life of the plan to remove sufficient numbers of excess wild horses to achieve the management targets, to relieve resource concerns and/or remove concentrated groups of excess wild horses both inside and outside the HMA boundaries within the Diamond Complex.

Alternative 3: Use an initial gather and non-selective removal (gate-cut gather and removal with no release or fertility control) of excess wild horses to achieve high AML (210 wild horses) for the Diamond Complex. Under Alternative 3, the BLM would continue to conduct maintenance gathers in the Diamond Complex over the next 10 years to remove adoptable, excess wild horses to maintain AML. If gather efficiencies utilizing a helicopter do not achieve the desired goals of Alternative 3, water/bait trapping may be utilized during the life of the plan to remove sufficient numbers of excess wild horses to achieve the management targets, to relieve resource concerns and/or remove concentrated groups of excess wild horses both inside and outside the HMA boundaries within the Diamond Complex.

Alternative 4 is the No Action Alternative.

An on-site adoption event could be planned to occur in conjunction with the gather activities in which selected wild horses would be adopted out to qualified applicants at the gather location following standard screening and approval procedures.

2.1. Management Actions Common to the Proposed Action and Action Alternatives

The initial proposed gather could take place in January 2013 and would be completed in accordance with this EA, Wild Horse and Burro Gather Plan and Standard Operating Procedures (SOPs; Appendix A) and any State or National policy and guidance in place at that time. The BLM would be responsible for contractor compliance to national contract specifications including SOPs. The BLM is committed to the well-being and responsible care of wild horses and burros we manage. At all times, the care and treatment provided by the BLM and our contractors will be characterized by *compassion and concern* for the animal's well-being and welfare needs. BLM Wild Horse and Burro Specialists would be on site at all times during gather operations to ensure wild horse safety and humane treatment. Measures to reduce stress and injury and ensure the highest levels of safety are described throughout Section 2.1, 3.2, 3.9 and Appendix A.

The number of excess wild horses to be removed in future gathers would be based on actual population increase, wild horse inventory flights and other relevant monitoring data. All future gather activities would be conducted in a manner consistent with those described in this document. Funding limitations and competing priorities may require delaying the future follow-up gathers and population control activities.

The primary gather technique would be the helicopter-drive trapping method. The use of roping from horseback could also be used when necessary. Multiple gather sites (traps) would be used to gather wild horses both from within and outside the HMA boundaries within the Diamond Complex. The BLM would make every effort to place gather sites in previously disturbed areas, but if new sites need to be used, a cultural resource inventory would be completed prior to using the new gather site. All cultural materials located would be treated as unevaluated sites and avoided by project re-design. No gather sites would be set up near greater sage-grouse leks, known populations of Sensitive Species; or in riparian areas, cultural resource sites, Wilderness Study Areas (WSAs), or Wilderness. The project design includes features aimed at removing and/or mitigating adverse effects include locating traps and temporary holding facilities at least two miles from leks during breeding season where possible.

All gather sites, holding facilities, and camping areas on public lands would be recorded with Global Positioning System (GPS) equipment and given to the District Invasive, Non-native Weed Coordinators for invasive, non-native weeds monitoring following the gather. All gather and handling activities (including gather site selections) would be conducted in accordance with SOPs in Appendix A.

Public observation of the gather activities on public lands would be allowed, but would be subject to observation protocols intended to minimize potential for harm to members of the public, to government and contractor staff, and to the wild horses being gathered, and would be consistent with BLM IM No. 2010-164 and in compliance with Wild Horse Observation Protocol found in Appendix G. Public observation sites would be established in locations that reduce safety risks to the public (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered wild horses), to the wild horses (e.g., by ensuring observers would not be in the line of vision of wild horses being moved to the gather site), and to contractors and BLM employees who must remain focused on the gather operations and the health and well-being of the wild horses.

The Observation Protocol found in Appendix G provides the public with the opportunity to safely observe the gather operations. Every attempt would be made to identify one or more observation sites at the gather location that offer good viewing opportunities, although there may be circumstances (flat

terrain, limited vegetative cover, private lands, etc.) that require viewing locations to be at greater distances from the gather site due to public visitor access limitations or to ensure safe gather operations.

Figure 10: Wild horses in the Diamond HMA. 06/03/09.

Due to the mountainous terrain and vegetative cover, gather efficiency may be less than optimal. Population gather projections show that an 85% or greater gather efficiency is necessary to achieve the population management goals. If gather efficiency is less than 85%, an insufficient number of wild horses may be gathered to allow for the implementation of fertility control or to adjust sex ratio, or to achieve the low range of AML. Funding and holding space limitations, and National wild horse or burro gather priorities elsewhere may result in fewer than desired removal numbers as well.

If follow-up gathers are necessary, the ungathered wild horses would have a heightened response to human presence and would therefore be more difficult to gather in the years following the initial gather. Any follow-up gather activities would be conducted in a manner consistent with those described here for the 2013 gather, and in conformance with the SOPs in Appendix A. Funding limitations and competing priorities may require delaying the follow-up gathers and population control. Future gathers could be conducted in either summer or winter months.

If gather efficiencies utilizing helicopter drive-trapping do not achieve the desired goals of the alternative selected, or if a helicopter gather cannot be scheduled, water/bait trapping may be utilized during the time period analyzed in this EA to remove sufficient numbers of excess wild horses to achieve the management targets, to relieve resource concerns, and/or remove concentrated groups of excess wild horses both inside and adjacent to the gather area. Any water/bait trapping activities would be scheduled during time periods that would be most effective to gather sufficient numbers of animals to achieve management targets. Existing watering sites would be preferred. In rare instances troughs may be used. Locations of water/bait trap sites are subject to the same criteria for gather (trap) sites.

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

Any old, sick or lame horses unable to maintain an acceptable body condition (greater than or equal to a Henneke body condition score (BCS) of 3 or with serious physical defects such as club feet, severe limb deformities, severe loss or wear of teeth or sway back would be humanely euthanized as an act of mercy. Decisions to humanely euthanize animals in field situations 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

Following the gather of wild horses, animals would be sorted by age and sex, and selected either for release back to their respective HMA or for transport to BLM WH&B adoption preparation or holding

facilities, where they would be prepared for adoption and/or sale to qualified individuals who can provide them with a good home or for transfer to long-term grassland pastures (LTPs).

Animals gathered from inside the HMA boundaries would be subject to the National Selective Removal Policy to the extent possible (refer to Appendix A), while ensuring that the post-gather populations consist of diverse age groups and animal characteristics. Goals for the gather include releasing horses within all age classes except weanlings, and most yearlings. Wild horses captured from outside of the HMA boundaries or from private lands would be removed regardless of characteristics or age and would not be released back into the HMAs.

Priority for removal of wild horses gathered from within the Diamond Complex would be given to animals that were four years of age or younger. It is anticipated that most animals released would be five to 20 years of age. An emphasis would be placed on older mares and stallions (15+ years of age) to be released back into the Diamond Complex to avoid the stress of transportation and handling on older wild horses. However, if necessary to achieve the post-gather population objective, animals within the older age class could be selected for removal.

Most foals would be removed and transported to BLM WH&B adoption preparation or holding facilities as they would be 6-9 months of age and weaned from their mothers. If foals too young to wean are encountered, they would be transported to the facilities with their mothers. In certain circumstances, some foals could be selected to be released with their dam if it is determined that the foals are too young to travel safely or if the mother has been selected for release and the foal should not be weaned.

Herd health and characteristics data would be collected as part of continued monitoring of the wild horse herds. Other data, including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded for all gathered wild horses. Hair samples would be collected in order to monitor the genetic health of the wild horses within the combined project area.

Wild horses would be selected and released back to the Diamond Complex, based on health and other desirable historic characteristics of the Diamond Complex. A helicopter inventory flight may be conducted following the gather to collect information about numbers and distribution of remaining wild horses within the Diamond Complex.

Population inventories and routine resource/habitat monitoring would be completed between gather cycles to document current population levels, growth rates, and areas of continued resource concern (wild horse concentrations, riparian impacts, over-utilization, etc.) prior to any follow-up gather.

2.2. Proposed Action and Alternatives

Proposed Action: Use multiple gathers over a period of 10 years for selective removal of excess wild horses, to achieve a post-gather population of 123 wild horses (low AML) in the Diamond Complex and implement fertility control. Implement sex ratio adjustment to favor studs during gathers that do not achieve low AML.

The overall objective of the Proposed Action would be to gather and remove sufficient number of excess wild horses within the project area to achieve a population of 123 wild horses, which is the combined low AML for the Diamond Complex. The post gather target was determined based on the low AML

established for the Diamond Hills South HMA, and estimated population increase within the Diamond Hills North and Diamond HMA that would allow 3-4 years (or longer) before the AML was exceeded.

Due to National funding and holding space limitations, and anticipated gather efficiencies, the BLM cannot achieve the goals of the Proposed Action through a single gather in 2013. The 2013 gather would therefore become the first phase in a long term management strategy designed to address large scale wild horse gathers while still achieving BLM's management goals of attaining low-range AML, reducing population growth rates, and obtaining a thriving natural ecological balance on the range as identified within the WFRHBA and the Director's Strategy. Under the Proposed Action, the BLM would gather and remove approximately 603 excess animals in the initial 2013 gather, resulting in an initial post gather population at approximately the high AML (210 wild horses). Additional wild horses would be gathered so as to treat mares with fertility control (PZP-22 or current formulation). Since the first phase of the Proposed Action would not achieve the desired low AML, follow-up gathers would be planned in two to three years. All wild horses residing in areas outside of the Diamond Complex HMA boundaries would be gathered and removed.

The Proposed Action alternative includes returning to the Diamond Complex every 2-3 years (starting in 2015 or 2016) for a period of ten years to gather a sufficient number of wild horses to continue the population growth control protocols of treating and/or re-treating mares with fertility control and to maintain low range AML by using limited removals of excess wild horses. The number of excess wild horses to be removed in future gathers would be based on actual population increase, wild horse inventory flights and other relevant monitoring data. All future gather activities would be conducted in a manner consistent with those described in this document. Funding limitations and competing priorities may require delaying the future follow-up gathers and population control activities.

Because the 2013 gather would not allow for low AML to be achieved, in order to reduce resource impacts and promote recovery and improvement of rangeland health, the sex ratio of the 2013 post gather population would be adjusted to 60% studs to slow population growth until another gather could occur to achieve the low AML. If future budget and holding space limitations continue to preclude achievement of low AML, sex ratio adjustment and fertility control measures would continue to be implemented. If follow-up gathers are able to achieve low AML, only fertility control would be implemented as a population control, with sex ratio adjustment reserved for those follow-up gathers that do not allow for achievement of the low AML. By completing the gather in the proposed fashion, the BLM would be able to reduce the population with each successive gather and treat an increased number of mares with fertility control (PZP-22 or most current formulation). The Proposed Action is consistent with current BLM policy and direction to reduce gather frequencies and the number of animals that need to be removed from the range over time through application of fertility control.

Figure 11: Helicopter Inventory November 6, 2012. Wild horses in the Diamond HMA in an old burn scar devoid of perennial grasses.

Long term management goals for the Diamond Complex include retention of a breeding population of 123-210 wild horses and implementation of population control techniques. The subsequent follow-up phases of the gather activities would be conducted during the period of July through February and in a manner consistent with those described under the Actions Common to Alternatives. If fertility control is to be used then follow-up gathers would be targeted around the November to February timeframe which is identified as the period of maximum effectiveness of fertility control application.

Capture success may vary depending on topography, weather, and location of the wild horses. Under this alternative, the BLM would also attempt to gather a sufficient number of wild horses beyond the excess wild horses to be removed, so as to allow for the application of fertility control to all breeding age mares that are released. This is in line with the Director's proposed national WH&B strategy. Fertility control would be applied to all the released mares to decrease the future annual population growth, extend the time before another gather is required, and reduce the number of excess wild horses that would have to be removed during future gathers. The procedures to be followed for implementation of fertility control are detailed in Appendix D.

Table 2 and 3 display the anticipated gather and removal figures. Because the Proposed Action involves a phased approach, Table 2 displays the estimated initial gather and removal numbers given current funding and holding space limitations. Table 3 displays post gather population targets for future gathers that allow for achievement of the low range of AML.

Table 2, Estimated Populations and Proposed removals under Proposed Action (Phase I)

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[4]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	298	268	30	147	121	151
Diamond Hills North	37	174	157	17	137	20	37
Diamond Hills South	10-22	30	27	3	8	19	22
Outside Diamond Hills South	0	311	311[5]	0[5]	311[5]	0	0
Total	210	813	763	50	603	160	210

2.2.2. Alternative 1: Selective removal of excess wild horses from an initial gather in 2013 to achieve a post gather population of 123 wild horses (low AML) within the Diamond Complex, without implementation of population controls with periodic removals to maintain low AML over a 10 year period.

Alternative 1 is similar to the Proposed Action with the exception that fertility control would not be administered to any mares released back to the Complex and low AML would be achieved in the initial gather. Wild horses would be selected for release back to the range to achieve a post-gather population of 123 total wild horses in the Complex, maintaining a post gather sex ratio of 50:50 studs to mares. Subsequent gathers under Alternative 1, would occur on a 2-3 year interval over a 10 year period to remove excess wild horses and would be conducted in a manner consistent with those described for the initial winter 2013 gather. The number of excess wild horses to be removed in future gathers would be based on actual population increase, wild horse inventory flights and other relevant monitoring data.

4. Estimated gather numbers based on ability to capture 90% of the population, which could vary depending on terrain, animal location, weather conditions, and animal movement experienced before and during the gather.
5. Removal of all wild horses from outside the HMA boundaries will require 100% gather efficiency.

Table 3, Estimated Populations and Proposed Removals under Proposed Action and Alternative 1

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[4]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	298	268	30	207	61	91
Diamond Hills North	37	174	157	17	152	5	22
Diamond Hills South	10-22	30	27	3	20	7	10
Outside Diamond Hills South	0	311	311[5]	0[5]	311[5]	0	0
Total	210	813	763	50	690	73	123

2.2.3. Alternative 2: *Selective removal of excess wild horses from an initial gather in 2013, to achieve a post-gather population of 210 wild horses (high AML) in the Diamond Complex with the implementation of fertility control and sex ratio adjustment to favor studs.*

Under this Alternative, the objective would be to gather and remove sufficient number of excess wild horses to achieve the high AML for the Diamond Complex in an initial gather in 2013. Future gathers would occur with 2-3 year intervals over the next 10 years to remove excess wild horses above AML, reapply fertility control and maintain a 60% male sex ratio. The actual number of studs to release would be adjusted according to the observed sex ratios at the time of gather operations. The subsequent gather activities would be conducted in a manner consistent with those described for the initial winter 2013 gather and would be conducted during the period of July through February. If fertility control is to be used then gathers would attempt to be targeted around November through February timeframe which is identified as the period of maximum effectiveness of fertility control application. The number of excess wild horses to be removed in future gathers would be based on actual population increase, wild horse inventory flights and other relevant monitoring data.

Table 4, Estimated Populations and Proposed Removals under Alternative 2

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[4]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	298	268	30	147	121	151
Diamond Hills North	37	174	157	17	137	20	37
Diamond Hills South	10-22	30	27	3	8	19	22
Outside Diamond Hills South	0	311	311[5]	0[5]	311[5]	0	0
Total	210	813	763	50	603	160	210

2.2.4. Alternative 3: Use an initial gather and non-selective removal (gate-cut gather and removal with no release or fertility control) of excess wild horses to achieve a post gather population of 210 wild horses (high AML) for the Diamond Complex.

Wild horses would be gathered and removed as encountered until removal and post-gather population objectives were achieved. No wild horses would be released so that the number gathered would equal the number removed. The post-gather population estimate for the combined HMAs would still be 210 wild horses (high AML) after the initial gather. No selection would be made based on age, health or characteristics and all horses gathered would be removed, leaving the remaining wild horses within the Diamond Complex undisturbed. No population controls such as fertility control or sex ratio adjustment would be possible under this alternative, and the population would continue to increase at normal rates.

Over a 10 year period, follow up gathers would occur on a 2-3 year basis to remove excess wild horses above the high AML and would be conducted in a manner consistent with those described for the initial winter 2013 gather. The number of wild horses to be removed in future gathers would be based on actual population increase, wild horse inventory flights and other relevant monitoring data.

Table 5: Estimated Populations and Proposed Removals under Alternative 3

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[4]	EST. UN-GATHERED	EST. TO REMOVE	EST. POST-GATHER
Diamond	151	298	147	151	147	151
Diamond Hills North	37	174	137	37	137	37
Diamond Hills South	10-22	30	8	22	8	22
Outside Diamond Hills South	0	311	311[5]	0[5]	311[5]	0
Total	210	813	603	210	603	210

2.2.5. Alternative 4: No Action Alternative (No Wild Horse Gather)

Under the No Action Alternative, a wild horse gather would not be conducted within the Diamond Complex. Wild horse populations would not be actively managed at this time and wild horses would not be removed from areas outside of HMA boundaries that are not designated for use by wild horses. The current population of 813 wild horses would continue to increase at an estimated rate of 15-18% annually. The established AML of 210 within the Diamond Complex would continue to be exceeded. Additionally, implementation of the No Action Alternative would not result in progress towards attainment of the RAC Standards for Rangeland Health, or Land Use Plan Objectives for the Diamond Complex and associated allotments or progress towards the improvement of rangeland conditions.

The No Action Alternative would not achieve the Purpose and Need identified in Section 1.2. However, it is analyzed in this EA to provide a basis for comparison with the action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative would not be consistent with the requirement under the WFRHBA to remove excess wild horses and burros from public lands and is also not in conformance with regulatory provisions for management of wild horses and burros as set forth at 43 CFR § 4700.

2.3. Alternatives Considered but Eliminated from Detailed Analysis

Through completion of EAs for proposed wild horse gathers in Nevada, and Diamond Complex scoping several alternatives have been proposed for consideration and are discussed below.

2.3.1. Control the excess wild horses with only the use of fertility control treatment

This alternative would not decrease the existing overpopulation of wild horses, resource concerns would continue, and implementation would result in increased gather and fertility control costs. Populations would continue to grow, resource degradation would continue, and progress would not be made towards attainment of Rangeland Health Standards or Land Use Plan Objectives. In order to illustrate the lack of effectiveness of this potential Alternative to maintain populations at or near AML, the information was put through the Win Equus Population Model. This information is displayed in Appendix E (Figures E.17 and 18). This alternative would not meet the Purpose and Need identified in Section 1.2, and was eliminated from further consideration.

2.3.2. Use of Bait and/or Water Trapping

An alternative considered but eliminated from detailed analysis was use of bait and/or water trapping as the primary gathering method. The use of bait and water trapping, though effective in specific areas and circumstances, would not be timely, cost-effective or practical as the primary gather method for the Diamond Complex. However, water or bait trapping may be used in areas where water is limited or absent to achieve the desired goals of Proposed Action and Alternatives 1-3 if gather efficiencies are too low using a helicopter or a helicopter gather cannot be scheduled and is therefore included as a supplemental gather method in the analyzed alternatives.

This alternative was dismissed from detailed study as a primary gather method for the following reasons: (1) the project area is too large to effectively use this gather method; (2) water rights within the Diamond Complex are primarily held by the livestock grazing permittees, (3) access for the wild horses (and other range users) to all other water sources except the water trap source must be controlled to be effective which may cause short-term impacts to other users, (4), access to waters is extremely difficult and would preclude being able to use these sources for trapping animals or shutting off access to wild horses, and (5) the presence of scattered water sources on both private and public lands inside and outside the Diamond Complex would make it almost impossible to restrict wild horse access to one source to effectively gather and remove all of the excess animals in order to achieve management goals.

The large geographic area involved and the extended time necessary to trap the wild horses under this alternative would result in a significant increase in gather cost and would make it difficult to limit the gather to a reasonable period of time. The longer gather period (which could be several months) would either cause individually removed animals to be held for an extended time until the gather was completed in order to administer fertility control and adjust sex ratios, or it would preclude the use of these population control measures, and preclude any option to select removal and release animals for preferred age structure or other desirable traits. Given the impracticalities of implementing this alternative for such a large geographic area, this alternative was eliminated from detailed study.

2.3.3. Remove or Reduce Livestock within the HMAs

This alternative would involve no removal of wild horses and instead address the excess wild horse numbers through the removal or reduction of livestock grazing within the Diamond Complex. This alternative was not brought forward for analysis because it would be inconsistent with the current LUP/RMPs and/or Final Multiple Use Decisions (FMUDs) for the Diamond Complex or with multiple use management. This gather document and subsequent Decision Record is not the appropriate mechanism for adjusting the authorized livestock use within the allotments associated with the Diamond Complex.

The proposal to reduce livestock would not meet the purpose and need for action identified in Section 1.2: "*to conduct a gather to remove excess wild horses in and around the Diamond Complex to manage wild horses at the established AML ranges, to reduce the wild horse population growth rate in order to maintain AML ranges over longer periods, prevent undue or unnecessary degradation of the public lands by protecting rangeland resources from deterioration associated with excess population of wild horses within and outside the Diamond Complex boundaries, and to restore a thriving natural ecological balance and multiple use relationship on the public lands*".

This Alternative is not consistent with the WFRHBA, which directs the Secretary to manage wild horses in balance with other multiple uses and to immediately remove excess wild horses. Furthermore, re-

allocation of livestock AUMs to increase the wild horse AMLs would not achieve a thriving natural ecological balance. Unlike livestock which can be confined to specific pastures, limited periods of use, and specific seasons-of-use so as to minimize impacts to vegetation during the critical growing season or to riparian zones during the summer months, wild horses are present year-round and their impacts to rangeland resources cannot be controlled through establishment of a grazing system, such as for livestock. Thus, impacts from wild horses can only be addressed by limiting their numbers to a level that does not adversely impact rangeland resources and other multiple uses. Refer to the Affected Environment portion of Section 3.2 for additional detail regarding the foraging behavior of wild horses and livestock.

Livestock grazing can only be reduced or eliminated if BLM follows regulations at 43 CFR § 4100 and must be consistent with multiple use allocations set forth in LUP/RMPs. Such changes to livestock grazing cannot be made through a wild horse gather decision, and are only possible if BLM first revises the LUPs to allocate livestock forage to wild horses and to eliminate or reduce livestock grazing.

The BLM is authorized to remove livestock from HMAs "*if necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury*" (43 CFR § 4710.5), however, this authority is usually applied in cases of emergency and not for general management of wild horses or burros. As a result of limited forage, water and exceeded utilization triggers and drought stressed vegetation; livestock were voluntarily removed from the Diamond HMA in August 2012. According to actual use data cattle grazing has not occurred in the majority of the Diamond Hills South HMA since 2009, and sheep use has occurred only on the Diamond Mountain benches.

For the reasons stated above, this alternative was dropped from detailed analysis. For long-term management, changes in forage allocations between livestock and wild horses would have to be re-evaluated and implemented through the appropriate public decision-making processes to determine whether a thriving natural ecological balance can be achieved at a higher AML and in order to modify the current multiple use relationship established in the LUPs.

2.3.4. Alternative gather techniques instead of helicopter capture of excess wild horses

Within Nevada, scoping and issuance of Gather Plan EAs for wild horse gathers has resulted in comments from the public requesting that the BLM capture wild horses through alternative methods. The following is a summary of some of those methods with information about their use.

- Net gunning techniques normally used to capture big game animals also rely on helicopters. These methods can be safe and effective on a small scale with optimum ground conditions and access. The use of this method is not practical on a large scale and could result in additional injury to animals, humans and impacts due to the need for cross country off-road travel to access netted animals.
- Chemical immobilization is a very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement this method and it would be impractical to use given the size of the Diamond Complex, access limitations and approachability of the wild horses.
- Use of wranglers on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale but due to the number of excess horses to be removed, the large geographic size of the Diamond Complex, and approachability of the wild horses this technique

would be ineffective and impractical. Horseback drive-trapping is also very labor intensive and can be very harmful to the domestic horses used to herd the wild horses and dangerous to humans. For these reasons, this method was eliminated from further consideration.

2.3.5. Letting Nature Take its Course/Control of Wild Horse Numbers by Natural Means

This alternative would use natural means, such as natural predation or extreme weather to control the wild horse population. This alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to protect the range from deterioration associated with an overpopulation of wild horses. This Alternative is also inconsistent with the RMPs, RODs and Amendments. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. Wild horse populations in the Diamond Complex are not substantially regulated by predators, as evidenced by the 15-18% average annual increase in the wild horse populations within these HMAs. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95% and are not a self-regulating species. This alternative would result in a steady increase in the wild horse populations which would continue to exceed the carrying capacity of the range resulting in a catastrophic mortality of wild horses in the Diamond Complex, and irreparable damage to rangeland resources.

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

Promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state "*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat"* (emphasis added).

As the vegetative and water resources are over utilized and degraded to the point of no recovery as a result of the wild horse overpopulation, wild horses would start showing signs of malnutrition and starvation. The weaker animals, generally the older animals, and the mares and foals, would be the first to be impacted. It is likely that a majority of these animals would die from starvation and dehydration which could lead to a catastrophic die off. The resultant population could be heavily skewed towards the stronger stallions which could lead to social disruption in the Diamond Complex. Competition between wildlife and wild horses for forage and water resources would be severe. Wild horses are aggressive around water sources, and some wildlife may not be able to compete, which could lead to the death of individual animals. Wildlife habitat conditions would deteriorate as wild horse numbers above AML reduce herbaceous vegetative cover, damage springs and increase erosion. This degree of resource impact would lead to management of wild horses at a greatly reduced level if BLM is able to manage for wild horses at all on the Diamond Complex in the future. For these reasons, this alternative was eliminated from further consideration.

2.3.6. Make on-the-ground and individualized excess wild horse determination prior to removal

An alternative to make on-the-ground and individualized excess wild horse determinations prior to removal has been recommended through the public review process under the view set forth by some commenters that a tiered or phased removal of wild horses from the range is mandated by the

WFRHBA. Specifically, this alternative would involve a tiered gather approach, whereby BLM would first identify and remove old, sick or lame animals in order to euthanize those animals on the range prior to gathering. Second, BLM would identify and remove horses for which adoption demand exists by qualified individuals, such as younger horses or horses with unusual and interesting markings. Last, BLM would remove any additional excess horses necessary to bring the horse/burro population back to AML.

This proposed alternative would only be viable in situations where the project area is contained within barriers (natural and/or manmade) which prohibits the animals movements outside the project area, the area is readily accessible and wild horses are clearly visible, and where the number of horses to be removed is so small that a targeted approach to removal could be implemented. Under the conditions present within the project area, however, this proposed alternative is impractical, if not impossible, as well as more disruptive to and less humane for a variety of reasons.

First, BLM does euthanize old, sick or lame animals on the range when such animals have been identified. This occurs on an on-going basis and is not limited to wild horse gathers. During a gather, if old, sick or lame animals are found and it is clear that an animal's condition requires the animal to be put down, that animal is separated from the rest of the group that is being herded so that it can be euthanized on the range. However, horses that meet the criteria for humane destruction because they are old, sick or lame usually, in most cases, cannot be identified as such until they have been gathered and examined up close, so as to determine whether the horses have dental regression or damage, genetic defects (i.e. club foot), injuries (old/new), and overall wild horse body condition. Old, sick and lame horses meeting the criteria for humane euthanasia are also only a very small percentage of the total number of horses to be gathered, comprising on average about 0.5% of gathered horses. Thus, in a gather of over 1,000 horses, potentially about five of the gathered horses might meet the criteria for humane destruction. Due to the size of the Diamond Complex, access limitations associated with topographic and terrain features and the challenges of approaching horses close enough to make an individualized determination of whether a horse is old, sick or lame, it would be virtually impossible to conduct a phased culling of such horses on the range without actually gathering and examining the horses.

Similarly, rounding up and removing wild horses for which an adoption demand exists, before gathering any other excess wild horses would be both impractical and much more disruptive and traumatic for the animals. The size of the Diamond Complex, terrain challenges, difficulties of approaching the horses close enough to determine age and whether they have characteristics (such as color or markings) that make them more adoptable, the impracticalities inherent in attempting to separate the small number of adoptable horses from the rest of the herd, and the impacts to the horses from the closer contact necessary, makes such phased removal a much less desirable method for gathering excess wild horses. This approach would create a significantly higher level of disruption for the horses on the range and would also make it much more difficult to gather the remaining excess wild horses. Furthermore, if BLM plans to apply any population controls to gathered horses prior to release, it would be necessary to gather more than just the excess horses to be removed.

Making a determination of excess as to a specific horse under this alternative, and then successfully gathering that horse would be impractical to implement (if not impossible) due to the size of the Diamond Complex, terrain challenges and difficulties approaching the wild horses close enough to make an individualized determination, would be extremely disruptive to the wild horses due to repeated culling and gather activities over a short period of time, would be cost-prohibitive, and would be

unlikely to result in the successful removal of excess horses or application of population controls to released horses. This approach would also be less humane and more disruptive and traumatic for the horses. This alternative was therefore eliminated from any further consideration.

2.3.7. Raising the Appropriate Management Levels for Wild Horses

This alternative was not brought forward for detailed analysis because it would be outside of the scope of the analysis, and would be inconsistent with the WFRHBA which directs the Secretary to immediately remove excess wild horses and with multiple use management. This gather document and subsequent Decision Record is not the appropriate mechanism for adjusting the AML for wild horses.

This alternative is inconsistent with the Battle Mountain, Ely and Elko RMPs and Amendments, and is inconsistent with multiple use management. Alternative D of the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (2007) analyzed an alternative under which wild horse herds would be left largely unmanaged except for removal of wild horses outside the HMAs and eliminated livestock grazing throughout the planning area to protect vegetation and soil resources. The analysis of this alternative concluded that this limited management approach for the HMAs, combined with the wild horse population growth rate and the absence of fire management, would lead to rapid deterioration of ecological systems within these areas and the likely starvation of many animals as wild horse populations increased beyond the support level of their habitat.

The Elko RMP ROD (1987) provided for four HAs and "gatherings as needed to maintain numbers", identified the AMLs for the four HMAs within the Elko Resource Area, and established a process for modifying AMLs for wild horses through monitoring, evaluation, and Herd Management Area Plans.

Adjusting AML must be based on the analysis of monitoring data. Monitoring data collected within the Diamond Complex does not indicate that an increase in AML is warranted, because rangeland impacts associated with current wild horse use have been documented. On the contrary, such monitoring data confirms the need to remove excess wild horses above AML to reverse downward trends and promote improvement of rangeland health and recovery from severe/extreme drought experienced in 2012. Wild horse AML would be analyzed in future Rangeland Health Assessments which would include involvement with the interested public.

2.3.8. Designation of the HMAs to be Managed Principally for Wild Horses

This action to designate the Diamond Complex as a "Wild Horse and Burro Range" under 43 CFR 4710.3-2 would require an amendment of the approved RMPs which is outside the scope of this EA. Only the BLM Director or Assistant Director (as per BLM Manual 1203: Delegation of Authority), may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process. As this is not an "exclusive" designation, it potentially would not change the level of livestock grazing permitted to occur in the area. There are currently four designated Wild Horse and Burro Ranges in the western United States that are managed principally for wild horses and burros consistent with 43 CFR 4170.3-2. These are the Pryor Mountain Wild Horse Range in Montana; the Little Book Cliffs Wild Horse Range in Colorado; the Nevada Wild Horse Range and the Marietta Wild Burro Range in Nevada.

3. Affected Environment and Environmental Consequences

To comply with NEPA, the BLM is required to address specific elements of the environment that are subject to requirements specified in statute or regulation or by executive order (BLM 1988, BLM 1997, BLM 2008). The following table outlines the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM, and denotes if the Proposed Action, sequential alternatives, or the No Action Alternative affects those elements.

Potential or expected impacts to the affected resources are discussed following the tables. Direct impacts are those that result from the actual gather and removal of wild horses from the Diamond Complex. Indirect impacts are those impacts that occur once the excess animals are removed.

Table 6a: Elements Checklist

ELEMENT	PRESENT YES/NO	AFFECTED YES/NO	RATIONALE
Air Quality	**Yes**	**No**	The proposed gather area is not within an area of non-attainment or areas where total suspended particulate matter exceeds Nevada air quality standards. Areas of disturbance would be small and any effects on air quality would be temporary and fleeting in nature, and would take the form of fugitive dust.
ACECs	**No**	**No**	Resource is not present.
Cultural Resources	**Yes**	**No**	Through adherence of the SOPs (Appendix A), potential impacts to cultural sites would be eliminated. Archeological inventory of gather corrals, holding corrals and others areas of potential effects would occur prior to construction. If cultural resources were encountered, those locations would not be utilized.
Environmental Justice	**No**	**No**	The Proposed Action or alternatives would have no effect on minority or low-income populations.
Fish Habitat	**No**	**No**	Resource is not present.
Flood Plains	**No**	**No**	Resource is not present.
Forests and Rangelands (HFRA only)	**Yes**	**No**	This project does not meet the criteria to qualify as an HFRA project.
Noxious Weeds and Invasive, Nonnative Species	**Yes**	**Yes**	Discussed below.
Migratory Birds	**Yes**	**Yes**	Discussed below under Wildlife.
Native American Religious Concerns	**No**	**No**	There are no known Native American concerns.
Prime or Unique Farmlands	**No**	**No**	Resource not present.
Threatened or Endangered Species (plants and animals)	**No**	**No**	No Threatened or Endangered Species are known to exist within the project area.
Wastes, Hazardous or Solids	**No**	**No**	Not Present.
Water Quality	**Yes**	**No**	Resource would not be affected.
Wetlands and Riparian Zones	**Yes**	**Yes**	Discussed in detail below.
Wild and Scenic Rivers	**No**	**No**	Resource not present.
Wilderness	**Yes**	**No**	Wilderness Study Areas are not present.
Lands with Wilderness Characteristics**	**No**	**No**	** Based on available inventories

Other resources of the human environment that have been considered for this EA are listed in the table below.

Table 6b Checklist of other Resources

OTHER RESOURCES	PRESENT YES/NO	AFFECTED YES/NO	RATIONALE
Grazing/Livestock Management	**Yes**	**Yes**	Discussed below.
Land Use Authorization	**Yes**	**No**	Resource is not affected by the proposed action or alternatives
Minerals	**Yes**	**No**	Resource is not affected by the proposed action or alternatives.
Paleontological Resources	**Yes**	**No**	Resource is not affected by the proposed action or alternatives. There is a minimal likelihood that resources would be present. Known resources are present at Alhambra Hills but will not be affected. Any surface disturbance resulting from the proposed gather would not be sufficient to cause impacts.
Recreation	**Yes**	**No**	Resource is not affected by the proposed action or alternatives.
Socio-Economic Values	**Yes**	**No**	Resource is not affected by the proposed action or alternatives.
Soils	**Yes**	**Yes**	Discussed below.
Special Status Species (plants and animals)	**Yes**	**Yes**	Discussed below under Wildlife.
Vegetation	**Yes**	**Yes**	Discussed below.
Visual Resources	**Yes**	**No**	Resource is not affected by the proposed action or alternatives. Gather operations would be temporary and isolated in nature. There would be no permanent changes to the landscape.
Wild horses	**Yes**	**Yes**	Discussed below.
Wildlife	**Yes**	**Yes**	Discussed below.

3.1. General Description of the Affected Environment

Figure 12: Diamond Mountain Range, Helicopter Inventory, March 2010.

The proposed gather area is located within Central Nevada within the Great Basin, north of Eureka, Nevada in Elko, Eureka and White Pine Counties. The Diamond Complex consists of the Diamond Mountain Range and the Diamond Hills, Baily Mountain, Sadler Basin and Garcia Flat located north of the Diamond Range. Topography of the Diamond Range is steep and rugged with elevations that range between 5,400 feet in the Valleys to over 10,000 at the top of Diamond Peak. Much of the rangeland at lower elevations consists of Wyoming big sagebrush and Greasewood communities. Pinyon and Juniper are prevalent in the mid elevations. Wildfire has been a frequent occurrence at the north end of the Complex and along the western slopes of the Diamond Range, and cheatgrass dominance is common in these areas. Precipitation averages 6-10 inches per year in the valleys and up to 16+ inches in the mountains. The area provided important habitat for a number of important wildlife species including Greater Sage Grouse, mule deer, pronghorn, and migratory birds. Drought conditions may occur 1 out of every 3-4 years. Severe/extreme drought affected the area throughout 2012. Refer to Map 1 which displays the HMAs. Appendix C includes precipitation data representative of the Diamond Complex. Photos are located throughout the EA and Appendix A, B and C which illustrate the general terrain, representative water sources and conditions of the range. The table in Section 9 provides information about all of the photos and other figures including location, subject matter, HMA and month/year. Furthermore, numerous photos were added to the Final EA taken during the November 2012 inventory.

3.2. Wild Horses

Affected Environment

The Diamond Complex consists of the Diamond, Diamond Hills South and Diamond Hills North HMAs. Refer to Table 1 and Map 1. The boundaries of the HMAs within the Diamond Complex are similar to the original HA boundaries identified after the passage of the WFRHBA. A portion of the Diamond HA (Battle Mountain District) was not brought forward as part of the HMA as it overlapped a largely developed agricultural area west of the present day HMA boundary consisting mostly of private land.

The current estimated population of wild horses is 813 within and outside of the HMA boundaries of the Diamond Complex and is based on the direct count obtained during comprehensive helicopter inventory completed November 6-7, 2012. The results, including tables and maps, are included in Appendix B, and also available on the Diamond Complex gather website:
http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_programs/wild_horse_and_burro/Diamond_Complex/docs.html

Photos of the rangeland, water sources and wild horses taken during inventory flights and on the ground monitoring are located throughout the EA, including those taken during the November 2012 inventory.

The most recent gather of the Complex was completed in summer 2004. At this time, the estimated post gather population was 161 wild horses. Fertility control was administered to 86 mares released back to the range which were freezemarked on the left hip with a four inch "AC" brand for future monitoring (Figures 13, 28, 32, and 33).

Genetic analysis was completed following the 2004 gather and indicates the Diamond Complex is comprised of wild horses with high genetic variability. More detail is provided in Appendix B, and copies of the genetic analysis report are available from the MLFO.

The current population in the Diamond Complex is approximately 387% of the high range of AML, nearly four times the level that has been allocated for wild horses. Additionally, approximately 311 wild horses, or 38% of the total documented during the November 2012 inventory are located far outside of HMA boundaries on the east side of the Diamond Mountain Range on lands not designated for management of wild horses. Refer to the Diamond Complex Inventory Maps 1 and 2 in Appendix B which display the locations of wild horses observed during the inventory in relation to HMA boundaries.

Figure 13: Note freezemarked "AC" on left hip of black mare from 2004 fertility control treatment. August, 2012, Diamond HMA.

The Nevada BLM has identified the Diamond Complex as a gather priority for several years, but due to other National gather priorities and holding space limitations, no gather was conducted. On the ground monitoring and observations made during aerial inventory show that excess wild horses are congregating in portions of the Diamond Complex and causing impacts to riparian areas and important wildlife habitat. Heavy and severe utilization levels in lower elevations have also been documented

attributable to use by wild horses in addition to use by permitted livestock. In 2012, Livestock were removed from the Diamond HMA due to drought. Heavy and severe use within the Diamond Hills South HMA is attributable only to wild horses as cattle have not been turned out(refer to Section 3.3 for additional details about livestock use). The lower elevations which provide valuable winter habitat for wild horses and wildlife are degraded, characterized by limited perennial grasses and forbs, and dominance of cheatgrass and other annual species. Wild horses are also impacting riparian areas, primarily in the form of springs, through bank shear, trampling, digging and utilization of riparian vegetation. Wild horses have damaged water developments by dislodging troughs and pipelines and breaking float systems. Trailing throughout the Diamond Complex is heavy as large numbers of wild horses move between foraging areas and limited water resources. Refer to more detail regarding wild horse impacts and monitoring conducted in the Complex in Sections 3.5, 3.6, 3.7, 3.8 and Appendix B and C.

Approximately 311 excess wild horses have strayed out of the Diamond and Diamond Hills South HMAs in search of forage and water on public land. This number has increased from previous estimates of 232 wild horses and was further evidenced by approximately 70 wild horses moving from the Diamond HMA to the outside HMA areas on the east side of the Diamond Range between an overflight of the Diamond HMA conducted in August 2012 and the November 2012 inventory. It is likely that the wild horses have moved out of the Diamond HMA due to limited forage and water. The wild horses residing outside the HMA boundaries are causing public safety concerns along Nevada State Route 892. Since 2008 several groups of excess horses remain in the area on a permanent basis. Additional groups move in and out of the area, especially in the winter months, due to the warmth and salt near the road. The wild horses that have moved outside of the HMA boundaries are using approximately 99,500 acres that are not designated for use by wild horses, and for which no forage has been allocated.

Rangeland resources have been and are currently being impacted within and outside the Diamond Hills South HMA due to the over-population of wild horses. Evaluation of Rangeland Health Standards determined that wild horses within the Diamond Hills South HMA are contributing factors for not meeting these Standards.

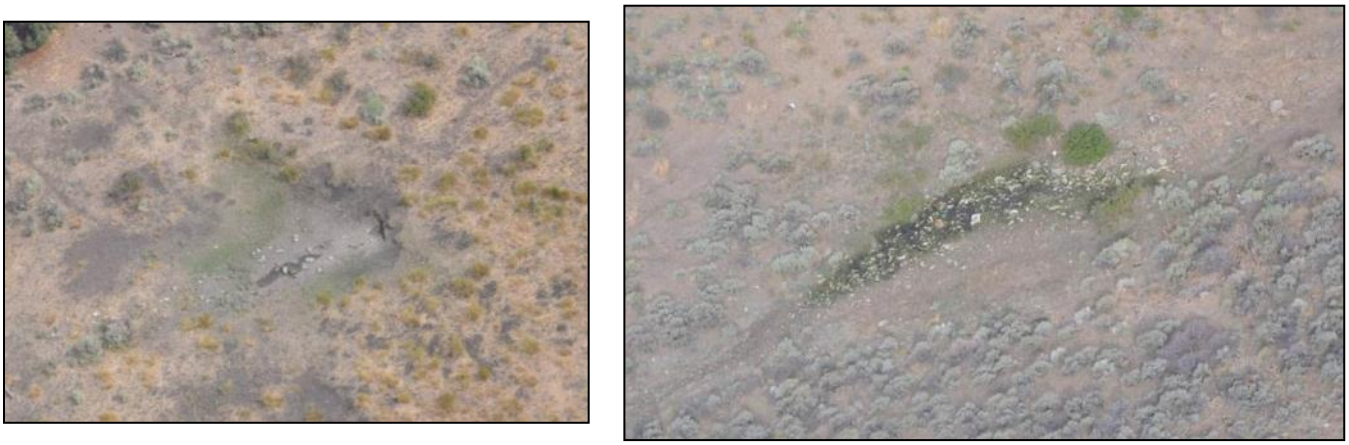


Figure 14, 15: Typical mountain springs, and low water availability as documented during flight, August 2012. Diamond HMA.

Though field monitoring since 2004 indicates slight upward trends of perennial key species at some key management areas in the Diamond HMA, drought, coupled with the overpopulation of wild horses risks reversing this trend. Similar to wildlife, wild horses utilize their habitat year-round in contrast to livestock that are managed under seasonal use and distribution restrictions and permits.

Issues caused by an overpopulation of wild horses have been further compounded by severe and extreme drought conditions experienced in 2012. Field observations documented drought induced senescence and limited or no new growth of perennial grasses in the lower elevations. Many springs and streams went dry or produced limited quantities of water. As a result, the limited resources available to the wild horse population nearly 4 times over AML have been even more limited, causing heavy concentrations of wild horses at remaining waters, and a lack of forage in the lower elevation areas that are important for winter use. Close monitoring continued throughout the 2012 summer to monitor wild horse body condition and water availability.

On the ground monitoring throughout 2012 and documentation during the November 2012 Inventory within the Diamond Hills South HMA shows heavy and severe utilization, heavy trailing, an overall lack of forage and heavy use and impacts to riparian areas. These conditions are illustrated throughout the many photos located throughout the EA and Appendix B and C. Refer to the table in Section 9 for more detail.

Throughout the Diamond Complex a lack of growth on both vegetative and shrub plants was observed with little if any residual forage from previous years. The high use levels and the lack of growth are a cause for concern as there would be little if any forage for wild horses during the fall and winter months. In late summer, isolated thunderstorms provided additional precipitation which allowed some minimal re-growth and green up to occur, as well as allow for slight increases in water availability. However, these summer rains were not adequate to cause sufficient growth in vegetation or recovery of waters to alleviate the escalating conditions present in the Diamond Complex. Furthermore, large numbers of wild horses have been using winter range habitats since summer in order to find sufficient forage, which will reduce availability of such forage for winter use at current population levels. Severe use has been observed on winter ranges and impacts to the limited quantities of perennial grass have been documented.

Figures 16 and 17 show representative examples of the limited forage availability in the Diamond HMA as documented during 2012 field season monitoring. Refer to Appendix C for more information about monitoring of the Diamond Complex, as well as photos throughout the EA and Appendix B and C.

Figure 16: Lower Judd Canyon on foothills. Representative example of lack of forage in the winter range habitat as nothing grew in these already degraded areas. Drought monitoring July 2012, Diamond HMA.

Figure 17: Diamond HMA, Key Area TM-3 2012 Drought Monitoring July 2012. Overview looking north. Note lack of forage and large expanses of bare ground in the winter habitat.

The wild horses of the Diamond Complex are hardy and fit and are able to travel from canyon to canyon in search of water and up onto the steep slopes of the drainages to access water and forage. During the August 2012 overflight, adequate forage was available to the wild horses in the high elevation basins of the many canyons dissecting the Diamond Range to sustain summer and fall use. Most of the wild horses observed were in Henneke Body Condition Scores of 5 (Moderate), with a few groups and several foals noted as being 4's (Moderately Thin) or 3's (Thin), with accentuation of ribs, shoulders and hips. Though the wild horses appeared to be locating adequate forage and water, forage will become extremely limited during the coming winter, especially if substantial snow covers the mid and higher elevations, precluding easy access to the remaining forage there.

Observations of water availability made during the overflight in August 2012 showed that wild horse distribution and usage patterns appeared to be strongly tied to the remaining waters. Many springs were dry and riparian areas were in poor condition (lack of vegetative cover, trampled and bare banks etc.). Figures 14-15 are photos taken from the air during the August 2012 helicopter overflight of the Diamond HMA showing the small size, condition and water production of many of the springs in this HMA, being used by wild horses.

Figure 18. Diamond HMA. The photo shows old burn scars now dominated with cheatgrass, rangeland that is lacking perennial grasses and winter range that supports minimal forage for wild horses. November 2012 helicopter inventory.

Figure 19. Outside HMA, south of the Diamond Hills South HMA. The photo shows low production and limited forage available in low elevation winter range. November 2012 helicopter inventory.

Similarly, observations were made of wild horse health, locations, and forage and water qualities present throughout the entire Diamond Complex during the inventory flight completed November 6-7, 2012. A total of 3 highly experienced BLM observers participated in the flight which was accomplished in twelve hours over a two-day period. The flight was carefully planned to include the entire Diamond Complex, including areas outside of HMA boundaries, and account for wild horse movement to avoid the risk of double counting or missing groups of wild horses. The flight altitude averaged 100 feet above ground level. The on-board GPS system was used to track flight path and document wild horse locations. Groups of wild horses were documented on data sheets along with number of adults and foals, class and type of vegetative cover, topography, and other parameters for further analysis. After completion of the flight, the direct count data was compiled using Global Information System software and summary tables and maps completed. This information was

posted on the BLM Diamond Complex website for review by the interested public. Refer to Appendix B for more information about the flight as well as Diamond Complex Inventory Maps 1-2, which displays wild horse locations documented throughout the Complex. Photos 18 and 19 were taken during the November 2012 inventory and illustrate the conditions of the lower elevation winter range in the Diamond Complex. Photos taken during the inventory have been included throughout this Final EA to illustrate conditions of the Diamond Complex as observed from the air. Refer to Section 9 for more information about the photos in this document.

During the November 2012 inventory, similar observations were made to those made during the August 2012 overflight of the Diamond HMA. Throughout the entire Diamond Complex, many low elevation landscapes are devoid of both annual and perennial grasses. This is particularly notable throughout the Diamond HMA and Diamond Hills North HMA which still exhibit the effects of historic wildfire. Burn scars in the Diamond Hills South HMA are largely devoid of perennial grasses.

Throughout the mid and higher elevations of the east side of the Diamond Range outside of HMA boundaries and to a lesser degree the Diamond HMA, some 2011 and 2012 residual forage exists for use by wild horses, consisting of primarily Great Basin Wildrye, which when cured out, resembles straw and does not provide a high degree of nutrition to grazing animals. When possible, BLM staff documented trailing attributed to wild horses as well as riparian impacts due primarily or mostly to wild horses.

Because of the ability to operate the helicopter at low elevations, individual plants could often be identified as could stud piles, livestock droppings, animal health, or other items of interest such as Pronghorn, coyotes, or mule deer. Because of the agility of helicopter, if during the flight, the observers needed to have the pilot deviate from the flight path to take a closer look at the vegetation, springs, wild horses or other objects, it was possible to do so, as well as circle groups of wild horses to assure a proper count. Additional photos located in Appendix B show how the BLM observers view wild horses during the inventory flights.

Figure 20: Diamond HMA, November 6, 2012 helicopter inventory. Note condition of mare in the front of the group. Ribs, hip bones and backbone are accentuated. This represented about 5% of the mares observed in the Diamond HMA during the flight.

Body condition of wild horses was also documented during the November 2012 inventory flight. Throughout most of the Diamond Complex, wild horse body condition averaged Henneke BCS of 4-5 (moderately thin-moderate). Throughout the Diamond HMA, which exhibits the worst forage and water conditions of the Complex, wild horse body condition has declined since the August 2012 overflight. Numerous mares with foals at their sides exhibited BCS 3 with highly accentuated hips and backbones (Figure 20).

Inventory flights of the Diamond Complex have been completed on a regular basis in September 2006, September 2008, March 2010 and November 2012. Appendix B includes information about these flights and the August 2012 overflight of the Diamond HMA.

The following table and chart display the estimated AUMs[6] of wild horse use within the Diamond Complex since the 2004 gather was completed, utilizing inventory data. The AUMs are based on adult animals and do not include foals. These are estimates as complete population "census" of the Diamond Complex is not feasible, nor is it reasonable to complete inventories annually.

Table 7: Diamond Complex Wild Horse Actual Use

Year	Estimated Adults	Estimated Actual Use (AUMs)	AML/Allocated AUMs
2004	161[a]	1,932	2,520
2005	161[a]	1,932	
2006	252	3,024	
2007	289	3,468	
2008	325	3,900	
2009	438	5,256	
2010	502	6,024	
2011	590	7,080	
2012	684	8,208	
Total	3,402	40,824	
Average	378	4,536	

a. This figure is based on the estimated number of adult wild horses remaining on the Diamond Complex following the wild horse gather, as no inventory was conducted until 2006.

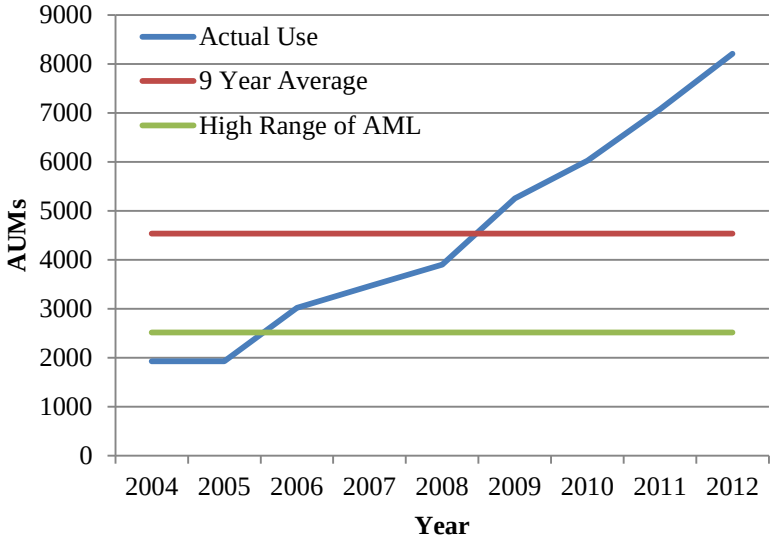


Figure 21: Diamond Complex wild horse actual use and average use relative to high range of AML.

Wild horses are a long-lived species with documented survival rates exceeding 95% for all age classes and do not have the ability to self-regulate their population size. Predation and disease have not substantially regulated wild horse population levels within the proposed gather area. Within the Diamond Complex, there are few predators that exist to control wild horse or burro populations. Mountain lion may be having a mild effect on the population growth rates, but not substantial enough to

6. 43 CFR 4100.0-5 defines Animal Unit Month (AUM) as the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month (which equates to 5 sheep). The BLM currently identifies 1 AUM as 1 horse for 1 month. AUM is not the number of animals.

maintain the population at appropriate levels. Coyote are not prone to prey on wild horses unless young, or extremely weak. Other predators such as wolf or bear do not exist. Comments received from the interested public emphasize protection or reduced control of predators to wild horses including coyote, wolves, bear, and mountain lion. Wolves and bear do not inhabit central Nevada. Additionally, wildlife species are not "managed" by the BLM, which manages only the habitat. Wildlife fall under the administration of Nevada State. The Nevada Department of Wildlife and Nevada Department of Agriculture, Wildlife Services regulate wildlife and predator control.

Wild horses in general are very resilient and adaptable animals with a metabolism that has evolved to allow them to survive and thrive in poor quality habitat (compared to their domestic counterparts). These wild animals are typically in top fitness, have strong bones and hooves and rarely succumb to ailments that plague domestic horses. History has shown that wild horses typically do not begin to show signs of body condition decline until the habitat components are severely deficient. Once the decline begins, their health deteriorates rapidly.

Numerous studies identify dietary overlap of preferred forage species and habitat preference between horses, cattle, and wildlife species in the Great Basin ecosystems for all seasons (Ganskopp 1983; Ganskopp et al 1986, 1987; McInnis 1984; McInnis et al 1987; Smith et al 1982; Vavra et al 1978). A strong potential exists for exploitative competition between horses and cattle under conditions of limited forage (water and space) availability (McInnis et al 1987).

Although horses and cattle are often compared as grazers, horses have been cited as more destructive to the range than cattle due to their digestive system and grazing habits. The dietary overlap between wild horses and cattle is much higher, and averages between 60 and 80% (Hubbard and Hansen 1976, R. Hansen, R. Clark, and W. Lawhorn 1977, Hanley 1982, Krysl et al. 1984, McInnis and Vavra 1987). Horses are cecal digesters while most other ungulates including cattle, pronghorn, and others are ruminants (Hanley and Hanley 1982, Beever 2003). Cecal digesters do not ruminate, or have to regurgitate and repeat the cycle of chewing until edible particles of plant fiber are small enough for their digestive system. Ruminants, especially cattle, must graze selectively, searching out digestible tissue (Olsen and Hansen 1977). Horses, however, are one of the least selective grazers in the West because they can consume high fiber foods and digest larger food fragments (Hanley and Hanley 1982, Beever 2003).

Figure 22: Diamond Hills North HMA, aerial inventory November 7, 2012. A group of Pronghorn on denuded rangeland previously burned by wildfire.

Wild horses can exploit the high cellulose of graminoids, or grasses, which have been observed to make up over 88% of their diet (McInnis and Vavra 1987, Hanley 1982). However, this lower quality diet requires that horses consume 20-65% more forage than a cow of equal body mass (Hanley 1982, Menard et al. 2002). With more flexible lips and upper front incisors, both features that cattle do not have, wild horses trim vegetation more closely to the ground (Symanski 1994, Menard and others 2002, Beever 2003). As a result, areas grazed by horses may retain fewer plant species than areas grazed by other ungulates. A potential benefit of a horse's digestive system may come from seeds passing through system without being digested but the benefit is likely minimal when compared to the overall impact

wild horse grazing has on vegetation in general.

Wild horses also compete with wildlife species for various habitat components, especially when populations exceed AML and/or habitat resources become limited (i.e. reduced water flows, low forage production, dry conditions, etc.). Smith (1986) determined that elk and bighorn sheep were the most likely to negatively interact with wild horses. Hanley and Hanley (1982) compared the diets of wild horses, domestic cattle and sheep, pronghorn antelope, and mule deer and found that horse and cattle diets consisted mostly of grasses, pronghorn and mule deer diets consisted mostly of shrubs (>90%) and sheep diets were intermediate. Due to different food preferences, diet overlap between wild horses, deer, and pronghorn rarely reaches above 20% (Hubbard and Hansen 1976, R. Hansen, R. Clark, and W. Lawhorn 1977, Meeker 1979, Hanley and Hanley 1982).

Environmental Consequences

Impacts Common to All Action Alternatives

The BLM has been actively conducting wild horse gathers since the mid 1970's and using helicopter to gather wild horses since the late 1970's. Over time, methods and procedures have been developed and refined so as to minimize stress and impacts to wild horses during implementation of gathers. BLM staff is on-site at all times to observe the gather, monitor animal health, and coordinate the gather activities with the contractor. The SOPs outlined in Appendix A would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts or injury to the wild horses. Furthermore, measures to reduce stress and injury to wild horses are summarized in Section 3.10, and additional measures to ensure humane treatment have been added in Appendix A, III. In their August 2011 BLM Task Force Report, the AAEP concluded that the care, handling and management practices utilized by the agency are appropriate for this population of wild horses and generally support the safety, health status and welfare of the animals.

Over the past 37 years, various impacts to wild horses during gathers have been observed. Individual, direct impacts to these animals include handling stress associated with the capture, sorting, animal handling, and transportation. The intensity of these impacts varies by individual animal, and is indicated by behaviors ranging from nervous agitation to physical distress. Wild horses are very adaptable animals and assimilate into the environment with new members quite easily. Observations made through completion of gathers indicate that many of the wild horses captured acclimate quickly to the holding corral situation, becoming accustomed to water tanks and hay, as well as human presence. Both the BLM Wild Horse and Burro Specialists and the Gather Contractor and crew are attentive and sensitive to the needs of foals as well as all wild horses captured during gathers, and ensuring their health, safety and wellbeing during and after the gather is a focus and priority.

BLM policy prohibits the gathering of wild horses with a helicopter, (unless under emergency conditions), during the period of March 1 to June 30 which includes and covers the six weeks that precede and follow the peak foaling period (mid-April to mid-May).

Accidental death or the need to humanely euthanize animals as a direct result of gather activities is infrequent and averages less than one half to one percent of the wild horses gathered (0.5-1.0%). Since 2004, BLM Nevada has gathered over 30,000 excess animals. Of these, gather related mortality has averaged approximately 0.5% which is very low when handling wild animals. Another roughly 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. Refer to Appendix A and Section 3.10 for information about methods that are utilized to

reduce injury or stress to wild horses and burros during gathers. The use of helicopters and motorized vehicles is a safe, humane, effective and practical means for gathering and removing excess wild horses and burros from the range.

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

Most injuries are sustained once the animal has been captured and is either within the gather corrals or holding corrals, or during transport between the facilities and during sorting. These injuries result from kicks and bites, or from collisions with corral panels or gates. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting, and then the wild horses are moved into the large holding pens to settle in with hay and water. Injuries received during transport and sorting consist of superficial wounds of the rump, face, or legs. Occasionally, wild horses may sustain a spinal injury or a fractured limb which requires humane euthanasia but these injuries are rare. On many gathers, no wild horses are injured or die. On some gathers, due to the temperament of the wild horses, they are not as calm and injures are more frequent.

Indirect individual impacts are those impacts which occur to individual animals after the initial stress event, and may include miscarriage in females, and increased social displacement and conflict in males. These impacts, like direct individual impacts, are known to occur intermittently during gather operations. An example of an indirect individual impact would be the brief skirmish which occurs amongst older studs following sorting and release into the stud pen which lasts less than two minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises, which don't break the skin.

Injuries and death may occur within the holding pens containing mares awaiting fertility control and studs awaiting release, though these incidents are rare. Oftentimes, these animals must be held for 7-10 days or longer while the gather in a given area is being completed and before they can be released. During this time, through fighting and other behaviors, injuries can occur but rarely result in death. Like direct individual impacts, the frequency of these impacts varies with the population and the individual. Observations following capture indicate the rate of miscarriage varies, but can occur in about 1 to 5% of the captured mares, particularly if the mares are in very thin body condition or in poor health.

Through the capture and sorting process, wild horses are examined for health, injury and other physical defects. BLM Euthanasia Policy IM-2009-041 is used as a guide to determine if animals that meet the criteria and should be euthanized (refer to SOPs Appendix A). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain adequate body condition; excessive teeth wear or broken teeth, are in poor body condition, or are weak from old age; and wild horses or burros that have congenital (genetic) or serious physical defects such as club foot or sway back and should not be returned to the range.

During summer gathers, roads and corrals may become dusty, depending upon the soils and specific conditions at the gather area. The BLM ensures that contractors mitigate any potential impacts from dust by slowing speeds on dusty roads and watering down corrals and alleyways. Despite precautions, it is possible for some animals to develop complications from dust inhalation and contract dust

pneumonia. This is rare, and usually affects animals that are already weak or otherwise debilitated due to old age or poor body condition.

Summer gathers pose increased risk of heat stress; however, this can occur during any gather, especially in older or weaker animals. Adherence to the SOPs as well as the techniques utilized by the gather contractor minimizes heat stress. Individual animals are monitored and veterinary or supportive care is administered as needed. Heat related issues can be mitigated by conducting gather operations during morning hours when the temperatures are cooler. Electrolytes can be administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal. Heat stress does not occur often, but if it does, death can result.

Figure 23: Diamond Hills South HMA, pinyon-juniper and sagebrush plant communities. Helicopter inventory November 6, 2012

In some areas, gathering wild horses during the winter may avoid the stress that could be associated with a summer gather. By fall and winter, almost all foals are of good body size and sufficient age (6 months or older) to be easily weaned. Winter gathers are often preferred when terrain and higher elevations make it difficult to gather wild horses during the summer months. Under winter conditions, wild horses are often located in lower elevations due to snow cover at higher elevations. This typically means the wild horses are closer to the potential trap sites and are herded shorter distances, thereby reducing the potential for fatigue and stress. While deep snow can tire wild horses as they are moved to the trap, the helicopter pilots allow the wild horses to travel slowly at their own pace. Trails in the snow are often followed to make it easier for wild horses to travel to the trap site. On occasion, trails can be plowed in the snow to facilitate the safe and humane movement of wild horses to a gather site.

A winter gather may also result in less stress as the cold and snow may not affect wild horses to the degree that heat and dust might during a summer gather. Wild horses may be able to travel farther and over terrain that is more difficult during the winter, even if snow covers the ground. Water requirements are lower during the winter months, making distress from heat exhaustion extremely rare. By comparison, during summer gathers, wild horses may travel long distances between water and forage and have the potential to become more easily dehydrated. Figures 24-27 are photos taken during the March 2010 inventory showing wild horses in various settings during winter conditions.

Wild horses are typically in top physical fitness and are able to endure the physical demands of a wild horse gather (whether in winter or summer) better than a domestic horse, regardless of breed due to the requirements of surviving in the wild. Most temperature related issues during a gather can be mitigated by adjusting daily gather times to avoid the extreme hot or cold periods of the day. However, the environmental conditions and the overall health and wellbeing of the animals is continually monitored through both summer and winter gathers to adjust gather operations as necessary to protect the animals from gather related health issues. For example, experience during some past gathers has shown that gathers of HMAs with wild horses that are in very good body condition (moderate, Henneke body condition score 5 or higher), sometimes have more heat or gather related issues than wild horses that do not have as high of a body condition score. The reasons for this are unknown, but do show that body

condition is not always an indication of the animal's ability to easily handle the stresses of a wild horse gather. Due to genetics or other unknown factors, two similar HMAs could be gathered under exactly the same circumstances, with wild horses from one HMA showing more signs of heat or other gather related stresses than the other herd. For these reasons, constant monitoring and adjustment of gather operations on a daily or hourly basis is an inherent part of the gathers. The initial gather is tentatively identified for completion in January, heat or dehydration related issues are not expected, however future maintenance gathers may take place during the summer months.

Figure 24-27: Diamond Complex Helicopter Inventory, March 2010. Wild horses at various elevations and ground cover during winter months.

A few foals may be orphaned during a gather. This can occur if the mare rejects the foal, the foal becomes separated from its mother and cannot be matched up following sorting, the mare dies or must be humanely euthanized during the gather, the foal is ill or weak and needs immediate care that requires removal from the mother, or the mother does not produce enough milk to support the foal. On occasion, foals are gathered that were previously orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Every effort is made to provide appropriate care to orphan foals. Veterinarians may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home in order to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor. Due to the timing of the proposed gather, it is unlikely that orphan foals will be encountered as the majority of the current

year's (2012) foals will be weaned already from their mothers.

Throughout the next 10 years, the BLM plans to return to the Diamond Complex under the Proposed Action and Action Alternatives to conduct follow-up gathers to achieve the post gather targets. Gather and removal numbers would be based on estimated population size derived from helicopter inventories, and other relevant data.

Water/Bait Trapping (if used)

Bait and/or water trapping generally requires a long window of time for success. Although the trap would be set in a high probability area for capturing excess wild horses residing within the area and at the most effective time periods, time is required for the horses to acclimate to the trap and/or decide to access the water/bait.

Trapping involves setting up portable panels around an existing water source or in an active wild horse area, or around a pre-set water or bait source. The portable panels would be set up to allow wild horses to go freely in and out of the corral until they have adjusted to it. When the wild horses fully adapt to the corral, it is fitted with a gate system. The acclimatization of the horses creates a low stress trap. During this acclimation period the horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source.

When actively trapping wild horses, the trap would be checked on a daily basis. Wild horses would be either removed immediately or fed and watered for up to several days prior to transport to a holding facility. Existing roads would be used to access the trap sites.

Gathering of the excess horses utilizing bait/water trapping could occur at any time of the year and would extend until the target number of animals are removed to relieve concentrated use by excess wild horses in the area, reach AML, to implement population control measures, and to remove animals residing outside HMA boundaries. Generally, bait/water trapping is most effective when a specific resource is limited, such as water during the summer months. For example, in some areas, a group of wild horses may congregate at a given watering site during the summer because few perennial water resources are available nearby. Under those circumstances, water trapping could be a useful means of reducing the number of wild horses at a given location, which can also relieve the resource pressure caused by too many wild horses. As the proposed bait and/or water trapping in this area is a low stress approach to gathering of wild horses, such trapping can continue into the foaling season without harming the mares or foals. Conversely, it has been documented that at times water trapping could be stressful to wild horses due to their reluctance related to approaching new, human structures or intrusions. In these situations, wild horses may avoid watering or may travel greater distances in search of other watering sources.

Impacts that could occur through a bait or water trapping process would be similar to those experienced during helicopter gathers as most injuries occur once the animals are actually captured and in the trap corrals or holding corrals or during transport. Similar injury and death rates would be expected. Because of the nature of bait/water trapping corral design and the difficulty of sorting animals in bait/water traps, foals transported to short term facilities with adult wild horses of mixed gender may be more prone to injury. If mares and studs are not sorted before transport to short term facilities, increased fighting and injury would be expected.

Wild Horses Remaining or Released into the Complex following Gather

Dependent upon the Alternative, approximately 603-763 wild horses would be gathered from the Diamond Complex during the initial 2013 gather. Wild horses ages 3-20+ would be returned to the Diamond Complex to result in a post gather population of approximately 123 wild horses under the Proposed Action and Alternative 1, and 210 wild horses under Phase I of the Proposed Action, Alternatives 2 and 3.

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

It is not expected that genetic health would be impacted by the Proposed Action, or Action Alternatives. Smaller, *isolated* populations (< 200 total population size) are particularly vulnerable when the number of animals participating in breeding drops below a minimum needed level (Coates-Markle, 2000). The wild horses in the Diamond Complex do not fall into this category because of the known intermixing within the HMAs of the Diamond Complex as well as potentially between the nearby Triple B HMA and the Cherry Springs Wild Horse Territory. Most wild horse herds sampled have high genetic heterozygosity, genetic resources are lost slowly over periods of many generations, and wild horses are long-lived with long generation intervals (Singer, 2000). Genetic analysis completed following the most recent gather of the Diamond Complex in 2004 reveals that the genetic variation and allelic diversity of the Diamond Complex is average-high. Refer to additional information about the genetic analysis in Appendix B.

The genetic effective population size (Ne) is a measure of the total number of mares and stallions which contribute genetically, through successful breeding, to the next generation. A population with an age structure involving high numbers of young animals (<5 years of age) will have a lower value of Ne than a similar sized population with a larger component of older breeding-age animals (>5 years of age). Through implementation of the BLM selective removal policy, the wild horses aged over 4 years of age years of age would be the first priority for release back to the range. Most or all wild horses four years of age and under would be removed, thus resulting in a potential increase to the Ne for the Diamond Complex.

Figure 28: Wild horses in the Diamond Hills North HMA observed during the November 7, 2012 inventory. Inset photo shows the 2004 fertility control freezemark "AC" on the left hip of the bay mare.

The primary benefit of removing excess wild horses and achieving and maintaining the established AML within the Diamond Complex would be the improvement of the health and sustainability of rangeland habitat attributes over the long-term. By maintaining wild horse population size within the AML, there would be a lower density of wild horses across the Diamond Complex, reducing

competition for resources and allowing wild horses to utilize their preferred habitat. Removal of excess wild horses would be expected to improve forage quantity and quality in non-drought years, and promote healthy, self-sustaining populations of wild horses in a thriving natural ecological balance and multiple use relationship on the public lands in the area.

Deterioration of the range associated with wild horse overpopulation would be avoided and rangelands would have the opportunity to recover from prior overpopulation impacts. Managing wild horse populations in balance with the available habitat and other multiple uses would lessen the potential for individual animals or the herd to be affected by drought, and would avoid or minimize the need for emergency gathers, which would reduce stress to the animals and increase the success of these herds over the long-term. Individuals would be able to maintain optimum body weight and overall health even in 'bad" years marked by poor precipitation or harsh winters. Through maintenance of AML, progress would be made towards the Standards for Rangeland Health, Allotment Specific and RMP Objectives.

Temporary Holding Facilities During Gathers

Wild horses gathered would be transported from the gather corrals (trap sites) to a temporary holding corral within the HMAs in goose-neck trailers. At the temporary holding corrals wild horses would be sorted into different pens based on sex. The horses would be aged and fed good quality hay and water. Mares and any un-weaned foals would be kept in pens together. Wild horses identified for retention in the Diamond Complex and for fertility control treatment would be maintained in these temporary corrals until the fertility control treatment could be implemented and would then be returned to the range.

At the temporary holding facility, recommendations regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses is provided by a veterinarian, BLM staff or contractor. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA).

Figure 29: Diamond Hills North HMA. Wild horses observed running towards the helicopter during the November 6, 2012 inventory.

On Site Adoption Event

If public interest exists the Mount Lewis Field Office may hold an on-site adoption event in conjunction with the Diamond Complex gather. A small number of wild horses (15-20) would be marked and put into separate pens and offered for adoption by pre-qualified applicants. Once adopted, the wild horses would be freeze-marked, vaccinated, dewormed and loaded into the adopter's stock trailer for transport home. All standard adoption requirements would apply. The on-site adoption would allow wild horses to be transported directly to their new homes without additional transport to BLM short term facilities and the added stress of additional handling there. However, some additional handling to prepare the animals for the on-site event could result in injury, most commonly lacerations or bruising from contact with panels or fighting with pen mates. Experience conducting on-site adoptions in the BMD since

1995 indicates that wild horses removed from the range and soon adopted do not exhibit signs of additional stress as a result of not having additional time to "settle". Conversely, additional transportation to BLM short term facilities and handling and sorting is avoided. The adopted animals are able to move directly into a supportive, caring home environment and begin the gentling process without additional handling or transportation.

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

Contingent on the Alternative, approximately 603-690 excess wild horses consisting primarily of all wild horses residing outside of HMA boundaries and most wild horses ages 0-4 would be removed during the initial 2013 wild horse gather, though wild horses of any age could be identified as excess by the authorized officer and removed. Animals would be transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s). From there, they would be made available for adoption or sale to qualified individuals or sent to long-term grassland pastures (LTPs).

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

Upon arrival at the short term holding facility, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are fed good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. At the short-term holding facility, a veterinarian examines each load of horses and provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club feet, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the AVMA. Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated. Recently captured wild horses in very thin condition may have difficulty transitioning to feed. Some of these animals are in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some mares may lose their pregnancies. Every effort is taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

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

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% per year (GAO-09-77, Page 51), and includes

animals euthanized due to a pre-existing condition; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation.

Adoption or Sale with Limitations, and Long Term Pastures

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall for wild horses over 18 months of age. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the wild horse or burro for one year and the facilities are inspected to assure the adopter is complying with the BLM's requirements. After one year, the adopter may take title to the horse or burro after an inspection from an official, veterinarian, or other individual approved by the authorized officer to ensure humane care, at which point the horse or burro becomes the property of the adopter. Adoptions are conducted in accordance with 43 CFR Subpart 4750.

Figure 30: Diamond HMA, helicopter inventory November 6, 2012. Wild horses observed trailing up a rocky slope.

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

Currently, an average of 30% of excess wild horses or burros removed through BLM gathers are adopted and about 8% are sold with limitation (to good homes) to qualified individuals. Wild horses generally 5 years of age and older (those for which there is less adoption or sale demand) are transported to LTPs. Each LTP is subject to a separate environmental analysis and decision making process. Wild horses in LTPs remain available for adoption or sale to individuals interested in acquiring a larger number of animals and who can provide the animals with a good home. The BLM has maintained long-term grassland pastures in the Midwest for over 20 years.

Potential impacts to wild horses from transport to adoption, sale or LTP are similar to those previously described. One difference is that when shipping wild horses and for adoption, sale or LTP, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18-24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and 15-25 pounds of good quality hay per horse/burro with adequate bunk space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested. The rest period may be waived in situations where the travel time exceeds the 24-hour limit by just a few hours and the stress of

offloading and reloading is likely to be greater to the animals than the stress involved in the additional period of uninterrupted travel.

LTPs are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. There, wild horses are maintained in grassland pastures large enough to allow free-roaming behavior (i.e., the horses are not kept in corrals) and with the forage, water, and shelter necessary to sustain them in good condition. About 33,600 wild horses, that are in excess of the existing adoption or sale demand (because of age or other factors), are currently located on private land pastures in Iowa, Kansas, Oklahoma, and South Dakota. Located in mid or tall grass prairie regions of the United States, these LTHP are highly productive grasslands as compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 8-10 acres per animal). Of the animals currently located in LTP, approximately 3 percent are age 0-4 years, 43 percent are age 5-10 years, and about 54 percent are age 11+ years. More detailed information is available on the BLM's National Wild Horse and Burro website, under "Quick Facts":
http://www.blm.gov/wo/st/en/prog/whbprogram.html.

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

Euthanasia and Sale without Limitation
While humane euthanasia and sale without limitation of healthy horses for which there is no adoption demand is required under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004 and again in 2010-12 for this purpose. It is unknown if a similar limitation will be placed on the use of Fiscal Year 2013 appropriated funds.

Impacts which Differ among Alternatives
The impacts to wild horses that differ among the Alternatives are influenced by the number of wild horses gathered, removed, treated and the number of subsequent gathers and removals implemented over the next 10 years as a result of population controls (or lack of). The Proposed Action involves an approach to achieve the low range of AML through multiple gathers, implementation of fertility control and repeat gathers at intervals of 2-3 years to ultimately minimize the numbers of excess wild horses that would need to be removed during future gathers, while treating the fewest mares and maintaining the population at or near AML. Initially, population sizes would be similar to those of Alternative 2. The results of the population modeling are summarized below and discussed in detail in Appendix E. This Alternative would provide the most benefits to rangeland and wild horse health. In the long term, because the low end of AML would be achieved, and a lower overall population would remain on the range, impacts to genetic variability could occur sooner or more acutely than other Alternatives.

However, with fewer animals ultimately removed from the range in the long term, and the ability to selectively remove age groups to enhance genetic health, the Proposed Action would likely offset any potentially negative impacts to the genetic health of the Diamond Complex.

Alternative 1 is similar to the Proposed Action with the omission of fertility control, and achievement of low AML in the initial gather rather than over multiple gathers. The results of the population modeling reflect slightly increased average population size, growth rates, animals removed and number of gathers completed over 10 years, with total animals gathered slightly less as the model assumes that only the number needing to be removed would be gathered and that gathering would not continue so as to capture additional females to treat as would occur under the Proposed Action.

Alternative 2 involves the application of fertility control and sex ratio adjustment, with removals only to the high range of AML (210). The primary difference under Alternative 2, as indicated by the population modeling, is that the combination of fertility control and sex ratio adjustment result in the lowest growth rates of all Alternatives. However, the model also indicates that this Alternative could result in the highest number of wild horses gathered over 10 years, and the second highest average population sizes. Despite the fact that the model reflects the lowest actual number of wild horses removed, it also indicates that more mares would need to be treated than the Proposed Action in order to maintain the low growth rates, and that a total of four gathers in 10 years would also be necessary. These differences in average population size, removal numbers and treated mares are due to the much higher population target as compared to the Proposed Action and Alternative 1. The average population size and removal numbers would all be lower than the Proposed Action if Alternative 2 proposed a population target of low AML as with the Proposed Action.

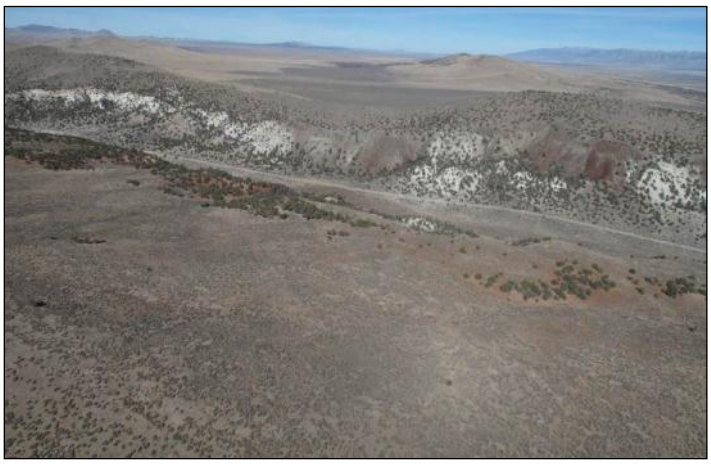


Figure 31: Diamond Complex wild horse inventory November 6, 2012. North end of the Diamond and Diamond Hills South HMAs in the "Railroad Pass" area, looking north into the Diamond Hills North HMA.

Under Alternative 3, no population controls would be implemented and the population would only be reduced to the high range of AML. Though mares would not undergo the stress of fertility treatment, the average population sizes, growth rates and animals removed over 10 years is highest of any of the Action Alternatives according to the population modeling, and any benefit of not removing horses from the range initially would be offset in the long term by the need to remove more wild horses through subsequent gathers. This scenario also would likely require four gathers in 10 years to maintain population sizes.

Under both Alternative 2 and 3, the upper range of AML would be exceeded the year following the gather. Any benefits of only removing animals to the high range of AML would be offset by increased disturbance to the entire population and to mares that are treated or retreated. A higher average population size over the AML would also result in the least amount of improvement to the range and allow for degradation to occur, particularly in poor years when resources are limited and competition is high.

The following sections provide additional detail about how impacts differ under the application of fertility control, sex ratio modification and implementation of a gate cut removal strategy. Refer to the Population Modeling Discussion below and Appendix E for more information.

Multiple Gathers to Achieve Proposed Action Population Goals

The Proposed Action involves the achievement of the low range of AML through multiple gathers, with the initial 2013 gather target to remove 603 wild horses and achieve the high AML (210 wild horses) due to limitations in BLM funding and holding space. Future gathers conducted in 2-3 years could involve the gather and removal of sufficient wild horses to achieve low range of AML. Future gather and removal numbers would be determined based on periodic helicopter inventory, on the ground observations and would be influenced by effectiveness of population control measures. The effect of a post gather population at the high AML would be similar to those described below for *Achievement of High AML* in the near future until a gather occurred to achieve the low AML. Because the overall population target of low AML would not be achieved during the initial gather in 2013, sex ratio adjustment to favor studs would be implemented in addition to fertility control in order to slow population growth until a gather was conducted to achieve the low AML. The effects of sex ratio adjustment to achieve a post gather population of 60% studs and 40% mares would have similar impacts to those described for *Sex Ratio Adjustment – Alternative 2* below, for a period of several years. Should future gathers result in the attainment of the low AML, sex ratio adjustment would not be implemented, and no further impacts would occur from that population control measure.

Achievement of High AML or Low AML

The Proposed Action and Alternatives involve varying combinations of population controls and removal targets to achieve the low or high range of AML within the Diamond Complex. As stated in Section 1.1, AML is the number of wild horses that can be sustained, which achieves and maintains a thriving natural ecological balance and prevents degradation to the range caused by an overpopulation of wild horses. Achievement of the low range of AML within the Diamond Complex would allow the population to be maintained within the AML range, preventing it from being exceeded until another gather could be scheduled to remove excess wild horses. Impacts to upland vegetation, soils, riparian areas and conflicts with wildlife would be minimized as the wild horse population is in balance with available resources in the Complex. As a result, distribution of wild horses would be optimum, and health of the population maximized. The highest degree of recovery of rangeland resources would be possible with the attainment of the low range of AML.

Phase I of the Proposed Action, and Alternatives 2 and 3 involve the achievement of the high AML for the Diamond Complex. The primary effect of a post gather population at high AML is that the following spring, the AML would be exceeded, and it would continue to be exceeded until another gather was conducted to remove excess wild horses. As shown by the Population Modeling, higher population sizes would result which would slow resource recovery rates and increase impacts to rangeland resources by an overpopulation of wild horses, congruent with the size of the population. Habitat quality and resource availability would not be maximized with populations in excess of AML. Higher incidence of concentrated use, trailing, and heavy utilization would occur than with achievement of low AML.

Application of Fertility Control – Proposed Action and Alternative 2

The application of fertility control is included within the Proposed Action and Alternative 2. Fertility control would be applied to all the released mares to decrease the future annual population growth. The goal of fertility control is to break the cycle of gathers, removals and wild horses in holding facilities by

reducing the number of horses that must inherently be removed from the range through the use of population controls at effective frequencies.

The procedures to be followed for the implementation of fertility control are detailed in Appendix D. Each released mare would receive a single dose of the two-year PZP contraceptive vaccine (or current formulation). When injected, PZP (antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's eggs, and effectively block sperm binding and fertilization (Zoo, Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible. Field observations and helicopter inventories indicate that many of the original mares receiving the PZP vaccination in 2004 are still present in the Diamond Complex and would be re-treated if captured. During future gathers, previously treated mares could also be re-treated with PZP or the currently available formulation.

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

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

Under the Proposed Action, these mares could be treated again in 2-3 years and thereafter every 2-3 years which could have the following efficacy for a two year protocol.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Normal	94%	82%	94%	82%	94%

Rates for summer application for an August to October treatment window are:

Year 1	Year 2	Year 3	Year 4
Normal	80%	65%	50%

The treatment would be controlled, handled, and administered by a trained BLM employee. Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the range, and none are expected to have long term impact from the fertility control injections. Mares treated and released during the previous gathers were freeze-marked on the left hip with two 4 inch letters ("AC" or new identifier) for future identification. Refer to Figures 20-21 below. These identifiers would be recorded along with age and health of the mare for future analysis. Additional letters could be added for future tracking purposes. Newly captured mares that are not marked would be marked with new freeze-mark letters. This information would also be used to determine the number of mares captured that were not previously treated and provide additional insight to gather efficiency.

As the sole approach, contraception would not allow the BLM to achieve the population objectives; however, in conjunction with other techniques (e.g., removals of excess animals and adoption) and through incorporation of other population control techniques (e.g., sex ratio adjustments, sterilization), it now provides a valuable tool in a larger, adaptive management approach to wild horse and burro management.

Contraception may be a cost effective and humane treatment to employ in horses to prevent increases in populations, or with other techniques, to reduce horse populations (Bartholow 2004). In general, contraception would not remove horses from an HMA's population which would result in some continuing environmental effects by those individuals. Horses are long-lived reaching 20 years of age in the wild and those horses returned to the range may continue exerting throughout their life span negative effects on the environment as described above, as opposed to the removal of a horse. Contraception, if effective, reduces future reproduction. Limiting future population increases of horses would limit increases in environmental damage from higher densities of horses. It may also reduce the effect of wild horse gather activities on the environment (if it limits the numbers of wild horse gathers required). If application of contraception to horses requires capturing and handling horses, the risks and costs associated with capture and handling of horses may be roughly equivalent (not counting the cost of adoption). Application of contraception to older animals and returning them to the range may reduce risks associated with wild horses that are difficult to adopt or handle in captivity.


Figures 32-33: Diamond HMA helicopter overflight, August 2012. Mares treated with fertility control in 2004, with the identifying freezemark on the left hip.

PZP use in wild horse herds has been studied extensively for more than two decades, with papers published in peer-reviewed scientific journals by experienced reproductive physiologists, equine scientists, wildlife biologists, geneticists, and animal behaviorists, providing a portrayal of safety, high efficacy, and absence of long-term behavioral, physical, or physiological effects from the vaccine. This data is of scientific merit, supported by field data, with statistically adequate sample sizes. Data was collected by trained, unbiased individuals, who adhere to established research methodology within his or her respective field (Kirkpatrick et al. 2010).

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

In two studies involving a total of four wild horse populations, both Nunez et al. (2009) and Ransom et al. (2010) found that PZP-treated mares were involved in reproductive interactions with stallions more often than control mares, which is not surprising given the evidence that PZP-treated females of other

mammal species can regularly demonstrate estrus behavior while contracepted (Shumake and Wilhelm 1995, Heilmann et al. 1998, Curtis et al. 2002).

Ransom et al. (2010) found that control mares were herded by stallions more frequently than PZP-treated mares, and Nunez et al. (2009) found that PZP-treated mares exhibited higher infidelity to their band stallion during the non-breeding season than control mares. Madosky et al. (in press) found this infidelity was also evident during the breeding season in the same population that Nunez et al. (2009) studied, resulting in PZP-treated mares changing bands more frequently than control mares. Long-term implications of these changes in social behavior are currently unknown. Kirkpatrick et al. (2010) conclude by stating that "*the larger question is, even if subtle alterations in behavior may occur, this is still far better than the alternative*" and that the "*other victory for horses is that every mare prevented from being removed, by virtue of contraception, is a mare that will only be delaying her reproduction rather than being eliminated permanently from the range. This preserves herd genetics, while gathers and adoption do not*." (Kirkpatrick and Turner 2002, 2008; Turner and Kirkpatrick 2002, 2003; Willis et al. 1994)

Bartholow (2007) concluded that the application of 2 or 3-year contraceptives to wild mares could reduce operational costs by 12-20% or up to 30% in carefully planned population management programs and contraceptive treatment would likely reduce the number of horses that must be removed in total, with attendant cost reductions in the number of adoptions and total holding costs.

Figure 34: Diamond HMA, White horse herd, June 2006.

Furthermore, the Humane Society for the United States (HSUS, 2010) has also completed analysis of the potential of population control with the modeling work showing that "*more aggressive changes in earlier years will yield more dramatic decreases in later years, obviating the need for removing any horses from the range in the future while still achieving AML".* The HSUS concludes that the current management program is unsustainable and that "*by replacing the current gather-and-remove programs with gather-treat-and-release programs, the BLM would save approximately $204 million dollars over 12 years while achieving and maintaining Appropriate Management Levels (AML) on wild horse Herd Management Areas (HMA) on public lands in the U.S".* The HSUS strongly supports the increased use of fertility control and other population controls, advocating the expansion of these programs as alternatives to gathers and Long Term Holding. A Capture, Treat and Release strategy that could be possible with repeated treatment of fertility control is a "win-win" for everyone and is a significant turning point for BLM (H. Hazard, Pers. Comm 2010).

One-time application at the capture site would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick 1995). The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Available data from 20 years of application to wild horses contradicts the claim that PZP application in wild mares causes mares to foal out of season or late in the year (Kirkpatrick and Turner 2003). The PZP vaccine is currently being used on over 75 horse management areas for the National Park Service or the Bureau of

Land Management and its use is appropriate for all free-ranging wild horse herds. The long-term goal is to reduce or eliminate the need for gathers and removals (Kirkpatrick et al. 2010).

Following the gather, a large percentage of inoculated mares would experience reductions in fertility. Recruitment of foals into the population would be reduced over a three-year period. Up to 94% of the mares treated would not foal the second year following implementation of fertility control, and 82% and 68% of mares in the following two years.

Under the Proposed Action, the BLM could return to these areas every 2-3 years during a 10 year period to re-apply fertility control in order to maintain its effectiveness in controlling population growth rates. PZP-22 can safely be repeated in 2 years or as necessary to control the population growth rate. The probability of long-term infertility using PZP-22 is very low, and many mares retreated even after 3 years will return to normal fertility after the second treatment wears off (Turner, pers. comm.).

The primary long-term and indirect effects to the wild horses through the treatment and re-treatment of fertility control would be to the overall health and wellbeing of the animals and the range. Many mares would not experience the biological stress of reproduction, foaling and lactation and would reflect better health as noted by higher body condition scores. Foals later born to these mares would be healthier overall, and would benefit from optimum nutrition from mares' milk and rangeland forage. Past application of fertility control has shown that mares reflect improvements to overall health and body condition even after fertility resumes. Subsequent observations of mares treated in past gathers showed that many of the mares were larger than the others were, maintained higher body condition than untreated mares, and had large healthy foals. Following resumption of fertility, the proportion of mares that conceive and foal could be increased (rebound effect) due to the increased fitness. Research is continuing to document and quantify these effects.

Fertility control application would allow the average population size to be maintained at a level consistent with the AML. By maintaining reduced population growth rates, the number of wild horses that would have to be removed from the HMAs during future gathers would also be reduced. Long term genetic and physical health and future reproductive success of mares within the herd would be sustained.

Reduced population growth rates and smaller population sizes would also allow for improvements to range condition, which would have long-term benefits to wild horse habitat quality. As the population is maintained at the level necessary to achieve a thriving natural ecological balance, vegetation resources would continue to improve, thereby improving the forage available to wild horses throughout the Diamond Complex. With balance and optimum distribution across the Diamond Complex there would also be less trailing and concentrated use of waters which would have many benefits to the wild horses. There would be reduced competition among wild horses using the waters, and less fighting would occur among studs and individual animals accessing these waters. Water quality and quantity would continue to improve to the benefit of all rangeland users including wild horses. Wild horses would also have to trail less distance back and forth to water and desirable foraging areas.

Should the repeated fertility control treatment be continued into the future, the chronic cycle of over population and large gathers and removals would no longer occur, but instead a consistent cycle of balance and stability would ensue, resulting in continued improvement of overall habitat conditions and animal health.

Sex Ratio Adjustment – Alternative 2

Population control methods including the adjustment of sex ratios to favor stallions would be expected to have relatively minor impacts to overall population dynamics. Under Alternative 2, impacts of additional stallions in the population could include decreased band size, increased competition for mares, and increased size and number of bachelor bands. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Refer to Appendix B for information about the estimated sex ratio. Conversely, a selection criterion, which leaves more mares than stallions, would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, and larger band sizes. With more stallions involved in breeding it should result in increased genetic exchange and improvement of genetic health within the herd. Because the first phase of the Proposed Action involves sex ratio adjustment to favor studs at a 60:40 ratio, these impacts would apply following the 2013 gather. After future gathers are conducted to achieve the low AML, sex ratio adjustment would no longer be implemented, and fertility control would be implemented to slow population growth rates.

Figure 35: Three Springs Canyon, Diamond HMA. Substantial trailing is occurring to these depleted, low producing springs. Wild horses refuse to leave when approached as they insist on waiting for recharge of the spring to drink. August 2012 helicopter flight.

Modification of sex ratios for a post-gather population favoring stallions could also reduce growth rates and subsequent population size, as a smaller proportion of the population would consist of mares that are capable of giving birth to foals. As a result, gather frequency could be reduced as well as the numbers of wild horses gathered and removed in future gathers. Sex ratio modification to favor studs at a 60:40 ratio was simulated in the WinEquus population model with the addition of fertility control. Under Alternative 2; however the population would only be reduced to the upper range of AML. As displayed in Tables 9-11, Alternative 2 maintains the lowest growth rates of all alternatives, which is a factor of implementing both population controls. Though average population sizes are somewhat lower than under Alternative 3 (high AML range/no population control), the average population sizes are still in excess of the high range of AML, and large numbers of wild horses would need to be gathered over the course of 10 years to maintain the populations and growth rates. In turn, larger gather numbers and more frequent gathers could relate to increased injury or death rates due to increased handling and stress of animals.

Gate Cut Gather – Alternative 3

Wild horses would be gathered and removed as encountered until removal and post-gather population objectives were achieved. No wild horses would be released so that the number removed would equal the number gathered. The post-gather population estimate for the Diamond Complex would be the high range of AML (210 wild horses). Impacts from this alternative to the animals gathered and removed would be similar as the Proposed Action.

Approximately 210 wild horses would remain un-captured in the Diamond Complex, once the number of horses were gathered and removed to meet the objectives. These horses could experience minor

disturbance due to the activity of the helicopter but would otherwise be unaffected, and would resume normal activity once removal operations were complete. Sex ratios and age distributions of the un-gathered population would be unknown but should be comparable to the ratios observed in the gathered animals and the impacts to the residual herd's health and distribution is difficult to assume.

The largest difference under this Alternative (Gate Cut) is that the inability to select younger, more adoptable wild horses for removal would likely result in substantially more wild horses placed into LTPs at very high costs when compared to opportunities available under the other Action Alternatives. According to population model projections, approximately 39% of the wild horses currently existing within the Diamond Complex fall into age groups of 5 years of age or older, which have proven to be less adoptable or not adoptable.

Another effect of the Gate Cut Alternative is that it eliminates the ability to select for animal health or desirable or historical characteristics in animals released back to the range. Experience over the past 37 years has shown that oftentimes gate cut gathers result in unintended impacts to the remaining herds. For example, typically horses of larger size (draft), gentle disposition, or bright/light coloring are the easiest to locate and capture, and thus the first to be removed under a gate cut scenario. In effect, the gate cut gather removes these genetic traits from the herds, and oftentimes these traits are gone from the population forever. Additionally, removal through gate cut gathers may distort the distribution within the Diamond Complex by removing all animals concentrated in certain areas (where capture is easiest), while leaving animals in the outlying areas that are more difficult to gather (trees, terrain, distance), and which may be characterized by lesser quality habitat.

The inability to select for desirable or historic traits equates to a missed opportunity to maintain or improve the health, conformation, color patterns or demeanor of the wild horses within a population, and potential permanent loss of these genetic traits from the population.

No Implementation of Fertility Control (Alternatives 1 and 3)

Alternative 1 involves the gather and removal of the population to low AML with no application of fertility control. Alternative 3, being a gather cut gather does not involve releasing wild horses back to the range, and thus no adjustment to sex ratios or application or fertility control would take place. Wild horses would not be held at the holding corrals for extended lengths of time while waiting to apply fertility control, and would not be stressed by additional handling to apply fertility control. Fertility and foaling rates would be unaffected in the un-gathered population of approximately 210 wild horses, with the population increasing at an average rate of 15-18% per year until another gather is scheduled in 3-5 years to remove excess wild horses. In the long term, lack of population controls would result in an increased number of excess wild horses that must be gathered and removed from the range in future gathers to maintain the AML. Similar to Alternative 2 discussed above, additional gathers and removal numbers could equate to higher injury or death rates as compared to the Proposed Action or Alternative 1 over the long term. Refer to the Population Modeling Summary in this Section and Appendix D for more detailed information.

Results of WinEquus Population Modeling

The Population Modeling is described in detail in Appendix E. The purpose of the modeling is to display a potential range of outcomes for various management activities including removals, fertility control or no removals. A standard set of outputs in the form of tables and graphs are obtained for

population size, growth rates, and gathers/removals. The results can also be analyzed through Pivot tables in Excel to display other results of interest.

Modeling for the Diamond Complex proposed gather was completed for all four Action Alternatives and the No Action Alternatives for a total of 10 years, which provided 11 years of data. For the Action Alternatives, the model was simulated for 3 year and 5 year gather intervals. The following section provides an overview of the results of the modeling and provides comparative tables. More detailed results are located in Appendix E.

Modeling Summary

The results of the population modeling clearly show that the application of fertility control on a 2-3 year interval beginning in 2012 could eliminate the need to remove wild horses in older age groups, would reduce the number of wild horses removed in future gathers, and minimize the overall need for gathers in future years as compared to the other alternatives. Though repeated gathers at 2-3 year intervals would be necessary to re-apply fertility control treatments, this would be offset by being able to return most animals back to the range as well as the increased animal and rangeland health that maintaining populations at AML would bring. The results of the population modeling are summarized below.

- **Do any of the Alternatives "crash" the population?**

  Results of the modeling do not indicate that implementation ofthe Proposed Action or any of the Action Alternatives would result in a crash of the population. Results obtained for 10 years and 100 trials showed minimum population levels and growth rates within reasonable levels, indicating that adverse impacts to the population are not likely.

- **What effect does fertility control have on population growth rate?**

  The growth rates displayed by the model for the fertility control Alternatives are substantially lower than those of the non-population control Alternatives. As a result, fewer wild horses would need to be removed during future gathers, and potentially increased gather intervals could occur. It may be possible that only younger foals and yearlings would need to be removed, which would eliminate the need to place any wild horses in LTPs during future gathers if population controls are implemented and gather intervals are reasonable.

Table 8: 3 year gather interval: Average Growth Rate (%) in 10 Years

Trial	Proposed Action	Alt. 1	Alt. 2	Alt. 3	No Action
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	
Lowest Trial	2.2	5.8	-1.7	8.9	2.0
Median Trial	12.7	17.7	5.7	17.2	17.5
Highest Trial	17.1	23.4	10.2	22.4	22.4

Table 9: 5 year gather interval: Average Growth Rate (%) in 10 Years

Trial	Proposed Action	Alt. 1	Alt. 2	Alt. 3	No Action
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	
Lowest Trial	5.7	9.1	1.7	10.9	2.0
Median Trial	13.0	16.7	10.2	17.3	17.5
Highest Trial	18.4	22.8	14.6	25.3	22.4

- **What effects do the different alternatives have on the average population size?**

The results of the model indicate that the Proposed Action, with potential retreatment of fertility control every three years would likely maintain the population within the AML range over the course of the next 10 years, with fewer removals necessary and potentially removals of only young and adoptable animals. Alternatives that do not include population control, or involve gathering only to the high AML, maintain higher average population sizes above the established AML.

- **What is the effect to numbers gathered and removed?**

The Proposed Action with implementation of fertility control and gathering to the low range of AML provides the best opportunity to reduce population growth rates, average population size, and overall removal numbers while minimizing the gather intervals removing the fewest animals, treating the fewest mares all the while maintaining the population at or near the established AML. Other Alternatives reflect varied results depending on the parameter to achieve the high or low AML and the implementation of population controls. While Alternative 2 reflects lowest overall population growth rates and removal numbers, the results reflect the need to gather many more horses than other Alternatives to achieve this, and in the process treat many more mares, and maintain the third highest population sizes of all Action Alternatives.

The following table provides a comparison among the Alternatives showing how the results rank from one Alternative to the next. In the table, "1" indicates the lowest value, and "5" indicates the results of the modeling that provided the highest number relative to the other alternatives.

Table 10: Ranking of Population Modeling Results

Alternative	Model Results Ranking					
	Average Population Size	Average Growth Rates	Gathered	Removed	Treated	Gathers in 11 years (rank 1-4)
Proposed Action	1	2	3	2	1	1
Alternative 1	2	3	1	3	NA	2
Alternative 2	3	1	4	1	2	4
Alternative 3	4	4	2	4	NA	3
No Action	5	5	NA	NA	NA	NA

Table 11: 3 year gather interval: Modeling Summary Table

Alternative	Average Populations	Average Growth Rates	Gathered	Removed	Treated
Proposed Action: Low AML, PZP	189-248	2.2-17.1	670-1104	606-835	12-115
Alternative 1: Low AML	204-255	5.8-23.4	716-982	685-946	0
Alternative 2: High AML, PZP, 60:40	238-343	-1.7-10.2	1069-1443	527-740	210-328
Alternative 3: High AML	291-369	8.9-22.4	729-1100	700-980	0
No Action	704-2933	2.0-22.4	0	0	0

Table 12: 3-year gather interval: Gather comparison

Number of Gathers shown for 11 years	Percent of Trials reflecting the identified number of gathers			
	Proposed Action	Alt 1	Alt2	Alt3
1	2%			
2	39%	8%		
3	59%	63%		1
4		29%	100%	99%

Table 13: 5 year gather interval: Modeling Summary Table

Alternative	Average Populations	Average Growth Rates	Gathered	Removed	Treated
Proposed Action: Low AML, PZP	207-269	5.7-18.4	848-1174	685-919	45-116
Alternative 1: Low AML	220-294	9.1-22.8	719-1062	690-1024	0
Alternative 2: High AML, PZP, 60:40	253-358	1.7-14.6	1041-1373	561-900	129-191
Alternative 3: High AML	329-480	10.9-25.3	833-1420	798-1375	0
No Action	704-2933	2.0-22.4	0	0	0

Table 14: 5-year gather interval: Gather comparison

Number of Gathers shown for 11 years	Percent of Trials reflecting the identified number of gathers			
	Proposed Action	Alt 1	Alt2	Alt3
1				
2	62%	18%		
3	38%	82%	100%	100%
4				

No Action Alternative (No Wild Horse Gather)

Under the No Action alternative, AML would not be achieved within the Diamond Complex and wild horses would not be removed from horse free areas outside of the boundaries of designated HMAs. There would be no active management to control the size of the population at this time, and wild horse populations would continue to increase at an average rate of 15-18% per year. The current population, which is nearly 400% of the established AML, would continue to be exceeded. The population modeling indicates that without a gather to remove excess wild horses, the population on the Diamond Complex could exceed one thousand wild horses by 2015, growing to over two thousand by 2019. It is certain that catastrophic die-off would occur at some point prior to this, as resources are already limited for the existing population. Refer to Appendix E for more detail. The Figure 36 illustrates the population growth as simulated by the model.

Throughout the Diamond Complex few predators exist to control wild horse or burro populations. Some mountain lion predation occurs, but it is not believed to be substantial. Coyote are not prone to prey on wild horses unless young, or extremely weak. Other predators such as wolf or bear do not exist.

Wild horses are a long-lived species with documented survival rates exceeding 95%. Survivability rates collected through research efforts are as follows:

- Pryor Mountain Wild Horse Range, Montana: >95%; 15 years and younger, except for foals, both sexes: 93%;
- Granite Range HMA, Nevada: >95%; 15 years and younger, except for male foals: 92%;
- Garfield Flat HMA, Nevada: > 95%; 24 years and younger, except both foals, both sexes: 92%.

AML is the maximum population for which thriving natural ecological balance would be maintained and avoid deterioration of the rangeland. The current population of wild horses is already competing for available water and forage resources, which are limited due to extreme drought and overpopulation of wild horses. Excessive utilization, trampling, and trailing by wild horses would continue to degrade the vegetation. Wild horses are already congregating in high densities within portions of the Diamond

Complex. Winter forage areas exhibited minimal to no growth of forage in 2012 and are already heavily utilized. Little forage remains in these areas for use during the 2012-2013 winter.

Without a gather to remove excess wild horses to within the capacity of the habitat, many wild horses will likely starve and die this winter. Body condition of some mares has already declined since August 2012 as documented during the November 2012 inventory. Further body condition is expected as a result of inadequate forage and water throughout the Complex.

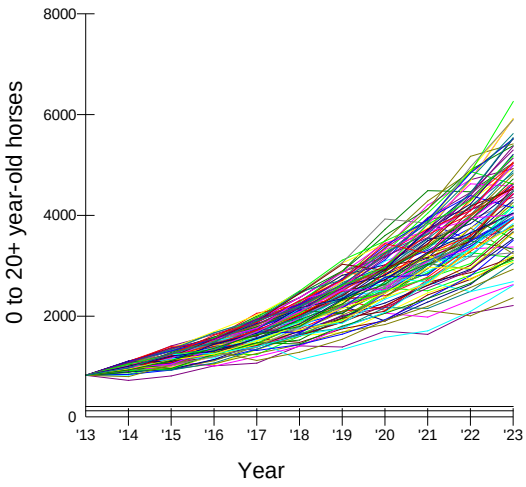


Figure 36; No Action Alternative -- Population Model Spaghetti Graph

Significant loss of the wild horses in the Diamond Complex due to starvation or lack of water would have obvious consequences to the long-term viability of the herd. The inability of the BLM to achieve and maintain the established AML has contributed to chronic and cumulative reductions in range health throughout the Diamond Complex. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have obvious impacts to the future of the Diamond Complex and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands that would allow for the management of a healthy, self-sustaining wild horse population, and would not promote a thriving natural ecological balance.

3.3. Livestock Management

Affected Environment

The Diamond Complex is managed cooperatively between the Mount Lewis, Tuscarora, and Egan Field Offices. Numerous livestock grazing allotments authorized for use by cattle and sheep are located within the Diamond Complex. No analysis regarding changes to livestock management would be analyzed in this EA as those decisions have already been made through other planning level processes. Through future Rangeland Health Evaluations, FMUDs/or Grazing Decisions and coordination with the interested public, monitoring data and other factors would be evaluated and changes made to livestock management, as appropriate. The information provided here is to inform the reader about one of the many uses authorized on public lands in the scope of "Affected Environment". Refer to Map 2 displaying the Diamond Complex and associated allotments.

Allotments continue to be evaluated for achievement of the rangeland health standards, and adjustments to livestock grazing are implemented as appropriate, as grazing term permits are renewed or through annual coordination between BLM and grazing permit holders. Adjustments can include livestock stocking levels, seasons of use, grazing rotations, utilization standards, and other management practices to better control livestock distribution. Within the Diamond Complex, there are no year-round grazing permits for livestock (Table 15), which is in contrast to the year round use by wild horses.

The Land Health Evaluations assess and evaluate livestock grazing management practices to determine whether those practices are conforming to the standards and guidelines for rangeland health, as required by 43 C.F.R. Subpart 4180.

Mount Lewis Field Office, Battle Mountain District

The MLFO administers the livestock grazing in the Black Point, Diamond Springs, Shannon Station, and Three-Mile Allotments. Black Point, Diamond Springs, and Three-Mile Allotments are almost entirely overlain by the Diamond HMA. The Corta Allotment is within the boundaries of the MLFO and is administered by the Egan Field Office (discussed below).

There are a total of five livestock operators (permittees) currently authorized to graze livestock in these allotments annually. The total permitted use for these permittees is a combined total of 12,009 Animal Unit Months (AUMs) yearly in the four allotments (including on non-HMA lands, excluding the Corta Allotment). An AUM is the amount of forage needed to sustain one cow or its equivalent for one month[7]. AUMs are not equal to the actual number of animals on the range. All of these allotments consist of various pastures that are grazed seasonally following established grazing systems; however, the season of use may vary (by one to two weeks) annually based upon forage availability, drought conditions and other management criteria. As shown in Table 15, allotment acreages do not correspond with HMA acreages, as these areas do not share identical boundaries.

BLM issued Final Multiple Use Decisions (FMUDs) for all five allotments (including Corta Allotment) in 1999 and 2000, following the completion of the Diamond Mountain Complex Evaluation (Mount Lewis Field Office portion only). The purpose of this document was to evaluate the nature of all types of grazing that occurred in the Diamond Mountain Complex area, and to measure effectiveness in meeting specific management objectives. The FMUDs for each allotment allocated AUMs to livestock and wild horses in conformance with the SERA RMP Objectives (SERA RMP ROD, 1986 and SERA RMP Amendment ROD 1987). The MLFO plans to re-evaluate these allotments in the near future with completion of a Rangeland Health Evaluation and determination of whether the Standards and Guidelines for Rangeland Health are being met. If livestock are determined to be a causal factor for Standards not being met, appropriate changes to livestock management would be made at that time. The FMUD for each allotment specifies the maximum number of AUMs that the permittees are allowed to use each year, but they often use less than what they are allocated (refer to actual use displayed in Table 16).

In an effort to improve livestock distribution, many types of water developments were developed (spring developments, wells and troughs, and dirt impoundments). These water developments are often maintained by permittees to support current management of livestock (who often times hold the water rights as well), but wild horses and wildlife benefit as well. Improved distribution of water sources not only allows the livestock and wild horses to disperse thereby reducing competition for forage, but also provides a more reliable source of water during times of drought. These water sources are often seasonal; the permittee operates them when livestock are brought in and turns them off when livestock are removed. Several developed water sources in the Diamond HMA have been damaged by wild horses, resulting in expensive repairs by the permittee in order to keep water available for livestock and maintain proper distribution. Additionally, wild horses are relying on water sources located on private lands that either are not fenced from public land or are accessible through open gates that the permittees and other land owners have chosen not to close in order to provide water to wild horses.

The livestock permittees for the Black Point, Diamond Springs, Shannon Station, and Three-Mile

7. 43 CFR 4100.0-5 defines Animal Unit Month (AUM) as the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month (which equates to 5 sheep). AUM is not the number of livestock. For example, 240 AUMs could be 40 cattle for 6 months, 100 cattle for 2.4 months or 1200 sheep for one month.

Allotments have all taken varying levels of voluntary non-use during the 2012 grazing season. All of the permittees have drastically cut the numbers of livestock on their allotment(s) and several removed livestock from the allotment early. All livestock were removed from the Diamond HMA as of the end of August 2012 due to drought with the exception of Black Point. One of the permittees was allowed to graze the allotment on the lower elevation areas dominated by cheatgrass and crested wheat seedings until the end of November. Targeted grazing on cheatgrass in the fall has been shown to reduce the amount of seed produced and help native grasses outcompete cheatgrass the following spring (Peischel and Henry, 2006). A few cattle were observed on the mountain during the aerial inventory in November 2012, and the permittee was subsequently notified of their locations for prompt removal.

All of the permittees are being asked to rest part or all of their allotments during the 2013 grazing year. The MLFO is requesting that areas identified as being intact native vegetation be rested during the growing season and areas identified as intact native vegetation with riparian areas be rested through the hot season to allow the native grass and shrub species to recover from this year's drought.

Egan Field Office, Ely District

The Diamond Hills South HMA includes the Rail Road Pass Allotment. Permitted livestock grazing use in the HMA includes both cattle and sheep. Livestock grazing also occurs in areas immediately adjacent to the HMA. The Egan Field Office also administers the sheep grazing in the Corta Allotment, located at the north end of the Diamond HMA (refer to tables below).

Over the past eight years, actual livestock use has generally been less than permitted for these grazing allotments. This has been in part due to persistent drought, competition with wild horses for forage, and the needs of the livestock operations. Few livestock were noted during the November 2012 inventory, with none inside the Diamond Hills South HMA and only a band of sheep present in one of the allotments south of the HMA.

The Final Decision for the Term Grazing Permit Renewal on the Railroad Pass Grazing Allotment was completed October 2011. The Corta Seeding is fenced into a separate pasture that is grazed by sheep or cattle during the summer months. The remainder of the Railroad Pass Allotment is split into two cattle grazing pastures. The Livestock Grazing Use Agreement for the Railroad Pass Allotment outlines a rest-rotation grazing system alternating summer cattle use between the North and the South Pastures. This agreement also calls for the voluntary non-use of approximately 40 percent of the cattle AUMs on the allotment. Sheep grazing occurs across both of these pastures. Sheep are generally trailed through the Railroad Pass Allotment in November (heading south) and return in mid-April to lamb on the allotment. Sheep are generally removed from the Railroad Pass Allotment in early June, however if they remain after June 1, they must graze only the higher elevations of the allotment. The permittees have only grazed sheep at the higher elevations and have not turned out cattle in the Diamond Hills South HMA. Railroad Pass/Corta Seeding is the only place that has had cattle grazing. This seeding is completely fenced and not available for use by wild horses.

The Diamond Complex gather area includes approximately 99,500 acres outside of designated HA/HMA boundaries along the east flank of the Diamond Range which includes portions of the Silverado, Newark, Strawberry, Warm Springs and Cold Creek Allotments. Since 2006, 127-311 wild horses (1,524-3,732 AUMs) have resided in these allotments which are not allocated for use by wild horses. Due to the excess wild horses in these areas, livestock operators have not run livestock at their permitted levels.

Tuscarora Field Office, Elko District

The Diamond Hills North HMA includes portions of the Browne and Red Rock Allotments. The Saddler Pasture within the Browne Allotment and the Native Pasture within Red Rock Allotment make up the Diamond Hills North HMA. Permitted livestock grazing in this area includes both sheep and cattle use. This level of use was reduced from 8,810 AUMs originally allocated in the 1987 Elko RMP Rangeland Program Summary. Additionally, the level of permitted use for the Browne Allotment was reduced in 1997 through a Livestock Use Agreement. The BLM is currently in the process of completing Rangeland Health Standards and Guidelines Assessments and developing Allotment Management Plans for the Browne and Red Rock allotments. This process will include evaluating carrying capacities for livestock and wild horses as well as implementing livestock grazing management practices which are consistent with healthy upland and riparian habitat conditions. During the November 2012 inventory, it was noted that all livestock had been removed with the exception of a few remaining in the Red Rock Allotment. The permittees were subsequently notified of their locations for prompt removal.

The following table displays season of use and permitted AUMs within allotments associated with the Diamond Complex. AUMs are Animal Unit Months and do not represent the actual number of livestock. AUM is defined in footnote 6.

Table 15: Livestock Grazing Permitted Use within the Diamond Complex

Field Office	Allotment	% of Allotment in HMA	Season of Use	Permitted Active Livestock AUMs	Wild Horse AML AUMs	Wild Horse 2012 Actual Use AUMs[a]
MLFO	Black Point	98%	Cattle 5/1 - 11/30 Sheep 5/1 - 10/31	2,215 cattle 2,097 sheep	780	2,964
	Diamond Springs	79%	5/1 - 12/31	3,680 cattle	648	
	Shannon Station	15%	Cattle 4/1 - 2/28 Sheep 4/1 - 2/28	2,520 cattle 647 sheep	132	
	Three-Mile	71%	5/15 - 11/30	850 cattle	180	
	Corta	100%	5/1 - 5/31	128 sheep	48	
	Total			12,137	1,812[b]	
EFO	Railroad Pass	70%	Cattle 5/1 - 10/31 Sheep 4/5 - 11/15	3,542	264	732[d]
	Railroad Pass/Corta Seeding[c]	100%	4/5 - 11/15	540	0	
	Total			4,082	264	
TFO	Browne	90%	5/16 - 9/15	657	72	1,752
	Red Rock	80%	4/15 - 11/17	7,502	372	
	Total			8,159	444	
Grand Total				24,348	2,520	5,448

a. AUMs calculated for Adult horses identified during the November 2011 inventory and does not include foals.

b. 24 AUMs allocated to the North Diamond Allotment for the Diamond HMA, an error in the 1986 SERA Rangeland Program Summary.

c. The HMA surrounds the seeding. The seeding is not part of the HMA because it is completely fenced and is managed as a horse free area.

d. Includes only the wild horses estimated in the Railroad Pass Allotment and does not include 311 wild horses (230 adults=2,760 AUMs) outside of HMA boundaries in the 5 allotments (99,500 acres) where wild horse use is not allocated.

The following table shows the actual number of AUMs the permittee used on their allotment 2005-2011 and the authorized use for this current year (2012). The figures for 2012 on the Diamond HMA are preliminary Actual Use figures rather than the authorized use shown for the Diamond Hills South and Diamond Hills North HMAs. An AUM does not represent the actual number of animals and is defined in footnote 6.

Table 16: Actual Use (AUMs) by Livestock, Diamond Complex

HMA	Allotment	Actual Use in AUMs by Grazing Year							
		2005	2006	2007	2008	2009	2010	2011	2012[a]
Diamond HMA	Black Point	2,042 Cattle, 1,202 Sheep	2,378 Cattle, 1,718 Sheep	2,216[b] Cattle, 2,097[b] Sheep	2,211[b] Cattle, 0[d] Sheep	2,175[b] Cattle, 672 Sheep	1,217 Cattle, 674 Sheep	2,044 Cattle, 1,095 Sheep	1,839 Cattle, 1,049 Sheep
	Diamond Springs	2,434	2,392	2,014	2,801[b]	2,111	2,889	3,138	2,099
	Shannon Station	2,000 Cattle, 417 Sheep	1,549 Cattle, 420 Sheep	1,637 Cattle, 647[b] Sheep	1,240 Cattle, 200 Sheep	1,619 Cattle, 593 Sheep	2,206 Cattle, 241 Sheep	2,184 Cattle, 195 Sheep	1,199 Cattle, 324 sheep
	Three Mile	547	605	471	723	768	544	746	228
	Corta	81	39	89	56	91	95	95	97
	Total	8,723	9,101	9,171	7,231	8,029	7,866	9,497	6,835
Diamond Hills South	Railroad Pass	775	1518	1431	1382	567	964	621	849
	Railroad Pass/Corta Seeding	285	374	0	0	197	174	220	97
	Total	1,060	1,892	1,431	1,382	764	1,138	841	946
Diamond Hills North	Browne	1,178	1,282	659	646	656	655	655	655
	Red Rock	1,331[b]	2,379[b]	5,670	5,741	10,402	2,386[b]	5,294[b]	6,238
	Total	2,509	3,661	6,329	6,387	11,058	3,041	5,949	6,893
Grand Total		12,292	14,654	16,931	15,000	19,851	12,045	16,287	14,674
% of Authorized		50%	60%	70%	62%	82%	49%	67%	60%

a. *Authorized use may be higher than actual use for 2012. Authorized use is the number of AUMs they paid for before grazing, actual use is submitted after the grazing season to show what they actually used. The table reflects preliminary actual use for the Diamond HMA allotments and is based on voluntary drought management plans*
b. *Some actual use missing*
c. *Cattle and Sheep AUMs and multiple operators*
d. *Zero use due to a transfer between livestock operators*

As identified in the table, actual use by livestock varies by year, and does not equal the authorized use in most cases. Since the 2004 gather, actual use has not exceeded 82% of the permitted use within the grazing allotments included within the Diamond Complex HMAs. The overall average between 2004 and 2011 is 63% of the permitted use.

Environmental Consequences

Impacts common to Action Alternatives

The proposed gather would not directly affect livestock operations within the grazing allotments, as no livestock would be present on the range when the 2013 gather occurs. If livestock are present during future gathers, livestock may be temporarily disturbed.

The effects of wild horse populations on livestock, wildlife, and vegetation resources are largely functions of dietary and spatial overlap between species. In some cases wild horses utilize rangeland that livestock do not, in other cases, a 1:1 relationship exists. Additionally, most livestock permits do not allow for year-round use of the allotments, whereas wild horses inhabit these areas on a continual year-round basis.

The most notable effects of achieving the established wild horse AML would be indirect and beneficial through reducing impacts caused by an overpopulation of wild horses, particularly throughout the low elevation winter range and on heavily utilized riparian areas and water developments. Removal of wild horses from outside the HMA boundaries where they are not allocated for use would eliminate the competition between wild horses and livestock in those areas, and reduce use levels on the vegetation. Managing wild horses within the established AML ranges, would promote a thriving natural ecological balance between wild horses and other resource values, improve the quality and quantity of forage available throughout the Diamond Complex, and improve rangeland health.

Impacts that differ by Action Alternative

The differences in the effects of the action alternatives to livestock would be through the growth rates and population size. The Proposed Action is anticipated to provide the greatest opportunity for range resources to improve. These indirect impacts decline under each successive alternative as average population size increases between the Proposed Action and Alternative 3. Because Alternative 2 and 3 do not allow for the population to be maintained within the AML range, these alternatives would result in the highest ongoing impacts to riparian areas and utilization levels by wild horses and would promote the least recovery or improvement of rangeland health. Similarly, continuing to return to the Diamond Complex every 2-3 years over the next decade under the Proposed Action to remove excess wild horses and retreat females with fertility control would allow for the most benefits to livestock in terms of reduced competition, and utilization levels. Should the gather return interval average 4-5 years, benefits would be reduced, but would still be greatest under the Proposed Action and least under Alternative 3.

No Action

There would be no direct impacts to livestock from gather operations under the No Action Alternative. Utilization by authorized livestock has been directly impacted by the overpopulation of wild horses, both inside and outside the Diamond Complex. Impacts of the No Action Alternative would consist of continued resource deterioration resulting from competition between wild horses and livestock for water and forage, reduced quantity and quality of forage, the inability to graze livestock on public lands within the grazing allotments as a result of competition for limited waters or the consumption by excess wild horses of forage allocated to livestock under the operative land-use plans and prior multiple use decisions.

3.4. Noxious Weeds, Invasive and Non-Native species

Affected Environment

Changes in plant community composition from invasion of non-native plants into areas of native vegetation can negatively affect wildlife, livestock and wild horses by changing fire regimes, habitat structure, and available forage.

Noxious weeds, invasive and non-native species are highly competitive, aggressive and easily spread by people, equipment, animals and by natural processes, such as wind and water erosion. The potential for increased weed infestations rises proportionally with increased cultural activities such as road maintenance, grazing and recreational use, primarily off-highway vehicle (OHV) use. Noxious weeds, invasive and non-native species typically establish and infest disturbed sites, high traffic areas and water ways. Any surface disturbance activity can create a potential environment for noxious weeds, invasive and non-native species. In addition new weed species and sites can become established when seeds are introduced on contaminated equipment or vehicles. Heavy use of the range by an overpopulation of wild horses and concentrated use of springs can promote spread of weeds through reducing competition by perennial native species and increasing ground disturbance through trampling and trailing.

Several laws authorize control of noxious weeds, invasive and non-native species on public land under the BLM's administrative jurisdiction (e.g., The Federal Insecticide, Fungicide and Rodenticide Act [1972], Federal Noxious Weed Act [1974], FLPMA [1976], and the Public Rangelands Improvement Act [1978]). Additionally, Executive Order 13112 outlines the federal responsibility to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause."

Nevada Revised Statutes, Chapter 555.05 defines "noxious weeds" and mandates the extent that land owners and land management agencies must control specific noxious weed species on lands under their jurisdiction. The Battle Mountain, Elko, and Ely Districts recognize the current noxious weed list designated by the State of Nevada Department of Agriculture, found at http://agri.nv.gov/nwac/PLANT_NoxWeedList.htm.

Noxious weeds, invasive and non-native species are known to exist on public lands within the administrative boundaries of the Diamond Complex and are a concern for site function and productivity, threatening biodiversity, habitat quality and ecosystems stability. Guidelines for managing noxious weeds, invasive and non-native species in the Diamond Complex have been followed in accordance with BLM district Integrated Weed Management (IWM) Plans. The Diamond Valley Weed District has implemented noxious weed spraying within Diamond Valley and the Elko District has completed treatments throughout its managed lands.

The entire Diamond Complex has not been inventoried for the presence of noxious weeds, invasive and non-native species. However, of the 47 species designated as noxious by the State of Nevada, several species have been documented within the Complex. The following table identifies the known noxious weeds by HMA as well as other known invasive or non-native plant species.

Table 17. Known noxious weeds, invasive and non-native species, Diamond Complex

Scientific Name	Common Name	Diamond	Diamond Hills South	Diamond Hills North
Designated Nevada Noxious Weeds				
Lepidium draba draba	Hoary cress	√		
Carduus nutans	Musk thistle	√	√	
Onopordum acanthium	Scotch thistle	√		√
Centaurea biebersteinii	Spotted knapweed	√	√	
Acroptilon repens	Russian knapweed	√	√	
Lepidium latifolium	Perennial pepperweed/tall whitetop	√	√	
Tamarix ramosissima	Saltcedar	√	√	
Hyoscyamus niger	Black henbane	√	√	
Conium maculatum	Poison hemlock	√	√	√
Cirsium arvense	Canada thistle	√	√	√
Euphorbia esula	Leafy Spurge	√	√	
Cicuta Maculata	Water Hemlock		√	
Alhagi maurorum	Camelthorn	√		
Invasive and/or Non-Native Species				
Cirsium vulgare	Bull thistle		√	
Brassica Elongota	Elongated Mustard	√		
Salsola iberica	Russian thistle	√		
Bromus tectorum	Cheatgrass	√	√	
Halogeton glomeratus	Halogeton	√	√	

Throughout the Diamond, Diamond Hills North and Diamond Hills South HMAs, historic fires have resulted in frequent burn scars throughout foothills and lower slopes that are dominated by cheatgrass and annual mustard (Figure 38). In many cases, these areas do not support perennial bunchgrasses that would provide valuable forage to wild horses, wildlife and livestock, particularly in the winter months when snow covers the higher elevations.

Figure 37: Pinto Fire. Note erosion/soil movement on burned slope. November 6, 2012 inventory flight. South-east end of the Diamond Range outside the Diamond Hills South and Diamond HMAs.

Cheatgrass is prevalent throughout the low and mid elevations and foothills, frequently dominating the understory beneath Wyoming Big Sagebrush and precluding establishment of valuable perennial grasses and forbs. Additional photos are located in Section 3.5 as well as the throughout the EA and Appendix B and C. Cheatgrass is highly

flammable and contributes to the "fire cycle", making these areas more susceptible to burning in future years, and risking burning additional acres of native rangeland. The Pinto fire burned approximately 6000 acres in the southern portion of the Diamond Complex, outside HMA boundaries in the Newark Allotment in July 2012. This area is susceptible to increased erosion and invasion of invasive, non-native species. Currently, nearly 40 wild horses inhabit the area (outside HMA boundaries) and could affect the rehab efforts if a gather does not occur to remove them.

Environmental Consequences
Impacts Common to Action Alternatives

There is low to moderate potential for noxious weeds, invasive and non-native species to establish and spread following the gather, depending upon site specific conditions. The proposed gather may spread existing noxious weeds or invasive non-native species. This could occur if vehicles drive through infestations and spread seed into previously weed-free areas or inadvertently carry seeds that are attached to the vehicle or equipment. This is of particular concern if a gather crew moves from valley to valley.

Areas most vulnerable to establishment of invasive vegetation are heavily disturbed areas such as trap sites and temporary holding facilities. The Contracting Officer's Representative or Project Inspector (COR/PI) would examine proposed gather sites and holding corrals for weed infestations prior to set-up to eliminate potential weed infestations to other sites. If weed infestations are found, a different location would be selected. Setting trap sites and holding facilities outside of areas known to contain noxious weeds or invasive non-native species would limit the potential to spread invasive vegetation. Any equipment or vehicles exposed to weed infestations or arriving on site carrying dirt, mud, or plant debris would be cleaned before moving into or within the project area. Following BLM policy, IWM practices including continued treatments throughout the area would help control the spread of weed infestations along roadsides and other areas used during gather operations.

Figure 38: Wild horses and cattle graze on annual mustard and cheatgrass in a burn scar, Diamond HMA. June, 2009.

Noxious weeds, invasive and non-native species can also spread into disturbed areas such as denuded and degraded areas subject to heavy or severe utilization or to trampling damage. Rangeland not heavily disturbed from gather operations contain native shrubs, understory grasses and forbs that remain intact and would serve to compete with the invasive annual species. The Proposed Action and Alternatives would help improve vegetative health, reduce disturbed or degraded areas, and reduce the vulnerability of the project area to weed infestations by reducing the potential or occurrence of over utilization of vegetation or severe trampling and trailing. Despite short-term risks of some weed spread, over the long term the reduction in wild horse numbers and the subsequent recovery of the native vegetation would result in fewer disturbed sites that could be susceptible to non-native plant species invasion.

As the populations are maintained within the established AML ranges, there would be continued improvement to rangeland health. Healthy rangelands are more resistant to the establishment and spread of noxious weeds, invasive or non-native species.

Impacts that differ among Action Alternatives

Direct impacts would vary among Alternatives dependent on the number of gathers that could be completed over the next 10 years. As shown in Tables 10 and 12 (Section 3.2), both Alternatives 2 and 3 would likely result in the largest number of wild horse gathers completed in order to remove excess wild horses, and the Proposed Action and Alternative 1 resulting in the least. Indirect impacts would revolve around improvements to rangeland health or impacts from wild horses as a result of populations over the AML. As the wild horse average population size increases from the Proposed Action through Alternative 3 over a 10 year period, opportunities for rangeland health improvement, particularly in low elevation Wyoming big sagebrush and heavily utilized springs and riparian areas would be lessened. With an over population of wild horses, trailing, soil disturbance, utilization and trampling would increase. These disturbances increase the range's vulnerability to the establishment and spread of noxious weeds, invasive or non-native species, negatively impacting rangeland health.

No Action

Under the No Action Alternative, the wild horse gather would be deferred. There would be no direct impacts expected under this alternative. Currently, the over population of wild horses in the Diamond Complex is nearly 400% of the established AML resulting in heavy and severe utilization, trailing and disturbance to riparian areas. This has been further compounded by severe drought conditions which have reduced the already limited forage and water, causing concentrated use by wild horses on remaining resources. Under the No Action Alternative, these impacts would continue and would increase as the wild horse population continues to grow and resources are consumed.

Wild horses would continue to trail farther out from limited waters to foraging areas, subsequently broadening the areas receiving heavy grazing or trailing use. Indirect impacts include increased competition for forage among multiple-users of the range. Forage utilization would exceed the capacity of the range, resulting in a loss of desired forage species from plant communities as plant health and watershed conditions deteriorate. Abundance and long-term production potential of desired plant communities would be further compromised. Much of the low and mid elevations of the Diamond Range and Diamond Hills are dominated by annual species and perennial forage species are present at levels far below the potential for those ecological sites.

Figure 39: Large burn scar within the Diamond HMA looking northwest onto the playa. Helicopter inventory November 6, 2012. The burned area is dominated with cheatgrass. Due to drought in 2012, the cheatgrass produced very little vegetative growth and these areas support large amounts of bare ground.

Under this alternative increased wild horse numbers and continued overgrazing of the present plant communities could lead to an expansion of noxious weeds and invasive non-native species in disturbed and degraded areas of the range. The No Action alternative would provide for an overall increased risk

for noxious weed invasion in the long-term in site specific areas. The acreages invaded by these species would be expected to increase and could result in permanent loss of native perennial species and irreversible loss of habitat quality.

3.5. Vegetation/Drought

Affected Environment

The terrain within the Diamond Complex varies from low valleys to high mountains with elevations ranging from 5,400 feet to over 10,000 feet. Vegetation types are distributed according to topography, elevation and precipitation. The valley bottoms are typically large alkali flats supporting salt tolerant plants such as alkali sacaton, inland saltgrass and alkali bluegrass. The lower, drier elevation consists of saltbrush, greasewood, sagebrush and a variety of annual and perennial grasses. Pinyon-Juniper communities are prevalent in the alluvial fans and hillsides. Cottonwood-Aspen stands are common around riparian areas on the Diamond Mountains. Mountain big sagebrush, antelope bitterbrush, snowberry, serviceberry and curlleaf mountain mahogany with an understory of bluebunch wheatgrass, needlegrass species, Indian ricegrass and bottlebrush squirreltail dominate the higher elevations. Photos of the Diamond Complex taken during on the ground monitoring and wild horse inventory flights are located throughout the EA and Appendix B and C, illustrating the types of vegetation communities, terrain and rangeland condition present in the Complex. These photos are further identified in Section 9.

Within the 28B Major Resource Land Area (MLRA), common ecological sites include 024XY005 Loamy 8-10" precipitation zone (pz), 024XY006 Dry Floodplain 6-10" pz, 025XY014 Loamy 10-12" pz, 025XY061 Woodland Dominated 14->20" pz, 028BY003 Loamy Bottom 10-14" pz, 028BY004 Saline Bottom 6-10"pz, 028BY005 Sandy 8-10"pz, 028BY007 Loamy 10-12"pz, 028BY010 Loamy 8-10"pz and 028BY030 Loamy 12-16"pz. Refer to the 28B MLRA (Natural Resource Conservation Service) for more information. Table 18 summarizes the major range types listed and characteristics pertinent to each:

Table 18. Soil Types and Ecological Sites of the Diamond Complex

Site Number	Site Name	Precipitation Zone	Major Vegetative Species		Soil Factors
			Grass	Shrubs/Trees	
024XY005	Loamy	8-10"	Thurber's needlegrass (ACTH7), bluebunch wheatgrass (PSSPS)	Wyoming big sagebrush (ARTRW), spiny hopsage (GRSP)	Shallow to moderately deep and well drained
024XY006	Dry Floodplain	6-10"	Basin wildrye (LECI4), western wheatgrass (PASM)	Basin big sagebrush (ARTRT), black greasewood (SAVE4)	Deep to very deep, high available water capacity
025XY0014	Loamy	10-14"	Bluebunch wheatgrass (PSSPS), Thurber's needlegrass (ACTH7)	Big sagebrush (ARTR2), antelope bitterbrush (PUTR2)	Moderately deep to deep and well drained
025XY061	Woodland Dominated	14->20"	Idaho fescue (FEID), bluebunch wheatgrass (PSSPS)	Singleleaf pinyon (PIMO), curlleaf mountainmahogany (CELE3)	Bedrock is about 30 to 40 inches, low available water capacity
028BY003	Loamy Bottom	10-14"	Basin wildrye (LECI4), Nevada bluegrass (POSE)	Basin big sagebrush (ARTRT), rubber rabbitbrush (ERNA10)	Deep, well drained, susceptible to gullying

Site Number	Site Name	Precipitation Zone	Major Vegetative Species		Soil Factors
			Grass	Shrubs/Trees	
028BY004	Saline Bottom	6-10"	Basin wildrye (LECI4), alkali sacaton (SPAI)	Black greasewood (SAVE4), rubber rabbitbrush (ERNA10)	Deep to very deep, calcerous, somewhat poorly to poorly drained
028BY005	Sandy	8-10"	Needelandthread (HECO26), Indian ricegrass (ACHY)	Big sagebrush (ARTR2), fourwing saltbush (ATCA2)	Very porous, well to excessively well drained, moderately deep to very deep, wind erosion is a problem under poor vegetative cover conditions
028BY007	Loamy	10-12"	Thurber needlegrass (ACTH7), bluebunch wheatgrass (PSSP6)	Big sagebrush (ARTR2), antelope bitterbrush (PUTR2)	Moderately deep to deep and well drained
028BY010	Loamy	8-10"	Indian ricegrass (ACHY), needleandthread (HECO26)	Wyoming big sagebrush (ARTRW8), rabbitbrush (CHRYS9)	Moderately deep to deep and well drained
028BY030	Loamy	12-16"	Bluebunch wheatgrass (PSSP6), Thurber needlegrass (ACTH7)	Mountain big sagebrush (ARTRV), antelope bitterbrush (PUTR2)	Deep to very deep and well drained

The climate of the area is characteristic of the Great Basin with relatively low precipitation in valleys and lower elevations (6-8" per year), and higher precipitation and snowfall in the higher elevations (12-14" per year). Summers are hot and dry, with daytime temperatures ranging from 70-100+ degrees. Winters are generally cold with snowfall highly variable from year to year. During mild winters, little snow accumulates and is restricted to higher elevations and north slopes. Heavier winters are marked by widespread snow into the valleys and deep snow in the mountainous areas that precludes use by animals. Temperatures may fall to minus 15 below zero, or below with daytime temperatures ranging from 0-50 degrees. Drought conditions may occur 1 of every 3-4 years throughout central Nevada. Precipitation tables, summary of monitoring data collected and other pertinent information is available in Appendix C.

In 2012, precipitation was far below normal levels resulting in extreme drought conditions across much of Nevada. The Diamond Complex was severely affected as marked by lack of 2012 growth of grasses and forbs, poor vigor and early drought related senescence (dormancy) of plants (including deep rooted shrubs), plant death and lack of reproduction. There are no weather stations in the close vicinity of the Diamond Complex that provide precipitation data. The nearest and most dependable weather stations are located in Eureka and at the University of Nevada, Reno Gund Ranch in Grass Valley, Nevada. The following table provides an overview of 2012 precipitation data from these stations for year to date and the growing season. This data was obtained from the Western Regional Climate Center website: http://www.wrcc.dri.edu/summary/Climsmnv.html

Table 19: Precipitation Data, Eureka and Gund Ranch Weather Stations

Weather Station	Annual Average Precipitation	January-August Average	2012 January - August	% of Average	Growing Season March-June Average	2012 Growing Season March-June	% of Average
Eureka	11.82	8.5	6.17	73%	4.92	3.11	63%
Gund Ranch	10.23	6.95	4.56	66%	4.25	2.38	56%

The average precipitation identified in the above tables represents the Period of Record Average provided on the website. For more information about drought in the western United States, please refer to the websites identified in Appendix C. As the above table shows, precipitation received to date in 2012 is far below the period of record average, as was the precipitation shown to have been received during the growing season (both shaded in gray). Across the Diamond Complex, especially in lower elevations grass and forb plants did not exhibit any 2012 growth, or exhibited very low production in the form of a few leaves or stunted production of leaves. In late summer, isolated thunderstorms brought additional precipitation to the region resulting in a sporadic flush of green-up and regrowth of some grasses and forbs. Despite this additional moisture, forage resources are still suffering the effects of drought, and forage is still severely limited throughout the low and mid elevations. Refer to photos taken during the August 2012 over flight and the November 2012 inventory which illustrate the conditions observed.

The vegetation communities within the Diamond HMA consist of greasewood communities on the valley floor, Wyoming big sage brush in the low and mid foothills and scattered pinyon and juniper stands throughout the mid elevations of the mountain range. In the higher elevations vegetation varies from low growing to Mountain big sagebrush, and often supports perennial bunchgrasses such as basin wildrye and bluebunch wheatgrass.

Figure 40: November 7, 2012, Diamond Hills North HMA. Note lack of perennial grasses in the interspaces between the shrubs.

Most monitoring has been conducted in the valley and foothills, with several monitoring locations located up the canyons that dissect the mountain. The foothills and mouths of canyons frequently exhibit burn scars from past wildfires that are now dominated by cheatgrass, annual mustard and other annual species. Much of the lower elevation foothills which provide valuable winter habitat for wild horses and wildlife are in a degraded state and dominated in the understory by cheatgrass, with desirable perennial bunchgrasses severely limited or absent from the plant communities. Over population of wild horses and historic use by livestock has contributed to the current condition of these sites. Wild horses are uneven grazers, meaning that they do not always graze an area in its entirety before moving on to another. Areas where they do graze have been noted to have a lower abundance of cover grasses, lower shrub cover, lower total vegetative cover, lower species richness, and less continuous shrub canopy (Beever and Herrick 2006). The relative quantity of vegetative cover removed by grazing also affects soil properties. In general, vegetative cover provides shading for soils, which increases their ability to retain moisture,

reduces soil erosion by intercepting precipitation and reducing surface wind velocities, and provides organic input into the soil (Beever and Herrick 2006).

Monitoring since 2004 indicates that as the wild horse population increased, so did the occurrence of heavy and severe utilization, levels of use during the critical growth season, trailing, and bare ground.

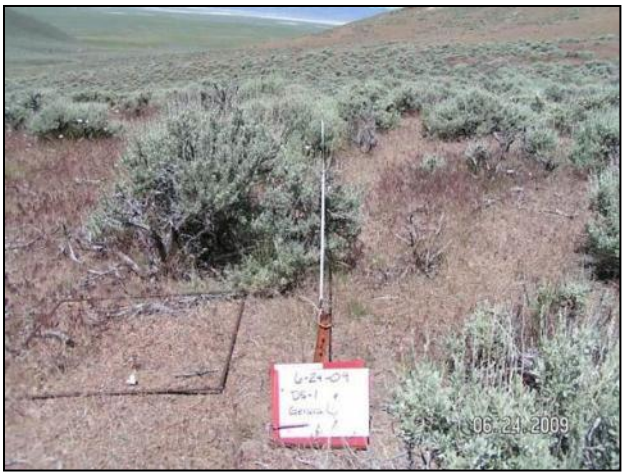


Figure 41: Diamond HMA, DS-1 Photo Trend study, June 24, 2009. Nested frequency transect. Note dominant cheatgrass in understory.

Figure 42: DS-1, June 6, 2012 drought monitoring. The site supports little perennial forage and reduced production of cheatgrass in the understory.

Figure 43-44: Key area TM-2, in the Diamond HMA. Contrast the difference in the production of grasses from 11/2005 when the wild horse populations were within AML and 11/2010 when the wild horse populations exceeded AML.

During monitoring field work, observers collect observational data including hoof tracks, droppings and animal sightings. In many cases, it is possible to identify the primary animal using the area by the tracks, trails and sign. This information is also useful to track trends of use throughout the year, and identify wildlife use patterns as well. Wild horse tracks and cattle tracks are easily differentiated, as are droppings. When possible, the age of droppings is estimated (fresh, old, very old), as indicated by color and texture. When studies are conducted prior to livestock grazing, it is possible to document the degree of use of an area and utilization by wild horses, Pronghorn and muledeer. When livestock are present, or after livestock are removed in the fall, field observers document the abundance of tracks, trailing and droppings as well as known use patterns, and the utilization of the vegetation.

Trend studies completed in the Diamond HMA indicate slight upward trend in frequency of perennial grasses between 1998 and 2006, with downward trends at many sites between 2006 and 2010. Upward trends are slow to occur with the inherently poor soils and low moisture received in these areas. Whereas livestock are only permitteed on the public lands for a portion of the year and controlled through permits and terms and conditions, wild horses are present in the Diamond Complex year round.

Drought monitoring was conducted throughout the Diamond HMA during spring and summer 2012 to document indicators of drought, forage and water availability, animal health and impacts to rangeland resources by livestock and wild horses. Consistently, monitoring efforts documented drought induced senescence (dormancy), very poor vigor and 2012 growth (if any at all), impacted springs, and heavy and severe utilization of 2011 residual forage and 2012 growth where it occurred. Especially in the lower elevations, perennial grasses did not grow, and forage is extremely limiting in what will be important winter range once snow pushes animals down from the higher elevation.

Through the summer, wild horses were able to utilize more productive higher elevations to access adequate forage to maintain good body weight. All livestock were voluntarily removed from the Diamond HMA by the end of August 2012 as a result of drought. Refer to Appendix C for more detail about the results of the drought monitoring and additional photos.

Rangeland resources have been and are currently being impacted within and outside the Diamond Hills South HMA due to the over-population of wild horses. Evaluation of Rangeland Health Standards determined that wild horses within the Diamond Hills South HMA are contributing factors for not meeting these Standards. The majority of the Diamond Hills South HMA is not meeting the Habitat Standard for vegetation, primarily due to shrub dominance which is occurring in areas that have no fire history. Portions of the HMA that have been burned in the past show a strong herbaceous understory. Areas of low productivity are being caused by heavy and severe utilization, which is attributable only to wild horses as cattle have not been turned out. The fire rehabilitation area which supports crested wheatgrass is being negatively impacted by wild horse use (refer to photos below). Heavy and severe use within the Diamond Hills South has been documented, directly attributable to wild horses (Figures 45-46). Within the HMA and the historically burned areas, the November 2012 inventory documented the landscape practically devoid of perennial grasses, heavy trailing by wild horses and heavy use of riparian areas by wild horses.

Figure 45-46: Seeding, Diamond Hills South HMA. This area is being excessively utilized by wild horses.

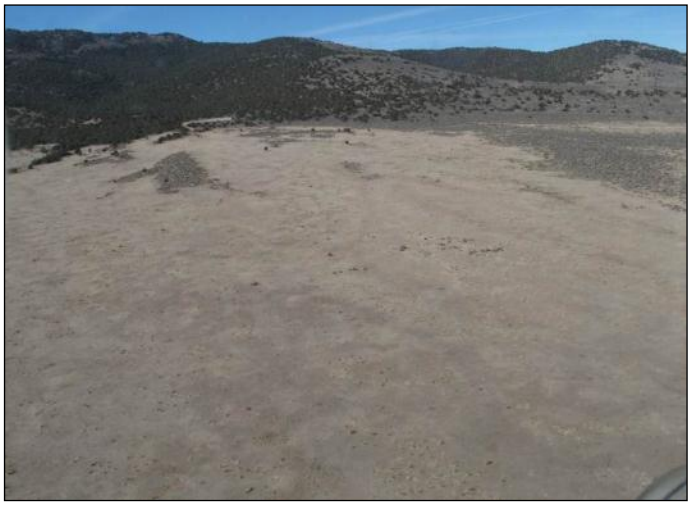


Figure 47: Diamond Hills South HMA, burn scar heavily grazed by wild horses and supporting very little forage. Helicopter Inventory November 6, 2012.

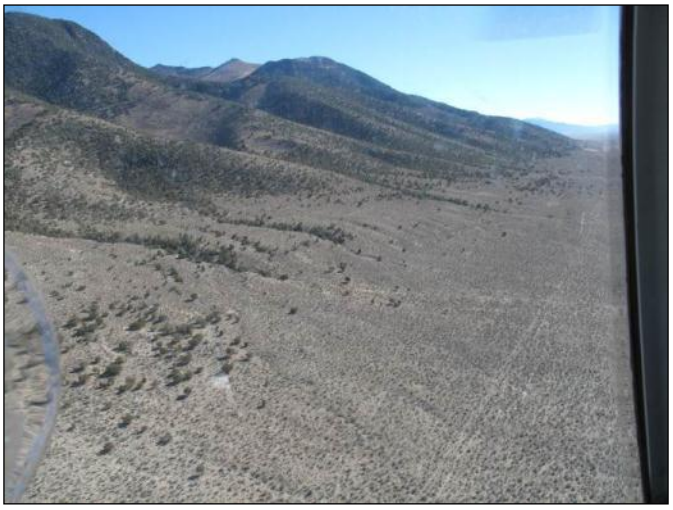


Figure 48: Diamond HMA sage brush communities that support cheatgrass and very little perennial forage in the understory. Helicopter Inventory November 6, 2012.

Long-term monitoring data was collected on the Browne and Red Rock Allotments in the Diamond Hills North HMA in 2010 and 2011. The data would be used in determining if Standards for Rangeland Health are being met or not met, and if livestock grazing is in conformance with the Guidelines. Theses determinations would be made during the ongoing Standards and Guidelines Assessment for the Browne and Red Rock allotments. Visual observations throughout the Tuscarora Field Office indicated that perennial grasses had minimal to no growth in many places in 2012 and that the residual grasses from 2009, 2010, and 2011 have been utilized during the 2012 year. Areas where residual grasses are present are areas away from water and in crested wheatgrass seedings. Observation within the Diamond Hills North HMA in August 2012 showed that plants were in poor vigor. Conditions documented during the November 2012 inventory include heavy trailing to water sources by past livestock and current use by wild horses, and limited residual vegetation in the native rangelands and seedings due to drought conditions and use by wild horses and livestock. These conditions are illustrated in photos throughout the EA and Appendix B and C, which are listed in the table in Section 9.

Changes in vegetation communities in the Great Basin are slow and may take decades to be measurable. Protecting the wild horse habitat in these areas from further decline and ensuring continued upward trends depends on the ability to maintain wild horse populations at proper levels over the long-term.

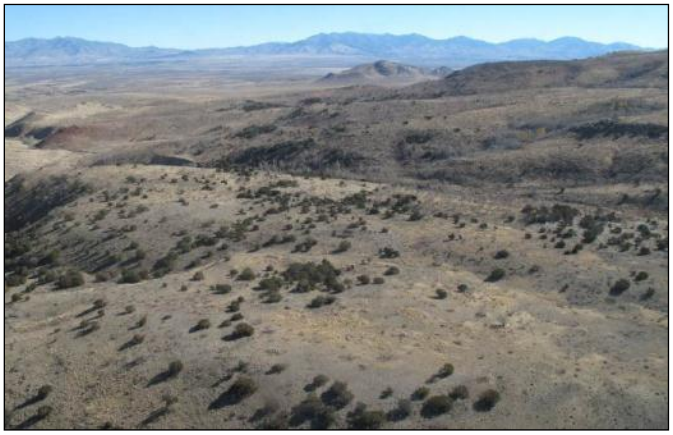
Environmental Consequences

Impacts common to the Action Alternative

Direct impacts associated with the action alternatives would consist of disturbance to vegetation immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses at the gather site, and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. These impacts would include trampling of vegetation. Impacts would be minimal as herding would have a short-term duration.

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads,

pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the long-term effects of these impacts.



Figures 49 and 50: Diamond Hills North HMA, helicopter inventory November 7, 2012.

As excess wild horses are removed from the Diamond Complex, year-round utilization of forage species by wild horses would be reduced and heavy and severe utilization levels attributed to excess wild horses would cease, improving forage availability, vegetation density, cover, plant vigor, seed production, seedling establishment, and forage production over current conditions. Higher quality forage species (grasses) would be available. Competition for forage among wild horses, wildlife, and livestock would be reduced as the density of wild horses is reduced across the landscape, particularly in low elevation winter range. Utilization levels would decrease and allotment specific utilization objectives would not be exceeded. Physical damage to shrubs and herbaceous vegetation, and soil disturbance associated with the physical passage of horses would be decreased, as would heavy use and hedging of shrubs and trees such as rose and Elderberry.

Removal of excess wild horses would promote improvements in riparian and upland vegetation condition and prevent further degradation from an over population of wild horses. Given the current condition of the vegetative resources, however, improvement would be slow to occur, and would occur most often during years of average or above average precipitation levels. During years of drought or low precipitation, improvement would be stalled or could be reversed. Healthy plants that are able to finish their life cycles, set seed and store carbohydrates before the end of the growing season are more capable of withstanding drought, maintaining their presence in the plant community for years to come.

At several key areas within the Diamond HMA, slight improvement has already been observed since 2004 in small increases of perennial key forage species such as bluebunch wheatgrass and Thurber's needlegrass (Figure 52 below). However, the level of use by wild horses, particularly during winter months in the lower elevations, and the severe drought conditions of 2012 are risking negating any advances that may have occurred since the last gather. Maintaining AML would support continued upward trend and promote progress towards attainment of Rangeland Health Standards. Upward trends and healthier rangeland would equate to healthier habitat and healthier animals. These trends would also benefit wildlife and would promote improvement of degraded habitat, consistent with IM 2012-043, *Greater Sage-Grouse Interim Management Policies and Procedures*.

Impacts that differ among Action Alternatives

The direct and indirect impacts to the vegetation resource would differ by Alternative as they relate to the average population size and the number of gathers that could occur over the next 10 years. Disturbance as described above would be least under the Proposed Action, according to the population modeling, which indicates a high probability that only 2-3 gathers would be necessary in a 10 year period, whereas Alternative 1 maintains a high probability of 3-4 gathers and Alternative 2 and 3 would require 4 gathers.

Figure 51: Diamond Hills North HMA, helicopter inventory November 7, 2012. Wild horses on rangeland affected by wildfire in 1999, and 2012 drought.

Figure 52: Diamond HMA. 2009 key area BP-5. High vigor and production of bluebunch wheatgrass indicating upward trends since 1998. Current conditions do not reflect this vigor or production.

Implementation of the Proposed Action would reduce the current wild horse population to the low range of AML, while keeping growth rates lowered with fertility control, which would provide the best opportunity for the vegetative communities to improve. According to the population model, average population size increases for Alternative 1, 2 and 3. Alternative 2 and 3 involve gathering only the high range of AML which would result in a population exceeding the AML in all years except for the period right after a gather. These alternatives would allow for resource degradation to continue, albeit not at current levels, and would not promote the amount of recovery that could be possible under the Proposed Action and Alternative 1. The severity of the impacts would correspond to population levels in excess of the AML and specific areas of concentration of wild horses within the HMAs.

No Action

There would be no direct impacts expected under this alternative. Impacts to rangeland health in the form of trailing, heavy and severe utilization and heavy use and trampling of springs have been documented in the Diamond Complex as a result of the current overpopulation of wild horses. These impacts are further compounded by severe drought which has limited 2012 production, stressed rangeland plants and resulted in concentrated use of springs and foraging areas. Utilization of forage by an overpopulation of wild horses would continue and would be severe in the lower elevations during the winter of 2012, particularly if snow precludes use of the mid and higher elevations which support higher productivity and larger amounts of residual forage.

Wild horses would continue to trail farther out from limited waters to foraging areas, subsequently broadening the areas receiving heavy grazing or trailing use. Competition for forage between mule deer, Pronghorn and wild horses would be very high during the winter of 2012, and forage may be inadequate to support all users.

In spring, 2013, heavy use of forage during the critical growth period would occur, and if drought conditions continue, rangeland plants would be further stressed and degraded. The most heavily and repeatedly used areas would experience loss of perennial key forage species, which could be irreversible depending on multiple parameters from soil characteristics to future grazing use. Lower and mid elevations would become further dominated by annual invasive species such as cheatgrass and annual mustard as perennial bunchgrasses die off, in addition to increased bare ground and soil erosion. Abundance and long-term production potential of desired plant communities would be further compromised potentially precluding the return of these vegetation communities to their full potential as identified in ecological site descriptions published by the Natural Resource Conservation Service.

Improvement to rangeland health (increased vigor, production, frequency of plant species and improved soil stability) that has been realized since the last gather would be fully offset by impacts due to overpopulation and increasing numbers of wild horses. Progress would not be made towards attaining Rangeland Health Standards and native vegetative communities would experience substantial downward trends.

3.6. Riparian-Wetland Resources and Water Quality

Affected Environment

In addition to riparian, wetland and water quality objectives identified in respective RMPs, the Northeastern Great Basin RAC addresses riparian health in Standard 2: *Riparian and Wetland Sites*, and indirectly in Standard 3: *Habitat*. Standard 2 requires that riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria. BLM Technical References 1737-9, 11, 15 and 16 provide guidance and methodology for assessing riparian areas for properly functioning condition.

Riparian areas are important to water quality, water quantity, and forage. Riparian sites provide habitat needs for many species and support greater numbers and diversity of wildlife than any other habitat type in the western United States. Riparian areas stay healthy when they remain in a vegetated state and are relatively undisturbed (Belsky et al 1999). Vegetation on stream banks helps slow the downhill flow of water, allowing it to percolate into the soil, where it is used by plants or might become the source of a perennial stream. In grazed areas, vegetation is often absent and the soil compacted, encouraging water to flow more quickly without allowing it to infiltrate the soil, resulting in higher peak flows in streams. Higher peak flows are more likely to reshape channels and to erode banks than lower flows. Additionally, with a reduced amount of water infiltrating the ground, less water will be available for plants and for perennial flow sources during the summer and fall.

Where the riparian area is grazed and vegetative cover is greatly reduced, stream bank stability is weakened from loss of vegetation and damaged from livestock or wild horses repeatedly and continuously entering and exiting the water source.

Throughout the west, riparian systems have typically been most impacted by domestic livestock grazing, particularly in summer months or when seasons are year round and proper management is lacking. Uncontrolled trampling of banks, utilization of vegetation and reduction of deep rooted hydrophytes (willow and sedge species) have impaired the stability of these systems, increasing erosion, downcutting and reduced riparian function. Throughout the Diamond Complex, riparian condition and water quality vary depending on the local hydrology, type of surface water feature, elevation and historical use by

livestock, wild horses or both. Generally, field observations indicated that wildlife had little impact on the Diamond Complex's riparian systems, though these areas provide vital habitat to many species of wildlife.

Figure 53-54: Diamond Hills North HMA, November 7, 2012. Left: Water development used by livestock, wildlife and wild horses. Note trailing into the site. Right: Representative example of degraded riparian area used by wild horses, livestock and wildlife.

For wildlife and domestic species living in arid environments, the availability and location of water is critical not only for survival but for habitat utilization. Wild horses have been observed to travel great distances to and from water daily, and during dry summer months when less water is available from seasonal sources, horses remain slightly closer to perennial water sources than in the winter and spring (Ganskopp and Vavra 1986, R. Hansen, R. Clark, and W. Lawhorn 1977).

Horses have been found to have some effect on the frequency of use of a water source by other wildlife in arid environments. One study found that in areas where bighorn sheep and horse water sources overlapped, higher the frequency of horse use led to lower frequency of bighorn sheep use, and vice versa (Ostermann-Kelm et al. 2008). The presence of wild horses at water sources is believed to deter the use of that water by pronghorn antelope until the horses leave the area.

Wild horses prefer to drink during the first part of daylight or the last and tend not to linger at the water source (Ganskopp and Vavra 1986). In most cases, wild horses visit water sources briefly. The exception may include large open springs or meadow complexes, or when water is so limiting that the wild horses must remain at the site for hours in order to allow for enough recharge for them to drink. High wild horse population and density of animals in relation to limited water sources results in degradation of riparian and wetland habitat. Wild horses utilize lotic (streams) and lentic sites (springs) differently because of inherent social behaviors. Wild horses tend to move quickly away from lotic sites to avoid dangerous encounters with other wild horses or predators. Lentic sites have a valley landform that is wider and more capable of viewing further distances. These sites deteriorate faster with long duration and concentrated use.

Wild horses impact riparian and wetland sites through hoof action which causes compaction, bank shear, erosion, and hummocking. Wild horses also dig or paw sources with their hooves. These actions result in drainage of subsurface water, channelization and shrinkage (and loss) of the riparian zone. Through

year-round utilization of riparian vegetation, wild horses cause downward trends in riparian health. In addition to potential physical impacts to riparian areas, dominant studs can physically exclude other wildlife and livestock species.

Many riparian areas in the Diamond Complex have been heavily to severely affected by wild horses and livestock, and to a lesser degree wildlife, through trampling, trailing, compaction and utilization of riparian vegetation. Field observations indicate that wild horse use has contributed to bank shearing, cutting, hummocking, loss of riparian vegetation, and soil erosion. It is recognized that livestock impact riparian areas and water quality; however these impacts have been addressed in previous grazing decisions and will continue to be evaluated in future Rangeland Health Assessments and appropriate changes made at that time to improve livestock management and minimize degradation. This analysis focuses on impacts by wild horses.

Mount Lewis Field Office, Battle Mountain District

Many perennial riparian zones occur in the mountains and are associated with cottonwood, willow, and aspen stands. Some occur in the valley bottom in association with the alkali flat, but are decreasing as irrigation continues to lower the water table. Other riparian areas are associated with small springs. Conditions vary depending on the landform, substrate and accessibility by wild horses and livestock.

There are seven major perennial creeks in the Diamond HMA. Pedrioli, Minoletti, Cottonwood, Sawmill and Hilderbrand Creeks are in the Black Point Allotment. Newark and Simpson Creek are in the Shannon Station Allotment. Intermittent channels exist in most basins. Springs and seeps are scattered through-out the HMA and support isolated clusters of riparian vegetation. In many basins, they are the only feasible perennial water source available to wildlife, livestock, and wild horses. During 2012, many springs went dry and water availability to serve the overpopulation of wild horses in the Diamond HMA has been limited. Since 1997, interdisciplinary teams from the MLFO have surveyed riparian zones in the Diamond HMA to assess their functioning condition. As of 2011, completed work includes 332 assessments and re-assessments in the Diamond Springs, Three-Mile and Black Point Allotments in 1997, 2009 and 2011.

Lotic Riparian Sources (Streams)

As of August 2012, a total of 55.97 miles of lotic (flowing water) riparian zones have been assessed (Table 20, Figure 55).

Table 20. Lotic Riparian Assessment

Diamond Mountain Complex Lotic Riparian Zones					
Total Assessed	**PFC**	**FAR upward**	**FAR not apparent**	**FAR downward**	**NFC**
55.97 miles	60.63%	10.10%	8.04%	11.82%	9.42%
	33.93 miles	5.65 miles	4.50 miles	6.61miles	5.27 miles
PFC – Proper Functioning Condition FAR – Functional At Risk			NFC – Non-Functional Condition Trend – Upward, Not Apparent, Downward		

Lentic (Springs and Seeps)

A total of ~84 acres of lentic riparian zones have been assessed (Table 21, Figure 56a). Sixty-six percent of the surveyed area is at PFC. Thirty-four percent is at a sub-optimal state. However, it is important to note that although 55.8 acres of Lentic riparian systems were rated PFC, one large meadow accounted for 38.4 acres (69%) of the PFC rated area. The remaining 16.9 acres of PFC rated lentic system is the sum of 27 PFC spring and 37 PFC meadow systems. This indicates that the majority (61%) of small lentic systems have been degraded (Figure 56b).

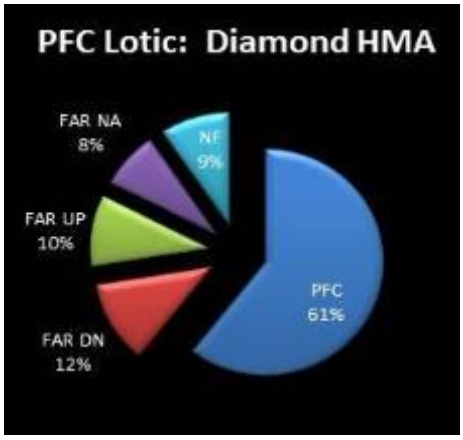


Figure 55: Distribution of PFC ratings for Lotic systems in Diamond HMA.

Table 21. Lentic Riparian Assessment

System Type	Total Assessed	PFC	FAR upward	FAR not apparent	FAR downward	NFC
Spring Systems	0.99 acres (1.2%)	27.30%	10.10%	4.04%	45.45%	0.13%
		0.27 acres	0.1 acres	0.04 acres	0.45 acres	0.13 acres
Meadow Systems	82.8 acres (98.8%)	66.80%	3.46%	16.64%	12.01%	1.08%
		55.31 acres	2.87 acres	13.78 acres	9.94 acres	0.9 acres
Total Lentic Riparian Systems	83.79 acres	66.00%	3.54%	16.49%	10.39%	1.23%
		55.8 acres	2.97 acres	13.82 acres	12.40 acres	1.03 acres

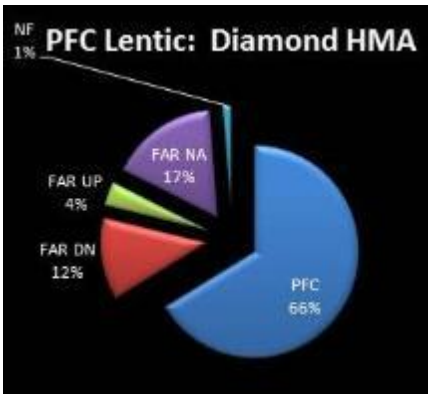


Figure 56a: Distribution of PFC ratings for all Lentic systems in Diamond HMA.

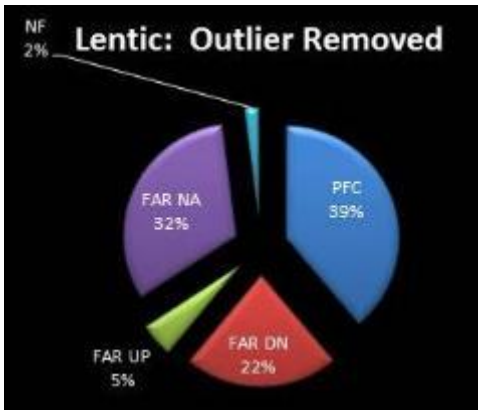


Figure 56b: Distribution of PFC ratings after outlier is removed.

Lentic riparian zones are subdivided further into springs and meadows (Figures 35a and b) to illustrate differential impacts. Spring systems comprise only 1% of the lentic systems' area.

Spring based riparian systems are severely degraded throughout the Diamond HMA, with only 27% at PFC, and the large majority either not functioning or functioning at risk with a downward trend. During the dry season, springs are often the only water source available to wildlife, horses, and livestock in many basins, yet they comprise a very small area. Therefore, there is a disparity between water resource availability and demand, resulting in over-utilization and degradation of spring systems.

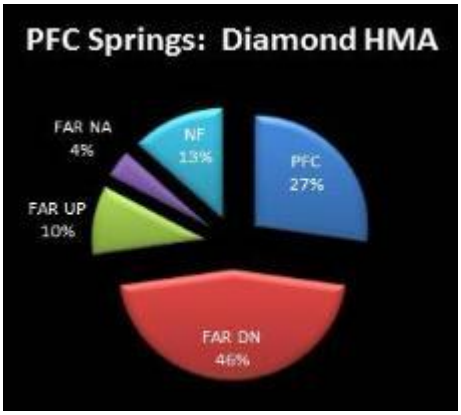


Figure 57a: PFC ratings for springs.

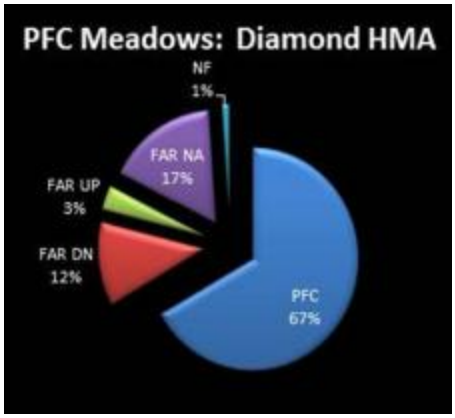


Figure 57b: PFC ratings for meadows.

When possible, sign of livestock, wild horses or wildlife was noted during the assessments. Monitoring staff are able to visually distinguish wild horse from cattle tracks, trailing, droppings etc. The documentation indicates: sign/use by cattle or sheep, sign/use by wild horses, both wild horses and livestock (cattle or sheep), it could not be determined if it was wild horses, livestock or both, or no animals/sign were identified. In the majority of cases, the specific animals were not identified as sign was absent or the users could not be discerned. When animals were identified during the 1997 assessments, wild horses were documented 54% of the time, cattle 20% and both wild horses and cattle 25%. In the most recent assessments conducted in 2009 and 2011, wild horses were identified 31% of the time, livestock (cattle and sheep) 34% and both wild horses and livestock 31%. Wild horses and deer were identified at 3% of the sites where animal use was documented. The disturbances noted included light to heavy trampling, trailing, hoof action, utilization of woody vegetation, and fresh and historical sign (droppings) at the locations.

Throughout the Diamond HMA, water sources have become very limited due to drought and the availability of water in relation to the overpopulation. The current overpopulation of wild horses are

Figure 58: Three Springs, Diamond HMA, 07/11/2012. 23 horses were guarding the remaining water supply and did not want to leave the area when staff approached.

Figure 59: Close-up of the spring in Figure 58. This spring and 2 others of nearly equal discharge are supporting over 23 horses with only a couple quarts of water per hour. All vegetation has been consumed or trampled and topsoil is being eroded by heavy winds across the ridge.

causing impacts to riparian systems through trampling, trailing and use of riparian shrubs and grasses. Wild horses are also damaging developed water sources. It is recognized that livestock impact riparian areas, particularly the most accessible ones that are used as loafing areas. However, livestock management in relation to riparian areas would be addressed in future Rangeland Health Assessments and subsequent Decisions. The figures 58-61 show current impacts occurring to riparian areas solely from concentrated wild horse use. Refer also to figures 66 and 67.

Figure 60**:** *Diamond HMA, Three-Mile Allotment, 07/16/2012. Horses are trampling the bank to access water from a lateral seep that drains into the intermittent channel. This is reducing the riparian area, destabalizing banks (more erosion during spring discharge), decreasing shallow subsurface aquifer recharge, and draining saturated soils.*

Figure 61**:** *Diamond HMA, Three-Mile Allotment, 07/16/2012, downstream from photo 60. Wild horses are trampling the bank to access water from a lateral seep that drains into the intermittent channel. Same problems as discussed in photo 60.*

Egan Field Office, Ely District

Riparian areas occupy a small but unique position on the landscape within the Diamond Hills South HMA and outside HMA boundaries. Riparian areas at high elevations support cottonwood and aspen woodlands. Small riparian areas and their associated plant species occur throughout the HMA and outside HMA boundaries near seeps, springs, and along sections of perennial drainages. There are several riparian systems located within the Diamond Hills South HMA. In addition, six streams and many numerous springs and seeps occur outside of the HMA boundaries in the area not designated for management of wild horses ("horse free"). Pinto Creek, Cold Creek and Water Canyon Creek, are located in the horse-free area and support fisheries.

Rangeland Health Standards were completed within and outside the Diamond Hills South HMA. It was determined that riparian areas are not meeting the Standard for Riparian and Wetland Sites. Bank trampling and hoof action by cattle and wild horses has reduced functionality at spring sources. Also, low precipitation which has led to low water flow levels, increased channelization, and contributed to a lack of riparian vegetation and poor vertical stability. The current use by wild horses is contributing to resource damage and decline in functionality of spring sources within and outside HMA boundaries. Refer to figures 62-65 which show varying levels of impacts to riparian areas by wild horses.


Figures 62-63: November 6, 2012 helicopter inventory. Left: spring complex impacted by wild horses outside of the HMA boundaries. Right: Spring in the Diamond Hills South HMA, heavily used by wild horses.


Figures 64-65: No Name Spring located within the Diamond Hills South HMA photo showing decrease in stream bank stability and loss of riparian vegetation November 2012 (right) when compared to the condition in the 1980's (left).

Tuscarora Field Office, Elko District

A very small portion of Huntington Creek occurs in both the Browne and Red Rock Allotments (administered by TFO) in the form of water gaps. Huntington Creek supports a limited population of brown trout (*Salmon trutta*) and rainbow trout (*Oncorhynchus mykiss*). Huntington Creek is almost exclusively privately owned. The Browne and Red Rock Allotments support wet and dry meadow habitat in association with seeps and springs. Riparian habitat is more limited in the Browne Allotment and occurs primarily as a large meadow complex in the eastern portion of the allotment, in addition to several scattered springs. Significant numbers of seeps and springs, as well as, aspen stands are present in the vicinity of Bailey Mountain in the Red Rock Allotment. Limited streamside vegetation occurs along perennial portions of Indian and Huntington Creeks in the Red Rock Allotment and along Huntington Creek in the Browne Allotment. A portion of Huntington Creek is on public land within the

Railroad Pass Allotment.

The Tuscarora Field Office monitored riparian areas within the Diamond Hills North HMA and found that springs in the HMA were nonfunctional or functional with downward trend. Bank trampling and hoof action by cattle and wild horses has reduced functionality at spring sources. Channelization, vertical stability and production of riparian vegetation have also been affected by low precipitation levels. The current over population of wild horses and livestock grazing is contributing to resource damage and decline in functionality of spring sources within the HMA boundaries. Livestock management changes have been made through past decisions and any further changes will be addressed in the future Rangeland Health Evaluation with appropriate changes made at that time to reduce livestock impacts to riparian areas. Figure 53 illustrates a typical water development in the Diamond Hills North HMA, while Figure 54 is a representative photo of many of the riparian areas in the HMA.

Environmental Consequences

Impacts common to all Action Alternatives

The proposed wild horse gather would not have any direct impacts to riparian wetland zones or water quality within the Diamond Complex. Gather sites and holding corrals used for the gather would not be constructed near riparian areas.

Riparian systems are dynamic environments. Their ability to function properly and achieve advanced ecological status requires a dynamic equilibrium between a multitude of variables. Changes in the system propagate through chain reactions until new equilibriums are reached. The proposed gather would indirectly affect riparian-wetland areas and water quality and would decrease adverse impacts on riparian areas. Removal of excess wild horses would ensure that wild horse populations are in balance with the forage and water availability, providing for optimal dispersion of wild horses across the landscape and reduction of impacts to riparian resources. Field observations indicate that wild horses are directly impacting riparian areas as illustrated by the photos within Section 3.6 and the rest of the EA. Implementing the proposed gather would decrease competition for water sources among wild horses, wildlife, and livestock, and alleviate pressures exerted on riparian habitat due to wild horses congregating at these sensitive areas. Achievement of the AML would result in reduced consumption of soil stabilizing vegetation, bank, seep, and spring trampling, erosion and soil compaction near water sources. The long-term net result would be an increase in bank stability, riparian habitat, groundwater storage, biogeochemical cycling, late season discharge, and improved water quality. Through continued improvement, riparian systems would increase trends in functioning condition and make significant progress towards meeting the Standards for Rangeland Health.

Maintaining appropriate population levels and preventing over population of wild horses would promote more even distribution throughout the Diamond Complex, reducing concentrated use in the regions near critical water sources and would encourage improvement of these areas through stabilization of banks and soils in the area, increased production of key riparian vegetation such as sedges, rushes and willow, and would improve overall quantity and quality of these areas for use by wildlife in addition to wild horses and livestock.

Impacts that differ among Alternatives

Impacts among alternatives vary as they affect wild horse population size and the use levels of riparian areas by wild horses. According to the population modeling, the Proposed Action offers the best opportunity to improve riparian resources that have historically been heavily used by wild horses. The opportunity for improvement decreases with increased average population for each alternative. Alternative 1 would result in similar, but slightly higher population levels as compared to the Proposed Action. The Proposed Action and Alternative 1 equate to a lower density of animals across the landscape which would reduce trampling and utilization of riparian resources.

Figure 66: Diamond HMA, Fourmile Canyon Spring, August 2012. Impacts to drought affected spring by wild horses and livestock.

Figure 67: Fourmile Canyon May 2012. Hummocking of the spring by wild horses and past livestock use.

Alternatives 2 and 3 involve only gathering to the high range of AML and the populations would exceed the established AML after one foaling season following a gather. These Alternatives inherently result in average population levels that are higher than the AML (albeit lower than current population levels), and would not result in the level of recovery as would be possible under the Proposed Action or Alternative 1. Populations above AML would compete for available waters and may result in increased trailing between desired forage areas and perennial water sources as compared to the Proposed Action or Alternative 1. In drought years, water could become limiting. Some water sources would continue to receive concentrated use and would experience elevated levels of trailing, trampling, digging and shearing by wild horses. Disturbed soils would result in increased erosion and sedimentation of the riparian systems. Impacts to these areas would correspond to the levels of the populations in excess of AMLs and the number of available waters in relation to the populations. Progress towards attaining Proper Functioning Condition on these systems or towards meeting Rangeland Health Standards would be slowed and competition with wildlife for water would be higher under Alternatives 2 and 3.

No Action Alternative

Many riparian areas throughout the Diamond Complex are being intensely utilized by the current overpopulation of wild horses due to the density of animals in relation to available water sources. Wild horse populations are contributing to reduced vigor of plants, loss of plants by grazing and trampling, and compaction and disturbance to soils, which is contributing to increased erosion, channel incision, stream bank instability, and lowered water tables. Without a gather to achieve AML and/or slow population growth, the wild horse population size would continue to increase in excess of the established AML, and current downward trends would continue.

Riparian areas currently rated at PFC, would experience downward trends caused by utilization of riparian vegetation and excessive trampling. Riparian areas rated below PFC (Functional at Risk and Non-Functional) would not improve and significant progress towards PFC, (as directed by Nevada's Northeastern Great Basin Area RAC) would not be realized. The outcome would be continued deterioration of habitat that is important to many species of wildlife including sensitive species, as well as competition with these species for water.

The WinEquus population model indicates that population sizes of the No Action Alternative could reach one thousand wild horses by the year 2015, and over two thousand wild horses by 2019 if no gather took place. Existing waters are already limited for the current population of wild horses. As resources continue to be degraded, it is likely many of the remaining waters could go dry. Water sources would not be adequate to support the growing population of wild horses. A population this far in excess of established AML would have obvious detrimental and likely irreparable impacts to riparian areas.

3.7. Soils

Affected Environment

Soils are quite varied throughout the Diamond Complex. Soils on steep mountain slopes are shallow to deep over bedrock and have rapid runoff. Surface textures are gravelly or cobbly loams and subsoils are generally clays, with or without coarse fragments. These soils have slight wind erosion and moderate water erosion hazard when they are disturbed. Soils located on foothills are loamy and moderately deep over a duripan. They have medium runoff and moderate to severe erosion hazard. Soils on alluvial fans are also moderately deep over a duripan and have loamy textures. Runoff is slow and the erosion hazard is slight to moderate. Gullies are common in some areas. Soils on fan skirts and alluvial flats are deep with silt loam textures. They are moderately to strongly alkaline and have very slow runoff. The wind and water erosion hazard are slight. Soils in the Huntington Creek floodplain are deep with silty clay loam or silt loam textures. They have very slow runoff and slight wind and water erosion hazard. Frequent flooding occurs. An inventory for biological crusts within the Diamond Complex has not been completed. Biological crusts are most common on calcareous sites, usually on alluvial fans with Pinyon Pine and Juniper stands, or calcareous mountain slopes.

Areas occupied by wild horses have a significantly higher soil penetration resistance than areas without wild horses (Beever and Herrick 2006). This can affect a variety of other ecosystem processes, such as decreasing water infiltration rates, inhibiting digging by burrowing mammals, limiting plant establishment, and restricting root growth (E. Beever, R. Tausch, and P. Brussard 2003).

The relative quantity of vegetative cover removed by grazing also affects soil properties. In general, vegetative cover provides shading for soils, which increases their ability to retain moisture, reduces soil erosion by intercepting precipitation and reducing surface wind velocities, and provides organic input into the soil (Beever and Herrick 2006).

Trailing and hoof action by wild horses has the potential of accelerating erosion following intense storms or snow melt. Aerial and on the ground monitoring indicates heavy and increasing trailing by wild horses between limited water sources and foraging areas. Heavy wild horse utilization and trailing are decreasing vegetative cover, particularly in areas of water sources, resulting in increased compaction which increases run off and soil erosion and decreased soil productivity.

Monitoring data collected since the last gather indicates that as the wild horse population increased, so did trailing, hoof action of uplands and riparian areas and reduced vegetative cover, which has been substantially compounded by the 2012 drought conditions. Figures 68, 69 and 73 depict wild horse hoof tracks observed during monitoring. Refer to figures 70-71 which reference trailing by wild horses. Refer to the table in Section 9 for more information about the photos in the documents

Environmental Consequences

Impacts common to all Action Alternative

Direct impacts associated with the action alternatives would consist of disturbance to soil surfaces immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses, and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment.

It is estimated that between 8 gather corrals and 1-2 sets of central holding corrals would be necessary to complete the gather. Ideally, gather corrals would be established near or on roads, pullouts, gravel pits, water haul sites or other flat areas, which have previously been disturbed to avoid impacts to unaltered vegetation and soils. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature.

Figure 68: Diamond HMA, DS-2, Spring utilization, April, 2011. Wild horse hoof track and the depression it caused, which contributes to pedestalling in moist spring or fall soils.

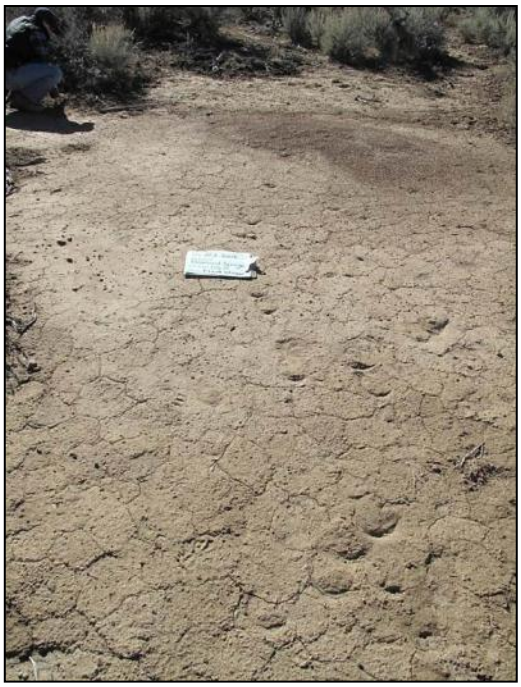


Figure 69: Diamond HMA, DS-11 fall utilization monitoring. November 2010. Erosion "pavement".

Impacts from herding wild horses to the trap would be minimal. Wild horses are typically herded distances averaging 4-7 miles over mixed terrain which may vary from rolling foothills to steeper terrain, drainages, ridges and valley bottoms. The horses often follow their own trails, which allow the horses to travel easier by choosing their own path. Coincidentally, this allows the horses to travel over previously disturbed areas, which limits the amount of herding over undisturbed areas.

Similar to other resources within the proposed gather area, soils would directly and indirectly benefit if the wild horse populations are maintained within the established AMLs. In the Diamond Complex, the increase in population has concentrated wild horses on the limited water sources. As the wild horses exceed AML, the available forage closest to water becomes over utilized and the horses have to travel farther from water to find feed. Trails are formed due to constant perturbation and soil compaction. Monitoring in the Diamond Complex has shown extensive trailing and overutilization of riparian zones around many of the small springs and the uplands within and outside of the HMA boundaries. Plants that are grazed repeatedly may have little or no opportunity to regrow between successive defoliations and may become stressed, and may die, especially under drought conditions.

Figure 70: Diamond Hills South HMA, November 6, 2012 helicopter inventory. Prominent wild horse trails cross the hillside to a nearby spring in an area burned by wildfire and supporting little perennial forage.

A healthy, productive, and diverse plant community plays an important role in the improvement and/or maintenance of soil processes such as permeability and infiltration rates and soil site stability. Inadequate plant cover can lead to substantial wind or water erosion of valuable top soil (Reece et al. 1991). Crusting of surface soils is another problem associated with low vegetation cover. When rain strikes exposed soil the particles are detached by the raindrop energy (raindrop splash) and clog the remaining soil pores, making them smaller or sealing them completely resulting in a crust (Thurow and Taylor 1999). This reduces water infiltration and increases erosion potential. Standing dead vegetation and litter reduces the impact of raindrop splash and promotes water infiltration, which in turn reduces water erosion. Removing excess wild horses would be expected to allow the vegetation to recover within the Diamond Complex, which would reduce the potential for accelerated wind and water erosion.

Impacts that differ among Alternatives

As noted under other resource sections, impacts among alternatives would differ based on the number of gathers that may occur over time and average population size. Because the Proposed Action could result in the lowest average population sizes and least number of wild horse gathers necessary over a 10 year period, it offers the best opportunity to reduce impacts currently being caused by wild horses and promotes improvement of soil stability. As the numbers of gathers increase over time through Alternatives 1, 2 and 3, disturbances associated with gathers as discussed above would increase accordingly. Average population sizes over 10 years are similar for the Proposed Action and Alternative 1, both of which involve gathering to low range of AML and would have the best chance of maintaining the population within the AML range. Both Alternative 2 and 3 involve gathering to high AML, which over time, would result in AML being exceeded between gathers. As a result, impacts to soils from

overpopulations of wild horses would be highest under these Alternatives and recovery and stabilization the least when compared to the Proposed Action and Alternative 1.

No Action

In the absence of a wild horse gather to reduce the population, the heavy and severe utilization of vegetation and trailing will only worsen in and around the Diamond Complex. The loss of perennial native grass, increased soil perturbation, and soil compaction, would increase soil loss from wind and water erosion and invasion of undesired plant species. This reduction in rangeland health would be most notable in the vicinity of small spring meadows and other water sources with high levels of wild horse use, as well as regularly utilized trail systems. Reduced ecological status would be indicated by lowered production and frequency of deep rooted perennial vegetation, reduced production of litter, reduced soil stability and reduced riparian functionality.

Figure 71: Wild horses side hill along the wall of a canyon. August 2011, helicopter flight. Diamond HMA.

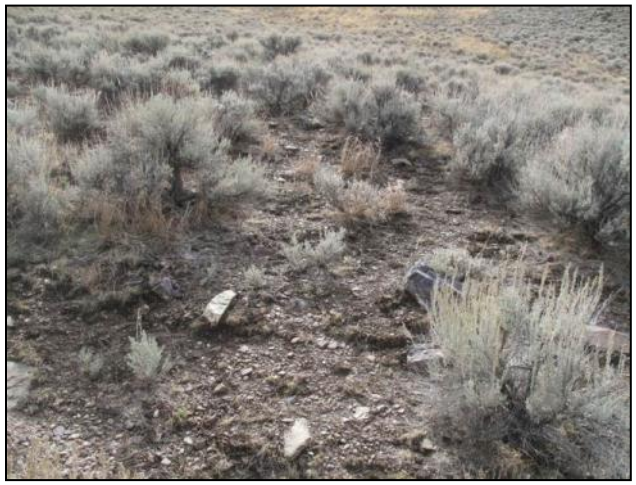


Figure 72: DS-2, November, 2010 utilization. Photo shows bare ground and pedestalling occurring in the interspaces. Lack of vegetative cover and hoof action by wild horses increases the impacts. Diamond HMA.

Figure 73: DS-5 fall 2010 utilization monitoring, Diamond HMA. Wild horse tracks.

3.8. Threatened & Endangered Species, Special Status Species, Migratory Birds and Wildlife

Affected Environment

The BLM manages the habitat for which wildlife species depend on public lands. The Nevada Department of Wildlife (NDOW) manages the wildlife throughout the state. BLM and NDOW work together to monitor wildlife, wildlife habitat, plan restoration or enhancement activities and coordinate on management activities. The BLM does not manage the wildlife of Nevada, nor does the BLM manage any predator control programs.

The Endangered Species Act (ESA) of 1973 requires BLM to analyze the impacts of all proposed activities on Proposed, Threatened, or Endangered species. Currently, there are no known federally listed or proposed species found in the Diamond Complex. However the populations of some species are declining and warrant special management actions to insure population viability. One species that occurs within the range, the greater sage-grouse (*Centrocercus urophasianus*), is listed as a candidate for federal listing as a threatened or endangered species by the USFWS. In addition to sage-grouse, the Nevada BLM has listed several other species (see IM-NV-2011-059-1) whose populations are considered to be at risk and warrant attention. BLM listed species that occur or may occur in the Diamond Complex are listed in Table 21.

The Diamond Mountains and Diamond Hills support fauna characteristic of the northern Great Basin within sagebrush steppe, pinyon-juniper woodlands, cottonwood and aspen groves, and mountain shrub habitat types. Large mammals in the Diamond Complex include mule deer (*Odocoileus hemionus),* pronghorn (*Antilocapra americana*), Rocky Mountain elk (*Cervus canadensis*) and mountain lion (*Felis concolor*). For mule deer, pockets of bitterbrush (*Purshia 3tridentata*) and other shrubs are particularly important for overwinter survival in the Diamond Complex. Elk have been observed in the Diamond Complex, but they only occur in small numbers near the southern periphery of the range. Other wide-ranging mammals include coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), pygmy rabbit (*Brachylagus idahoensis*), black-tailed jackrabbit (*Lepus californicus*), long-tailed weasel (*Mustela fretala*) and a variety of rodent species. Several bat species listed as BLM special status species (see Table 21**)** are also likely to occur in the mountains.

Birds include raptors, upland gamebirds, woodpeckers, hummingbirds, and several species of passerines. The most ubiquitous nesting raptors in the range are golden eagles (*Aquila chrysaetos*), red-tailed hawks (*Buteo jamaicensis*), and American kestrel (*Falco sparvarius*). Ferruginous hawks (*Buteo regalis*) and prairie falcons (*Falco mexicanus*) also nest throughout the range, and aspen stands support nesting cooper's hawks (*Accipiter cooperii*), sharp-shinned hawks (*Accipiter striatus*) and potentially northern goshawks (*Accipiter gentilis*). During the winter, rough-legged hawks (*Buteo lagopus*) occur in relatively high densities in the adjacent valleys.

Chukar (*Alectoris chukar*), dusky grouse (*Dendragopus obscurus*) and greater sage-grouse are the primary upland game-birds in the range. Sage-grouse use large portions of the Diamond Complex throughout the year. Habitat requirements for sage-grouse typically include low and high-elevation sites that are dominated by sagebrush. Oftentimes, sage-grouse use low- to mid-elevation sagebrush for breeding (i.e., strutting grounds or leks), nesting and early brood-rearing, but move to higher elevations and riparian areas for late brood-rearing. Sage-grouse use sagebrush for cover and food throughout the year, but also require an herbaceous understory to provide nest concealment, as well as provide a diet of forbs and insects for adults and their chicks.

The Diamond Complex is located within the Diamond and South Fork Population Management Units (PMU) identified in Nevada sage grouse conservation plans. Although portions of the Diamond Mountains are considered to be critical habitat, and several historic leks occur in the area, the number of active sage-grouse leks near the Diamond Mountains has declined substantially over the past 40 years. Population declines are likely principally related to reductions in the availability and degraded condition of lowland breeding habitat. However, changes in the condition of valuable brood-rearing habitat on meadows, springs and other riparian habitat that occur mainly on the southern portions of the range may also be a factor in the declining populations here.

Generally, risks to sage grouse throughout their range include:

- reduction in brood-rearing habitat due to channelization of stream channels
- down-cutting and drying of meadows
- reduction in size of spring and seep sites due to the removal of vegetative cover by ungulates
- reduction of native perennial grasses and forbs necessary for nesting cover
- reduction of native forbs which provide insects and other sources of protein for pre-egg laying and chick development
- pinyon-juniper encroachment into sagebrush habitat
- human disturbance
- the loss of sagebrush habitat due to wildfire

IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures, directs the BLM to implement conservation strategies for the protection of sage grouse including minimizing habitat loss, maintaining and restoring habitat, and implementation of management actions to improve degraded habitat. The policy also directs the BLM to prioritize removal of excess wild horses from HMAs and to manage wild horse HMAs within the established AMLs.

Other animal species within the Diamond Complex include lizards, snakes, a few amphibians, and a diversity of insects. Only two native fish species occur in the range, the Newark Valley tui chub (*Gila bicolor newarkensis*) and the Diamond Valley speckled dace (*Rhinichthys osculus*; see Nevada Department of Wildlife). Populations of both species are low and relegated to springs at lower elevations. A few perennial streams in the range contain non-native brook trout (*Salvelinus fontinalis*).

Table 22: BLM Special Status Species that occur or may occur within the Diamond Complex

Figure 74: Diamond HMA, April 2011. Deer and wild horses graze together.

Type	Common Name	Scientific Name
Mammals	Pallid bat	*Antrozous pallidus*
	Pygmy rabbit	*Brachylagus idahoensis*
	Townsend's big-eared bat	*Corynorhinus townsendii*
	Big brown bat	*Eptesicus fuscus*
	Silver-haired bat	*Lasionycteris noctivagans*
	Hoary bat	*Lasiurus cinereus*
	California myotis	*Myotis californicus*
	Small-footed myotis	*Myotis ciliolabrum*
	Long-eared myotis	*Myotis evotis*
	Little brown myotis	*Myotis lucifugus*
	Fringed myotis	*Myotis thysanodes*
	Long-legged myotis	*Myotis volans*
	Yuma myotis	*Myotis yumanensis*
	Western pipestrelle	*Pipistrellus heperus*
Birds	Northern goshawk	*Accipiter gentilis*
	Golden eagle	*Aquila chrysaetos*
	Ferruginous hawk	*Buteo regalis*
	Swainson's hawk	*Buteo swainsoni*
	Greater sage-grouse	*Centrocercus urophasianus*
	Pinyon jay	*Gymnorhinus cyanocephalus*
	Loggerhead shrike	*Lanius ludovicianus*
	Black rosy-finch	*Leucosticte atrata*
	Lewis's woodpecker	*Melanerpes lewis*
	Sage thrasher	*Oreoscoptes montanus*
	Brewer's sparrow	*Spizella breweri*
Fish	Newark Valley tui chub	*Gila bicolor newarkensis*
	Diamond Valley speckled dace	*Rhinichthys osculus*

As noted in Section 3.2, wild horses can compete with wildlife species for forage as dietary overlap occurs to varying degrees depending upon species and their preferred forage (grasses, forbs or shrubs), time of year and the nutritional needs of the animal. As a result, overpopulation of wild horses, heavy utilization levels or degradation of rangeland can cause important forage components for wildlife species to become limiting. Degraded rangelands typically produce substantially reduced levels of grasses and forbs important to many wildlife species. In 2012, forage species exhibited reduced production or did not grow at all in many locations throughout the Diamond Complex. The overpopulation of wild horses has further reduced forage availability through heavy and severe utilization levels. Forage available to wildlife and wild horses is very limited throughout the Complex.

Wild horses can negatively impact the structure and composition of vegetation and soil communities within the Great Basin. Wild horse-occupied sites exhibit substantially lower grass, shrub, and overall plant cover, as well as higher cover of unpalatable forbs and cheatgrass compared to areas where wild horses have been removed (Beever et al. 2003, 2008). Moreover, wild horse-occupied sites have a more fragmented shrub canopy, due mainly to trampling but also consumption. Wild horses can have a major impact on water availability and vegetation near springs and other riparian areas, resulting in reductions in wildlife diversity (Beever and Brussard 2000).

Similarly, competition for water sources also exists, particularly where waters are limited or during drought years when existing sources do not produce normally or go dry. Horses have been found to have some effect on the frequency of use of a water source by other wildlife in arid environments. One study found that in areas where bighorn sheep and horse water sources overlapped, higher the frequency of horse use led to lower frequency of bighorn sheep use, and vice versa (Ostermann-Kelm et al. 2008). The presence of wild horses at water sources is believed to deter the use of that water by pronghorn

antelope until the horses leave the area.

An important and often overlooked indirect effect of grazing on ecosystems, including those grazed by wild horses, is the effect on small mammal communities and reptiles. Mammals provide many ecologic services that are intimately linked to the plant community, including seed dispersal and predation, herbivory, and soil perturbation (Beever and Brussard 2004). Although abundance of mammals in areas grazed by horses may not differ from that of areas not grazed by horses, greater species richness has been observed in Great Basin ecosystems where horses have been removed (Beever and Brussard 2004).

Many species of reptile are important links between higher and lower trophic levels, but soil compaction and decreases in vegetative cover resulting from wild horse grazing may contribute to decreased prey, in turn affecting the abundances and diversity of reptiles. Beever and Brussard (2004) noted greater abundance and greater species richness of reptiles in areas without wild horse grazing than in areas with wild horse grazing.

Environmental Consequences

<u>Impacts Common to All Action Alternatives</u>

Conducting the proposed gather in the Diamond Complex could have minimal short term direct negative impacts to wildlife. Most notably, wildlife present in or near trap sites or holding facilities would be temporarily displaced. However, when possible, gather sites would be located in areas that have previously been disturbed (i.e. gravel pits) and will contain very little vegetation. Potential gather sites would also be inventoried to determine the presence of sensitive species and they would be avoided if observations indicate use.

Figure 75: Diamond HMA, TM-2 Spring 2011 utilization monitoring, Pronghorn antelope track.

If wild horse gathers occur during fall or winter (i.e., prior to March 1), negative impacts to birds, reptiles and amphibians would be minimal because birds typically do not begin nesting during this time and reptiles and amphibians are inactive. If the action occurs during the avian nesting season (March 1 through July 31), a qualified biologist would conduct a survey to determine the presence of nesting birds near the gather site, and a protective buffer zone surrounding each nest would be established until the young birds are fledged. This approach would be used because any ground clearing for traps and holding facilities, or other vegetation-disturbing action during the migratory bird nesting season risks a violation of the Migratory Bird Treaty Act by destroying bird eggs or young. Buffer sizes would vary by species, from 0.5 miles surrounding most raptor nests, 2 miles surrounding golden eagle nests, to 150 meters surrounding songbird, burrowing owl, and sage-grouse nests (BLM Ely RMP; BMDO wildlife survey protocol). Gather sites would also be located > 2 miles from any known active lek sites if sage grouse could be present. Direct impacts to sage-grouse are not anticipated as the proposed gather would be completed during winter months and would not interfere with strutting, nesting or brood rearing activities. Refer to the SOPs in Appendix A for additional measures that would be implemented to reduce impacts to wildlife species.

Removing excess wild horses and achieving AML would have long-term indirect benefits to several

wildlife species via 1) reduced competition for important forage species, 2) reduced competition for water, and 3) increased understory vegetation cover. Especially in 2012 and 2013, forage has become substantially limited due to drought and heavy use by wild horses and livestock throughout the Diamond Complex. Bringing the wild horse population to AML would preserve some of the remaining forage for wildlife use during the 2012 winter and 2013 spring.

Managing wild horse populations within the established AMLs would ensure that unacceptable levels of competition with wildlife species do not occur since a thriving natural ecological balance would be maintained. Improved trends in rangeland health equate to increased quality and quantity of habitat available for both wild horses and wildlife and allow for healthier animals, especially in times of drought or harsh winters when resources are most limited. Management of the populations within the established AMLs would also be consistent with IM 2012-043 and promote improvement of degraded habitat important for sage grouse, as well as reducing risk factors.

Impacts that differ among Alternatives

Indirect impacts to wildlife are inversely proportionate to the size of the wild horse population. According to the population modeling, the Proposed Action would result in the lowest overall average population sizes which would provide the most increase in forage and water resources available to wildlife in comparison with the other alternatives. Other benefits for wildlife (including sage-grouse) include increased grass and shrub cover which provides more nesting and foraging habitat. Reductions in wild horse populations via removal and fertility treatments are thought to be an important mechanism to prevent excessive degradation of sage-grouse habitat (Beever and Aldridge 2011).

Achieving and maintaining the AML under the Proposed Action provides the best opportunity for conservation, protection, and preservation of identified species and their habitats. The opportunity for improvement decreases for each successive alternative. Alternative 1 also involves gathering to the low range of AML but does not include fertility control to reduce population growth rates and average population size over time would be slightly higher than the Proposed Action depending upon gather frequency. Alternatives 2 and 3 involve removal to the high range of AML which would result in average population sizes above the established AML, in all years between gathers except for right after a gather occurs, as the upper range of AML would be exceeded following the first foaling season after a gather. Populations above AML would result in increased competition with wildlife for water and forage, reduced or precluded recovery of degraded range and less likely improvements in rangeland health trend. Under Alternatives 2 and 3, impacts from trailing, utilization and trampling of riparian resources would be higher than under the Proposed Action or Alternative 1 and thus have corresponding effects to wildlife habitat quality and quantity.

No Action Alternative

The existing population of wild horses is currently 387% of the high range of AML established for the Complex, and wild horses are utilizing forage and resources beyond what they have been allocated through LUP/RMP and FMUDs. As a result, competition with wildlife species has increased substantially and habitat health and forage and water availability is being impacted, particularly during 2012 which has endured severe and extreme drought conditions. Through the analysis of potential population increases through the WinEquus population model, it was determined that population sizes could exceed one thousand wild horses by 2015 and two thousand wild horses by 2019 if no gather occurs. Excessive populations of this magnitude would have extreme negative impacts to wildlife and wildlife habitat through severe degradation of habitat, loss of perennial key forage species, loss of riparian systems and destruction of cover and nesting habitat. Given current monitoring data,

degradation could be irreversible in some areas if the proposed gather does not occur to achieve the AML and restore a thriving natural ecological balance. Decline of wildlife species would be congruent upon the decline of habitat.

Figure 76: Diamond Hills North HMA, November 7, 2012 helicopter inventory. Typical water development/trough used by wildlife, livestock and wild horses.

Wild horses are already impacting important habitat utilized by sage-grouse, in addition to riparian areas, aspen communities, and meadow complexes valuable to many species of wildlife. If the No Action alternative was selected, increasing wild horse populations could severely increase sage-grouse vulnerability to predation, disease and elevated stress levels, ultimately affecting aspects of fitness and survival (Beever and Aldridge 2011). In the Diamond Complex, implications of further reductions in the integrity of sagebrush communities are potentially severe, and would likely contribute to continued declines in sage-grouse populations here. The No Action Alternative would not afford protection of important sage grouse habitat, and would allow for further degradation of uplands and riparian areas by an overpopulation of wild horses, which degradation would worsen the longer the period is to a gather and removal of excess wild horses. The No Action Alternative would not adhere to IM 2012-043 *Greater Sage-Grouse Interim Management Policies and Procedures*.

3.9 Health and Safety

In recent gathers, members of the public have increasingly traveled to the public lands to observe BLM's gather operations. Members of the public can inadvertently wander into areas that put them in the path of wild horses that are being herded or handled during the gather operations, creating the potential for injury to the wild horses or burros and to the BLM employees and contractors conducting the gather and/or handling the horses as well as to the public themselves. Because these horses are wild animals, there is always the potential for injury when individuals get too close or inadvertently get in the way of gather activities.

The helicopter work is done at various heights above the ground, from as little as 10-15 feet (when herding the animals the last short distance to the gather corral) to several hundred feet (when doing a recon of the area). While helicopters are highly maneuverable and the pilots are very skilled in their operation, unknown and unexpected obstacles in their path can impact their ability to react in time to avoid members of the public in their path. These same unknown and unexpected obstacles can impact the wild horses or burros being herded by the helicopter in that they may not be able to react and can be potentially harmed or caused to flee which can lead to injury and additional stress. When the helicopter is working close to the ground, the rotor wash of the helicopter is a safety concern by potentially causing loose vegetation, dirt, and other objects to fly through the air which can strike or land on anyone in close proximity as well as cause decreased vision.

During the herding process, wild horses or burros will try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing wild horses can go through wire fences, traverse

unstable terrain, and go through areas that they normally don't travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal's path.

Disturbances in and around the gather and holding corral have the potential to injure the government and contractor staff who are trying to sort, move and care for the wild horses and burros by causing them to be kicked, struck, and possibly trampled by the animals trying to flee. Such disturbances also have the potential for similar harm to the public themselves.

Public observation of the gather activities on public lands would be allowed and would be consistent with BLM IM No. 2010-164 and visitation protocols for scheduled and non-schedule visitation in Appendix G-H.

Environmental Consequences

Proposed Action and Action Alternatives

Public safety as well as that of the BLM and contractor staff is always a concern during the gather operations and would be addressed through Observation Protocols that have been used in recent gathers to ensure that the public remains at a safe distance and does not get in the way of gather operations, and by the presence of law enforcement officers at the site. These measures minimize the risks to the health and safety of the public, BLM staff and contractors, and to the wild horses themselves during the gather operations.

No Action Alternative

There would be no gather related safety concerns for BLM employees, contractors and the general public as no gather activities would occur at this time.

3.10. Wild Horse Gather Mitigation Measures

This EA has analyzed the potential impacts that could occur with completion of a gather to remove excess wild horses and apply fertility treatment to released mares. The following section summarizes the measures developed to ensure that these potential impacts are minimized or avoided entirely.

The SOPs outlined in Appendix A would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts to or injury of the wild horses. Additional discussion has been added to Appendix A, Section III regarding the agency expectations to ensure humane treatment to wild horses during the gather. BLM staff is on-site at all times to observe the gather, monitor animal health, and coordinate the gather activities with the contractor. BLM staff would coordinate with the contractor on a daily basis to determine animal locations in proximity to trap corrals, and to discuss terrain, animal health, gather distances and other gather logistics to ensure animal safety. Both the BLM Wild Horse and Burro Specialists and the Gather Contractor and crew are very attentive and sensitive to the needs of all wild horses captured during gathers, and ensuring their health, safety and wellbeing during and after the gather is a focus and priority.

An Animal and Plant Inspection Service (APHIS) or other veterinarian would be on-site during the gather, as needed, to examine animals and make recommendations to the BLM for care and treatment of wild horses. Injuries would be examined and treated if needed by a veterinarian at the holding corrals.

Fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix D). The treatment would be controlled, handled, and administered by a trained BLM employee.

BLM policy prohibits the gathering of wild horses with a helicopter, (unless under emergency conditions), during the period of March 1 to June 30 which includes and covers the six weeks that precede and follow the peak of foaling period (mid-April to mid-May).

The gather helicopter pilot allows the wild horses to travel at their own pace for most of the distance to the gather location. The pilots are very experienced and do not place undue pressure on the wild horses until just the right time when entering the wings of the gather trap, when it is important to move the wild horses safely into the gather corrals and prevent them from turning back or trying to disband at the last minute. This is to avoid the need to re-gather or to rope the horses from horseback which could expose the wild horses to additional stress or injury. Foals separated during the gather process are safely gathered and transported to the gather corrals to be reunited with their mother.

Transport and sorting is completed as quickly and safely as possible so as to move the wild horses into the large holding pens where they can settle in with hay and water. When releasing animals back to the range, they would be returned to same general area from which they were gathered.

Any old, sick or lame horses unable to maintain an acceptable body condition (greater than or equal to a Henneke body condition score (BCS) 3 or with serious physical defects such as club feet, severe limb deformities, or sway back would be humanely euthanized as an act of mercy. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041).

Individual animals are monitored and veterinary or supportive care is administered as needed. Electrolyte powder can be administered to the drinking water and electrolyte paste administered to individual animals if needed. The overall health and wellbeing of the animals is continually monitored through both summer and winter gathers to adjust gather operations as necessary to protect the animals from gather related health issues. Any orphan foals are attentively cared for through administering electrolyte solutions and/or feeding milk replacer as needed to support their nutritional needs. Foster or adoptive homes are identified to ensure good care to these young animals.

Should the need arise; BLM equipment operators would plow trails in the snow to facilitate the safe and humane movement of horses to a gather site. If dust becomes an issue, BLM ensures that contractors reduce speeds on dusty roads and water down corrals and alleyways.

The SOPs in Appendix A identify additional measures implemented during the completion of wild horses gathers to minimize or avoid impacts to wildlife, and other resources in addition to wild horses. Additionally, Section III of Appendix A documents the Agency expectations to ensure humane treatment during the gather. Gather corral sites and temporary holding facilities would be located in previously used sites or other disturbed areas whenever possible (such as gravel pits, or road pull outs or junctions). Gather areas would not be constructed near riparian areas or near infestations of noxious weeds. Potential trap sites or holding facilities would be inventoried for cultural resources and noxious weeds. If cultural resources or noxious weeds are encountered, these locations would not be utilized.

Hair samples will be collected to re-assess genetics baseline for the wild horses in the Diamond Complex. Continued monitoring would be done with samples collected during future gathers. If monitoring indicates that genetic diversity is not being adequately maintained, a long term strategy would be developed to avoid inbreeding depression and to maintain acceptable genetic diversity.

Ongoing resource monitoring, and wild horse inventory will continue to be completed.

Observation Protocols would be implemented to ensure the safety of the public, BLM employees and contractors and the wild horses while members of the public are in the area to observe the gather operations. These protocols are detailed in Appendix G-H.

4. Cumulative Effects Analysis

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

According to the 1994 BLM *Guidelines for Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance.

Resources that could be impacted cumulatively by the Proposed Action, Alternatives (including the No Action Alternative), and future actions include the following:

Livestock Management
Vegetation and Soils
Wild Horse Populations
Wildlife, and Sensitive Species
Water and Riparian Resources

For purposes of this analysis, potentially affected resources are discussed below in terms of past, present and reasonably foreseeable future actions which have or would have an effect in conjunction with the Proposed Action, Alternatives and No Action Alternative. These effects may be beneficial or negative, and differ among the Alternatives including the No Action Alternative.

4.1. Past, Present, and Reasonably Foreseeable Actions

Past Actions
Past actions, which have affected these resources within the CESA, primarily include livestock grazing and wild horse use. Other actions have included mining, woodcutting, wildfire rehabilitation, and oil, gas and geothermal exploration. These actions are currently ongoing.

Management of the public lands and authorized uses were determined within the RMPs and amendments completed by each District in conjunction with input from the interested public. The Northeastern Great Basin RAC developed standards and guidelines for rangeland health that have been the basis for assessing rangeland health in relation to management of wild horse and livestock grazing within the BLM Districts. Adjustments in numbers, season of use, grazing season, and allowable use have been based on the evaluation of progress made toward reaching the standards and RMP objectives.

Several oil and gas exploration wells have been drilled across the CESA; however, none of these wells

have gone into production. The Ely RMP/EIS summarized the history of oil and gas exploration on pages 3.18-7 to 3.18-9. Historical mining activities have occurred throughout the CESA, and have primarily been small in scale.

Domestic livestock have been present in the Diamond Complex, regulation of which resulted from the Taylor Grazing Act (TGA) of 1934, Federal Land Policy and Management Act (FLPMA) of 1976 and Public Range Improvement Act (PRIA) of 1978 as well as other laws, regulations and policies. Livestock grazing is also authorized in RMPs.

A series of livestock grazing decisions since the TGA have resulted in reductions in livestock numbers and changes in seasons of use and in grazing management practices to promote rangeland health within grazing allotments.

In 1971 Congress passed the WFRHBA which placed wild and free-roaming horses and burros, that were not claimed for individual ownership, under the protection of the Secretaries of Interior and Agriculture. In 1976 FLPMA gave the Secretary the authority to use motorized equipment in the capture of wild free-roaming horses as well as continued authority to inventory the public lands. PRIA amended the WFRHBA to provide additional directives for BLM's management of wild free-roaming horses on public lands.

Figure 77: Diamond Hills North HMA, November 6, 2012 helicopter inventory. This area was burned by wildfire in 1999. Re-seeded perennial grasses are limited in 2012 due to drought and heavy use.

Past actions also include establishment of wild horse HMAs, establishment of AML for wild horses, and wild horse gathers. Some activities have increased infestations of invasive plants, noxious weeds, and pests and their associated treatments. Activities have also increased human disturbance of wild horses, contributed to habitat fragmentation and changes to plant communities as a result of disturbance or utilization of key forage species.

Diamond Hills South HMA, Egan Field Office

The Egan RMP (1987 Ely District) designated the Diamond Hills South HMA for the long-term management of wild horses. This HMA was retained and management of the HMA and wild horse population is guided by the August 2008 Ely District ROD and Approved RMP due to the interchange between the Diamond (Battle Mountain District) and Diamond Hills North (Elko District) HMAs. The HMA is nearly identical in size and shape to the original Herd Area representing where wild horses were located in 1971. The LUP analyzed impacts of management's direction for grazing and wild horses, as updated through Bureau policies, Rangeland Program direction, and Wild Horse Program direction. Forage was allocated within the allotments for livestock use and range monitoring studies were initiated to determine if allotment objectives were being achieved, or that progress toward the allotment objectives was being made. The AML range for the HMA is 10-22 wild horses.

Diamond Hills North, Tuscarora Field Office

The Elko RMP ROD dated March 11, 1987 (page 3) provided for four wild horse Herd Areas and

"gatherings as needed to maintain numbers." In 2003, the Elko RMP was amended for wild horse management to establish the four current HMAs and their boundaries, to identify the AMLs for the four HMAs within the Elko Resource Area (Tuscarora Field Office), and to establish a process for modifying AMLs for wild horses through monitoring, evaluation, and Herd Management Area Plans.

Diamond HMA, Mount Lewis Field Office

Wild horses have existed within the Diamond HMA since prior to the passage of the Wild Free Roaming Horses and Burros Act in 1971. The Herd Area was established based on the presence of wild horses within this area in 1971, and later designated as an HMA in the 1986 SERA RMP ROD. The current HMA boundaries are similar to the original Herd Area boundaries with the exception of exclusion of land area that is largely privately owned and agriculturally developed west of the current day boundary.

Integrated wild horse management has occurred in the Diamonds, Diamond Hills North and Diamond Hills South HMAs and the area has been managed as the Diamond Complex since 1997. Seven gathers have been completed in the past on part or all of the HMAs, with the last two larger gathers in 1997 and 2004 occurring on the Diamond Complex as a whole. In 1999 eighty-three wild horses were removed from the Diamond Hills North and from outside the HMA as a result of the Saddler Complex fire. The following table displays the gathers that have occurred and the removal of wild horses through the years.

Table 23: Gather History of the Diamond Complex

Year	HMA/Area	Removed	Fertility Control
1989	Diamond Horse Free Area	66	-
1994	Diamond Horse Free Area	248	-
1996	Diamond Hills South	89	-
1997	Diamond Complex	1,157	-
1999	Diamond Hills North and outside HMA	83	-
1999	Diamond Hills South	6	-
2004	Diamond Complex	502	86 mares

The actions which have influenced today's wild horse populations are primarily wild horse gathers, which have resulted in the capture and removal of excess horses, and release of horses back into the HMAs. During the 1997 gather, only wild horses 9 years of age and under were removed and wild horses 10 years and older were released according to National BLM policy. Fertility control was administered to 86 mares during the 2004 gather which had a minor effect to growth rates in 2006, as the drug was only effective for one year.

Present and Future Actions

Current actions, which have affected the resources within the CESA, primarily include livestock grazing and wild horse use. Other actions include mining, woodcutting, wildfire rehabilitation, and oil, gas and geothermal exploration.

Future activities which could be expected to contribute to the cumulative impacts of implementing the Proposed Action or Alternatives within the next 10 years include continued mining and geothermal exploration and development, oil and gas leasing, power line construction, solar, wind or other "green" energy production, livestock adjustments, treatment of invasive plants, noxious weeds, and pests wild horse AML adjustments, wild horse fertility control, modification of wild horse sex ratios, herd augmentation, and wild horse removals.

Livestock grazing is expected to continue at similar stocking rates and utilization of the available

vegetation (forage) would also be expected to continue at similar levels. Rangeland Health Assessments would be planned to be completed in future years which could result in changes to livestock grazing systems such as changes to season of use, reduced or increased permitted use levels, or implementation of rotational grazing systems. The Diamond and Diamond Hills North portions of the Diamond Complex are tentatively scheduled for evaluation in the next few years and could involve changes to the permitted use for livestock or changes to the season of use.

Current BLM policy is to conduct removals targeting portions of the wild horse population based upon age, and allowing the correction of any sex ratio problems that may occur. Further, the BLM's policy is to conduct gathers in order to facilitate a regular gather cycle and to reduce population growth rates where possible. Program goals have expanded beyond establishing a "*thriving natural ecological balance*" by setting AML for individual herds to now include achieving and maintaining healthy and stable populations and controlling population growth rates.

Figure 78: Outside of the Diamond and Diamond Hills South HMAs, November 6, 2012 helicopter inventory. This area outside of the HMA supports residual grass in the understory of the higher elevations and is being used by wild horses moving out of the Diamond HMA to access forage.

Though authorized by the WFRHBA, current appropriations and policy prohibit the destruction of healthy animals that are removed or deemed to be excess. Only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method. A recent amendment to the WFRHBA allows the sale of excess wild horses that are over 10 years in age or have been offered unsuccessfully for adoption three times. BLM is adding additional long-term grassland pastures in the Midwest and West to care for excess wild horses for which there is no adoption or sale demand.

The focus of wild horse management has also expanded to place more emphasis on achieving rangeland health as measured against the RAC Standards. The Northeastern Great Basin RAC standards and guidelines for rangeland health are the current basis for assessing rangeland health in relation to management of wild horse and livestock grazing within the Elko, Ely and Battle Mountain Districts. Adjustments to numbers, season of use, grazing season, and allowable use are based on evaluating achievement of or making progress toward achieving the standards as well as objectives set forth in RMPs.

The Diamond Complex has an estimated population of 813 wild horses. Resource damage is occurring in portions of the Diamond Complex due to excess animals. The present condition of the vegetation resources is characterized by a lack or absence of many of the key perennial species that are part of the Potential Natural Community for these areas, especially in the lower elevations that receive lower precipitation levels, and widespread areas that have burned by wildfire. While the present livestock grazing system and efforts to manage the wild horse population within AML has helped reduce past historic soil impacts and has improved current soil resource conditions, the current overpopulation of wild horses is resulting in areas of heavy vegetative utilization, trailing and trampling damage, and prevents BLM from managing public lands within the Diamond Complex for rangeland health and for a thriving natural ecological balance.

Over the next 10-20 year period, reasonably foreseeable future actions that could cumulatively affect wild horses include gathers to remove excess wild horses in order to manage population sizes within the established AML ranges. Gathers could be conducted by helicopter or through bait or water trapping. These gathers could continue on a 2-3 year schedule, retreating with fertility control as described for the Proposed Action. Another scenario which could occur would be to repeat gathers every 3-5 or 5-7 years with or without fertility control. Future gathers could also involve adjustment of sex ratios to slow population growth. A Herd Management Area Plan (HMAP) could also be completed which would establish additional short and long-term management and monitoring objectives for the HMAs and their habitat. Future improvements in habitat could result in increases to AMLs in any or all of these HMAs.

Other reasonably foreseeable future actions include the transport, handling, care, and disposition of the excess wild horses removed from the range. Initially wild horses would be transported from the capture/temporary holding corrals to a designated BLM short-term holding corral facility. From there, the animals would be made available for adoption or sale to individuals who can provide a good home, or to Long Term Pastures.

Figure 79: Diamond HMA, White horse herd, April 2011.

In the future, the BLM would manage wild horses within HMAs that have suitable habitat for an AML range that maintains genetic diversity, age structure, and targeted sex ratios. Current policy is to express all future wild horse AMLs as a range, to allow for regular population growth, as well as better management of populations rather than individual HMAs. The Ely BLM District completed the *Ely Proposed Resource Management Plan/Final Environmental Impact Statement* (RMP/EIS, 2007) released in November 2007 which analyzed AMLs expressed as a range and addressed wild horse management on a programmatic basis. Currently the Egan Field Office is completing the Newark Watershed analysis. This process will identify actions associated with habitat improvement within the Diamond Hills South HMA. The BMD is in the process of revising the Tonopah and Shoshone-Eureka Land Use Plans. The revised Plan could influence the management of wild horses within the District in the future pertaining to Herd Management Area Plans, gathers, population control, allocation of use to wild horses, burros, livestock and wildlife, monitoring and setting and adjusting AMLs.

The BLM would continue to conduct monitoring to assess progress toward meeting rangeland health standards and RMP objectives. Wild horses would continue to be a component of the public lands, managed within a multiple use concept. Future gathers would be scheduled on a 2-3- year gather cycle, or as allowed through identification of National gather priorities, Wild Horse and Burro Program budget and implementation of population controls.

While there is no anticipation for amendments to the WFRHBA, any amendments may change the management of wild horses on the public lands. The Act has been amended three times since 1971; therefore there is potential for amendment as a reasonably foreseeable future action.

4.2. Cumulative Impacts Summary

Impacts Common to the Proposed Action Alternative

As the BLM achieves AML on a national basis, gathers should become more predictable due to facility space. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles reducing the need to remove as many wild horses and possibly extending the time between gathers. The combination of these factors should result in an increase in stability of gather schedules and longer periods of time between gathers.

A continued two-year capture, treat for fertility control and release protocol would result in the population growth balancing with the minimal removals of young horses and natural mortality levels. Eventually, few or no horses would need to be removed from the range in future gathers. Under the two year protocol, negligible numbers of animals would have to be put in long term pastures or through the sale program, and all young horses removed from the range would be healthy and highly adoptable.

A cycle of AML maintenance, improved rangeland and improvements to animal health could result. In past years, the gather frequency has averaged 7-8 years with populations increasing to many times the AML, followed by gathers that required the removal of a large portion of the population to reach AML given the high population growth rate and length of time between gathers. A 2-3 year protocol would result in the *release* of most of the animals gathered (after application of fertility treatment to mares), removal of primarily young animals, and would maintain stable populations within the established AML ranges, avoiding the cycle of over populated ranges, necessitating the gather and removal of large numbers of excess animals in order to achieve the lower limit of AML.

Cumulatively, there should be more stable wild horse populations, less competition for limited forage and water resources, healthier rangelands and wild horses, and fewer multiple-use conflicts in the area over the short and long-term. Over the next 10-20 years, continuing to manage wild horses within the established AML range would ensure a thriving natural ecological balance and multiple use relationship on public lands in the area.

By bringing the wild horse populations to AML, it would be possible to gather a higher percentage of the total population in future gathers, which would allow the increased use of fertility control and sex ratio adjustments as methods to slow population growth.

Through a two-year protocol, repeated gathers would have the effect of reducing the gather efficiency as wild horses learn to avoid the helicopter. Though horses would be disturbed every 2-3 years, most horses would be re-released back to the range resulting in fewer disturbances to existing social structures.

Figure 80: Diamond HMA, November 6, 2012 helicopter inventory.

If a two year protocol is not continued, and a gather cycle of every 3-4 or 5-7 years with fertility control occurs, the effects would be similar with a few exceptions. Increased numbers of horses would need to be removed during each gather to achieve the lower limit of AML. Fertility control would not be completely effective at controlling the population because of the increased gather interval, which would

exceed the period during which the fertility control vaccine is effective. Increased numbers of older wild horses could need to be removed that may need to be maintained in LTPs. Age selection criteria could be implemented that would restrict removal of older horses, thus increasing the proportion of older horses remaining on the range.

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

Figure 81: Wild horses are making concentrated use in the Three-Mile Allotment portion of the Diamond HMA. Helicopter flight, August 2012.

Cumulative effects which would be expected when incrementally adding the Proposed Action Alternative to the CESA would include continued improvement of vegetation condition (i.e. forage availability and quantity), which in turn would result in improved vegetation density, cover, vigor, seed production, seedling establishment and forage production over current conditions. Managing wild horse populations within the established AML would allow the primary forage plant species to return more rapidly and allow for improvements to riparian habitat, even though some vegetation conditions may never be able to return to their potential. Upward trends would benefit permitted livestock, native wildlife, and wild horse population as forage (habitat) quality and quantity is improved over the current level. Maintaining AML over a sustained period of time throughout the CESA would allow for the collection of scientific data to evaluate whether changes to AML levels are warranted or necessary.

Impacts of that differ among alternatives

Cumulative impacts that differ among the Action Alternatives concern vegetation and soil disturbance from gathers, long term impacts to rangeland health and wild horse health and numbers treated and removed from the range.

As discussed in Section 3.2 and Appendix E, the Proposed Action could result in the fewest gathers, numbers of wild horses gathered and removed from the range and mares treated with fertility control. In turn, the maximum benefit to rangeland health would be derived. Consequently, cumulative negative

impacts to wildlife, soils, and vegetation from gathers would be minimized under the Proposed Action as compared to the other Alternatives, whereas long term cumulative benefits in the way of improved habitat quality and quantity would be enjoyed by all rangeland users.

Cumulative impacts would be slightly increased under each successive Alternative and benefits to resource health lessened as additional gathers would be necessary and population sizes larger.

Because Alternative 2 and 3 would maintain larger population sizes, cumulative impacts to wild horse genetic health might be less than under the Proposed Action or Alternative 1. However, the ability to select for specific age, characteristics and gender, as well as the opportunity for healthier rangeland and healthier horses would offset any potential risk to genetic health.

Impacts from No Gather Alternative

Increased movement of horses outside the boundaries of the Complex could be expected as the ever greater numbers of wild horses search for sufficient resources and habitat for survival, thus impacting larger areas of public lands within the CESA. Heavy utilization of available forage and insufficient water to meet the needs of the over-population of wild horses would be expected. Allowing the wild horse population to continue to grow beyond the current population numbers would be likely to result in a population crash in less than 1-3 years. Wild horses, wildlife and livestock would not have sufficient forage or water. Ecological communities and habitat resources would be over-extended. Rangeland health would further degrade, possibly below biological thresholds, making recovery unlikely if not impossible as cheatgrass, medusa head, and other invasive non-native species dominate the understory, degrading ecological conditions.

Cumulative impacts under the No Action alternative would be the foregone opportunity to improve rangeland health and to properly manage wild horses in balance with the available water and forage. Over-utilization of vegetation and other habitat resources would occur as wild horse populations continued to increase. Improvements that have resulted from or could continue to be generated from reductions in livestock use, changes in season of use, and other management changes would be negated by the damaging effects of a significant overpopulation of wild horses.

Cumulative and chronic loss of habitat quality would impair the wild horse populations' ability to remain healthy and viable in the long-term. Although wild horse populations would be expected to eventually crash at some ecological threshold; wildlife would also experience suffering and possible death as rangeland resources are consumed and severely degraded. The RMP/FMUD objectives and Standards for Rangeland Health and Wild Horse and Burro Populations would not be achieved.

Because AML would continue to be exceeded throughout the CESA, monitoring data would reflect impacts from an over-population of wild horses and would not allow BLM to evaluate whether AML levels can (or should be) further modified.

Figure 82: Diamond HMA, June 2010.

Current impacts to the human environment across the CESA would be compounded should the current population of wild horses be allowed to remain and expand since rangeland resources would continue to be over-used and would not have the opportunity to recover from the impacts of excess numbers of wild horses. Irreparable damage to the arid habitat could preclude the ranges ability to support a viable wild horse population. Future actions could involve permanent remove of all wild horses from the Diamond Complex, or to reduce AMLs in future decisions due to lack of suitable habitat features. Similarly, permitted livestock would be reduced or possibly eliminated in certain areas due to lack of forage. Wildlife numbers would also fall, as habitat quality drops below levels needed to support them.

Impacts Conclusion

Past actions regarding the management of wild horses have resulted in the current wild horse population within the Diamond Complex. Wild horse management has contributed to the present resource condition and wild horse herd structure within the gather area.

The combination of the past, present, and reasonably foreseeable future actions, along with the Proposed Action or Alternatives, should result in more stable and healthier wild horse populations, healthier rangelands (vegetation, riparian areas and wildlife habitat), and fewer multiple-use conflicts within the Diamond Complex.

The proposed gather area contains a variety of resources and supports a variety of uses. Any alternative course of wild horse management has the opportunity to affect and be affected by other authorized activities ongoing in and adjacent to the area. The significance of cumulative effects based on past, present, proposed, and reasonably foreseeable future actions are determined based on context and intensity.

5.0. Monitoring and Mitigation Measures

The BLM COR and PIs assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the SOPs (Appendix A). Ongoing monitoring of range vegetation, riparian areas, aerial population surveys, and animal health would continue.

Fertility control monitoring would be conducted in accordance with the SOPs (Appendix D). Monitoring the effects of fertility control and/or sex ratio adjustment (if implemented) would occur as possible through on the ground field monitoring and population inventory flights. During future gathers, biological samples would be collected to analyze genetic diversity of the wild horses within these HMAs and compare to the baseline samples already analyzed.

6.0. List of Preparers

The following list identifies the interdisciplinary team member's area of responsibility:

Battle Mountain District/Mount Lewis Field Office	
Shawna Richardson	Project Lead/Wild Horse and Burro Specialist
Chris Cook	Field Manager
Mike Vermeys	Assistant Field Manager, Renewable Resources
Gloria Tibbets	Planning and Environmental Coordinator
Dustin Hollowell	Wild Horse and Burro Specialist (Tonopah)
Tim Coward	Native American Coordinator
Alden Shallcross	Hydrologist
Kent Bloomer	Invasive Species Coordinator
Ashley Johnson	Rangeland Management Specialist
Ethan Ellsworth	Wildlife Biologist
Elko District/Tuscarora Field Office	
Bruce Thompson	Wild Horse Specialist
Jerrie Bertola	Rangeland Management Specialist
John Daniel	Hydrologist
Bryan Mulligan	Natural Resource Specialist
Ken Wilkinson	Wildlife Biologist
Ely District/Eagan Field Office	
Ruth Thompson	Wild Horse Specialist
Mark D'Aversa	Hydrologist
Chris Mayer	Supervisory Rangeland Management Specialist
Lisa Gilbert	Archeologist Technician
Erin Rajala	Outdoor Recreation Planner
Marian Lichtler	Wildlife Biologist
Mindy Seal	Natural Resource Specialist (NEPA)
Elvis Wall	Native American Coordinator

7.0. Consultation, Coordination and Public Involvement

Refer to Section 1.7, Appendix F, G and H.

8.0. List of References

Beever, E. 2003. Management implications of the ecology of free-roaming horses in semi-arid ecosystems of the western United States. Wildlife Society Bulletin 2003, 31(3):887-895.

Beever, E.A. and C.L. Aldridge. 2011. Influences of free-roaming equids on sagebrush ecosystems, with a focus on Greater Sage-Grouse. Pp. 273-290 *in* S.T. Knick and J.W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38). University of California Press, Berkeley, CA.

Beever, E. A., and J. E. Herrick. 2006. Effects of feral horses in Great Basin landscapes on soils and ants: Direct and indirect mechanisms. Journal of Arid Environments 66:96-112.

Beever, E.A. and P.F. Brussard. 2000. Examining ecological consequences of feral horse grazing using exclosures. Western North American Naturalist 60:236-254.

Beever, E. A., and P. F. Brussard. 2004. Community-and landscape-level responses of reptiles and small mammals to feral-horse grazing in the Great Basin. Journal of Arid Environments 59:271-297.

Beever, E.A., R.J. Tausch and P.F. Brussard. 2003. Characterizing grazing disturbance in semiarid ecolsytems across broad spatial scales, using multiple indices. Ecological Applications 13:119-136.

Beever, E.A., R.J. Tausch and P.F. Brussard. 2008. Multi-scale responses of vegetation to removal of horse grazing from Great Basin (USA) mountain ranges. Plant Ecology 197:163-184.

Belsky, A. J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems of the western United States. Journal of Soil and Water Conservation 54:419-431.

Bureau of Land Management. 1986. Shoshone-Eureka Resource Area Record of Decision. Battle Mountain Field Office. Battle Mountain, Nevada.

Bureau of Land Management. 1987. Elko Resource Management Plan. Elko Resource Area. Elko, Nevada.

Bureau of Land Management. 1987. Elko Rangeland Program Summary. Elko Resource Area. Elko, Nevada.

Bureau of Land Management. 1988. Shoshone Eureka Rangeland Program Summary. Battle Mountain Field Office. Battle Mountain, Nevada.

Bureau of Land Management. 2000. Diamond Mountain Complex Environmental Assessment. Battle Mountain Field Office. Battle Mountain, Nevada.

Bureau of Land Management. 2000. Diamond Mountain Complex FMUD. Battle Mountain Field Office. Battle Mountain, Nevada.

Bureau of Land Management. 2003. Elko Resource Management Plan Wild Horse Amendment and Environmental Assessment. Elko Field Office. Elko, Nevada.

Bureau of Land Management, Battle Mountain District, Programmatic Environmental Assessment of Integrated Weed Management on Bureau of Land Management Lands and Record of Decision & FONSI, NV-060-EA97-39, Battle Mountain, Nevada.

Bureau of Land Management, 2008. Ely Resource Management Plan. United States Department of Interior, Bureau of Land Management, Ely Field Office, Ely Nevada.

Bureau of Land Management, Battle Mountain District. 2012. Draft Wildlife Survey Protocol. Battle Mountain, Nevada.

Coates-Markle, L. 2000. Summary Recommendations, BLM Wild Horse and Burro Population Viability Forum April 1999, Ft. Collins, CO. Resource Notes 35:4pp.

Curtis, P.D., Pooler, R.L., Richmond, M.E., Miller, L.A., Mattfield, G.F., Quimby, F.W. 2002. Comparative effects of GnRH and porcine zona pellucida (PZP) immunocontraception vaccines for controlling reproduction in white-tailed deer (*Odocoileus virginianus*). Reproduction Supplement 60:131–141.

Bartholow, J. M. 2007. Economic Benefit of Fertility Control in Wild Horse Populations. Journal of Wildlife Management 71 (8) 2811-2819.

Ganskopp, D. C. 1983. Habitat use and spatial interactions of cattle, wild horses, mule deer, and california bighorn sheep in the Owyhee Breaks of southeast Oregon. Dissertation. Oregon State University, Corvallis, Oregon.

Ganskopp, D. C., and M. Vavra. 1986. Habitat use by feral horses in the northern sagebrush steppe. Journal of Range Management 39(3):207-211.

Ganskopp, D. C., and M. Vavra 1987. Slope use by cattle, feral horses, deer, and bighorn sheep. Northwest Science 61(2):74-80.

Garrott, R. A., and L. Taylor. 1990. Dynamics of a feral horse population in Montana. Journal of Wildlife Management 54:603-612.

Garrot, R.A. 1991. Sex Ratios and Differential Survival of Feral Horses, Journal of Animal Ecology, Vol. 60, No. 3 (Oct.1991), 929-936.

Garrot, R. A.. D. B. Siniff, J. R. Tester, T. C. Eagle. and F: D. Plorka. 1992. A comparison of contraceptive technologies for feral horse management. Wildlife Society Bulletin. 20:318-326.

Gross, J.E. 2000. Genetic and demographic consequences of removals and contraception on wild horses in the Pryor Mountain Wild Horse Range. Pages 205-120, in Singer, F.J. and K.A. Schoenecker, editors. Managers' summary – ecological studies of the Pryor Mountain Wild Horse Range, 1992-1997. U. S. Geologic Survey, Midcontinent Ecological Science Center. Fort Collins, CO, USA.

Hanley, T. A. 1982. The nutritional basis for food selection by ungulates. Journal of Range Management 35(2):146-151.

Hanley, T. A., and K. A. Hanley. 1982. Food resource partitioning by sympatric ungulates on Great Basin rangeland. Journal of Range Management 35(2):152-158.

Hansen, R. M., R. C. Clark, and W. Lawhorn. 1977. Foods of wild horses, deer, and cattle in the Douglas Mountain area, Colorado. Journal of Range Management 30(2):116-118.

Hazard, H. 2010. Personal communication, Holly Hazard, Chief Innovations Officer HSUS October 2010.

Heilmann, T.J., Garrott, R.A., Caldwell, L.L., Tiller, B.L. 1998. Behavioral response of free-ranging elk treated with an immunocontraceptive vaccine. Journal of Wildlife Management 62:243–250.

Hobbs N. T., D. C. Bowden, and D. L. B.ker. 2000. Effects of fertility on control of populations of ungulates: general, stage-structured models. Journal of Wildlife Management. 64:473-491.

HSUS, 2009. Is PZP Safe? Immunocontraceptive Vaccines and their Regulation. http://humanesociety.org/issues/wildlife_overpopulation/facts/is_pzp_safe.html

HSUS, 2009. Questions and Answers about Immunocontraception. http://humanesociety.org/issues/wildlife_overpopulation/qa/q_and_a_pzp.html

HSUS, 2010. Letter to BLM, signed by Stephanie Boyles, Wildlife Scientist with the HSUS transmitting comments to the BLM on the BLM Wild Horse and Burro Strategy Document. www.humanesociety.org/assets/wild_horse_burro_manage_HSUS_comments_090310.pdf.

Hubbard, R. E., and R. M. Hansen. 1976. Diets of wild horses, cattle, and mule deer in the Piceance Basin, Colorado. Journal of Range Management 29(5):389-392.

Keiper, R.R., and K. Houpt. 1984. Reproduction in feral horses: An eight-year study. American Journal of Veterinary Research 45:991-995.

Killian, G., Diehl, N.K., Miller, L., Rhyan, J., Thain, D. 2006. Long-Term Efficacy of Three Contraceptive Approaches for Population Control of Wild Horses. Proc. 22nd Vertebr. Pest Conf. Published at Univ. of Calif., Davis. 2006. Pp 67-71.

Kirkpatrick, J.F., I.K.M. Liu, and J.W. Turner, Jr. 1990. Remotely-delivered immunocontraception in feral horses. Wildlife Society Bulletin 18:326-330.

Kirkpatrick, J.F., I.K.M. Liu, J.W. Turner, Jr., and M. Bernoco. 1991. Antigen recognition in mares previously immunized with porcine zonae pellucidae. Journal of Reproductive Fertility (Supplement 44):321-325.

Kirkpatrick, J.F., I.K.M. Liu, J.W. Turner, Jr., R. Naugle, and R. Keiper. 1992. Long-term effects of porcine zonae pellucidae contraception on ovarian function in feral mares. Journal of Reproductive Fertility 94:437-444.

Kirkpatrick, J.F. 1995. Management of Wild Horses by Fertility Control: The Assateague Experience. National Park Service Scientific Monograph, National Park Service, Denver, CO. (60 pp.).

Kirkpatrick, J.F., R. Naugle, I.K.M. Lui, J. W. Turner Jr., M. Bernoco. 1995. Effects of Seven Consecutive years of PZP Contraception on Ovarian Function in Feral Mares, Biology of Reproduction Monograph Series 1: Equine Reproduction VI: 411-418.

Kirkpatrick, J.F., R. Naugle, I.K.M. Liu, M. Bernoco, and J.W. Turner, Jr. 1995a. Effects of seven consecutive years of porcine zona pellucida contraception on ovarian function in feral mares. Biology of Reproduction, Monograph Series 1: Equine Reproduction: 411-413.

Kirkpatrick, J.F., I.K.M. Liu, and J.W. Turner, Jr. 1996a. Contraception of wild and feral equids. In: Contraception in Wildlife Management. T.J. Kreeger (ed). U.S. Government Printing Office, Washington, DC. pp. 161-169.

Kirkpatrick, J.F., J.W. Turner, Jr., I.K.M. Liu, R.A. Fayrer-Hosken (1996b). Applications of pig zona pellucida immunocontraception to wildlife fertility control. Journal of Reproductive Fertility (Supplement 51):183-189.

Kirkpatrick JF, Turner A. 2002. Reversibility of action and safety during pregnancy of immunization against procine zona pelludida in wild mares (Equus caballus). Reprod Suppl. 60:197-202.

Kirkpatrick, J.F., and A. Turner. 2003. Absence of effects from immunocontraception on seasonal birth patterns and foal survival among barrier island horses. Journal of Applied Animal Welfare Science 6: 301-308.

Kirkpatrick, J.F., Rutberg, A.T., Coates-Markle, L. 2010. Immunocontraceptive Reproductive Control Utilizing Porcine Zona Pellucida (PZP) in Federal Wild Horse Populations (Third Edition). The Science and Conservation Center, ZooMontana, Billings Montana. http://www.zoomontana.org/wp-content/uploads/pzp_q_and_a.pdf

Krysl, L. J., M. E. Hubbert, B. F. Sowell, G. E. Plumb, T. K. Jewett, M. A. Smith, and J. W. Waggoner.1984. Horses and cattle grazing in the Wyoming Red Desert: Food habits and dietary overlap. Journal of Range Management 37(1):72-76.

Lasley, B.L. and J.F. Kirkpatrick. 1991. Monitoring ovarian function in captive and free-ranging wildlife by means of urinary fecal steroids. Journal of Zoo and Wildlife Medicine 22:23-31.

Liu, I.K.M., M. Bernoco, and M. Feldman 1989. Contraception in mares heteroimmunized with porcine zonae pellucidae. Journal of Reproductive Fertility 89:19-29.

Madosky, J.M., Rubenstein, D.I., Howard, J.J., Stuska, S. In press. The effects of immunocontraception on harem fidelity in a feral horse (*Equus caballus*) population. Applied Animal Behaviour Science.

McInnis, M. A. 1984. Ecological relationships among feral horses, cattle, and pronghorn in southeastern Oregon. Dissertation. Oregon State University, Corvallis, Oregon.

McInnis, M.A., and M. Vavra. 1987. Dietary relationships among feral horses, cattle, and pronghorn in southeastern Oregon. Journal of Range Management 40(1):60-66.

McShea, W.J.; Underwood, H.B.; Rappole, J.H. 1997. The science of overabundance: Deer ecology and population management. Washington, DC: Smithsonian Institution Press. 402 p.

Meeker, J. O. 1979. Interactions between pronghorn antelope and feral horses in northwestern Nevada. Thesis. University of Nevada – Reno, Reno, Nevada.

Menard, C., P. Duncan, G. Fleurance, J. Georges, and M. Lila. 2002. Comparative foraging and nutrition of horses and cattle in European wetlands. Journal of Applied Ecology 39(1):120-133.

Nunez, C.M.V., Adelman, J.S., Mason, C., Rubenstein, D.I. 2009. Immunocontraception decreases group fidelity in a feral horse population during the non-breeding season. Applied Animal Behaviour Science 117:74–83.

Olsen, F. W., and R. M. Hansen. 1977. Food relations of wild free-roaming horses to livestock and big game, Red Desert, Wyoming. Journal of Range Management 30(1):17-20.

Ostermann-Kelm, S. D., E. A. Atwould, E. S. Rubin, L. E. Hendrickson, and W. M. Boyce. 2009. Impacts of feral horses on a desert environment. BMC Ecology 9:22.

Peischel, A. and Henry D.D. Jr. 2006. Targeted Grazing: A natural approach to vegetation management and landscape enhancement. Centennial, CO: Cottrell Printing.

Powell, D.M. 1999. Preliminary evaluation of porcine zona pellucida (PZP) immunocontraception for behavioral effects in feral horses (*Equus caballus*). Journal of Applied Animal Welfare Science 2:321–335.

Ransom, J.I., Cade, B.S., Hobbs, N.T. 2010. Influences of immunocontraception on time budgets, social behavior, and body condition in feral horses. Applied Animal Behaviour Science 124:51–60.

Reece, P.E., Alexander, J.D. and Johnson, J.R. (1991). EC91-123 Drought Management on Range and Pastureland: A handbook for Nebraska and South Dakota. Historical Materials from University of Nebraska-Lincoln Extension. Paper 1815. http://digitalcommons.unl.edu/extensionhist/1815.

Reiter, D. K., M. W. Bronson, and R H. Schmidt. 1999. Public attitudes toward wildlife damage, management and policy. Wildlife Society Bulletin. 27:746-758.

Shumake, S.A., Wilhelm, E.S. 1995. Comparisons of effects of four immunocontraceptive treatments on estrous cycle and rutting behavior in captive white-tailed deer. Denver Wildlife Research Center, Colorado, USA.

Singer F.J., Zeigenfuss L. 2000. Genetic Effective Population Size in the Pryor Mountain Wild Horse Herd: Implications for conserving genetics and viability goals in wild horses. U.S. Geologic Survey, Midcontinent Ecological Science Center, Ft. Collins CO. Resource Notes 29: 2 pp.

Smith, M. A. 1986. Potential competitive interactions between feral horses and other grazing animals. Equine Veterinary Science 6(5):238-239.

Smith, M. A., B. F. Sowell, L. J. Krysl, G. E. Plumb, M. E. Hubbert, J. W. Waggoner and T. K. Jewett. 1982. Vegetation utilization, diets, and estimated dietary quality of horses and cattle grazing in the Red Desert of westcentral Wyoming. Bureau of Land Management contract No. AA851-CTO-31. Bureau of Land Management, Washington, D.C.

Symanski, R. 1996. Dances with horses: Lessons from the environmental fringe. Conservation Biology 10(3):708-712.

Thurow, T.L. and C.A. Taylor JR. 1999. Viewpoint: The role of drought in range Management. Journal of Range Management 52(5):413-419.

Turner, Jr., J.W., I.K.M. Liu, A.T. Rutberg, and J.F. Kirkpatrick 1996a. Immunocontraception limits foal production in free-roaming feral horses in Nevada. Journal of Wildlife Management 61:873-880.

Turner Jr , J.W., I.K.M. Lui, Rutberg, A., J.W., Kirkpatrick. 1997. Immunocontraception Limits Foal Production in Free Roaming Feral Horses in Nevada, J. Wildl. Manage. 61 (3):873-880.

Turner, A., Kirkpatrick, J.F. 2002. Effects of immunocontraception on population, longevity and body condition in wild mares (*Equus caballus*). Reproduction Supplement 60:187–195.

Turner, J.W., Lui, I.K.M., Flanagan, D.R., Rutberg, A.T., J.W., Kirkpatrick. 2007. Immunocontraception in the Wild Horses: One Inoculation Provides Two Years of Infertility. Journal of Wildlife Management 71 (2):662-667.

United States Government Accountability Office. 2008. Report to the Chairman, Committee on Natural Resources, House of Representatives -- Bureau of Land Management: Effective Long-Term Options Needed to Manage Unadoptable Wild Horses. GAO-09-77.

Vavra, M., and F. Sneva. 1978. Seasonal diets of five ungulates grazing the cold desert biome. First International Rangeland Congress. Denver, Colorado.

Willis, P., G.L. Heusner, R.J. Warren, D. Kessler, and R.A. Fayrer-Hosken. 1994. Equine immunocontraception using porcine zona pellucida: A new method for remote delivery and characterization of the immune response. Journal of Equine Veterinary Science 14:364-370.

Zoo Montana. 2000. Wildlife Fertility Control: Fact and Fancy. Zoo Montana Science and Conservation Biology Program, Billings, MT.

9.0. Table of Figures

Figure No.	Section	Subject	HMA	Description	Month/Year
	Cover	General, wild horse	Diamond	White horse herd	10/2010
	Cover	Wild Horse, rangeland	Diamond Hills South	Wild horses outside the Diamond Hills South HMA boundary in the Newark Allotment	8/2012
	Cover	Rangeland, helicopter inventory	Diamond Hills North	General view of the range, helicopter inventory	11/2012
Figure 1	1.1	General vegetation/terrain, helicopter flight	Diamond	Diamond HMA	8/2012
Figure 2	1.1	Rangeland, use by wild horses	Diamond Hills South	Key Area RR-01. Severe use of crested wheatgrass in an old burn by wild horses.	7/2012
Figure 3	1.1	Rangeland, use by wild horses	Diamond Hills South	Key Area RR-03. A reseeded small burn which shows heavy/severe use by wild horses.	7/2012
Figure 4	1.1	Riparian, water availability	Diamond	Three-Mile Canyon Spring	6/2012
Figure 5	1.1	Riparian, water availability	Diamond	Three-Mile Canyon Spring, dry	7/2012
Figure 6	1.1	Riparian, water availability	Diamond	Walters Canyon Spring	6/2012
Figure 7	1.1	Wild horses, water availability	Diamond	Wild horses using Walters Canyon Spring	6/2012
Figure 8	1.4	Rangeland, helicopter inventory	Diamond Hills North	This area was burned by wildfire in 1999. Re-seeded grasses have been affected by drought and use by livestock and wild horses.	11/2012
Figure 9	1.7	General vegetation/terrain, helicopter inventory	Diamond Hills South	Outside of HMA boundaries, south of the Diamond Hills South HMA.	11/2012
Figure 10	2.1	Wild horses	Diamond	Wild horses in the Diamond HMA	6/2009
Figure 11	2.2	Wild horses, rangeland, helicopter inventory	Diamond	Wild horses in the Diamond HMA in an old burn scar devoid of perennial grasses.	11/2012
Figure 12	3.1	General vegetation/terrain	Diamond	Diamond Mountain Range, winter conditions	3/2010
Figure 13	3.2	Wild horses, fertility control freezemark	Diamond	Freezemarked “AC” on left hip of mare from 2004 fertility control treatment	8/2012
Figure 14	3.2	Riparian, water availability, helicopter flight	Diamond	Typical mountain springs, and low water availability as documented during flight,	8/2012
Figure 15	3.2	Riparian, water availability, helicopter flight	Diamond	Typical mountain springs, and low water availability as documented during flight,	8/2012
Figure 16	3.2	Rangeland, forage availability	Diamond	Lower Judd Canyon on foothills. Lack of forage in the winter range habitat as nothing grew in these already degraded areas. Drought monitoring	7/2012
Figure 17	3.2	Rangeland, forage availability	Diamond	Key Area TM-3 2012 Drought Monitoring. Lack of forage and large expanses of bare ground in the winter habitat.	7/2012
Figure 18	3.2	Rangeland, forage availability, helicopter inventory	Diamond	Old burn scars now dominated with cheatgrass, rangeland that is lacking perennial grasses and winter range that supports minimal forage for wild horses.	11/2012
Figure 19	3.2	Rangeland, forage availability, helicopter inventory	Diamond Hills South	Outside HMA, south of the Diamond Hills South HMA. Low production and limited forage available in low elevation winter range.	11/2012
Figure 20	3.2	Wild horse body condition, helicopter inventory	Diamond	Thin condition of mare in the front of the group. Ribs, hip bones and backbone are accentuated.	11/2012
Figure 21	3.2	Graph, Actual Use	Diamond Complex	Diamond Complex wild horse actual use	
Figure 22	3.2	Wildlife, helicopter inventory	Diamond Hills North	A group of Pronghorn on denuded rangeland previously burned by wildfire.	11/2012
Figure 23	3.2	General vegetation/terrain, helicopter inventory	Diamond Hills South	Pinyon-juniper and sagebrush plant communities.	11/2012
Figure 24	3.2	Wild Horse, general vegetation/terrain, helicopter inventory	Diamond	Wild horses at various elevations and ground cover during winter months.	3/2010
Figure 25	3.2	Wild Horse, general vegetation/terrain, helicopter inventory	Diamond Hills South	Wild horses at various elevations and ground cover during winter months.	3/2011
Figure 26	3.2	Wild Horse, general vegetation/terrain, helicopter inventory	Diamond	Wild horses at various elevations and ground cover during winter months.	3/2012
Figure 27	3.2	Wild Horse, general vegetation/terrain, helicopter inventory	Diamond Hills North	Wild horses at various elevations and ground cover during winter months.	3/2013
Figure 28	3.2	Wild horses, rangeland, fertility control freezemark, helicopter inventory	Diamond Hills North	Wild horses in the Diamond Hills North HMA observed during the inventory	11/2012

Figure 29	3.2	Wild horses, rangeland, helicopter inventory	Diamond Hills South	Wild horses observed running towards the helicopter during the inventory.	11/2012
Figure 30	3.2	Wild horses, rangeland, helicopter inventory	Diamond	Wild horses observed trailing up a rocky slope.	11/2012
Figure 31	3.2	General vegetation/terrain, helicopter inventory	Diamond Complex	North end of the Diamond and Diamond Hills South HMAs in the "Railroad Pass" area, looking north into the Diamond Hills North HMA	11/2012
Figure 32	3.2	Wild horses, fertility control freezemark, helicopter inventory	Diamond	Mares treated with fertility control in 2004, with the identifying freezemark on the left hip	11/2012
Figure 33	3.2	Wild horses, fertility control freezemark, helicopter inventory	Diamond	Mares treated with fertility control in 2004, with the identifying freezemark on the left hip	11/2012
Figure 34	3.2	Wild horses	Diamond	White horse herd	6/2006
Figure 35	3.2	Riparian, wild horses, water availability	Diamond	Wild horses making heavy use of Three Springs	8/2012
Figure 36	3.2	Graph, No Action	Diamond Complex	Population Model Spaghetti Graph	
Figure 37	3.4	Wildfire, soil movement	Diamond Hills South	Pinto Fire. South-east end of the Diamond Range outside the Diamond Hills South and Diamond HMAs.	11/2012
Figure 38	3.4	Wild horses, annual weeds	Diamond	Wild horses and cattle graze on annual mustard and cheatgrass in a burn scar	6/2009
Figure 39	3.4	Cheatgrass, helicopter inventory	Diamond	Large burn scar looking northwest onto the playa.	11/2012
Figure 40	3.5	Wild horses, forage availability	Diamond Hills South	Lack of perennial grasses in the interspaces between the shrubs.	11/2012
Figure 41	3.5	Rangeland, comparison photo	Diamond	Key Area DS-1 Photo Trend study. Dominant cheatgrass in understory.	6/2009
Figure 42	3.5	Rangeland, comparison photo	Diamond	Key Area DS-1, Drought monitoring. The site supports little perennial forage and reduced production of cheatgrass in the understory.	6/2012
Figure 43	3.5	Rangeland, comparison photo	Diamond	Key area TM-2, production of grasses from 2005 when the wild horse populations were within AML	2005
Figure 44	3.5	Rangeland, comparison photo	Diamond	TM-2, production of grasses in 2010 when the wild horse populations exceeded AML.	2010
Figure 45	3.5	Rangeland, use by wild horses, forage availability	Diamond Hills South	Seeding being excessively utilized by wild horses.	2012
Figure 46	3.5	Rangeland, use by wild horses, forage availability	Diamond Hills South	Seeding being excessively utilized by wild horses.	2012
Figure 47	3.5	Rangeland, forage availability, helicopter inventory	Diamond Hills South	Burn scar heavily grazed by wild horses and supporting very little forage.	11/2012
Figure 48	3.5	Rangeland, forage availability, helicopter inventory	Diamond	Sage brush communities that support cheatgrass and very little perennial forage in the understory	11/2012
Figure 49	3.5	General vegetation/terrain, helicopter inventory	Diamond Hills North	Diamond Hills North HMA	11/2012
Figure 50	3.5	General vegetation/terrain, helicopter inventory	Diamond Hills North	Diamond Hills North HMA	11/2012
Figure 51	3.5	Wild horses, forage availability, helicopter inventory	Diamond Hills North	Wild horses on rangeland affected by wildfire in 1999.	11/2012
Figure 52	3.5	Rangeland	Diamond	Key Area BP-5. High vigor and production of bluebunch wheatgrass indicating upward trends since 1998.	6/2009
Figure 53	3.6	Water availability/development, helicopter inventory	Diamond Hills North	Water development used by livestock, wildlife and wild horses	11/2012
Figure 54	3.6	Riparian, helicopter inventory	Diamond Hills North	Representative example of degraded riparian area used by wild horses, livestock and wildlife.	11/2012
Figure 55	3.6	Riparian, chart	Diamond	Distribution of PFC ratings for Lotic systems in Diamond HMA	
Figure 56	3.6	Riparian, chart	Diamond	Distribution of PFC ratings for all Lentic systems in Diamond HMA.	
Figure 57	3.6	Riparian, chart	Diamond	PFC ratings for springs/meadows	
Figure 58	3.6	Riparian, wild horses, water availability	Diamond	Three Springs, wild horses making concentrated use on limited water source	7/2012
Figure 59	3.6	Riparian, water availability	Diamond	Close-up of one of the Three Springs.	7/2012
Figure 60	3.6	Riparian, water availability	Diamond	Walters Canyon Spring, impacted by wild horses	7/2012
Figure 61	3.6	Riparian	Diamond	Walters Canyon Spring, impacted by wild horses	7/2012
Figure 62	3.6	Riparian, helicopter inventory	Diamond Hills South	Spring complex impacted by wild horses outside of the HMA boundaries	11/2012
Figure 63	3.6	Riparian, helicopter inventory	Diamond Hills South	Spring in the Diamond Hills South HMA, heavily used by wild horses	11/2012
Figure 64	3.6	Riparian	Diamond Hills South	No Name Spring located within the Diamond Hills South HMA 1980's	1980's
Figure 65	3.6	Riparian	Diamond Hills South	No Name Spring showing decrease in stream bank stability and loss of riparian vegetation	11/2012
Figure 66	3.6	Riparian	Diamond	Fourmile Canyon Spring. Impacts to drought affected spring by wild horses and livestock.	8/2012

Figure 67	3.6	Riparian	Diamond	Fourmile Canyon Spring. Hummocking of the spring by wild horses and past livestock use.	6/2012
Figure 68	3.7	Soils	Diamond	Key Area DS-2. Wild horse hoof track and the depression it caused, which contributes to pedestalling in moist spring or fall soils.	4/2011
Figure 69	3.7	Soils	Diamond	Key Area DS-11 fall utilization monitoring. Erosion "pavement".	10/2011
Figure 70	3.7	Trailing, rangeland, helicopter inventory	Diamond Hills South	Wild horse trails cross a slope through a burn scar that supports little perennial vegetation.	11/2012
Figure 71	3.7	Wild horses, helicopter flight	Diamond	Wild horses trailing along a canyon wall	8/2011
Figure 72	3.7	Rangeland, soils	Diamond	Key Area DS-2 fall utilization. Bare ground and pedestalling between shrubs	10/2010
Figure 73	3.7	Rangeland, soils	Diamond	Key Area DS-5 fall utilization. Wild horse tracks	10/2010
Figure 74	3.8	Wildlife, wild horses	Diamond	Wild horses and mule deer graze together	4/2011
Figure 75	3.8	Wildlife	Diamond	Key Area TM-2 Pronghorn antelope track	4/2011
Figure 76	3.8	Water availability/development, helicopter inventory	Diamond Hills North	Typical water development used by wildlife, livestock and wild horses	11/2012
Figure 77	4.1	Rangeland, helicopter inventory	Diamond Hills North	Rangeland burned by wildfire. Re-seeded grasses affected by drought in 2012.	11/2012
Figure 78	4.1	General vegetation/terrain helicopter inventory	Diamond Hills South	Outside of the Diamond and Diamond Hills South HMAs. Residual forage in higher elevations	11/2012
Figure 79	4.1	Wild horses, general vegetation/terrain	Diamond	White horse herd	4/2011
Figure 80	4.2	General vegetation/terrain helicopter inventory	Diamond	Diamond HMA	11/2012
Figure 81	4.2	Wild horses, helicopter flight	Diamond	Wild horses making concentrated use in the Three Mile Allotment	8/2012
Figure 82	4.2	Wild horses	Diamond	Wild horses in the Diamond HMA	6/2010
Figure A.1	Appendix A	Wild horses, rangeland	Diamond	Wild horses graze on cheatgrass in the foothills	11/2005
Figure A.2	Appendix A	Wild horses	Diamond	Wild horses in the Diamond HMA	4/2011
1	Appendix A	Wild horses, gather operations	Fish Creek	Mare and young foal released back to the HMA	2/2006
2	Appendix A	Wild horses, gather operations	Augusta Mountain	Overview of wings and trap corrals	11/2007
3	Appendix A	Wild horses, gather operations	Augusta Mountain	Overview of wings and trap corrals	11/2007
4	Appendix A	Wild horses, gather operations	Augusta Mountain	Prada horse leads wild horses into the trap corrals.	11/2007
5	Appendix A	Wild horses, gather operations	New Pass/Ravenswood	Wild horses eat hay in the holding corrals	11/2007
6	Appendix A	Wild horses, gather operations	New Pass/Ravenswood	The contractor and crew estimate the age of a horse in the working chute.	11/2007
7	Appendix A	Wild horses, gather operations	Callaghan	The prada horse is released and then leads the wild horses into the jute wings of the trap corrals	12/2008
8	Appendix A	Wild horses, gather operations	New Pass/Ravenswood	The Brand Inspector checks the horses for possible brands before transport to the BLM WHB facilities.	11/2007
9	Appendix A	Wild horses, gather operations	New Pass/Ravenswood	Release of the horses back to the range at a water location within the HMA.	11/2007
10	Appendix A	Wild horses, gather operations	Callaghan	Series of photos show the use of the prada horse to lead the wild horses into the trap corrals	12/2008
11	Appendix A	Wild horses, gather operations	Callaghan	Series of photos show the use of the prada horse to lead the wild horses into the trap corrals	12/2008
12	Appendix A	Wild horses, gather operations	South Shoshone	Photos show the wild horses pushed by the helicopter into the wings and trap corrals.	1/2008
13	Appendix A	Wild horses, gather operations	South Shoshone	Wild horse gather central holding corrals	1/2008
14	Appendix A	Wild horses, gather operations	New Pass/Ravenswood	Prada horse leads wild horses into the trap corrals.	11/2007
15	Appendix A	Wild horses, gather operations	Callaghan	Wild horses released to the range.	12/2008
16	Appendix A	Wild horses, gather operations	South Shoshone	Wild horses eat hay in the holding corrals	1/2008
Figure B.1	Appendix B	Wild horses	Diamond	Wild horses congregating in Three-Mile Canyon	6/2009
Figure B.2	Appendix B	Rangeland, winter conditions, helicopter inventory	Diamond Hills North	Crested wheatgrass seedings in the Diamond Hills North HMA	3/2010
Figure B.3	Appendix B	Rangeland, winter conditions, helicopter inventory	Diamond	Higher elevations of the Diamond HMA covered in snow.	3/2010
Figure B.4	Appendix B	Helicopter inventory	Diamond Complex	Wild horses as viewed from the helicopter by a BLM observer.	11/2012
Figure B.5	Appendix B	Helicopter inventory	Diamond Complex	Wild horses as viewed from the helicopter by a BLM observer.	11/2012
Figure B.6	Appendix B	Wild horses, helicopter flight	Diamond	A group of some of the thinner wild horses observed during the flight.	11/2012
Figure B.7	Appendix B	Wild horses, helicopter flight	Diamond	A group of wild horses at higher elevations in sagebrush communities.	11/2012

Figure B.8	Appendix B	Wild horses, helicopter flight	Diamond	Wild horses located at higher elevations had access to additional quantities of forage consisting of residual bunchgrasses.	11/2012
Figure B.9	Appendix B	Wild horses, helicopter flight	Diamond	Group of wild horses trailing away from a small, high elevation spring source	11/2012
Figure B.10	Appendix B	Wild horses, helicopter flight	Diamond	Typical high elevation spring source and spring development to a trough.	11/2012
Figure B.11	Appendix B	Wild horses	Diamond	Diamond HMA, June 2010. Wild horses trail through an open gate next to a cattleguard into the adjoining area.	6/2010
Figure B.12	Appendix B	Chart, Wild horse color	Diamond Complex	Color Pattern, 2004 Diamond Complex Wild Horses	2004
Figure B.13	Appendix B	Wild horses	Diamond	Wild horses in the Diamond HMA.	6/2006
Figure B.14	Appendix B	Wild horses, helicopter inventory	Diamond Hills North	Wild horses observed during the inventory	11/2012
Figure B.15	Appendix B	Wild horses	Diamond Hills South	A group of wild horses residing outside the Diamond Hills South HMA boundary within the Strawberry Allotment	8/2012
Figure B.16	Appendix B	Wild horses, helicopter inventory	Diamond Hills South	A group of wild horses in the Pinto Fire outside of the HMA boundaries at the far south end of the Diamond Range. Helicopter inventory.	11/2012
Figure C.1	Appendix C	Precipitation chart	Diamond Complex	Precipitation chart	
Figure C.2	Appendix C	Precipitation chart	Diamond Complex	Precipitation chart	
Figure C.3	Appendix C	Rangeland, helicopter inventory	Diamond Hills North	Representative photos of rangeland burned in 1999	11/2012
Figure C.4	Appendix C	Rangeland, helicopter inventory	Diamond Hills North	Representative photos of rangeland burned in 2000	11/2012
Figure C.5	Appendix C	Rangeland, comparison photo	Diamond	Key Area DS-2 Horse Canyon utilization monitoring, production of perennial grasses	11/2005
Figure C.6	Appendix C	Rangeland, comparison photo	Diamond	Key Area DS-2 Horse Canyon, drought monitoring, lack of perennial grasses	7/2012
Figure C.7	Appendix C	Rangeland, helicopter flight	Diamond	Burn scar now supporting cheatgrass and annual species	8/2012
Figure C.8	Appendix C	General terrain	Diamond	Diamond Mountain Range ridgeline	8/2012
Figure C.9	Appendix C	Rangeland, comparison photo	Diamond	Key Area TM-4, Utilization monitoring, frequency transect. Production of grasses	11/2005
Figure C.10	Appendix C	Rangeland, comparison photo	Diamond	Key Area TM-4 Drought monitoring, heavy utilization, lack of 2012 production	7/2012
Figure C.11	Appendix C	Rangeland	Diamond	Key Area TM-4 heavy utilization of perennial grasses by wild horses	7/2012
Figure C.12	Appendix C	Rangeland	Diamond Hills South	Key Area RR-03, severe use attributed to wild horses	11/2012
Figure C.13	Appendix C	Rangeland	Diamond Hills South	Crested wheatgrass seeding, severe use attributed to wild horses	11/2012
Figure C.14	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.15	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.16	Appendix C	Rangeland, helicopter inventory	Diamond Hills South	Rangeland conditions marked by heavy wild horse trailing and lack of herbaceous understory between shrubs	11/2012
Figure C.17	Appendix C	Rangeland, helicopter inventory	Diamond Hills South	Rangeland conditions marked by heavy wild horse trailing and lack of herbaceous understory between shrubs	11/2012
Figure C.18	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.19	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.20	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.21	Appendix C	Rangeland	Diamond	Lack of 2012 growth, heavy utilization, and lack of forage for wild horses	7/2012
Figure C.22	Appendix C	Rangeland, comparison photo	Diamond	Corta Allotment, The site reflects substantial reduction in key perennial grasses from 2005 to 2011	11/2005
Figure C.23	Appendix C	Rangeland, comparison photo	Diamond	Corta Allotment, The site reflects substantial reduction in key perennial grasses from 2005 to 2012	7/2012
Figure C.24	Appendix C	Rangeland, helicopter inventory	Diamond	Representative photo showing lack of perennial forage in winter range.	11/2012
Figure C.25	Appendix C	Rangeland, helicopter inventory	Diamond	Representative photo of Diamond Range canyon, rock outcrops and burn scar.	11/2012
1-3	Appendix D	Fertility control		Photos illustrate some of the steps involved with fertility control application.	
E.1-E.18	Appendix E	Population modelling	Diamond Complex	Population modeling graphs illustrate the modeling results	

Appendix A: Wild Horse and Burro Gather Plan and Standard Operating Procedures

I. Gather Plan

The purpose of the gather plan is to outline the methods and procedures for conducting a gather to remove excess wild horses from public lands in the Diamond Complex.

A. Gather Area

The Proposed Gather Area includes the Diamond, Diamond Hills North and Diamond Hills South HMAs and areas outside of HMA boundaries where wild horses reside. The area is approximately 354,963 acres in size, which includes 99,500 acres outside of HMA boundaries where wild horse use is not authorized. Refer to Map 1 and 2, which display the HMAs, grazing allotments and the gather area.

B. Administration of the Contract /Gather Operations

The National Wild Horse and Burro Gather Contract would be used to conduct the wild horse and burro gather tentatively scheduled for January 2013. BLM personnel would be responsible for overseeing the contract for the capture, care, aging, and temporary holding of wild horses and burros from the capture area. The BLM is committed to the well-being and responsible care of wild horses and burros we manage. At all times, the care and treatment provided by the BLM and our contractors will be characterized by *compassion and concern* for the animal's well-being and welfare needs. BLM Wild Horse and Burro Specialists would be on site at all times during gather operations to ensure wild horse safety and humane treatment. Measures to reduce stress and injury and ensure the highest levels of safety are described throughout Section 2.1, 3.2, 3.9 and Appendix A.III.

Standard Operating Procedures (SOPs) described within this document would be utilized for the capture and handling of wild horses and burros. SOPs have been developed over time to ensure minimal impacts associated with gathering, handling, and transporting wild horses and burros and collecting herd data.

It is estimated that 8-10 gather corrals and 1-2 sets of central holding corrals would be necessary to complete the gather. Ideally, gather corrals would be established in areas of previous soil or vegetation disturbance (such as gravel pits, roads etc.), to avoid impacts to unaltered vegetation and soils. A cultural resources investigation would be conducted prior to the construction of gather corrals and temporary holding facilities. Refer to the SOPs, Section H for more detailed information.

A notice of intent to impound would be made public prior to the gather. Branded and/or claimed horses or burros would be transported to a temporary holding facility. Ownership would be determined under the estray laws of the State of Nevada by a Nevada Brand Inspector. Collection of gather fees and any appropriate trespass charges would be collected per BLM policy and regulation.

A veterinarian would be on-site for the duration of the gather to provide recommendations to Wild Horse and Burro Specialists for care and treatment of sick or injured wild horses of burros. Consultation with the veterinarian may take place prior to the euthanasia of wild horses or burros in accordance with Washington Office Instruction Memorandum (IM 2009-041). Refer to Part II for more information about the euthanasia policy.

Precautions would be taken to ensure that young or weak horse or burros foals are safely gathered and cared for appropriately. If a foal were determined to be an orphan, qualified adopters would be contacted immediately to provide proper care for the foal. Milk replacer formula and electrolytes would be available to care for orphan foals if necessary.

C. General Overview of Wild Horse Gather Methods

The gather contractor supplies and transports all equipment needed to conduct a gather to a central location where Holding Corrals are constructed. These corrals consist of six or more pens constructed of sturdy panels, with a central alleyway and working/squeeze chute in the center. Corral panels are covered with snow fencing to keep animals calm, and water tanks are located within the pens. The central alley and pen arrangement allows the

BLM staff and the contractor to sort recently captured animals, separating animals to ship to the adoption facilities, and mares and foals from studs to prevent fighting and injury. The pen arrangement allows the contractor to off-load wild horses from stock trailers into the pens, and facilitates the loading of the horses to be transported to facilities onto large straight deck trucks. Refer to photos 5, 8, and 13 at the end of this Appendix.

At various locations throughout the gather area, smaller sets of gather corrals are constructed called "traps". The trap or gather corrals consists of a series of pens made out of panels, and "wings" made out of jute netting that funnel wild horses into the corrals as they are captured. Refer to photos 2-3 and 10-13 at the end of this Appendix. Once captured, the horses are loaded into stock trailers and transported to the central Holding Corrals for sorting. Horses may remain in the gather site or on the stock trailer for no time at all, or up to an hour or more while other groups of horses are brought to the gather corrals.

The contractor utilizes a helicopter and pilot to conduct gathers. Use of a helicopter is humane, safe and effective. Methods for use of helicopter are well established, and the contract pilots very skilled. Wild horses settle down once gathered and do not appear to be more than slightly annoyed by the helicopter.

The pilot locates groups of wild horses within the HMA and guides them towards the gather corrals. In most cases, horses are allowed to travel at their own pace, and are not "pushed". Distances average 4-7 miles over mixed terrain which may consist of rolling foothills, or steeper terrain, drainages, ridges and valley bottoms. The horses often follow their own trails. The pilot and the BLM staff monitor the condition of the horses to ensure their safety, checking for signs of exhaustion, injuries etc. The contractor and pilots are very skilled at designing and building gather corrals, and safely herding the horses to them. Generally, wild horses are very fit, and recover quickly from being captured. Distances that the horses travel are modified to account for summer temperatures, snow depth, animals in weakened condition, young foals, or older/lame animals. Some horses could occasionally be herded 10 miles or more at the discretion of the COR/Wild Horse and Burro Specialist.

Once near the gather site, the contractor holds a "Prada" horse at the mouth of the wings. As the pilot pushes the wild horses closer, the Prada horse is released, who then runs into the gather corrals, leading all of the wild horses with him. Refer to photos 4, 7, 10, 11, 12 and 14. Crewmembers rush in to secure gates once the horses are within the corrals. Refer to photos 4, and 11. During summer gathers, the crew often separates foals from adults at the gather site so that they may be transported to the Holding Corrals separately and avoids the risk of injury by adult animals. Foals may be loaded into a separate stock trailer where they can have shade, water, and electrolyte if necessary. Once unloaded at the Holding Corrals, foals may be rejoined with the mothers if not old enough to wean, and monitored to ensure that all of the foals "join-up". Often paint marks are applied to the foals and mothers to assist the contractor and BLM staff in identifying pairs.

Occasionally (and more frequently if it is a difficult to gather area) helicopter-assisted roping is implemented, in which the pilot moves a small group of horses to the gather area, and the crewmembers rope the animals by horseback. This method often prevents overstressing the wild horses from repeated attempts to move them into the gather corrals. The roped horses are then led to the corrals, to awaiting stock trailers, or immobilized on the ground until they can be loaded into stock trailers.

Once horses are loaded and transported to the Holding Corrals, they are sorted by the contractor's staff and BLM employees. The contractor looks at the horse's teeth to estimate age while held in the chute, and the BLM staff documents age, color, body condition and lactation status of the horse. Refer to photo 6. Aging wild horses is a process of estimation due to the type of wear that can occur to the teeth of a wild horse on the range.

Injuries are noted and treated if needed. Once sorted, the wild horses are given hay and unlimited water. During this time, the BLM may consult with a veterinarian to treat sick or injured animals, or make recommendations for euthanasia.

When the pens hold enough animals to transport to the BLM adoption facility, they are loaded into the straight deck trailers that hold 35-45 wild horses depending upon their size. The trailers have three compartments so that mares, studs and foals can be transported separately. It may require 3-6+ hours for the wild horses to arrive at the

adoption preparation facility. The BMDO typically transports wild horses to National Wild Horse and Burro Center at Palomino Valley near Sparks, Nevada; or may ship horses to other facilities if needed.

During sorting, the BLM staff identifies wild horses to be re-released back to the HMA according to the objectives for the herd. Mares may be held until the end of the gather so that fertility control can be given to them to slow future population growth rates. When it is time for the release, the mares and studs are each loaded into separate stock trailers and transported back inside the HMA near water sources. The rear of the trailer is opened up, and the horses are allowed to step off and travel back into the HMA. Sometimes the horses are released directly from the holding corrals if they are centrally located within the HMA. Refer to photos 1, 9 and 15.

If water or bait trapping is used, it may be conducted by BLM staff or one of the water/bait trapping contractors. Corrals built of panels would be constructed around natural or artificial water sources, allowing sufficient time (several weeks) for the wild horses in the area to become acclimated. If necessary, all other water sources may be made unavailable to wild horses in order to encourage them to use the water in the water trapping corrals. Trap corrals would be checked every day, which may be facilitated by the use of remote game cameras. Once in the corrals, the BLM or contractor would load the animals for transportation to a central holding area or transported directly to BLM short term holding facilities. Public observation would be limited to morning hours when trap corrals were being checked and when wild horses were being loaded for transportation. Because human presence would preclude the wild horses entering the trap corral, contractor, BLM and public presence would be limited.

D. Data Collection

Wild Horse and Burro Specialists (WHB Specialists) are responsible for collecting population data. The extent to which data is collected may vary among the field offices to meet specific needs pertaining to each HMA.

1) Hair Samples/Genetics Analysis

Hair samples from the mane are collected and sent to Dr. Gus Cothran of Texas A&M University for analysis.

2) Herd Health and Viability Data Collection

WHB Specialists would document information related to age, sex, color, overall health, pregnancy, or nursing status for each animal captured. An estimate of the number of wild horses evading capture would also be recorded.

Information on reproduction and survival would be collected to the extent possible, through documentation of the wild horses captured during the gather, and the age of those released following the gather.

3) Fertility Control Data

Age, body condition and lactation status (if known) would be determined for any freezemarked mares that are captured that were given fertility control during the previous gathers. This information would be used to document animal health, and re-capture/capture efficiency, and any inferences to animal movement if it could be determined.

4) Characteristics

WHB Specialists would record color and size of the animals, and any characteristics as to type would be noted, if determined. Any incidence of negative genetic traits (parrot mouth, club foot etc.) or other abnormalities would be noted as well.

5) Condition Class

A body condition class score would be recorded based on the Henneke System. This would be recorded for the population in general and/or for specific animals if necessary.

E. Euthanasia

The Authorized Office (or designee) will make decisions regarding euthanasia, in accordance with BLM policy as expressed in Washington Office Instructional Memorandum No. 2009-041. A veterinarian may be called to make a diagnosis and final determination. Euthanasia shall be done by the most humane method available. Authority

for humane euthanasia of wild horses is provided by the Wild Free-Roaming Horses and Burros Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Euthanasia of Wild horses and Burros and Disposal of Remains. The following are excerpted from IM 2009-41:

> *A Bureau of Land Management (BLM) authorized officer may authorize the euthanasia of a wild horse or Burro in field situations (includes free-roaming horses and burros encountered during gather operations) as well as short- and long-term wild horse and Burro holding facilities with any of the following conditions:*
>
> *(1) Displays a hopeless prognosis for life;*
> *(2) suffers from a chronic or incurable disease, injury or serious physical defect; (includes severe tooth loss or wear, severe club feet, and other severe acquired or congenital abnormalities)*
> *(3) would require continuous treatment for the relief of pain and suffering in a domestic setting;*
> *(4) is incapable of maintaining a Henneke body condition score greater than two, in its present environment;*
> *(5) has an acute or chronic injury, physical defect or lameness that would not allow the animal to live and interact with other horses or burros , keep up with its peers or exhibit behaviors which may be considered essential for an acceptable quality of life constantly or for the foreseeable future;*
> *(6) suffers an acute or chronic infectious disease where State or Federal animal health officials order the humane destruction of the animal as a disease control measure.*
>
> *There are three circumstances where the authority for euthanasia would be applied in a field situation:*
>
> *(A) If an animal suffers from a condition as described in 1-6 above that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the authorized officer has the authority and the obligation to promptly euthanize the animal. If the animal is euthanized during a gather operation, the authorized officer will describe the animal's condition and report the action using the gather report in the comment section that summarizes gather operations (See attachment 1). If the euthanasia is performed during routine monitoring, the Field Manager will be notified of the incident as soon as practical after returning from the field.*
>
> *(B) Older wild horses and burros encountered during gather operations should be released if, in the opinion of the authorized officer, the criteria described in 1-6 above for euthanasia do not apply, but the animals would not tolerate the stress of transportation, adoption preparation, or holding and may survive if returned to the range. This may include older animals with significant tooth wear or tooth loss that have a Henneke body condition score greater than two. However, if the authorized officer has inspected the animal's teeth and feels the animal's quality of life will suffer and include health problems due to dental abnormalities, significant tooth wear or tooth loss; the animal should be euthanized as an act of mercy.*
>
> *(C) If an animal suffers from any of the conditions listed in 1-6 above, but is not in acute pain, the authorized officer has the authority to euthanize the animal in a humane manner. The authorized officer will prepare a written statement documenting the action taken, and notify the Field Manager and State Office Wild Horse and Burro (WH&B) Program Lead. If available, consultation and advice from a veterinarian is recommended, especially where significant numbers of wild horses or burros are involved.*

F. Special Stipulations

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

2) Gather corrals would be constructed so that no riparian vegetation is contained within them. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

3) The helicopter would avoid eagles and other raptors, and would not be flown repeatedly over any identified active raptor nests. No unnecessary flying would occur over big game on their winter ranges or active fawning/calving grounds during the period of use.

4) Standard operating procedures in the site establishment and construction of gather corrals will avoid adverse impacts from gather corrals, construction, or operation to wildlife species, including threatened, endangered, or sensitive species.

5) Archeological inventory by a BLM archaeologist or District Archeology Technician of gather corrals, holding corrals, and areas of potential effects would occur prior to construction of gather corrals and holding corrals. If cultural resources were encountered, those locations would not be utilized. Due to the inherent nature of wild horse gathers, gather corrals and holding corrals would be identified just prior to use in the field. As a result, Cultural Resource staff would coordinate with Wild Horse and Burro personnel to inventory proposed locations as they are identified, and complete required documentation.

6) Wildlife stipulations
The following stipulations would be applied as appropriate.
a. Sage Grouse
    i. Avoid active leks (strutting grounds) by 2 miles. March 1- May 15
    ii. Avoid nesting and brood rearing areas (especially riparian areas where broods concentrate beginning usually in June) by 2 miles. April 1 – August 15
    iii. Avoid sage grouse wintering areas by 2 miles while occupied. Most known wintering grounds in the Shoshone-Eureka Resource Area occur at high elevations and are not likely to be affected. Dates vary with severity of winter
    iv. Minimize and mitigate disturbance to the vegetation in all known sage grouse habitat.
b. Ferruginous Hawk: Avoid active nests by 2 miles. March 15- July 1.

II. Standard Operating Procedures for Wild Horse and Horse Gathers

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

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

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

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

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

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

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

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

   All gather corral 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 corral locations as determined by the COR/PI. All gather corrals 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 who will consider terrain, physical barriers, access limitations, weather, extreme temperature (high and low), condition of the animals, urgency of the operation (animals facing drought, starvation, fire rehabilitation, etc.) and other factors. In consultation with the contractor the distance the animals travel will account for the different factors listed above and concerns with each HMA.

3. All gather corrals, 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. Gather corrals 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 gather corrals 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”x 4”.

   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 horses and 1 foot to 6 feet for burros. 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 horses and 2 feet to 6 feet for burros.

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

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

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

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

7. The Contractor shall provide animals held in the gather corrals 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 gather corrals 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. An animal that is held at a temporary holding facility through the night is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.

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

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

10. Animals shall be transported to final their destination from temporary holding facilities as quickly as possible after capture unless prior approval is granted by the COR/PI 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/PI. Animals shall not be held in gather corrals and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR/PI. 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 gather site. This determination will be at the discretion of the COR or Field Office Wild Horse and Burro 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 gather corral. If the contractor selects this method the following applies:

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

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

c. Gather corrals 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 half hour.

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

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

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI 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 two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing 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.

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 gathered animals.

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

D. Safety and Communications

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

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

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

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

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

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

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

E. Site Clearances

Personnel working at gather sites will be advised of the illegality of collecting artifacts. Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary inventories (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist (or designee). Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up. Said inventory shall be arranged for by the COR, PI, or other BLM employees.

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

F. Animal Characteristics and Behavior

Releases of wild horses would be near available water when possible. 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.

G. 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 will be to protect the health, safety, and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representatives. It is BLM policy that the public will not be allowed to come into direct contact with wild horses being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at any time or for any reason during BLM operations.

H. Responsibility and Lines of Communication

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 Mount Lewis Field Office will be the lead office for completion of the gather. Shawna Richardson (MLFO) would serve as lead COR for the gather with, Ruth Thompson (EFO) and Bruce Thompson (TFO), Wild Horse and Burro Specialists as assistant CORs. Alternate CORs and PI(s) would be selected prior to the start of the gather. 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. Chris Cook, Mount Lewis Field Manager will take 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 gather operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Nevada State Office, Field Managers and District Office Public Affairs Officers. These individuals will be the primary contact and will coordinate with the COR on any inquiries.

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

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

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

III. Agency Expectations To Ensure Safe and Humane Handling of All Gathered Wild Horses -- Diamond Complex Gather

Based on the BLMs experience with previous wild horse/burro gathers and the need to adapt some gather practices to specific local conditions, the following information will be discussed with all gather personnel before gather operations begin. This discussion will serve as a reminder that the humane handling of wild horses and burros during gather operation is always a primary concern. The Contracting Officer's Technical Representative (COTR) will address any actions or issues that seem inhumane promptly and within contract specifications. Some guidelines include the following:

1. The helicopter will not be operated in a manner where internal or external forces could cause it to come into contact with an animal. Hovering by the helicopter over the WH/B is acceptable so long as there is no risk of contact.
2. Handling aids (including body position, voice, flags, paddles, electric prods will be used in a manner that is consistent with domestic livestock handling procedures. Flags and paddles will be used as signaling and noise making devices first with only light contact of the flag or paddle end allowed. Animals will not be whipped or beaten.
3. Flagging and paddles will be used strategically to guard against desensitizing the WH/B.
4. Kicking or hitting of WH/B is not acceptable.

5. Electric prods (hotshots) will not be used routinely on WH/B. Electric prods will only be used to shock animals, not to tap or hit animals. Electric prods will not be applied to sensitive areas such as the face, head, genitals or anus. Electric prods may only be used when WH/B or human safety is in jeopardy or other handling aids have been tried and are not working.
6. Gates and doors will not be deliberately slammed or shut on WH/B. Gates can be used to push WH/B but will not be used in a manner that may catch legs.
7. Pursuing single WH/B should be a rare event and not standard practice. Only the COTR will identify and request the contractor to pursue single WH/B.
8. The contractor will make every effort to ensure that foals are not left behind or orphaned in the field. If a foal has to be dropped from a group being brought to the trap because it is getting too tired or cannot keep up for any reason, the contractor/pilot will document the location of the foal and the description of the mare to facilitate "pairing- up" at temporary holding. In this case, the contractor will provide trucks/trailers and saddle horses for the retrieval of the young foal(s), and transport the foal(s) to the gather site or temporary holding. The method of capture will be authorized or requested by the COTR.
9. If during the gather any wild horses being brought in by helicopter (including foals or horses that may be aged, lame, injured or otherwise appear weak or debilitated) appear to be having difficulty keeping up with the group being brought in, the contractor will slow down to accommodate the individuals having difficulty, pause to allow those animals to rest before proceeding, drop those individuals from the group or drop the entire group. It is expected that animals may be tired, sweaty and breathing hard on arrival at a trap, but they will not be brought in by the helicopter in a manner that results in exhaustion, collapse or distress.
10. The need to rope specific WH/B will be determined by the COTR on a case by case basis. The COTR will identify what WH/B need to be roped.
11. While gathering, there may be WH/B which escape or evade the gather site while being moved with the helicopter. In these cases there may be multiple attempts to recapture and push the WH/B to the gather site. In these instances, animal condition and fatigue will be evaluated on a case by case basis to determine the number of attempts that can be made to capture/recapture. Animals will not be pursued to a point of exhaustion.
12. Any foals that are not weaned and have been maintained with their mares at the gather temporary holding corral will be transported to the BLM preparation facilities as soon as practical. Mares with dependent foals will be separated from other animals and moved to a designated mare/foal pen until they can be shipped to the BLM preparation facility.
13. All sorting, loading, or unloading of WH/B will be performed during daylight hours.
14. Screening on panels will be provided where loading operations occur as a visual barrier and to block holes, gaps, or openings where WH/B could attempt to escape or be injured.
15. As determined by the COTR, appropriate dust control measures will be implemented as noted in the gather contract.
16. When possible, the contractor will have the trailer floor at ground level to ease the loading of WH/B at the gather site.
17. If the pilot is moving WH/B and observes an animal that is clearly injured or suffering, the animal should be left on the range and its location noted. The BLM COTR or Project Inspector with APHIS veterinary assistance if necessary will then go to the area to determine the condition of the WH/B and the appropriate actions necessary to address the welfare of the animal including euthanasia if needed
18. All gather personnel; including contractors will be monitored for fatigue.
19. Injuries that required veterinary examination or treatment, deaths, and spontaneous abortions that may occur will be noted in gather reports and statistics kept by the COTR.
20. At the discretion of the COR, if an wild horse or foal is injured during gather operations, gather operations may be temporarily suspended if necessary to provide care for the animal and safe transportation to the temporary holding corrals or BLM preparation facility as indicated.
21. The contractor, per the gather contract, shall provide animals held in the gather corrals 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 gather corrals or holding facilities shall be provided good quality hay (grass hay) at a rate of not less than two pounds of hay per 100 pounds of estimated body

weight per day. Hay will be distributed around the pens such that each animal can eat at one time without overcrowding.

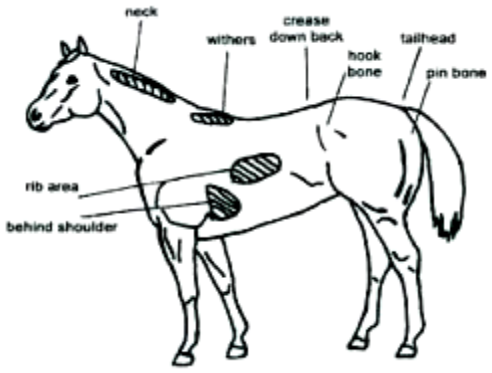
22. When extreme environmental conditions exist (temperature) during this gather, the overall health and well-being of the animals will be monitored and the COR will adjust gather operations as necessary to protect the animals from climatic and gather related health issues. There may be days when gather operations cease based on temperatures.
23. The success of gathering and safely and humanely caring for or handling WH/B will be based on contractor and BLM staff's patience, expertise and experience.
24. The IC, COR and contractor will ensure that the distance animals are brought to the gather site is based on the terrain, environmental conditions, and animal health. With foals, pregnant mares, or horses that are weakened by body condition, age or poor health. The appropriate trailing/gather distance will be determined on a case by case basis considering the weakest or smallest animal in the group and the range and environmental conditions present. The maximum gather distance will depend on the specific animal and environmental conditions on the day of the gather, and direct dialogue with the pilot/contractor and COR/PI will take place for each 'run" to provide important information as to numbers, number of foals, locations distance and/or overall animal and/or environmental conditions. Ten miles will typically be the upper limit for gather distances under normal conditions

Figure A.1: Diamond HMA. November 2005 wild horses graze on cheatgrass in the foothills.

Figure A.2: Diamond HMA. April 2011.

Henneke Equine Body Condition Scoring System

The Henneke Body Condition Score System was developed by Don Henneke, PhD, in 1983. The Henneke Chart is a standardized scoring system, and is a scientific method of evaluating a horse's body condition regardless of breed, body type, sex or age.



modified from Henneke et al. EVJ 1983;15:371-372

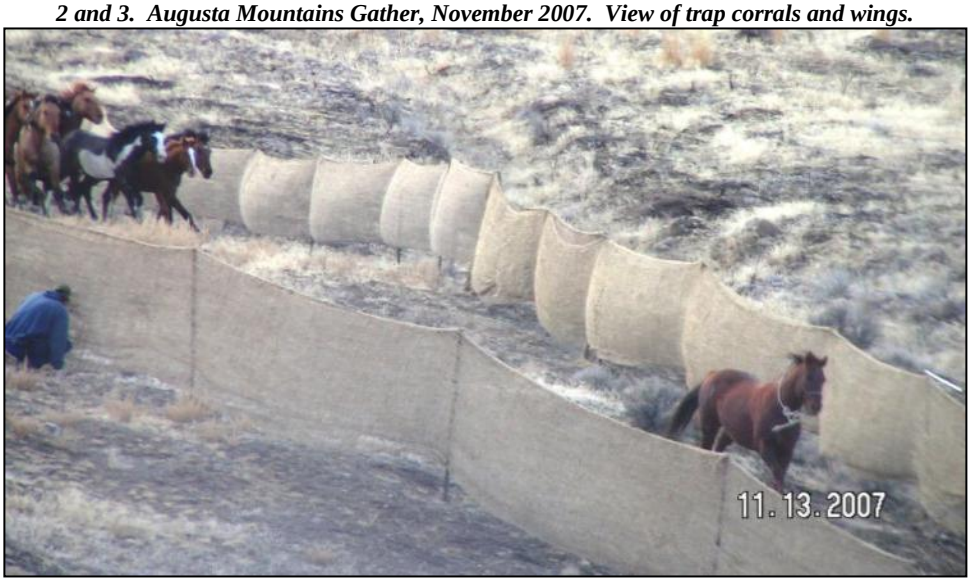
Condition	Neck	Withers	Shoulder	Ribs	Back	Tailhead Area
1 Poor (*extremely emaciated*)	Bone structure easily noticeable	Bone structure easily noticeable	Bone structure easily noticeable	Ribs projecting prominently	Spinous processes projecting prominently	Tailhead, pinbones, and hook bones projecting prominently
	No fatty tissue can be felt					
2 Very Thin (*emaciated*)	Bone structure faintly discernible	Bone structure faintly discernible	Bone structure faintly discernible	Ribs prominent	Slight fat covering over base of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent	Tailhead prominent Pin bones prominent Hook bones prominent
3 Thin	Neck accentuated	Withers accentuated	Shoulder accentuated	Slight fat cover over ribs. Ribs easily discernible	Fat buildup halfway on spinous processes, but easily discernible. Traverse processes cannot be felt	Tailhead prominent but individual vertebrae cannot be visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable
4 Moderately Thin	Neck not obviously thin	Withers not obviously thin	Shoulder not obviously thin	Faint outline of ribs discernible	Negative crease (peaked appearance) along back	Prominence depends on conformation. Fat can be felt. Hook bones not discernible
5 Moderate	Neck blends smoothly into body	Withers rounded over spinous processes	Shoulder blends smoothly into body	Ribs cannot be visually distinguished, but can be easily felt	Back is level	Fat around tailhead beginning to feel spongy
6 Moderately Fleshy	Fat beginning to be deposited	Fat beginning to be deposited	Fat beginning to be deposited behind shoulder	Fat over ribs feels spongy	May have a slight positive crease (a groove) down back	Fat around tailhead feels soft
7 Fleshy	Fat deposited along neck	Fat deposited along withers	Fat deposited behind shoulder	Individual ribs can be felt, but noticeable fat filling between ribs	May have a positive crease down the back	Fat around tailhead is soft
8 Fat	Noticeable thickening of neck	Area along withers filled with fat	Area behind shoulder filled with fat	Difficult to feel ribs	Positive crease down the back	Fat around tailhead very soft
9 Extremely Fat	Bulging fat	Bulging fat	Bulging fat	Patchy fat appearing over ribs	Obvious crease down the back Flank filled with fat	Bulging fat around tailhead

Photos

The following pages of photos are provided to show examples of the various aspects of wild horse gathers completed by the BLM.

1. Young foal safely released with its mother back to the Fish Creek HMA, February 2006.

2 and 3. Augusta Mountains Gather, November 2007. View of trap corrals and wings.



4. Augusta Mountains Gather, November 2007. Prada horse leads the wild horses into the mouth of the trap. Crew stands by to secure gates.

5. New Pass/Ravenswood Gather, November 2007. Mares settle in at the Holding Corrals and enjoy some hay.

6. New Pass/Ravenswood Gather, November 2007. The contractor and crew estimate the age of a horse in the working chute.

7. The "Judas" or "prada" horse on the far left is released ahead of the group of horses and then leads them into the jute wings of the trap corrals (photo on the right). Callaghan HMA Gather December 2008.

8. New Pass/Ravenswood Gather, November 2007. The Brand Inspector checks the horses for possible brands before transport to the BLM WHB facilities.

9. New Pass/Ravenswood Gather, November 2007. Release of the horses back to the range at a water location within the HMA.

10. A gather crew member holds the prada or Judas horse inside the wings, waiting for the helicopter to push the horses into the mouth of the wings . As soon as the wild horses see the prada horse, the crew member releases him. Callaghan HMA Gather, December 2008.

11. The prada horse (sorrel in the front) gallops into the trap corrals and leads the group of wild horses into the corrals. The helicopter is not far behind to make sure that none of the horses turn back. Crew members stand by to rush in and close the gates behind the horses.

12. South Shoshone HMA Gather, January 2008. The wild horses are funneled around the gravel pit and into the gather corrals.

13. South Shoshone HMA Gather, January 2008. Holding Corrals.

14. Prada horse leads in a group of horses during the New Pass/Ravenswood HMA gather November 2007.

15. Studs released back to the Austin side of the Callaghan HMA, December 2008.

16. South Shoshone HMA Gather, January 2008. Release mares in the Holding Corrals on a foggy morning.

Appendix B: Herd Management Area Background Information

1. HMA Designation and AML

1.1. Diamond HMA

The boundaries of the Diamond HMA were established in the SERA RMP ROD (1986, 1987). With the exception of an area west of the current day HMA boundaries that is predominantly privately owned and agriculturally developed, the HMA and Herd Area (HA) boundaries are identical. The AML for the Diamond HMA was established in the Diamond Mountain Complex Evaluation/FMUD (2000) following consultation with the interested public and in depth analysis of monitoring data. This Evaluation related to the MLFO portion of the Diamond Complex and six livestock grazing allotments. Data collected since the first gather conducted in 1997 does not indicate that increases to the existing AML are warranted. Further assessment of wild horse management would be conducted during a future Rangeland Health Evaluation, at which time modifications could be considered to the AML.

Figure B.1: Diamond HMA. Wild horses congregating in Three-Mile Canyon, June 2009.

1.2. Diamond Hills North

The existing HMA and the HA have matching boundaries as established by the Elko RMP Wild Horse Amendment in 2003.

The Elko RMP ROD dated March 11, 1987 (page 3) provided for four wild horse herd areas and "gatherings as needed to maintain numbers." In 2003, the Elko RMP was amended for wild horse management to establish the four current HMAs and their boundaries, to identify the AMLs for the four HMAs within the Elko Resource Area (Tuscarora Field Office), and to establish a process for modifying AMLs for wild horses through monitoring, evaluation, and Herd Management Area Plans. The existing HMA boundary and the HA have matching boundaries.

1.3. Diamond Hills South

The Egan RMP (1987 Ely District) designated the Diamond Hill South HMA for the long-term management of wild horses. This HMA was retained in the August 2008 Ely ROD and Approved RMP due to the interchange between the Diamonds (Battle Mountain District) and Diamond Hills North (Elko District) HMAs, The designation was also based on an in-depth analysis of habitat suitability and monitoring data as set forth in the Ely Proposed Resource Management Plan/Final Environmental Impact Statement, Table 3.8-2 and Page 4.8-2. The 2007 EIS evaluated each HMA for five essential habitat components and herd characteristics: forage, water, cover, space, and reproductive viability. The HMA is nearly identical in size and shape to the original HA representing where wild horses were located in 1971.

The AML range for the HMA is 10-22 wild horses. The population range was established at a level that would maintain healthy wild horses and rangelands over the long-term based on monitoring data collected over time as well as an in-depth analysis of habitat suitability. The AML range was established through prior decision-making processes and re-affirmed through the ROD and Approved 2008 Ely District RMP.

The following table displays the established AMLs and Decision year by grazing allotment for the HMAs within the Diamond Complex.

Table 1. Established AMLs for the Diamond Complex

HMA	Allotment	Decision	AML
Diamond	Corta	FMUD 2000	4
	Black Point	FMUD 2000	65
	North Diamond*	FMUD 2000	2
	Shannon Station	FMUD 2000	11
	Three Mile	FMUD 2000	15
	Diamond Springs	FMUD 2000	54
Diamond Hills North	Red Rock	RMP Amendment 2003	31
	Browne	RMP Amendment 2003	6
Diamond Hills South	Railroad Pass	RMP 2008	10-22

**The inclusion of the North Diamond Allotment in the Diamond HMA is an error originally made in the 1986 SERA RMP and Rangeland Program Summary.*

2. Wild Horse Health

In general, the health of the wild horses within the Diamond Complex has been good, despite drought conditions and less than optimum habitat conditions. During inventory flights and field monitoring, most horses have averaged Henneke body condition score (BCS) of 5 (moderate), or higher. During the 2012 monitoring season, small groups exhibited reduced body condition scores of 4 (moderately thin), and several small thin foals were observed which was attributed to high population, drought and limited resources.

During an overflight of the Diamond HMA in August 2012, most wild horses were in higher elevations accessing residual forage and small springs. Except for a limited few wild horses, most were BCS 4-5 (moderately thin-moderate). During the November 2012 inventory of the entire Complex, declining body condition was documented in the Diamond HMA as numerous mares with nursing foals were observed with accentuated hips and backbones, degrading to BCS 3.0 (thin). Most wild horses observed were at least BCS 4.0; however winter forage is extremely limited and remaining cured forage from 2011 and 2012 is lacking abundant nutrition.

None of the wild horses within the Diamond Complex have suffered disease or other illnesses. Genetic defects should be minimal throughout the population. Blood samples for genetic testing were collected during the most recent gather completed in 2004, from wild horses released back to the range. The following are excerpts from the 2004 Genetic Analysis Report:

> *Highest mean genetic similarity was with the North American Gaited Breeds and the New World Iberian breeds. Highest individual breed similarity was with the Welsh Pony, which seems unlikely to have been a direct contributor to the herd. The overall pattern of similarity values and variants present indicates mixed origins primarily from North American breeds with possibly some Spanish background, although the Spanish may be through breeds such as the Quarter Horse.*

Genetic variability within the Diamond herd is average for feral horses and allelic diversity is relatively high for a feral horse population. The herd appears to be of mixed origins, perhaps with a small number of recent introductions. The known subdivision probably accounts for some of the diversity and positive Fis although there is no clear difference in variants present in the different areas. The overall pattern of variation suggests recent loss of overall variability. The Diamond Hills herd shows relatively high genetic similarity to all major groups of domestic horse breeds as compared to most feral herds. This is consistent with mixed origins.

The report was based on 25 samples of released wild horses. The recommendations provided suggest future monitoring as the AML is relatively low; however the report does not discuss the potential movement of wild horses from the nearby Triple B HMA located directly to the east of the Diamond Complex. During future gathers, a larger sample will be collected for continuing analysis.

3. Estimated Age Structure and Sex Ratios

"Normal" age structures for most HMAs in Nevada approximate 50% studs and 50% mares. These figures fluctuate from ratios slightly favoring studs to those that slightly favor mares. Normal sex ratios among wild horse herds can range from 60:40 favoring studs to 40:60 favoring mares. Past gather activities, age structures and sex ratio modification influence sex ratios. The anticipated age structure and sex ratio was compiled through the use of the WinEquus Population Model and the age structure data provided from wild horses gathered and marked in 1993 at Garfield Flat, Nevada, and scaled for the current estimated population of the Diamond Complex. Because this estimate is very close to the direct count observed during the November 2012 inventory flight (98.4%), it was not adjusted to the 813 wild horses observed.

Table 2. 2012 Estimated Age Structures and Sex Ratios

AGE	DIAMOND COMPLEX			
	Females	Males	Total	%
Foal (6-12 months)	88	43	131	16%
1	76	47	123	15%
2	48	39	87	11%
3	52	34	86	10%
4	45	31	76	9%
5	18	10	28	3%
6	16	17	33	4%
7	21	17	38	5%
8	3	25	28	3%
9	6	17	23	3%
10-14	18	55	73	9%
15-19	18	41	59	7%
20+	6	35	41	5%
Totals	**415**	**411**	**826**	100%

4. Wild Horse Inventory

The most recent comprehensive inventory flight of the Diamond Complex was completed November 6-7, 2012. An overflight to document forage, water and wild horse conditions was made of the Diamond HMA portion of the Diamond Complex in August 2012. The following tables display the results of the inventory flights completed since the last gather in 2004. These flights were completed by helicopter, usually with 3 experienced observers, and with the use of GPS technology. An average of 9 hours was

spent on each flight, which consisted of a modified grid pattern with transects ¼-1/2 mile apart. The November 2012 flight spanned 12 hours over two days. The results displayed below represent "direct counts" and have not been adjusted for sightability, accuracy or extrapolated in any way.

Table 3: September 2006 Inventory Results – Diamond Complex

HMA	Allotment	Inside HMA			Outside HMA			Total			
		Adult	Foal	Total	Adult	Foal	Total	Adult	Foal	Total	Foal %
Diamond	Diamond Springs	52	5	**57**			**0**	52	5	**57**	**7.27%**
	Three Mile	41	2	**43**			**0**	41	2	**43**	
	Black Point	9	1	**10**			**0**	9	1	**10**	
	Shannon Station	0	0	**0**			**0**	0	0	**0**	
	Totals	102	8	**110**			**0**	102	8	**110**	
Diamond Hills South	Railroad Pass	6	1	**7**	22	6	**28**	28	7	**35**	**18.42%**
	Cold Creek			**0**	16	1	**17**	16	1	**17**	
	Warm Springs			**0**	13	3	**16**	13	3	**16**	
	Strawberry			**0**	22	6	**28**	22	6	**28**	
	Newark			**0**	31	7	**38**	31	7	**38**	
	Totals	6	1	**7**	104	23	**127**	110	24	**134**	
Diamond Hills North	Browne	3	2	**5**			**0**	3	2	**5**	**11.11%**
	Red Rock	33	3	**36**			**0**	33	3	**36**	
	Robinson Creek			**0**	4	0	**4**	4	0	**4**	
	Totals	36	5	**41**	4	0	**4**	40	5	**45**	
Grand Totals		**144**	**14**	**158**	**108**	**23**	**131**	**252**	**37**	**289**	**12.80%**

Table 4: September 2008 Inventory Results – Diamond Complex

HMA	Allotment	Inside HMA			Outside HMA			Total			Foal %
		Adult	Foal	Total	Adult	Foal	Total	Adult	Foal	Total	
Diamond	Corta	10	0	**10**				10	0	**10**	**11.76%**
	Diamond Springs	143	15	**158**				143	15	**158**	
	Three Mile	7	2	**9**				7	2	**9**	
	Black Point	42	8	**50**				42	8	**50**	
	Shannon Station	8	3	**11**				8	3	**11**	
	Total	**210**	**28**	**238**	**--**	**--**	**--**	**210**	**28**	**238**	
Diamond Hills South	Newark				53	11	**64**	53	11	**64**	**13.73%**
	Strawberry				51	7	**58**	51	7	**58**	
	Warm Springs				1	0	**1**	1	0	**1**	
	Cold Creek				10	0	**10**	10	0	**10**	
	Railroad Pass	15	2	**17**	2	1	**3**	17	3	**20**	
	Total	**15**	**2**	**17**	**117**	**19**	**136**	**132**	**21**	**153**	
North Diamond	Red Rock	30	3	**33**	7	1	**8**	37	4	**41**	**8.51%**
	Browne	2	0	**2**				2	0	**2**	
	Robinson Creek				4	0	**4**	4	0	**4**	
	Total	**32**	**3**	**35**	**11**	**1**	**12**	**43**	**4**	**47**	
Grand Total		**257**	**33**	**290**	**128**	**20**	**148**	**385**	**53**	**438**	**12.10%**

Table 5: March 2010 Inventory Results – Diamond Complex

HMA	Allotment	Inside HMA				Outside HMA				Total				Yrlg %	Foal %
		Adult	Yrlg	Foal	Total	Adult	Yrlg	Foal	Total	Adult	Yrlg	Foal	Total		
Diamond	Diamond Springs	83	21	0	**104**	0	0	0	**0**	83	21	0	**104**	20%	0.0%
	Three Mile	66	9	1	**76**	0	0	0	**0**	66	9	1	**76**	12%	1.3%
	Black Point	24	4	0	**28**	0	0	0	**0**	24	4	0	**28**	14%	0.0%
Diamond total		**173**	**34**	**1**	**208**	**0**	**0**	**0**	**0**	**173**	**34**	**1**	**208**	**16%**	**0.5%**
Diamond Hills North	Browne	27	2	0	**29**	0	0	0	**0**	27	2	0	**29**	7%	0.0%
	Red Rock	82	12	2	**96**	0	0	0	**0**	82	12	2	**96**	13%	2.1%
Diamond Hills North Total		**109**	**14**	**2**	**125**	**0**	**0**	**0**	**0**	**109**	**14**	**2**	**125**	**11%**	**1.6%**
Diamond Hills South	Newark	0	0	0	**0**	68	7	0	**75**	68	7	0	**75**	9%	0.0%
	Strawberry	0	0	0	**0**	40	3	0	**43**	40	3	0	**43**	7%	0.0%
	Cold Creek	0	0	0	**0**	3	1	0	**4**	3	1	0	**4**	25%	0.0%
	Railroad Pass	25	5	0	**30**	18	2	1	**21**	43	7	1	**51**	14%	2.0%
Diamond Hills South Total		**25**	**5**	**0**	**30**	**129**	**13**	**1**	**143**	**154**	**18**	**1**	**173**	**10%**	**0.6%**
Diamond Complex Totals		**307**	**53**	**3**	**363**	**129**	**13**	**1**	**143**	**436**	**66**	**4**	**506**	**13%**	**0.8%**

The 2010 observed population within the Diamond Complex when compared to the inventory in September 2008 indicates an increase of 15.5% in 2009. The estimated number of yearlings documented in 2010 was 13.1% which is somewhat consistent with the increase of the population considering that it is an estimate, and it is likely that some larger/older yearlings were not documented because they more closely resembled adults.

The winter population distribution for Diamond and Diamond Hills North indicates substantial movement of wild horses, as shown in the above table (when compared to summer flights). Review of the past inventory data indicates reflect the movement of 67-78 wild horses north from the Diamond Springs Allotment into the Diamond Hills North HMA into both the Browne and Red Rock Allotments during the winter of 2010. It is likely that these animals moved north to areas with less snow (Figure B.2), and regularly return to the Diamond HMA in the spring, further increasing the population within this area.

Figures B.2-B.3: March 2010 Inventory. Left: Crested wheatgrass seedings in the Diamond Hills North HMA were clear of snow. Right: Much of the higher elevations of the Diamond and Diamond Hills South HMAs were covered in snow.

During the March 2010 inventory, the higher elevations of the Mountain Range were covered in thick snow precluding wild horse presence (Figure B.3). Low elevation valley bottoms were mostly clear of snow, with foothills maintaining patchy snow depending upon aspect. Some south facing slopes were clear whereas most north facing slopes maintained snow cover.

In general, wild horses were located either in areas that were free of snow, such as valley bottoms or within drainages covered with patchy snow. Some horses were located up into the upper levels of drainages in snow. Horses were frequently observed on south facing slopes (Figures 24-27, Section 3.2). The largest proportion of the Diamond Hills North HMA was free of snow, with some patchy snow located on rolling hills, and snow cover on the higher elevations of the west side of the HMA. The highest observed sighting of wild horses was in Cox Canyon on the west side of the Diamond Complex at approximately 7,380 feet in about 1 foot of snow on a south facing slope. Otherwise, most horses throughout the Diamond Complex were observed at 6,560 feet elevation or lower.

During the August 2012 overflight of the Diamond HMA, a total of 368 wild horses were observed in the HMA which is consistent with the 2012 estimated population of 342 wild horses in the MLFO portion (not the entire Diamond Complex). Of the animals observed, 75 (20%) were estimated to be foals born during the spring of 2012. Many of the wild horses were located at higher elevations of 7,500-8,500 feet where growing conditions offered more abundant residual perennial bunchgrasses than in the valley and foothills (Figure B.7). Higher elevation water sources consisting of primarily small springs and pools were also observed (Figure B.9-B.10). Though limited, the water availability appeared adequate to support the existing population without resulting emergency conditions. Trailing was severe in many locations. Lower and mid elevations and drainages were often devoid of perennial grasses and characterized by large expanses of bare ground. Numerous riparian areas observed appeared to be in degraded condition with heavy trampling and utilization of riparian vegetation observed. Body condition of most groups of wild horses was good, averaging Henneke Body Condition Score 4.5-5.0. Only a few thinner wild horses were observed (Scores 3-4). Most foals were of good body size as well with only a few small foals observed.

Table 6, November 2012 Inventory Results, Diamond Complex

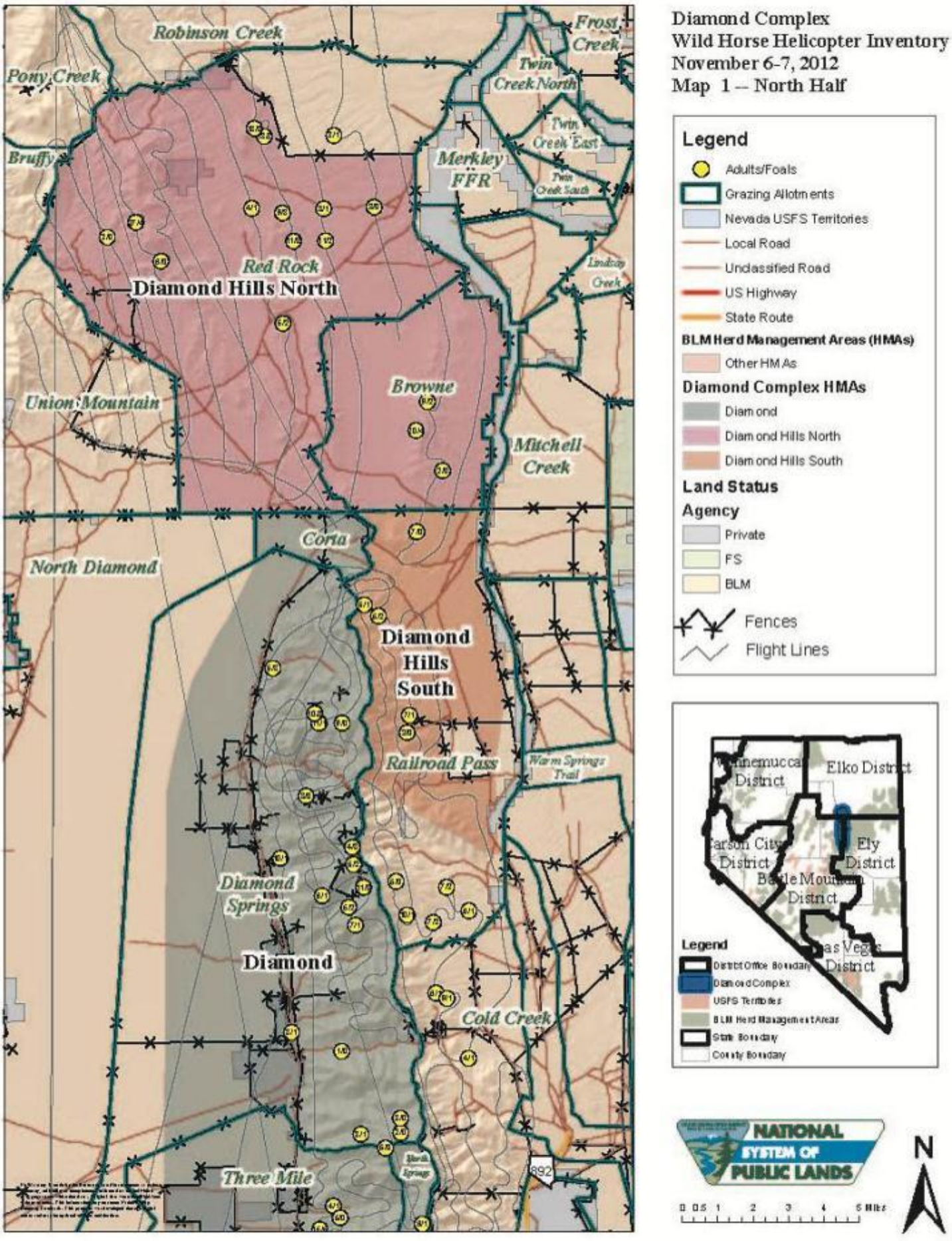
HMA	Allotment	AML	Inside			Outside			Grand Total			Foal%
			Adult	Foal	Total	Adult	Foal	Total	Adult	Foal	Total	
Diamond Hills South	Newark	0				95	23	118	95	23	118	14.66%
	Strawberry	0				106	13	119	106	13	119	
	Cold Creek	0				26	3	29	26	3	29	
	Warm Springs	0				3	1	4	3	1	4	
	Railroad Pass	10-22	26	4	30	35	6	41	61	10	71	
	Total	**10-22**	**26**	**4**	**30**	**265**	**46**	**311**	**291**	**50**	**341**	
Diamond	Corta	4	0	0	0				0	0	0	17.11%
	North Diamond	2	0	0	0							
	Diamond Springs	54	103	21	124				103	21	124	
	Three Mile	15	87	23	110				87	23	110	
	Black Point	65	48	5	53				48	5	53	
	Shannon Station	11	9	2	11				9	2	11	
	Total	**151**	**247**	**51**	**298**				**247**	**51**	**298**	

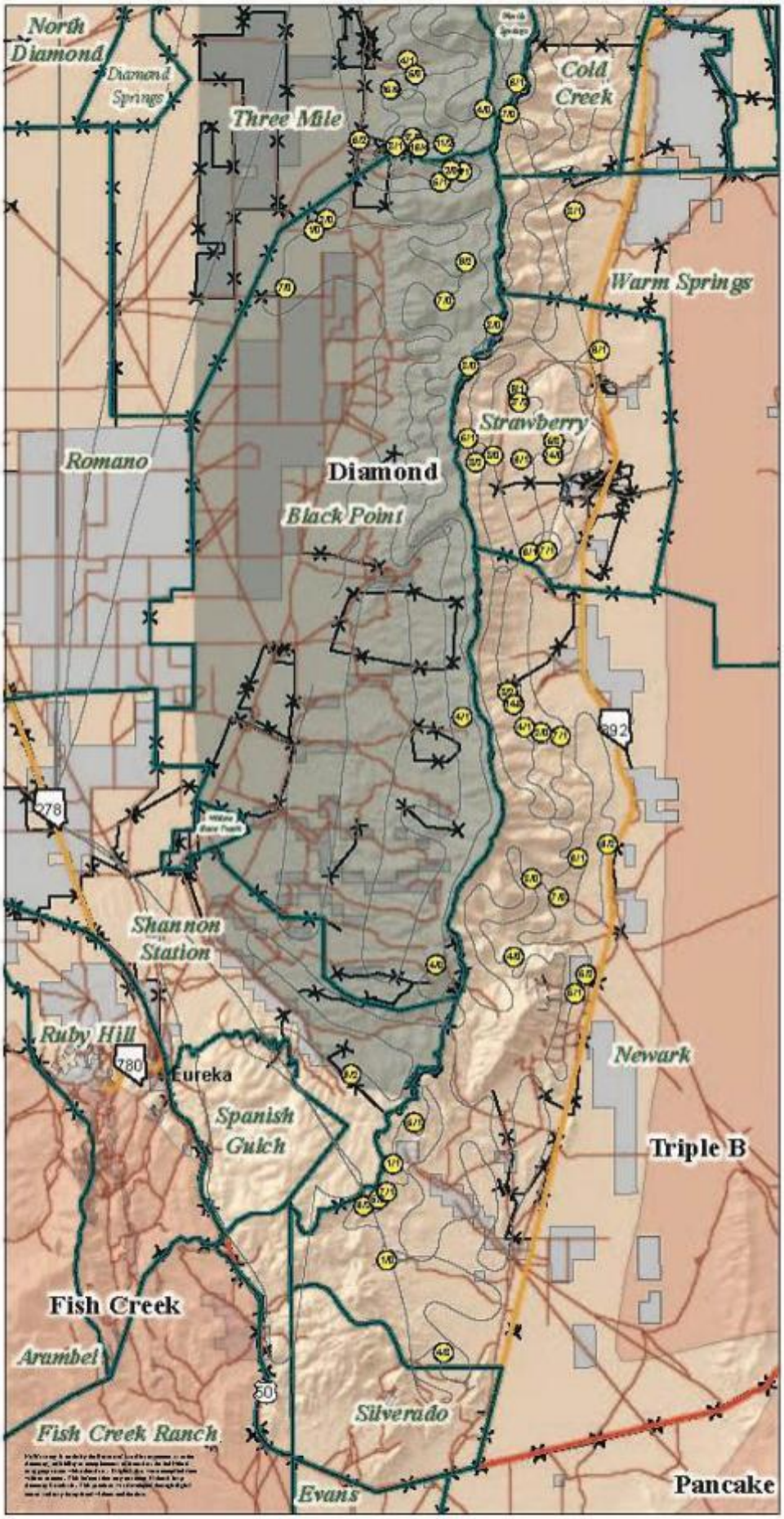
HMA	Allotment	AML	Inside			Outside			Grand Total			Foal%
			Adult	Foal	Total	Adult	Foal	Total	Adult	Foal	Total	
Diamond Hills North	Red Rock	31	112	21	133	3	1		115	22	133	16.09%
	Browne	6	31	6	37				31	6	37	
	Total	**37**	**143**	**27**	**170**	**3**	**1**	**4**	**146**	**28**	**174**	
Grand Total -- Diamond Complex		**210**	**416**	**82**	**498**	**268**	**47**	**315**	**684**	**129**	**813**	15.87%

The November 2012 inventory was conducted in order to confirm 2012 population estimates for the entire Diamond Complex and to document animal condition, and forage and water availability throughout the Complex. Most of the wild horses observed in the Diamond HMA and outside of the HMA on the east side of the Diamond Range were located in mid to upper elevations, where some residual forage remains. No snow was present except for limited skiffs noted occasionally on high elevation north slopes. As with the August 2012 overflight, observations of forage availability found that low elevations were practically devoid of perennial grasses in the understory. Trailing to reliable water sources and springs was heavy. Use by large spring complexes outside of the HMA in the Newark, Strawberry and Cold Springs Allotments was heavy and large numbers of wild horses resided in close proximity to the springs. The data from the inventory was compiled into tables available on the Diamond Complex Gather website with a map and the above summary table: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_programs/wild_horse_and_burro/Diamond_Complex/docs.html.

Diamond Complex Inventory Maps 1 and 2 display the locations where wild horses were observed as obtained through GPS data, with flight-line data, HMAs and allotment boundaries.

Figures B.4 and B.5: Diamond Complex helicopter inventory November 6-7, 1012. Wild horses as viewed from the helicopter by a BLM observer. Note that in the photo on the left, the wild horses are not running, but stand and watch as the helicopter circles.


Diamond Complex
Wild Horse Helicopter Inventory
November 6-7, 2012
Map 1 -- North Half
Robinson Creek
Pony Creek
Bruffy
Frost Creek
Twin Creek North
Twin Creek East
Twin Creek South
Merkley FFR
Red Rock
Diamond Hills North
Lindsay Creek
Browne
Union Mountain
Mitchell Creek
Coria
North Diamond
Diamond Hills South
Railroad Pass
Warm Springs Trail
Diamond Springs
Diamond
Cold Creek
Three Mile
Legend
Adults/Foals
Grazing Allotments
Nevada USFS Territories
Local Road
Unclassified Road
US Highway
State Route
BLM Herd Management Areas (HMAs)
Other HMAs
Diamond Complex HMAs
Diamond
Diamond Hills North
Diamond Hills South
Land Status
Agency
Private
FS
BLM
Fences
Flight Lines
Elko District
Ely District
Legend
NATIONAL SYSTEM OF PUBLIC LANDS
N



Diamond Complex
Wild Horse Helicopter Inventory
November 6-7, 2012
Map 2 -- South Half

Legend

- Adults/Foals
- Grazing Allotments
- Nevada USFS Territories
- Local Road
- Unclassified Road
- US Highway
- State Route

BLM Herd Management Areas (HMAs)

- Other HMAs

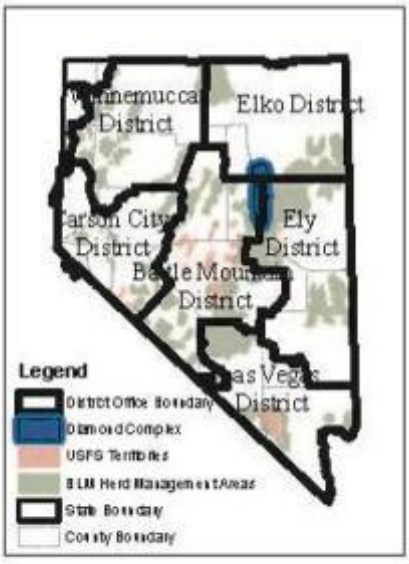
Diamond Complex HMAs

- Diamond
- Diamond Hills North
- Diamond Hills South

Land Status

Agency

- Private
- FS
- BLM
- Fences
- Flight Lines



NATIONAL SYSTEM OF PUBLIC LANDS

0 0.5 1 2 3 4 5 Miles

N

August 2012 helicopter flight photos

Figure B.6: A group of some of the thinner wild horses observed during the flight. These horses were located at higher elevations on a rocky ridge.

Figure B.7; A group of wild horses at higher elevations in sagebrush communities. All appeared healthy and of good body weight.

Figure B.8: Wild horses located at higher elevations had access to additional quantities of forage consisting of residual bunchgrasses.

piped

Figure B.9: Typical high elevation spring source and spring development piped to a trough.

Figure B.10: Group of wild horses trailing away from a small, high elevation spring source.

Wild Horse Distribution and Movement Patterns

The Diamond Complex consists of the Diamond Range itself, and additional low hills and valleys located north of the Range in the Diamond Hills. The mountain is dissected by canyons and drainages, often with steep sides and armored with rock outcroppings. The elevation exceeds 10,000 feet at Diamond Peak. The west side of the range consists of the Diamond HMA which stretches for 43 miles from north to south. Most of the opposing side of the mountain range was not designated a Herd Area and is therefore not designated an HMA. The Diamond Hills South HMA is located on the east side of the range, at the north end and is approximately 10 miles from north to south. The Diamond Hills North HMA is approximately 12 by 11 miles and consists of Diamond Hills, Baily Mountain, Sadler Basin and Garcia Flat. The Diamond Complex is dissected by numerous drift fences many of which were constructed before passage of the WFRHBA. However, the horses of the Diamond Complex are highly mobile and able to easily move from canyon to canyon, along the ridgelines, and around drift fences and through open gates. Wild horses generally move widely both daily, usually between water sources, as well as seasonally, seeking higher elevations during summer months and at times when it is necessary to minimize threats to their safety by enhancing their view of the surrounding area (Ganskopp andVavra 1986, Beever and Herrick 2006).

In the Diamond Complex, wild horses are typically in the higher elevations on ridges and steep side hills utilizing perennial bunchgrasses during summer months,. Water sources consist mostly of high elevation springs, although some of the drainages support minimal perennial or intermittent flow. It is not uncommon to see groups of horses in the mid or low elevations year round in certain portions of the Diamond HMA.

During winter months, when snow covers the high elevations, wild horses in the Diamond and Diamond Hills South HMAs are primarily restricted to the narrow band of low elevation valley and foothills. These areas reflect degraded conditions for the most part and consist of Wyoming big sagebrush with an understory of cheatgrass and limited production of perennial bunchgrasses. As noted in the above discussion, wild horses may move from the Diamond HMA into the Diamond Hills North HMA during winter months, and depending upon the severity of the winter, could result in substantial population changes between the two areas from summer to winter. Past inventory flights have also documented wild horse movement east to west between the Diamond and Diamond Hills South HMAs, and the areas south of the Diamond Hills South HMA outside of the HMA boundary. Specifically, fertility control

mares from the Diamond HMA vaccinated and released to the range in 2004 were observed on the east side of the Diamond Range outside of HMA boundaries during flights conducted in 2006 (as indicated by the fertility control freezemark on the left hip). Additional flights in 2008 and 2012 document wild horses at the ridgeline between the two areas and frequent trailing north and south along the ridgeling between the Diamond HMA, Diamond Hills South HMA and outside of the HMA boundaries on the east side of the Diamond Range.

Figure B.11: Diamond HMA, June 2010. Wild horses trail through an open gate next to a cattleguard into the adjoining area.

During the August 2012 overflight of the Diamond HMA, 368 wild horses were documented in the HMA by direct count. In November, 2012, only 298 wild horses were documented in the HMA with a total of 341 documented on the east side of the Diamond Range in the Diamond Hills South HMA and outside HMA boundaries. Additionally, large numbers of wild horses (164) were located on the Diamond Hills North HMA. This data indicates movement from the Diamond HMA onto outside HMA areas on the east side of the range and north onto the Diamond Hills North HMA in search of adequate forage and water. These movement patterns would be expected as snow falls and forces the wild horses to snow free areas during winter months. During the November 2012 inventory however, no snow was present. Forage resources were extremely limited throughout the Diamond and Diamond Hills South HMAs and to a lesser degree the Diamond Hills North HMA.

As Table 6 shows, in November 2012, wild horses were concentrated outside of Diamond Hills South HMA boundaries in the Newark and Strawberry allotments. For the most part, populations in the southern portion of the Diamond HMA have been low since the 2004 gather, with highest concentrations found in the Three-Mile and Diamond Springs Allotments in the northern half of the HMA. The November 2012 inventory shows large concentrations (79% of those documented in the Diamond HMA) concentrating in the Diamond Springs and Three-Mile Allotments. The Diamond Hills North HMA was characterized by the presence of large groups of wild horses documented throughout the HMA, with most wild horses located in the very center of the HMA, during the November 2012 inventory.

5. Wild Horse Gathers

The first BLM wild horse gather on the Diamond Complex took place in August 1997. A total of 1,398 horses were gathered from the Diamond Complex. A post gather inventory flight documented 19 horses that evaded capture. A total of 241 wild horses were selected for release based on the age selective removal policy to release horses 10 years old and older implemented at the time. The following table summarizes the disposition of the wild horses gathered from the Diamond Complex in 1997. Refer also to Table 23 in Section 4, which displays the number of wild horses gathered in the Complex.

Table 6, 1997 Diamond Complex Gather Summary

Type	Gathered	Released	Removed
Males	658 (47%)	137 (57%)	515
Females	740 (53%)	104 (43%)	635
Total	1,398	241	1,150

In 1999, the Sadler Complex wildfire burned within the Diamond Hills North HMA encompassing approximately 70,000 acres of public and private land. Approximately 90% of the HMA was burned and most of the horses moved outside of the HMA to the north in search of forage. The Sadler Complex Wildland Fire Emergency Wild Horse Gather and Removal (BLM/EK/PL-99-044) was implemented to exclude wild horses from the burned area to allow natural resources to recover. The Red Rock and Brown Allotments within the Diamond Hills North HMA were closed to livestock grazing and wild horses until the area recovered. Wild horses removed from the Diamond Hills North HMA were relocated to the Diamond Hills South HMA.

The most recent gather of the Diamond Complex was completed in 2004. A pre gather inventory resulted in a direct count of 648 wild horses within the Diamond Complex. Between July 6 and 24, 2004, a total of 603 wild horses were gathered. Of those, only 10 died or were euthanized, with 473 shipped to BLM preparation centers and 117 released back to the range. Three orphans were adopted to foster homes. An estimated 45 wild horses evaded capture, bringing the post gather estimate to 161 (one of the released horses actually escaped into another HMA). This gather involved the implementation of fertility control. A total of 86 mares were treated. The following table displays the age structure of the horses gathered. Sex ratio was approximately 52% mares and 48% studs.

Table 7: 2004 Diamond Complex Age Structure

Age	% of Mares	% of Studs	Total Gathered
0	14%	19.6%	17.7%
1	9.6%	9.4%	6.6%
2	11.4%	16.2%	8.6%
3	8.8%	8.5%	7.0%
4	11.4%	8.5%	6.6%
5	4.4%	3.4%	3.0%
6	6.1%	0.9%	2.6%
7	3.5%	4.3%	3.5%
8	4.4%	1.7%	2.2%
9	2.6%	3.4%	1.3%
10	0.9%	1.7%	1.5%
11	2.6%	3.4%	2.2%
12	2.6%	0%	0.8%
13	0.9%	0.9%	0.7%
14	1.8%	0.9%	0.7%
15	0%	3.4%	1.0%
16	2.6%	0%	1.0%
17	2.6%	0%	0.5%
18	0.9%	0%	1.0%
19	0%	0%	0%
20+	8.8%	13.7%	8.6%
Total	100%	100%	100%

The primary colors of the horses captured from within the Diamond Complex included bays, sorrels, and browns. Other colors included palomino, buckskin, chestnut, grey, variations of roan, and pinto/paint.

Table 8: Color Patterns, 2004 Diamond Complex

Color	Percent	Color	Percent
Bay	22.6%	Black	5.9%
Brown	6.8%	Buckskin	1.4%
Gray	4.7%	Dun	0.7%
Red Roan	13.0%	Palomino	1.7%
White	0.7%	Sorrel	32.8%
Chestnut	3.1%	Strawberry Roan	3.1%
Pinto	1.7%	Blue Roan	1.9%

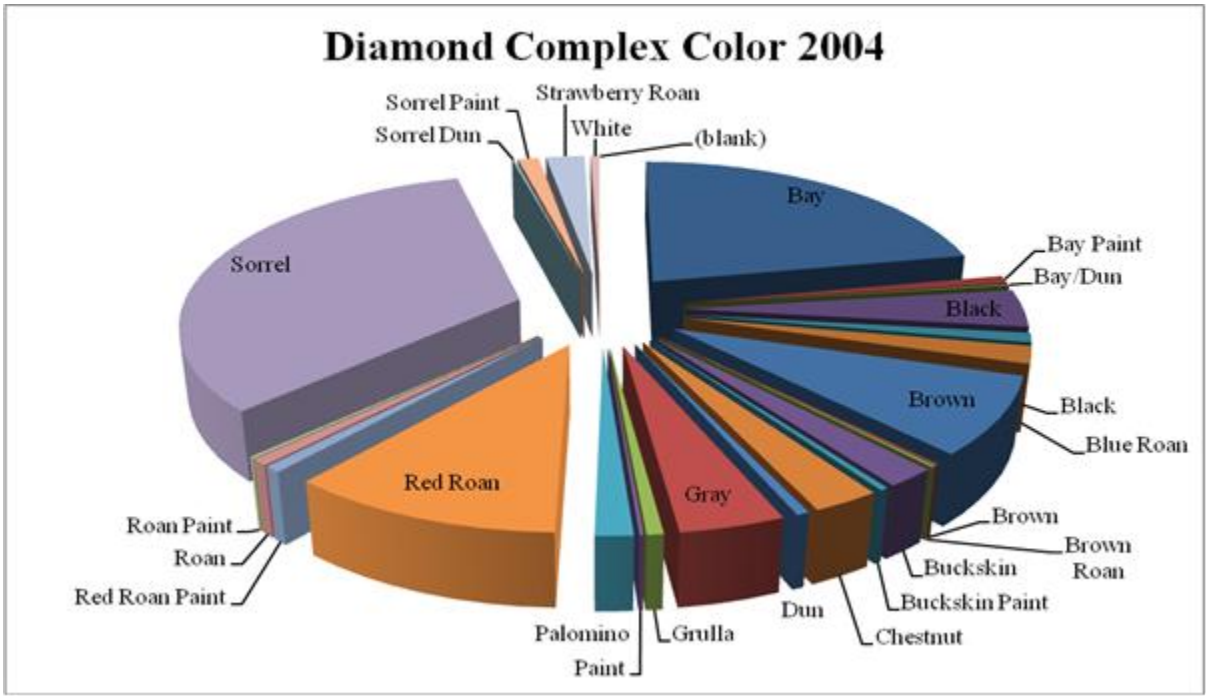


Figure B.12: Color Pattern, 2004 Diamond Complex Wild Horses

Table 9: Fertility Control Treatment, 2004 Diamond Complex

HMA where horses released	Fertility Control Mares in 2004
Diamond	61
Diamond Hills South	2
Diamond Hills North	23
Total	**86**

6. Population Growth Rates

Wild horse HMAs in Nevada increase at rates averaging 15-25%. This figure takes into account mortality and foals born each year, but does not account for ingress or egress between HMAs. Variation from year to year is also the result of environmental influences such as drought or severe winters or particularly high moisture years and mild winters. The population on the Diamond Complex has increased at approximately 13-18% since the 2004 as documented by population increase and presence of foals and yearlings observed during inventories. It is suspected that there could be some influence by mountain lion or other factors which increase mortality resulting in the slightly lower increase than expected.

Figure B.13: Wild horses in the Diamond HMA, June 2006.

Figure B.14: Diamond Hills North HMA, November 7, 2012 helicopter inventory.

Figure B.15: August 2012: A group of wild horses residing outside the Diamond Hills South HMA boundary within the Strawberry Allotment.

Figure B.16: November 6, 2012 helicopter inventory: A group of wild horses in the Pinto Fire outside of the HMA boundaries at the far south end of the Diamond Range.

Appendix C: Precipitation, Drought and Monitoring

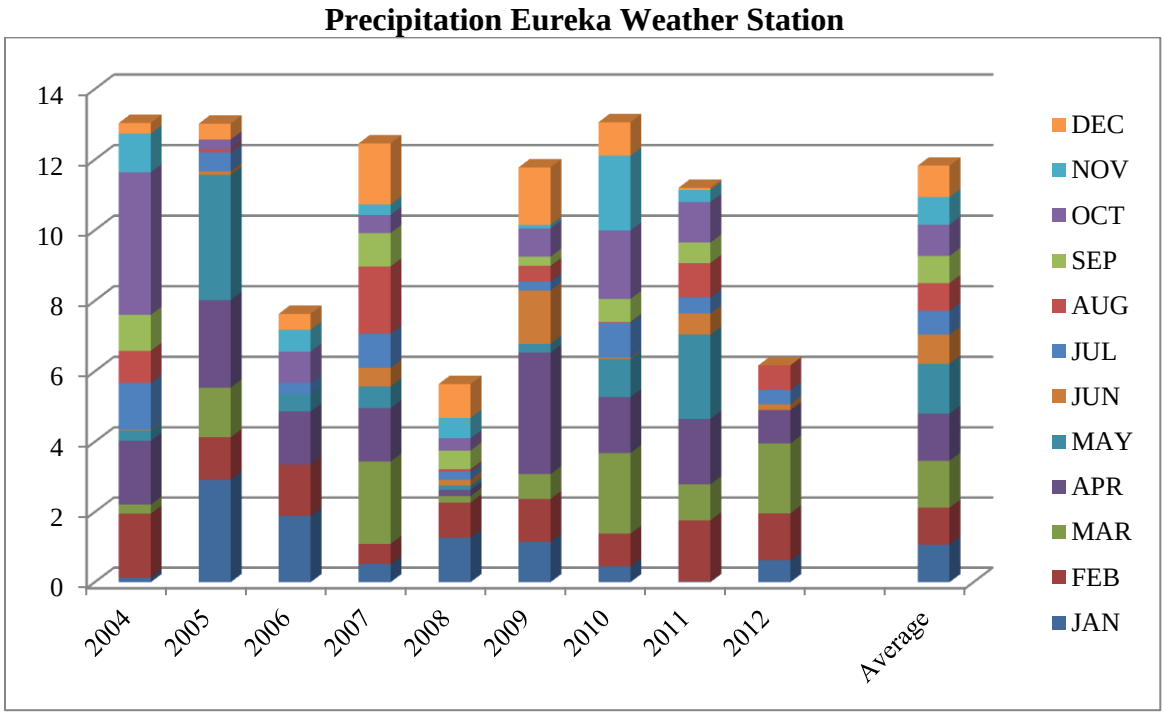


Figure C.1

Table 1: Monthly Precipitation Totals, Eureka, Nevada

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
2004	0.13	1.82	0.26	1.82	0.29	0.02	1.33	0.91	1.02	4.04	1.1	0.3	13.04
2005	2.92	1.21	1.41	2.48	3.55	0.1	0.54	0.08	0	0.28	0	0.45	13.02
2006	1.89	1.46	0	1.51	0.49	0	0.32	0	0	0.89	0.62	0.45	7.63
2007	0.51	0.58	2.35	1.52	0.61	0.53	0.97	1.9	0.95	0.51	0.3	1.73	12.46
2008	1.27	1	0.18	0.18	0.12	0.17	0.23	0.07	0.53	0.35	0.58	0.96	5.64
2009	1.15	1.22	0.71	3.45	0.25	1.51	0.26	0.44	0.26	0.8	0.1	1.63	11.78
2010	0.45	0.93	2.3	1.59	1.08	0.04	0.99	0.02	0.65	1.94	2.12	0.95	13.06
2011	0.02	1.74	1.03	1.86	2.39	0.6	0.46	0.97	0.58	1.15	0.34	0.06	11.2
2012	0.62	1.34	1.99	0.95	0	0.17	0.4	0.7	NA	NA	NA	NA	6.17
Average	1.07	1.05	1.34	1.34	1.41	0.83	0.68	0.78	0.77	0.89	0.78	0.89	11.82

Precipitation Beowawe, Nevada: University of Nevada, Reno Gund Ranch.

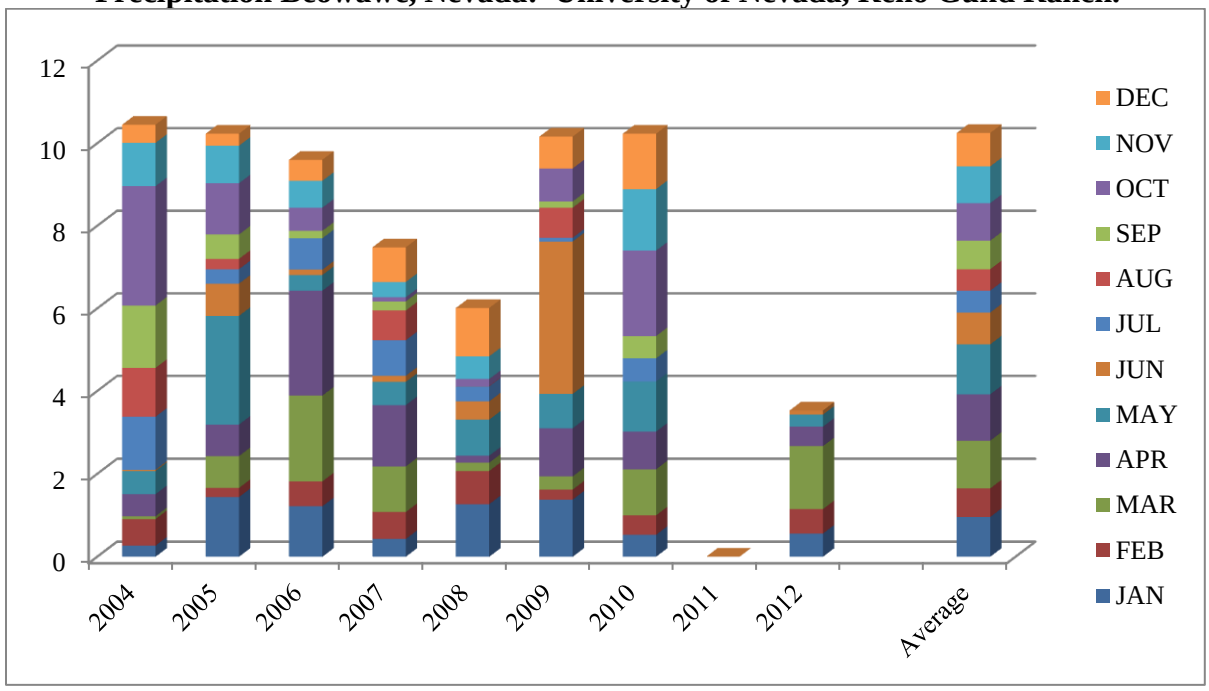


Figure C.2

Table 2: Monthly Precipitation Totals, Beowawe, NV

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
2004	0.27	0.64	0.07	0.53	0.56	0.03	1.28	1.18	1.51	2.89	1.05	0.44	9.81
2005	1.44	0.22	0.77	0.76	2.63	0.78	0.35	0.25	0.59	1.24	0.91	0.29	10.23
2006	1.22	0.6	2.07	2.54	0.38	0.13	0.76	0	0.18	0.56	0.65	0.51	9.6
2007	0.43	0.65	1.1	1.48	0.56	0.15	0.86	0.72	0.22	0.1	0.37	0.84	7.48
2008	1.27	0.8	0.2	0.17	0.87	0.44	0.36	0.01	0	0.17	0.55	1.17	6.01
2009	1.38	0.24	0.32	1.16	0.83	3.69	0.09	0.73	0.15	0.8	0	0.77	10.16
2010	0.53	0.47	1.11	0.91	1.21	0	0.56	0	0.54	2.07	1.49	1.34	10.23
2011	Unavailable												
2012	0.56	0.59	1.52	0.47	0.29	0.1	0.39	0.64	NA	NA	NA	NA	3.53
Average	0.96	0.69	1.15	1.12	1.21	0.77	0.53	0.52	0.69	0.91	0.89	0.81	10.23

2012 Drought and Drought Monitoring

Lack of 2012 winter and spring precipitation resulted in drastic reductions of spring growth of grasses and forbs throughout most low and mid elevations of the entire Diamond Complex. The overpopulation of wild horses contributed to heavy utilization of 2011 residual forage throughout low elevations prior to livestock grazing in 2012, which further compounded the issue. Forage and water were extremely limited throughout the summer and continual monitoring was conducted to document wild horse locations, body condition and declining water and vegetation abundance and vigor as the summer progressed. Due to the severity of the situation, there was potential for emergency gather in summer 2012, and is still possible as winter approaches.

According to the Vegetation Response Index (website below), much of Nevada experienced severe to extreme drought throughout most of the spring and summer. The US Drought Monitor (website below) still reflects much of Central Nevada in Severe Drought as of December 4, 2012. The following table displays the precipitation received during the growth season and year to date for two weather stations in Central Nevada, as well as the percent of the historic period of record average.

Table 3: Growing Season and Year to Date Precipitation, 2012

2012 Growing Season and Year to Date Precipitation	Weather Station	
	Eureka	Gund Ranch
	Inches Received (% of Period of Record Average)	
March – June 2012 (growing season)	3.11" (63%)	2.38" (56%)
Year to date (January through August)	6.17" (73%)	4.56" (66%)

Despite the drought and limited forage and water, wild horse body condition was better than expected through the 2012 summer with Henneke scores averaging 5.0 (moderate), and few thin animals observed in the Diamond HMA. The wild horses are highly mobile and able to access the higher elevation canyon walls and basins that support higher productivity of perennial bunchgrasses, both residual from 2011 as well as spring 2012 growth. Though waters sources were small and infrequent, many did not fully dry up through the summer and continued to provide limited water to small groups of horses that trailed into them. Wild horses had to travel long distances to water, and often remained at the source for long periods of time waiting for recharge in order to satisfy the animals.

Figures C.3 and C.4: Helicopter inventory November 7, 2012, Diamond Hills North HMA. Representative examples of the rangeland condition, burned by wildfire in 1999. Re-seeded perennial grasses have been affected by drought in 2012 and heavy use by livestock and wild horses.

Drought monitoring of the Diamond HMA was completed between May 7 through September, 2012 with dozens of water sources and key management areas visited and re-visited through the summer to document water and forage availability, effects of drought and impacts by wild horses and livestock. Monitoring was conducted by the Great Basin Institute staff, BLM Wild Horse and Burro Specialist, Hydrologist, and other staff. Field tours with permittees took place on Black Point, Three-Mile and Diamond Springs Allotments to discuss livestock removal in response to drought. Livestock were

voluntarily removed from the HMA between the first part of July and the end of August.

Monitoring included completion of a Drought Summary Form, Utilization Studies, photographs and general observational notes of range and wild horse condition. The Battle Mountain District Drought Detection and Monitoring Plan included within the Battle Mountain District Drought Management EA DOI-BLM-NV-B000-2012-0005-EA, describes the drought indicators and response triggers documented during the 2012 monitoring season.

Early monitoring of the Diamond Range documented the following:

- Lack of 2012 growth of perennial grasses and forbs/extremely low or no production in 2012
- Drought stressed and dying grasses, forbs and shrubs, lack of reproduction
- High utilization of 2011 residual forage and 2012 growth (if any) by wild horses and livestock
- Limited and drying water sources
- Lack of forage in the low elevations and foothills
- Past and current damage to riparian areas by wild horses and livestock

Figure C.5: Diamond HMA, DS-2 Horse Canyon Utilization monitoring November 2005. Looking southwest at production of perennial grasses (bluegrass species, buckwheat).

Figure C.6: Diamond HMA. DS-2, July 2012 Drought monitoring. Looking south at witness post. Note lack of perennial grasses.

Figure C.7: August 2012 helicopter flight. Burn scar now supporting cheatgrass and annual species. Diamond HMA.

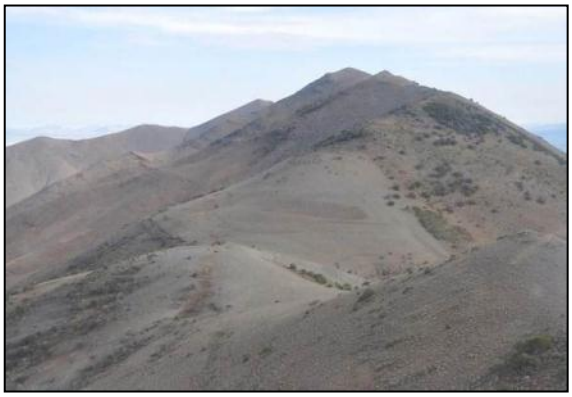


Figure C.8: August 2012 helicopter flight. Wild horses are able to cross the mountain ridge at many locations due to lack of fencing.

In addition to the drought indicators documented, impacts to rangeland health by historic and current use by wild horses and livestock was documented including:

- Degraded springs and riparian areas
- Diminishing composition of perennial key forage species such as Indian ricegrass and Bluebunch wheatgrass
- Heavy trailing
- Soil erosion
- Further risk of cheatgrass and annual dominance and degradation of important wildlife habitat.

Through the monitoring efforts, it was determined that current use by cattle and wild horses were causing impacts, thought impacting upland and riparian areas differently. Attempts were made to document each when possible.

Due to the inaccessibility of higher elevations by monitoring staff in order to document forage, water and animal conditions, and the concern about escalating emergency conditions, a helicopter overflight was conducted August 22, 2012. The objectives for the flight included assessing wild horse distribution and body condition/apparent health, forage availability in high, mid and low elevations, available water, presence of livestock and impacts to rangeland health/drought impacts visible from the helicopter.

It was determined during the flight that adequate forage for wild horses existed in mid and high elevations. A large proportion of the wild horses observed were in these locations. Though still limited and low producing, waters were available in several of the canyons and being used by wild horses.

The presence of livestock was also documented in order to facilitate the continued removal from the mountain areas.

Only a few groups observed included wild horses that appeared to be thinner. Most were in good body condition and some moderately fat. Foals were large and healthy, though a few newborns were observed.

The overflight was detailed, covering all drainages from high and low elevations and though not meant to be a comprehensive inventory, it was felt that a large portion of the wild horses in the Diamond HMA (not the entire Complex) were observed. Total observed 295 adults and 75 foals, and 368 total, (20% foals). The 2012 estimated population on the Diamond HMA is 342.

For additional information about Drought in Nevada and the Western U.S., refer to the following websites:

US. Drought Portal:
http://www.drought.gov/portal/server.pt/community/drought_gov/202;jsessionid=B225BB1B2A6C3E988AE64056A67F4D52

US Drought Monitor: http://droughtmonitor.unl.edu/

Vegetation Drought Response Index: http://www.drought.unl.edu/MonitoringTools/VegDRI.aspx

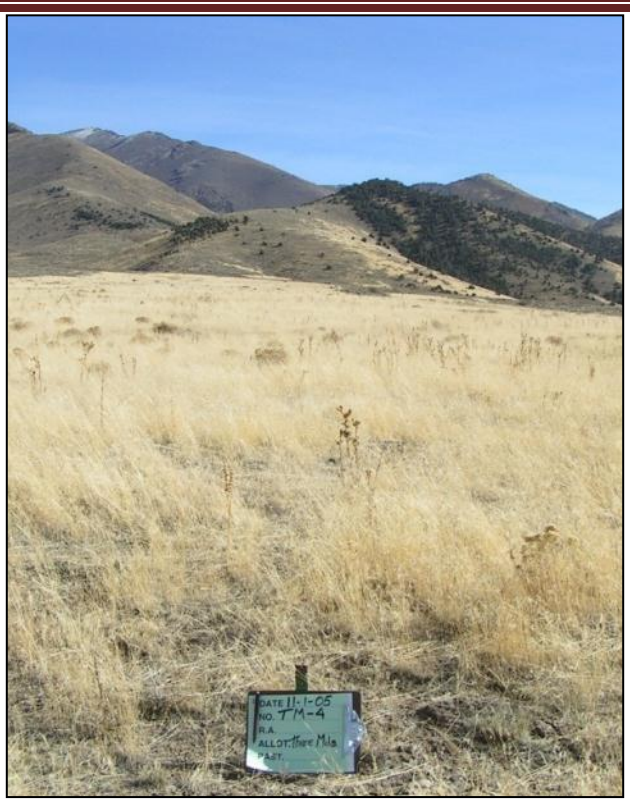


Figure C.9: Diamond HMA. TM-4 Utilization monitoring November 2005, frequency transect. Most of the vegetation is cheatgrass. Needleandthread grass, Indian ricegrass and Sandberg's bluegrass also present.

Figure C.10-11: Key Area TM-4, 2012 drought monitoring, July 2012. At frequency post, looking east. Note lack of 2012 production, heavy utilization and bare ground.

Diamond HMA Monitoring Summary

Since 2004, 24 key management areas within and near the Diamond HMA have been monitored for trend, utilization, photo trend and indicators of rangeland health. Long and short term monitoring completed since 2004 indicates that in many key areas, the increased population of wild horses above the established AML coincides with the following:

- The occurrence of or increased occurrence of pedestalling of grasses, particularly Sandberg bluegrass, often due to hoof action and/or erosion.
- Increased occurrence of key forage grasses being caged in shrubs as the "exposed grasses" in the interspaces were grazed or disappeared from the plant community. Caged grasses were frequently noted as being more vigorous than those in the interspaces.
- Increased occurrence of trailing or tracks of wild horses at the locations, and frequency of fresh wild horse sign.
- Increased occurrence of heavy winter use of key forage grasses, and increased utilization of these grasses during the critical growth period in early spring. Individual plants were utilized more heavily and more frequently.
- Increased occurrence of soil movement.
- Increased documentation of poor vigor.
- Declining health of sites.
- Increased hedging of shrubs.

By 2011, documentation at numerous key areas noted key grasses "predominantly caged" in shrubs, cactus or rock crevices.

A large number of the key areas in the Diamond HMA are characterized by dominance of cheatgrass, and Sandberg's bluegrass, a lesser perennial grass. Many key areas are missing key forage species such as Indian ricegrass or bluebunch wheatgrass. Needleandthread grass is a common component in these plant communities, but is not a preferred species and can increase with disturbance. Annual mustard is also prevalent in many areas.

Rangeland Health monitoring and documentation of the 17 indicators of Rangeland Health frequently noted the lack of deep rooted perennial grasses and the dominance of cheatgrass, as well as annual mustard or rabbit brush as issues affecting the health of these sites. Bare ground and pedestalling of plants and below normal production was also commonly noted.

Monitoring involved the documentation of the presence of livestock, wild horse or wildlife sign, including mule deer, pronghorn, chuckar, rabbits and coyote. Tracks were identified when possible, and trailing noted through monitoring areas. The age of sign was also estimated from very old to fresh. Deer and pronghorn sign was noted commonly. Rabbit presence was common at several key management areas, which could be having utilization effects on both grasses and shrubs. Livestock presence varied from site to site and year to year.

Frequency and Nested Frequency Trend studies were completed 3 times since 1998 at most key management areas. Trend in arid Nevada rangelands is slow; however some changes have been observed in the plant communities within the Diamond HMA.

Many monitoring sites exhibited minimal to moderate increases in frequency of perennial grasses (particularly Sandberg bluegrass and/or bottlebrush squireltail) between 1998-2006, followed by downward trends between 2006 and 2009 or 2010 when trend was re-read. In many cases, the key perennial grasses such as Indian ricegrass, bluebunch wheatgrass Thurber's needlegrass persist in very low frequency (such as 1-3%) and have remained static. In few cases did desirable key perennial forage grasses shown notable increases in frequency. At several sites, decreases in the frequency of key perennial grasses occurred between 1998-2010 or 2006 to 2010. Decline of key desirable perennial grasses, in some cases was offset by increases in undesirable species such as cheatgrass, or secondary grasses such as Sandberg bluebrass or needleandthread grass.

Encouraging is the fact that cheatgrass has decreased in frequency at several of the healthier sites that are still supporting moderate populations of desirable key perennial grasses. Other trends noted since 2004 at some of the healthier sites included increased perennial grasses in the interspaces between shrubs, increased presence and vigor of key grass species.

In the limited cases where upward trends in the frequency of key perennial grasses was noted between 1998 and 2010, these sites are at risk due to continued and increased heavy use by wild horses, trailing/hoof action, critical growth season use, lack of ground cover, and erosion, further compounded by drought. Most sites are at risk of decline and loss of key perennial forbs and grasses, and reversed trends including increased dominance of cheatgrass, risk of wildlfire and loss of important habitat. Drought in 2012 has further compounded the effects of an overpopulation of wild horses. Achievement

and maintenance of AML over the long term will promote improved trends.

Diamond Hills South HMA

Utilization data was collected for Diamond Hills South May 2012. The key forage species that utilization was collected on are Indian ricegrass, winterfat, Squirreltail grass, Crested Wheatgrass and Needleandthread grass. Current monitoring data collected using Range Utilization Key Forage Plant Method over the last three years has indicated Moderate (41-60%) and Heavy (61-80%) utilization directly attributable to wild horses. Use pattern mapping in May 2012 shows wild horse utilization for 12% of the monitoring locations as slight, 25% as light, 25% as moderate (41-60%), and 50% as heavy (61-80%).

Figure C.12: Key area RR-03, Showing severe use attributed to wild horses within the Diamond Hills South HMA, November 1, 2012.

Figure C.13: Photo shows severe use on Crested Wheatgrass attributed to wild horses within the Diamond Hills South HMA, November 1, 2012.

Monitoring data was collected in summer 2012 for three key management areas within the Diamond Hills South HMA. Forage vigor and leader growth of shrubs was below average with the average height of current year's growth on a key species at 1" (crested wheatgrass). Utilization collected on current year's growth was moderate to severe and attributed to wild horses. The fire rehab area which supports crested wheatgrass was being negatively impacted by horse use. Soil moisture was absent at 15 inches and current years rainfall is below normal. Physical condition of wild horses was normal and water source availability was normal.

November 2012 Inventory Observations

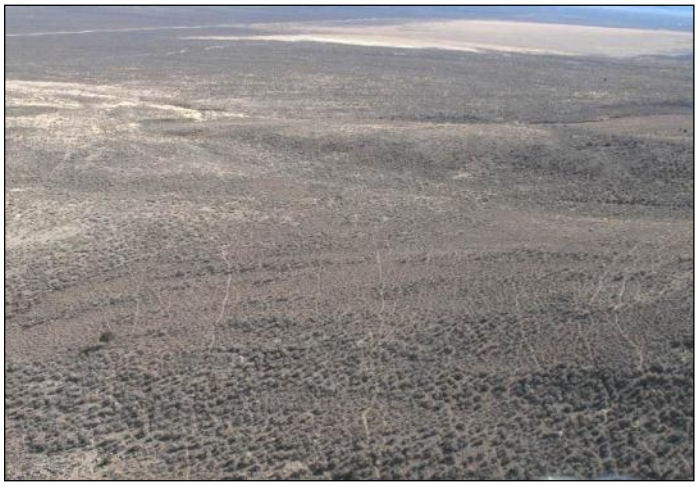
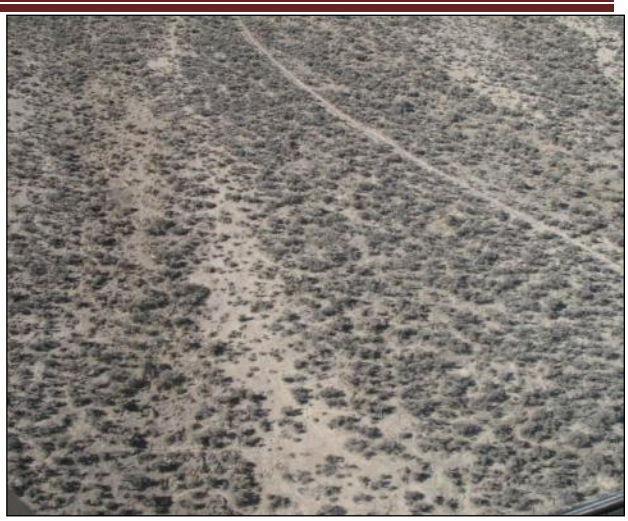
The November 2012 wild horse population inventory was completed by helicopter with three experienced BLM observers over the course of 12 hours in two days. A modified grid was flown to cover the entire Complex in detail with transects ¼-1/2 mile wide and more narrow when necessary. Diamond Complex Inventory Maps in Appendix B depict wild horse locations and flight-lines recorded via GPS. As shown by the photos throughout the EA and Appendix B and C, the Diamond HMA has been severely affected by drought in 2012 with most of the low elevations supporting very little residual forage from 2011 or 2012. The multiple burn scars that typically support cheatgrass are barren. Bare ground is prominent as are trails by wild horses and livestock. Middle elevations support some residual Great Basin wildlrye and other perennial bunchgrasses which have cured and do not retain a great amount of nutrition. Riparian areas were also impacted by drought and heavy use. Production of riparian vegetation was substantially reduced when compared to normal years. Use by grazing animals

was more pronounced and reached heavy levels by livestock. Wild horses impacted mid and high elevation springs through trampling primarily as hoof action sheared banks, causing erosion and loss of vegetation at these small water sources. Forage to support wild horses and wildlife through the winter is severely lacking as most of the low elevation winter range is completely devoid of perennial grasses.

The Diamond Hills South HMA has also been highly impacted by historic wildlfire. Burn scars and re-seedings have been impacted by heavy and severe utilization by wild horses for many years. In 2012, production of annual and perennial vegetation was severely reduced and heavy use and trailing by wild horses evident. Springs outside of the HMA boundaries exhibit trailing by wild horses, erosion, hummocking and generally heavy use compounded by the 2012 drought. Forage in the HMA is lacking to support the existing population of wild horses. Outside of the HMA, in the Cold Springs, Newark and Strawberry allotments located on the east side of the Diamond Range, some residual forage exists in the mid and higher elevations, but is lacking in the low elevations that will be free of snow later in the winter months. Refer to photos throughout the EA, Appendix B and C which illustrate the conditions in this HMA.

Similarly, the Diamond Hills North HMA was impacted by a large wildlfire in 1999 that burned 90% of the HMA. Drought conditions in 2012 caused substantially reduced production of seeded crested wheatgrass where it existed. In other locations, perennial grasses were limited and comprised of annuals such as cheatgrass. Trailing by wild horses and livestock was prevalent to the commonly used springs and riparian channels. Many of these areas support very limited riparian vegetation or no vegetation at all. Some residual forage exists in the western portion of the HMA, but is severely limited for the existing number of wild horses, particularly in the central and eastern portion of the HMA. Conditions in this HMA are illustrated in photos throughout the EA, Appendix B and C.

Figure C.14-15: 2012 Drought monitoring, July 2012, Diamond HMA. Lack of 2012 growth, heavy utilization, and lack of forage for wild horses in low and mid elevations.

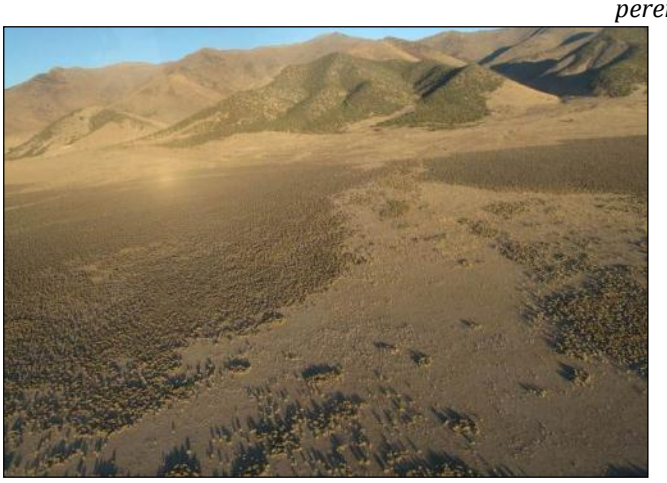



Figures C.16-17: Diamond Hills South HMA. Conditions observed during November 6, 2012 helicopter inventory. The range is marked by heavy wild horse trailing and lack of herbaceous understorybetween shrubs througout important winter range.

Figure C.18-19: 2012 Drought monitoring, key areas in the Diamond HMA. Lack of 2012 growth, heavy utilization, and lack of forage for wild horses in low and mid elevations.


Figure C.20-21. 2012 Drought monitoring, Diamond HMA, Fourmile Canyon area, lack of prennial grasses and heavy past and current use levels have depleted forage in an important area used by wild horses.

Figure C.22-23: Corta Allotment November, 2005 (left) and July, 2012 (right). The site reflects substantial reduction in key perennial grasses.



Figures C.24-25: Diamond HMA, November 6, 2012 helicopter inventory. Left: note large areas of important winter range denuded of perennial forage. Right: Representative example of the many canyons that dissect the Diamond Range, with rocky outcrops and frequent burn scars that now support cheatgrass.

Appendix D: Standard Operating Procedures for Population-level Fertility Control Treatments

22-month time-release pelleted porcine zona pellucida (PZP) 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. 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). 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 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.
4. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of Freunds Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
5. 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.
6. All treated mares will be freeze-marked on the hip or neck HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

Monitoring and Tracking of Treatments:

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

Preparation of the jab stick used to inject the time release PZP.

Freeze-marking the identifying letters on the left hip of the mare in the working chute.

Injecting the hip of the mare with the jabstick

Photos taken during the New Pass/Ravenswood HMA wild horse gather November 2007 and Callaghan Complex Gather December/January 2009.

Appendix E: Summary of Population Modeling

Population Modeling Results, Diamond Complex

The WinEquus Feral Horse Population Model, developed by Dr. Steven Jenkins at the University of Nevada at Reno was designed to assist wild horse and burro specialists evaluate various management plans and possible outcomes for management of wild horses that might be considered for a particular area. Windows version 1.40 of the model is accessible at www.equinox.unr.edu/homepage/jenkins.

The model was utilized to derive an estimated 2012/January 2013 population for the Diamond Complex based a data set available with the WinEquus Model for horses gathered and marked in 1993 at Garfield Flat, Nevada by M. Ashley and S. Jenkins. This age structure was then re-scaled for the 2012/January 2013 estimated population of the Diamond Complex of 826 wild horses. The population modeling was not re-run following the November 2012 inventory as the direct count of 813 is very near the 2012 estimate of 826 (98%).

The model was used to display potential outcomes of the Proposed Action, Alternatives and the No Action Alternative. Because the objective is to be able to return to this area every 2-3 years to re-apply fertility control, a 3 year minimum gather interval was used. However, realistically longer intervals are likely due to holding space limitations and other factors, so a 5 year minimum interval was also simulated to obtain potential population sizes in that situation.

The purpose of the modeling was to compare the potential results of the Proposed Action, Alternatives, and the No Action Alternative to include population size over time, growth rates, and the number of animals that could be gathered, removed and treated for fertility control over the next 10 years.

The parameters of the model were set to simulate 100 trials; modeled from 2013-2023 to give 11 years of data. The model was also set to reflect an exact starting population in order to reflect the differences between alternatives rather than randomization instituted by the model based on environmental conditions.

Prior to future gathers, the data from this proposed gather along with future inventory data would be analyzed to determine the appropriate course of action. This information would also be compiled into a Herd Management Area Plan in the future.

For the Proposed Action and Alternative 2, the model was set for a minimum 3 year gather interval, and to implement gathers for fertility control treatment only if the population exceeded the AML. Alternative 1 and 3 also use a three year minimum gather interval, but removal only, without the addition of fertility control. Alternative 3 implements the scenario of a removal to result in a sex ratio of 60% studs and 40% mares.

For the 5-year gather interval scenarios, the above alternatives were modeled the same, with a 5-year minimum gather interval identified.

The removal criteria were set to allow for an equal chance for all age groups to be removed. The percent of the population that could be gathered was estimated at 90%. Gather efficiency would

certainly fluctuate greatly in future gathers as influenced by the climate, snow cover, and animal awareness of the helicopter through repeated gathers.

Outputs provided by the model include tables and graphs. The results were compiled in Excel Pivot tables to obtain average population sizes and population size for the Most Typical Trial.

The No Action Alternative was simulated with a starting population of 826 wild horses with no removals, using the same survival, foaling and initial age structure data provided in the WinEquus model as used for the Proposed Action and Alternatives.

The model results for the Most Typical Trial as well as for all trials were obtained from WinEquus and are summarized in the tables below.

The results of the modeling show that with the use of fertility control and gathering to low AML (Proposed Action), the population could be maintained within or close to the AML range between gathers on a three year gather cycle, with 59% of the trials reflecting the need to gather three or less times in an 11 year period to maintain those numbers and retreat for fertility control.

Through the Alternatives as population controls are not utilized and the population is only gathered to the high end of AML, the average population sizes increase as do the need for gathers to maintain the population levels within AML range. Alternative 1 reflects slightly higher overall population sizes than the Proposed Action as expected, due to increased growth rates. Average population sizes are moderately higher than the high AML, and the results show that 63% of the trials required three or more gathers within the 11 year timespan and 29% of the trials required 4 gathers.

Both Alternative 2 and 3 involve gathers only to the high end of AML with gathers every three years to remove excess wild horses. Alternative 2 involves both population control measures, fertility control and sex ratio adjustment, whereas Alternative 3 is strictly a gate cut gather to remove excess animals. These Alternatives both reflect average populations much higher than the AML. Though the population controls under Alternative 2 result in much lower population growth rates than any of the other Alternatives, it is not low enough to control the population within, or near the AML.

As would be expected, the model of the No Action Alternative shows a steady increase of the population into the thousands. Realistically, catastrophic die off would occur at some point when resources are depleted; however the model is not designed to reflect that because environmental parameters vary so widely.

Some of the more revealing information is within the tables for numbers of animals gathered, removed and treated. Both of the fertility control Alternatives (Proposed Action and Alternative 2), reflect higher gather numbers than the other two Alternatives, as additional horses were gathered in order to implement fertility control to as many mares as possible. However, the numbers of horses removed is varied due to the number required to remove to low or high AML and the number needed to be removed as a reflection of population controls or lack of population controls. Regardless of the target for removal (low AML or high AML), population controls reduce the number of wild horses that would have to be removed from the range, in addition to reducing the overall number of gathers that would have to occur

within an 11 year period, while keeping populations closer to the AML than Alternatives that do not utilize any population controls at all.

Between the fertility control Alternatives, Alternative 2 reflects more than double the number of mares treated over the 11 year period, as the overall numbers gathered would be higher, due to higher population numbers, and a higher number of animals to remain on the range because the high AML was the target.

As expected the 5-year gather interval scenario reflects similar trends, but much higher overall populations across the board due to longer gather intervals and the need to remove more wild horses to reach the gather targets, particularly where no population controls were implemented. All trials reflect gathers every 5 years (four total) with the exception of the Proposed Action and Alternative 1, where only 38% and 82% of the trials respectively indicate the need for 3 or fewer gathers within the 11 years.

In both the 3-year and the 5 year scenarios, the Proposed Action reflects the best opportunity to reach the AML goals, remove the fewest number of wild horses over the course of time, maintain the population at or near AML with the fewest future gather events, and the fewest mares treated.

Population Modeling Tables -- 3 year analysis

Table 1: Population Sizes in 11 years - Minimum

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	59	85	139	114	347
10th percentile	110	116	182	204	826
25th percentile	124	128	204	214	826
Median Trial	133	135	224	226	826
75th percentile	141	140	231	236	826
90th percentile	148	145	235	243	826
Highest Trial	162	151	254	257	826

Table 2: Population Sizes in 11 years - Average

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	189	204	238	291	704
10th percentile	216	229	288	314	1695
25th percentile	224	236	308	329	1905
Median Trial	230	239	315	337	2182
75th percentile	235	244	325	347	2378
90th percentile	238	248	332	355	2544
Highest Trial	248	255	343	369	2933

Table 3: Population Sizes in 11 years - Maximum

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	826	826	826	826	1086
10th percentile	826	826	826	826	2856
25th percentile	826	826	826	826	3658
Median Trial	826	826	826	826	4126
75th percentile	826	826	826	826	4717
90th percentile	826	826	826	826	5348
Highest Trial	826	826	826	826	6228

The population model was set to reflect an exact starting population of 826. For the Proposed Action and Action Alternatives, the "Maximum" population reflected for 100 trials is 826 because after the first gather in 2013, no trial showed the maximum population getting higher than 826 as the model was set to simulate gathers every 3 or 5 years.

Table 4: Average Growth Rate in 10 Years

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	2.2	5.8	-1.7	8.9	2.0
10th percentile	8.5	11.9	2.4	12.0	13.0
25th percentile	10.3	14.5	4.2	15.1	16.0
Median Trial	12.7	17.7	5.7	17.2	17.5
75th percentile	14.5	20.1	7.3	19.2	19.0
90th percentile	15.6	21.5	8.4	20.9	20.2
Highest Trial	17.1	23.4	10.2	22.9	22.4

Table 5: Totals in 11 Years -- Gathered

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	670	716	1069	729	0
10th percentile	850	805	1258	800	0
25th percentile	867	828	1308	882	0
Median Trial	1033	846	1337	938	0
75th percentile	1056	916	1378	978	0
90th percentile	1076	947	1406	1019	0
Highest Trial	1104	982	1443	1100	0

Table 6: Totals in 11 Years -- Removed

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	606	685	527	700	0
10th percentile	690	770	532	763	0
25th percentile	703	794	538	848	0
Median Trial	770	812	620	902	0
75th percentile	794	879	640	941	0
90th percentile	812	908	668	980	0
Highest Trial	835	946	740	1060	0

Table 7: Totals in 11 Years -- Treated

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	Hi AML Gate Cut	No Action
Lowest Trial	12	0	210	0	0
10th percentile	54	0	230	0	0
25th percentile	61	0	246	0	0
Median Trial	91	0	272	0	0
75th percentile	98	0	284	0	0
90th percentile	103	0	301	0	0
Highest Trial	115	0	328	0	0

Table 8: 3-Year Analysis, % Trials Reflecting Gathers/Typical Trial Population Size

Year	Low AML, PZP		Low AML		High AML, PZP, 60:40		Hi AML		No Action	
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	100 trial average
Year 1 - 2013	100	826	100	826	100	826	100	826	0	826
Year 2 - 2014		144		137		235		239	0	983
Year 3 - 2015		162		173		253		295	0	1,153
Year 4 -- 2016	22	187	47	213	100	263	99	357	0	1,368
Year 5 - 2017	34	218	34	146		303	1	248	0	1,647
Year 6 - 2018	28	151	13	180		291		278	0	1,931
Year 7 - 2019	8	153	24	193	100	301	98	345	0	2,231
Year 8 - 2020	4	141	31	210		234	1	240	0	2,595
Year 9 - 2021	15	165	24	158		229	1	283	0	3,039
Year 10 - 2022	23	141	16	187	100	247	98	358	0	3,561
Year 11 -- 2023	23	175	32	185		258	1	248	0	4,142
100 trial average	168		180		261		288		2,134	

Most Typical Trial Graphics

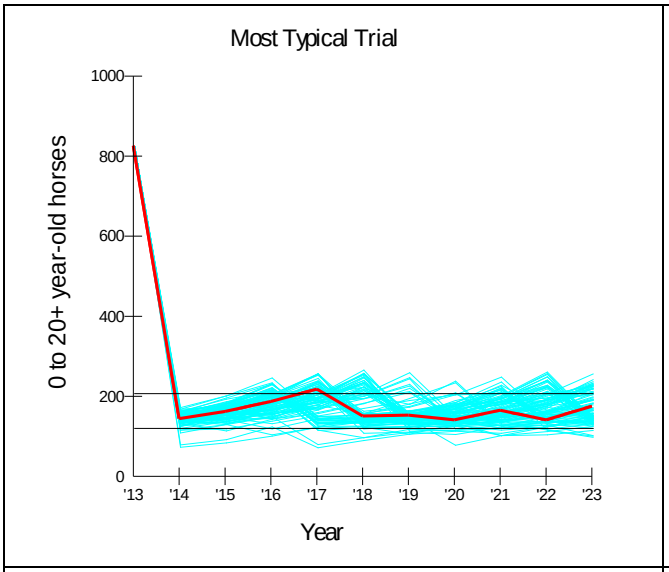


Figure E.1: Proposed Action

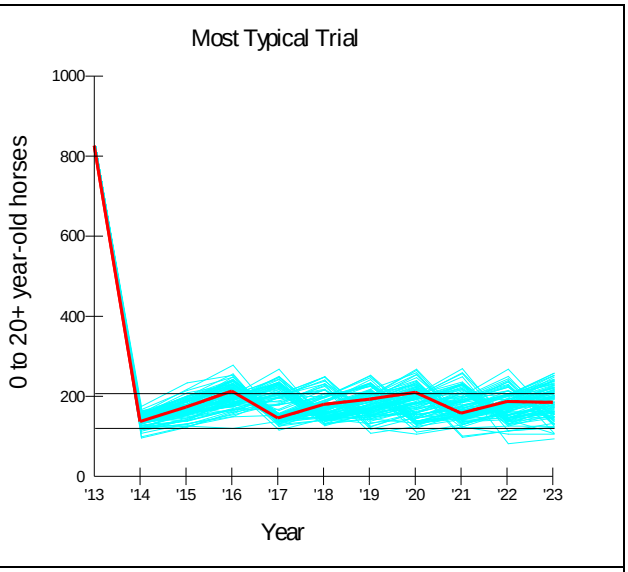


Figure E.2: Alternative 1

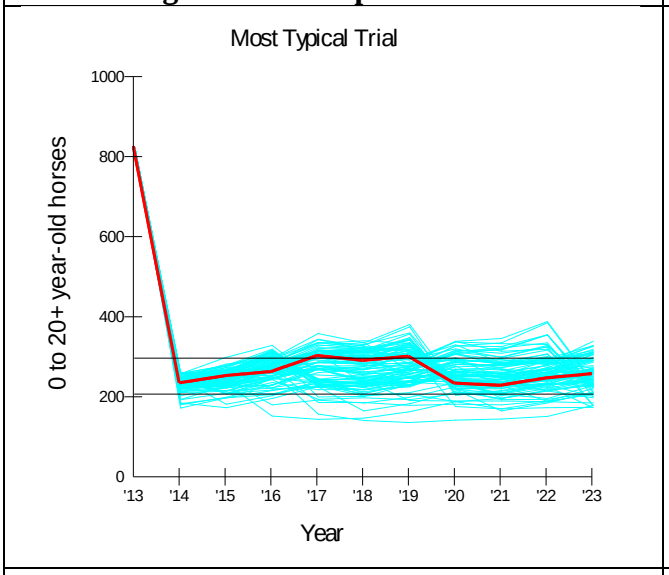


Figure E.3: Alternative 2

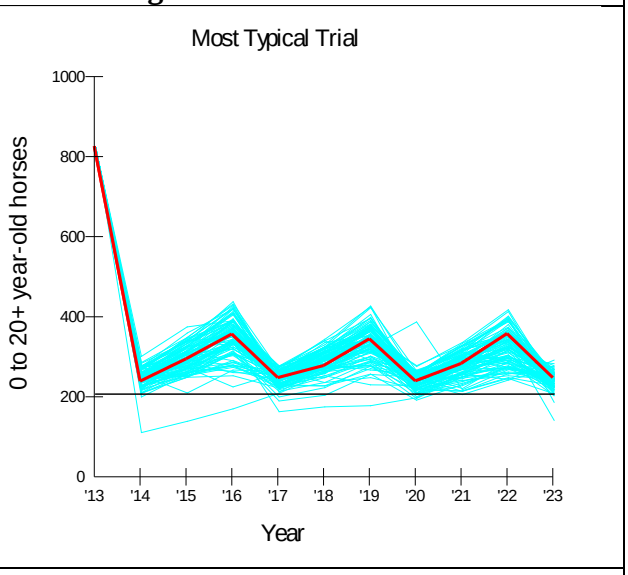


Figure E.4: Alternative 3

Modeled Gather Frequency Graphs

Figure E.5: Proposed Action

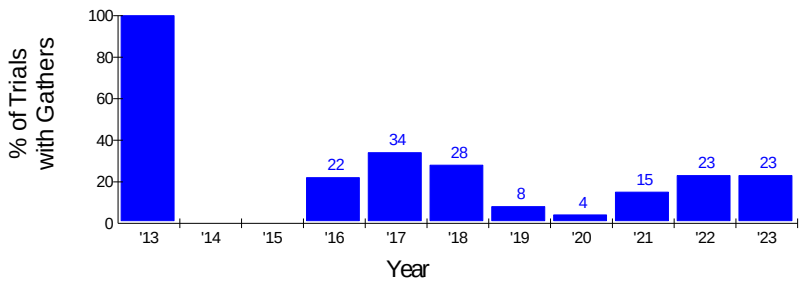


Figure E.6: Alternative 1

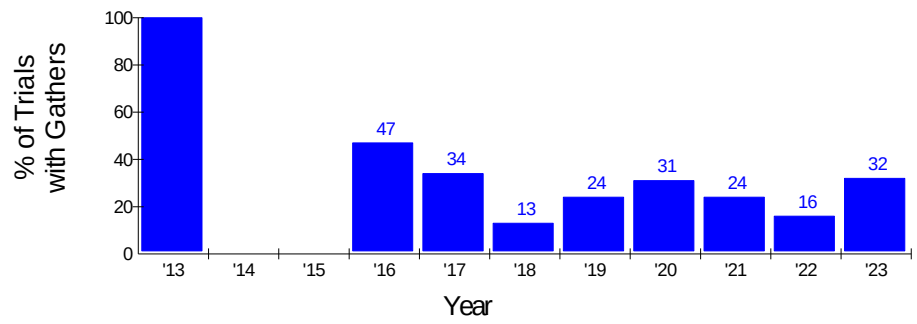


Figure E.7: Alternative 2

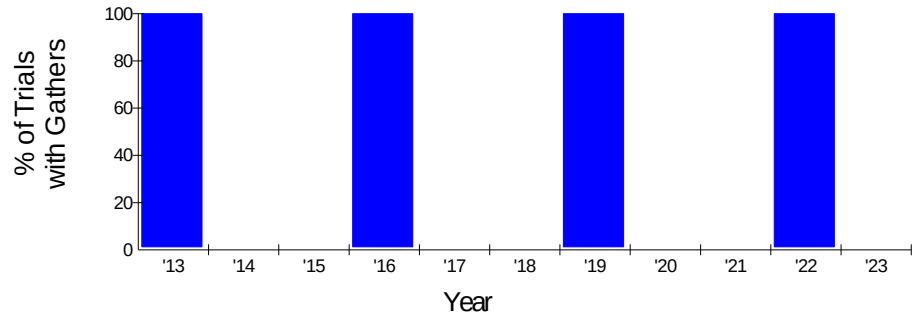
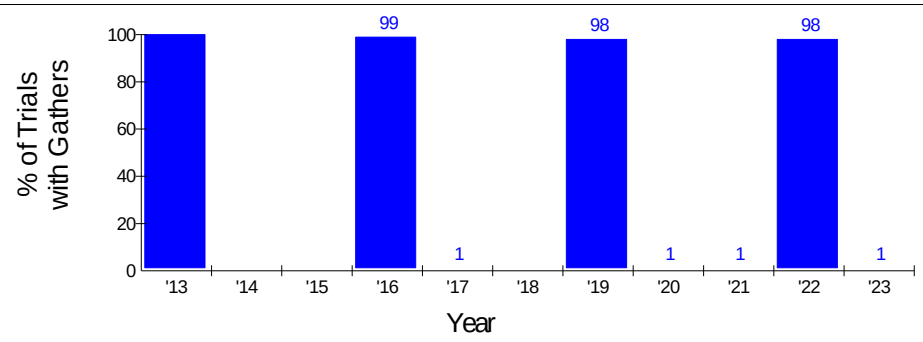


Figure E.8: Alternative 3



Population Modeling Tables: 5 year analysis

Table 9: Population Sizes in 11 years - Minimum

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	88	75	157	168	347
10th percentile	118	116	188	218	826
25th percentile	130	132	208	229	826
Median Trial	135	140	225	242	826
75th percentile	144	144	236	253	826
90th percentile	150	152	244	263	826
Highest Trial	155	166	251	276	826

Table 10: Population Sizes in 11 years - Average

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	207	220	253	329	704
10th percentile	220	238	305	365	1695
25th percentile	229	250	316	380	1905
Median Trial	237	261	329	398	2182
75th percentile	246	272	338	416	2378
90th percentile	253	288	345	433	2544
Highest Trial	269	294	358	480	2933

Table 11: Population Sizes in 11 years - Maximum

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	826	826	826	826	1086
10th percentile	826	826	826	826	2856
25th percentile	826	826	826	826	3658
Median Trial	826	826	826	826	4126
75th percentile	826	826	826	826	4717
90th percentile	826	826	826	826	5348
Highest Trial	826	826	826	826	6228

Table 12: Average Growth Rate in 10 Years

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	5.7	9.1	1.7	10.9	2.0
10th percentile	8.6	13.5	7.4	13.8	13.0
25th percentile	10.9	15.1	8.4	15.4	16.0
Median Trial	13.0	16.7	10.2	17.3	17.5
75th percentile	14.9	19.1	11.3	19.2	19.0
90th percentile	15.9	21.8	12.6	21.1	20.2
Highest Trial	18.4	22.8	14.6	25.3	22.4

Table 13: Totals in 11 Years -- Gathered

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	848	719	1041	833	0
10th percentile	856	764	1176	936	0
25th percentile	874	862	1198	984	0
Median Trial	920	910	1246	1059	0
75th percentile	1080	970	1276	1130	0
90th percentile	1119	1032	1314	1213	0
Highest Trial	1174	1062	1373	1420	0

Table 14: Totals in 11 Years -- Removed

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	685	690	561	798	0
10th percentile	694	736	694	902	0
25th percentile	712	828	725	941	0

Median Trial	759	876	774	1014	0
75th percentile	818	932	807	1090	0
90th percentile	859	992	846	1169	0
Highest Trial	916	1024	900	1375	0

Table 15: Totals in 11 Years -- Treated

Trial	Alternative				
	Low AML, PZP	Low AML	High AML, PZP, 60:40	High AML	No Action
Lowest Trial	45	0	129	0	0
10th percentile	53	0	149	0	0
25th percentile	57	0	153	0	0
Median Trial	64	0	158	0	0
75th percentile	94	0	169	0	0
90th percentile	102	0	177	0	0
Highest Trial	116	0	191	0	0

Table 16: 3-Year Analysis, % Trials Reflecting Gathers/Typical Trial Population Size

Year	Low AML, PZP		Low AML		High AML, PZP, 60:40		High AML		No Action	
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population
Year 1 - 2013	100	826	100	826	100	826	100	826		826
Year 2 - 2014		145		157		245		263		983
Year 3 - 2015		168		168		257		306		1,153
Year 4 -- 2016		185		210		270		328		1,368
Year 5 - 2017		211		257		295		418		1,647
Year 6 - 2018	91	250	43	301	100	355	100	494		1,931
Year 7 - 2019	5	155	7	145		243		240		2,231
Year 8 - 2020	1	145		162		240		273		2,595
Year 9 - 2021	1	149		189		241		320		3,039
Year 10 - 2022	2	174		234		277		404		3,561
Year 11 -- 2023	38	205	82	264	100	331	100	477		4,142
100 trial average	179		205		276		355		2134	

Most Typical Trial Graphics

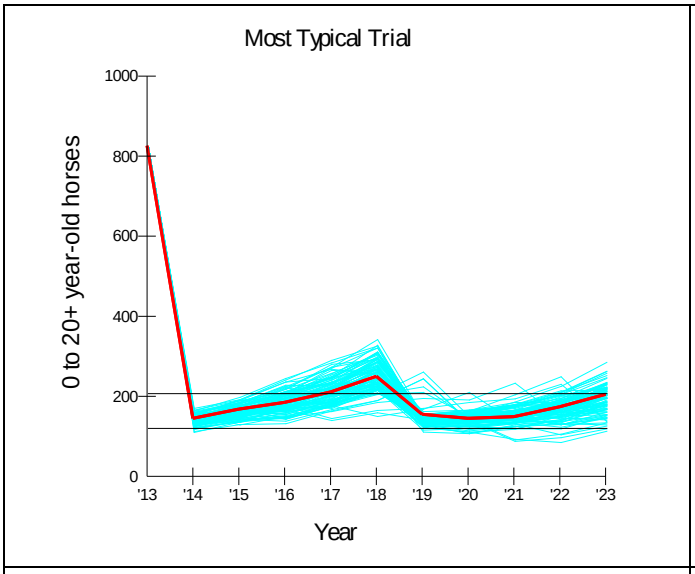


Figure E.9: Proposed Action

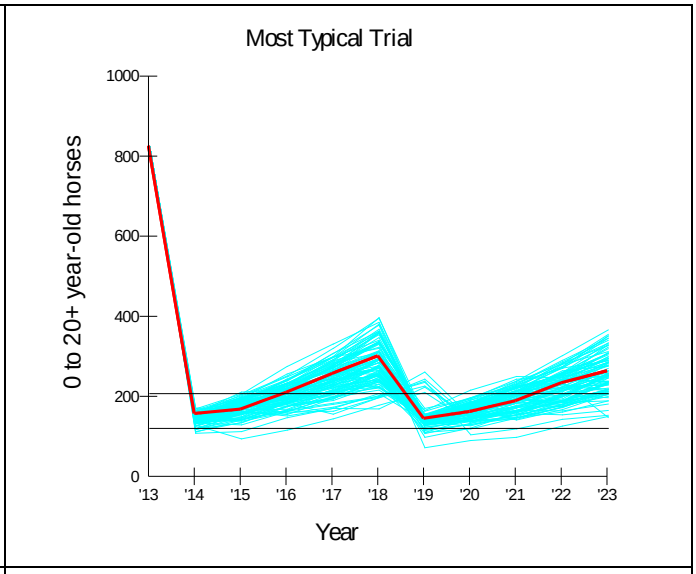


Figure E.10: Alternative 1

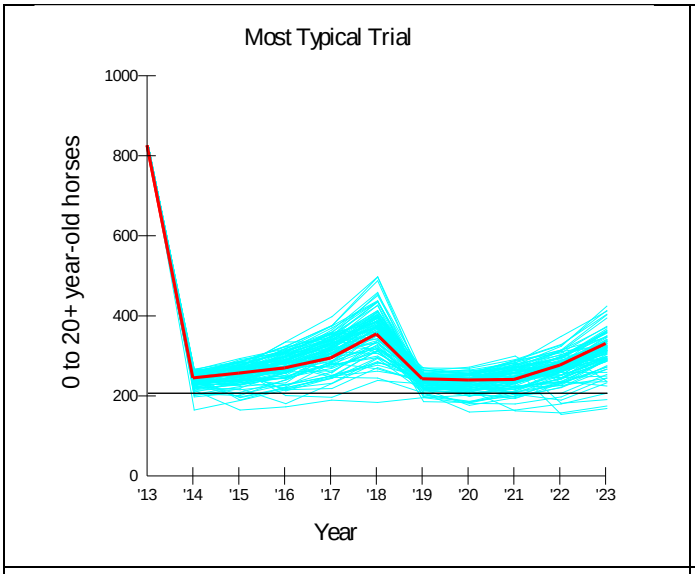


Figure E.11: Alternative 2

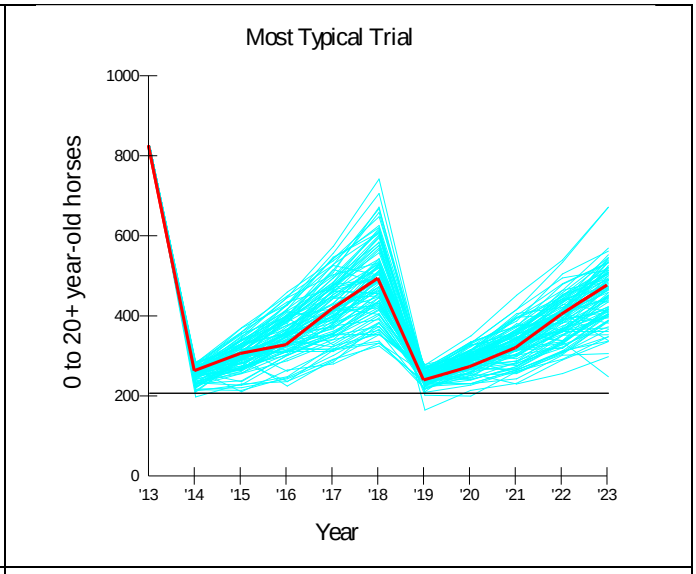


Figure E.12: Alternative 3

Modeled Gather Frequency Graphs

Figure E.13: Proposed Action

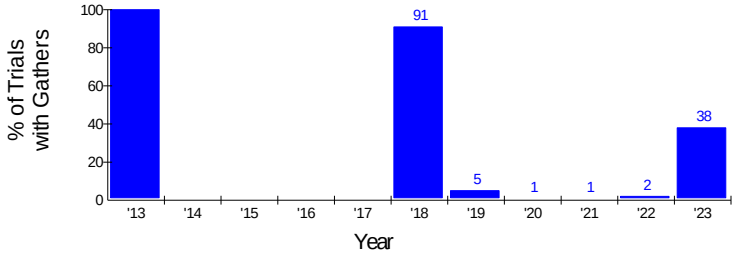


Figure E.14: Alternative 1

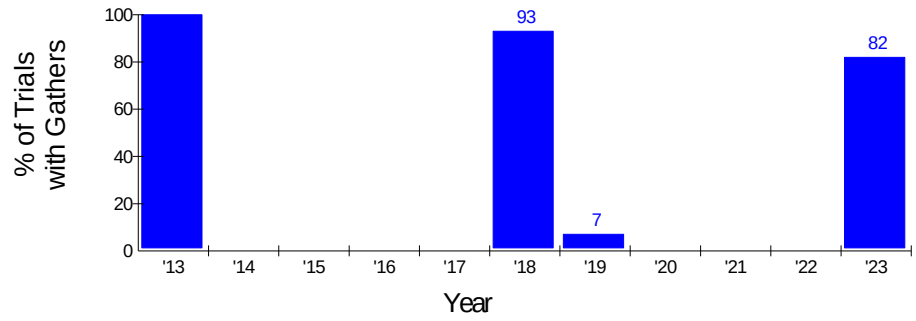


Figure E.15: Alternative 2

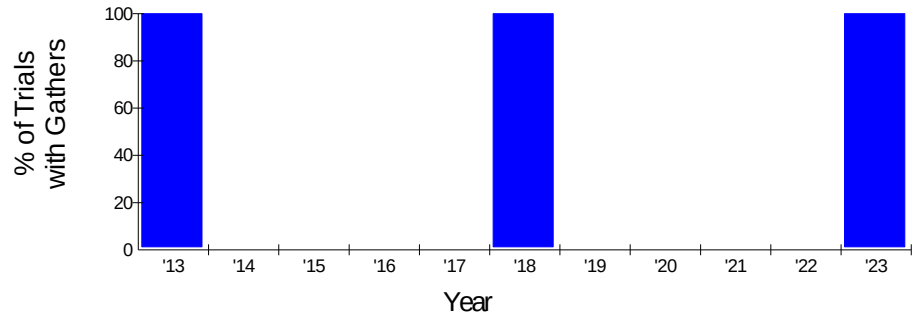
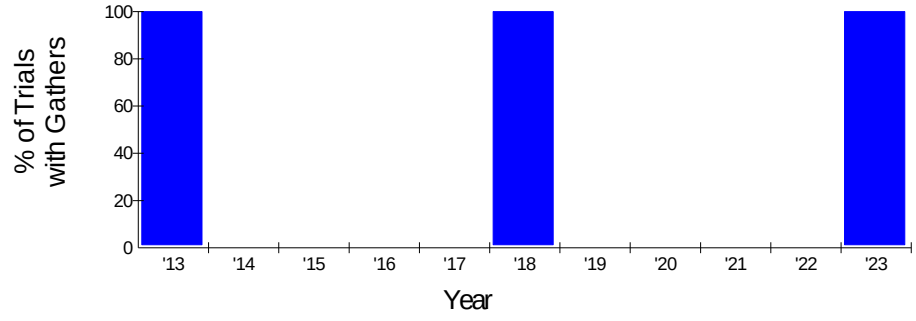


Figure E.16: Alternative 3



Fertility Control Only, No Removals

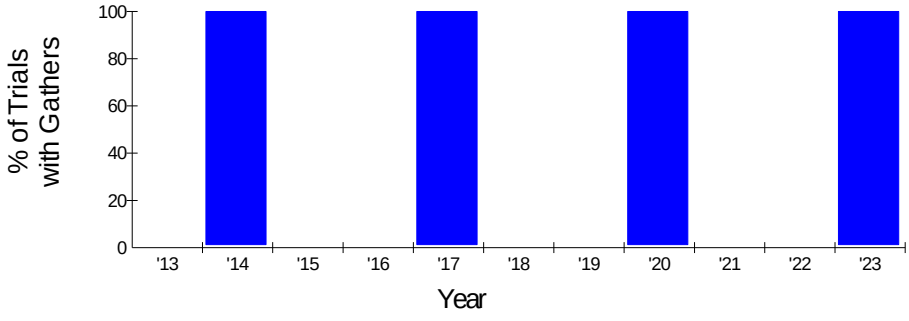


Figure E.17: Fertility Control Only, Modeled Gather Frequency

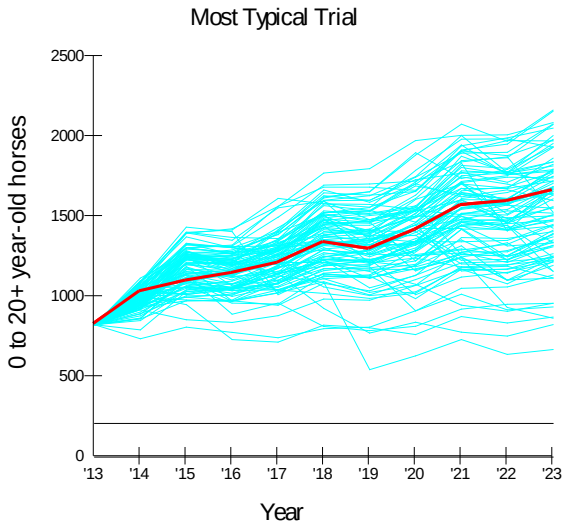


Figure E.18: Fertility Control Only, Most Typical Trial

Fertility Control Only, Population Sizes

Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	546	839	1010
10th Percentile	826	1052	1240
25th Percentile	826	1175	1410
Median Trial	826	1263	1639
75th Percentile	826	1381	1796
90th Percentile	826	1479	1982
Highest Trial	826	1631	2168

* 0 to 20+ year-old horses

Fertility Control Only

Average Growth Rate in 10 Years

Lowest Trial	-2.0
10th Percentile	3.3
25th Percentile	4.8
Median Trial	6.6
75th Percentile	7.9
90th Percentile	9.1
Highest Trial	10.1

Fertility Control Only, Animals Gathered, Removed and Treated

Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	2772	0	1170
10th Percentile	3488	0	1500
25th Percentile	3912	0	1679
Median Trial	4256	0	1796
75th Percentile	4661	0	1980
90th Percentile	5060	0	2124
Highest Trial	5601	0	2297

* 0 to 20+ year-old horses

Appendix F: Response to Comments

Comments received on the Preliminary EA were reviewed and considered in completion of the Final EA. As a result of some of the comments received, some minor additions were made to the EA to provide additional information or clarification. Comments were grouped by general subject. Similar comments were combined/grouped and content of lengthy comments summarized. Responses to the comments are provided below.

1. **Provisions of the WFRHBA and other Law**
2. **Range Improvements, Water, Fencing**
3. **Competition with Other Rangeland Users/Resources**
4. **Genetic Health**
5. **General Comments**
6. **Managing the Area as a Complex**
7. **Public Observation**
8. **Analysis of Impacts to Wild Horses**
9. **Population Controls**
10. **Monitoring and Data Collection**
11. **Appropriate Management Level, Perceived Inequality of Livestock and Wild Horses**
12. **Livestock Management**
13. **Inventory and Population Data**
14. **NEPA**
15. **Land Use Plans/Resource Management Plans**
16. **Predator Control**

No	Comment	Response
	1. Provisions of the WFRHBA and other Law	
1.1	The proposed gather is in violation of the WFRHBA and is illegal. Rounding up wild horses is against the law. Wild horses are protected by law and are not supposed to be harassed, terrorized and killed and/or removed from their native lands.	The Sec. 3(b)(2) of the WFRHBA requires the BLM to "*remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken . . .until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation*". Further, Section 9 of the Act specifically authorizes the use of helicopter to gather wild horses. Refer to Section 1.4 of the EA. The portion of the Act cited by the commenter is not pertinent to the overall management of the wild horse and burro populations by the BLM and USFS. In general, it protects the wild horses and burros from such actions by the general population.
1.2	The Act provides for wild-horse ranges to be managed principally for their benefit. Wild Horses were meant to be the principal users of this land. Wild horses are to be managed under law as an integral part of the landscape in a manner that recognizes their presence as "wild." This use within the boundaries of the HMA is to be considered primary, yet not exclusive. The BLM is mandated to protect wild horses, while livestock grazing is allowed entirely at the discretion of the Interior Secretary. The Diamond Complex land is set aside for and authorized for the use of Wild Horses whereas the livestock is only allowed or let to use the public range resources. The Wild Free Roaming Horses and Burros Act ("WFRHBA") is clear that the preservation	Only the BLM Director or Assistant Director (as per BLM Manual 1203: Delegation of Authority), may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process. Neglecting to manage HMAs as multiple use area would not be in conformance with the existing Land Use Plans and is contrary to the BLM's multiple-use mission as outlined in the 1976 Federal Land Policy and Management Act (FLPMA), and also would be inconsistent with the WFRHBA and the Public Rangelands Improvement Act of 1978 (PRIA). It was Congress' intent to manage wild horses and burros as one of the many uses of the public lands, not a single use. Therefore, the BLM is required to manage wild horses and burros in a manner designed to achieve a thriving natural ecological balance between wild horse and burro populations, wildlife, domestic livestock, vegetation and other uses. Information about the Congress' intent is found in the Senate Conference Report (92-242) which accompanies the 1971 WFRHBA (Senate Bill 1116): **"*The principal goal of this legislation is to***

	of wild horses must take precedence over access by livestock on public lands.	***provide for the protection of the animals from man and not the single use management of areas for the benefit of wild free-roaming horses and burros*** *(emphasis added). It is the intent of the committee that the wild free-roaming horses and burros be specifically incorporated as a component of the multiple-use plans governing the use of the public lands*." This comment was also addressed in Section 2.3.8 of the EA.
1.3	The law states the intent of Congress and the will of the American people that our wild horses be managed on the range in a humane and minimally intrusive manner that preserves their wild and free-roaming behavior. The agency must humanely manage these herds on the range.	Comment noted.
1.4	The Proposed Action does not adhere to the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA) Section §1333 (a) which states, "All management activities shall be at the minimal feasible level…"	"Minimally feasible level" does not refer to gathers specifically, but originates from early congressional hearings and is meant to prevent the wild horses and burros from being managed in "zoo like" settings. "*The committee wishes to emphasize that the management of the wild free-roaming horses and burros be kept to a minimum both from the aspect of reducing costs of such a program as well as to deter the possibility of "zoo like" developments. An intensive management program of breeding, branding and physical care would destroy the very concept that this legislation seeks to preserve*." 92nd Congress, Senate Report 92-242, June 25, 1971.
	2. Range Improvements, Water, Fencing	
2.1	BLM needs to establish alternative water sources for the current majority-consumers -- livestock -- as well as for the wild horses, burros, and other wildlife. As landlord of the multiple-use range, BLM is responsible and accountable for providing water sources and maintaining them. Guzzlers should be strategically installed throughout the districts, especially in the HMAs. Guzzlers capture, conserve, and release water, much like cisterns. Guzzler design is better than that of open reservoirs and troughs. Guzzlers also reduce the need to haul water into wilderness areas, should there be a severe drought. Guzzlers come in all sizes and configurations. Those with a 10,000-gallon storage tank can support herds of big game animals -- and mustangs. Such large guzzlers can be buried underground, thus preserving wilderness vistas. Construction materials can be hauled into remote areas by helicopter, which will be a "constructive" use of the aircraft services contract. Below are the links to Web sites for more information on guzzler use by all sizes of animals. Guzzlers can even be used by humans (link provided).	The development of waters on public lands is outside of the scope of the analysis, and many of the water rights in the area are privately owned and controlled. BLM is mandated to manage these herds and maintain populations at proper levels through removals of excess horses and use of population controls such as fertility control, when there are excess numbers of wild horses present on the range and outside of the established HMA boundaries, as is the case in the Diamond Complex.
2.2	Research shows that providing a second, non-stream source of water significantly decreases the time cattle spend in a nearby. This finding would appear to support guzzler installation throughout the HMA (link provided)	Comment noted.
2.3	Among the photos provided with the scoping notice were several whose captions pointed to the presence of cheatgrass. A recent study conducted by the University of Nevada at Reno found that cheatgrass can be successfully controlled by having livestock graze it in the fall. Moreover, at that time of year it provides good nutrition, which also dispells popular beliefs. Below is an article on the topic. The Holistic Management approach would probably dovetail nicely with UNR's recommendations (link provided). Instead of insinuating that wild horses are the cause of cheatgrass invasion, BLM should proactively	Comment noted as to livestock grazing of cheatgrass. However, adverse impacts to vegetative health resulting from over-utilization due to excess numbers of wild horses can create a more favorable environment for spread of cheatgrass and thereby exacerbate cheatgrass invasion. Refer to Sections 3.2, 3.4 and 3.5 for more information about the condition of the rangeland throughout the Diamond Complex and impacts that can occur due to an overpopulation of wild horses.

	implement timed grazing to control it.	
2.4	The EA is inadequate because it does not provide a list of all range improvements done to manage and protect wild horses, particularly water developments, miles of fence etc. Provide status, explanation and justification of other range management techniques such as the status of all cattle guards that might remain on public land.	This request is beyond the scope of this analysis and has no bearing on the action alternatives.
2.5	Cattle guards within the HMA must be removed or retrofitted with "Wild Horse Annie" safety features.	Removal of cattle guards is outside of the scope of this analysis. We are unsure of what you refer to as the "Wild Horse Annie" cattle guardsand would require further clarifying information to understand this comment.
2.6	The EA should provide the number and location of all water sources on these public lands … regardless of who or what is accessing the water if the water or water source is on the HMA. Provide accurate and current map. Provide information about future ten to twenty year, year-round availability of these water sources to Wild Horses and other wildlife.	This request is beyond the scope of this analysis. Refer to Section 3.6 of the EA for information about riparian and water sources within the HMA. BLM's monitoring data indicates that wild horses are relying on water sources that are producing limited water relative to wild horse population needs, and that wild horses are concentrating at certain water sources and adversely impacting those waters and surrounding forage and vegetation.
2.7	The EA should review and consider the removal of all barriers from all water sources within the HMA that do not allow year-round access by Wild Horses.	There are no known barriers to wild horses to restrict use of waters located on public lands.
2.8	Include in the EA, a fire management plan for Wild Horses to escape if/when a wildfire occurs on these HMAs.	This is outside of the scope of the analysis and has no bearing on the action alternatives. Wild horses are highly mobile and able to leave an area affected by wildfire.
2.9	Provide an accurate/current/detailed map of all fences in the HMA. Provide information in the EA on the current status of all fencing; its location, purpose, length and effect on wild horses for their access to forage, water and ointermingling for genetic viability. Provide information on the number of designated (fenced or partially fenced) "pastures" (enclosures) within the interior of the HMA and the reason for this fencing and pastures – such as livestock allotment boundary. Include the removal of all interior fencing on the HMA the alternatives. All old and unused barbed wire must be removed from public land. This barbed wire is a major danger for the WH&B in addition to wildlife and livestock and yet it can be seen abandoned and lying all over public lands.	This request is beyond the scope of this analysis. Wild horses are able to move around within the Complex and available data indicates that there is sufficient intermingling for genetic viability. As part of this gather, further genetic monitoring would occur.
2.10	The area assessed (Diamond HMA) is significantly impacted by a large drift fence that effectively bisects the HMA during cattle grazing season. This obstruction also has a high likelihood of impacting the natural pattern of utilization of the area by wild horses.	Comment noted. The fence was originally constructed with "horse jumps" to mitigate potential movement issues. The jumps are not used by wild horses. This is outside of the scope of this analysis and would be addressed in future Rangeland Health Assessments or other planning efforts.
	3. Competition with Other Rangeland Users/Resources	
3.1	Wild horses utilize coarse, old-growth forage. They're like lawn mowers -- they take off the top growth — the old, dry, unpalatable growth. This "mowing" prompts the plants to put down deep roots and prevents weeds from maturing to produce seeds. Instead, grasses are encouraged by the horses' frequent top-grazing. Livestock, on the other hoof, prefer tender new growth. They will even return to patches previously grazed — not rested — to get at that new growth. (link provided). Thus, wild horses make the range better for livestock. You need more horses, not fewer.	This is outside of the scope of the analysis. We do not support the view that more wild horses improve the range better for livestock and that more wild horses are needed. Further, these statements are not supported by the data or site specific conditions of the Complex. The needs for the gather, determination of excess and current issues of rangeland health and lack of forage are discussed in detail in the document in Sections 1.1, 1.2, 3.2, 3.5, and Appendix C. Please refer to additional information related to wild horse competition with livestock and wildlife in Sections 3.2, 3.5, 3.6 and 3.8.
3.2	Commensals are animals that eat "at the same table" -- without competing. New research has disclosed that cattle gain more weight when grazed with equids. Please see the	This is outside of the scope of the analysis. Refer to Response 3.1 above with respect to data demonstrating the presence of and need to remove excess wild horses to ensure rangeland health.

	Princeton University report, linked below. It is time to stop the range war. Forage-grazing is not a zero-sum game. Everybody can win without anyone losing, if the range is managed holistically. There can be more grazing and more grass. Grazing animals have a symbiotic relationship to one another. BLM needs to emulate Nature. (link provided)	
3.3	Regarding competition with wildlife, the species thought to seek out similar forage is elk. However, elk — once exterminated from, but later reintroduced back in Nevada — have rebounded and are increasing, with the latest data from the Nevada Department of Wildlife (NDOW) reporting more than 15,000. NDOW is recommending a 21-percent increase in the number of bull-elk hunting tags along with a 22-percent increase in the number of cow-elk tags issued. (link provided).	This comment is outside of the scope of the analysis. Though some elk may use the southern portion of the Complex, a large elk population in competition with wild horses is not expected. Refer to response 3.1.
3.4	The existence of competition between wild horses and bighorn sheep has not been supported by a number of recent studies (link provided).	Bighorn sheep are not present within the Complex.
	4. Genetic Health	
4.1	Concern that the low AML is not appropriate and sufficient to maintain genetic viability of these herds or that sufficient intermingling of horses exists to ensure genetic viability. Drastic reductions to the already small population of mustangs Diamond Complex would put them at further risk of becoming genetically nonviable.	Refer to Section 3.2, 4.2 and Appendix B, Section 2, and 4 in the EA, which summarize the genetic analysis conducted on horses released after the 2004 gather that showed strong genetic diversity.
4.2	The EA should provide evidence that after the proposed capture, treat release, removal and subsequent trapping there will always remain a genetically healthy population of no less than the Gus Cothran suggested minimum number of 150 adults of Wild Horses on this HMA and that these horses are able to reasonably physically intermingle for genetic viability. This evidence must be provided for any and all future trapping plans as stated in the EA.	
4.3	The EA does not provide the past genetic testing result reports and at what the Wild Horses population was at the time the testing samples were taken. Provide the number and supporting data of Wild Horses returned and/or remained (uncaptured) from the range at the time of the testing. Provide all genetic sampling data and analysis of the horses in the HMA done within the past ten years and if no research was done then the reasoning behind that decision including BLM's presumption that there was not a need for such research.	Summary of the genetic analysis completed following the most recent gather in 2004 were included in Sections 3.2 and Appendix B. The complete report is available upon request.
4.4	The EA states and I believe that the diversity within the bands that I have seen over the years to be high, particularly since the complex has gone 8 years without a gather. However, the AML numbers for the separate HMAs in the complex are low enough by themselves to raise concern about long-term viability. The EA suggests that mixing between HMAs in the complex and between the complex and the Triple-B HMA will compensate for low AML numbers and contribute to continued viability. Given enough time between gathers I believe that contention is justified. I am glad to see that continued intensive monitoring has been recommended. I am concerned, however, that the plan put forth may put the herd in jeopardy in the long term.	Through future gathers, the BLM will continue to collect samples from animals released to the range for genetic sampling. Inventory and field monitoring will continue to document animal movement patterns. Long term strategies for managing genetic health are outside the scope of this analysis but would be considered in future Herd Management Area Plans in concurrence with LUPs/RMPs and National policy. There are no current indications that the genetic variability of the Diamond Complex is in jeopardy.
4.5	As regards injections of genes from Triple-B, (though beyond the scope of the EA) I would like to suggest that an appropriate section of the range to the east of the Diamond Mountain crest be re-designated for use by wild horses. I'm not suggesting that the entire area between Diamond HMA and Buck and Bald be re-designated; only a small portion of one of the allotments to be designed as a corridor between Diamond HMA and Buck and Bald. I am aware that the WHFRHB Act does not allow the freewheeling re-designation of rangeland	This comment will be forwarded to the Ely District for their future consideration.

	for the management of wild horses. But I also note that the Elko District office is in the process of writing an EIS intended to rather drastically re-align and re-designate areas of the Spruce-Pequop, Antelope and Goshute HMAs to accommodate a novel sanctuary concept. It would be helpful I think if in managing for healthy outcomes in existing HMAs the agency could in like manner think outside the box.	
4.6	Question about the caption to a photograph on P.128 Figure C6, which states that horses cross the ridgeline because there is no fence to stop them. It speaks to how easy it is for horses to cross the ridge and exit the HMA, and highlights how nonsensical it is for one side of the ridge to be within the HMA and the other side not. I have seen horses on the east side of the ridge on most of my trips from 2008 to the present. Population pressure or lack of forage on the west side is not a compelling explanation for these horses crossing the mountains.	Refer to Response 4.5. Since the most recent 2004 gather, the number of wild horses outside of the HMA on the east side of the Diamond Range has increased from 127 noted during the summer 2006 inventory to 311 during the November 2012 inventory. Refer to additional discussion added to the Final EA at Sections 1.1, 3.2 and Appendix B.
4.7	If the gather efficiency for this gather is 90%, the BLM will have 743 horses to select for removal and return. If the age distribution from the 2004 gather is roughly repeated this year then all animals 9 years and younger would be removed along with 60% of the horses 10 years and older. Of the 127 horses returned to the HMAs half would be mares, all injected with immuno-contraceptive. Of the 83 horses not gathered my guess is that 33 horses would be in the 0-3 age group and only 26 would be breeding mares. Unless BLM is very careful about how the population is managed, most of the new genetic material gained by mixing will be removed and sent to holding or returned to the range in the form of immunized mares. Gathers repeated every 3 years will continue to harvest most of the results of breeding with new recruits from other locations. Only horses that escape gathers would be capable of maintaining genetic diversity. Maintaining viability of the wild bands is more important than removing all putative adoptable horses.	As stated in Section 2.1, the goal would be to ensure the population includes animals from all age groups with the emphasis for removal of younger animals under 4 years of age. It is estimated that most animals released would be 4 years of age or older. Within the Complex, it is also estimated that a minimum of 50 wild horses (representing all age groups) would be uncaptured, and thus present in the post gather population. Refer to Response 4.4.
4.8	Wild herds must never be reduced to below the necessary level for long-term genetic viability to deter inbreeding and ensure the survival of the herds. Dangerously low AMLs must be increased to a minimal population of 150-200 adult horses of standard reproductive age -- the necessary numbers for genetic viability and the preservation of a self-sustaining population as advised by equine genetic experts. AMLs must be based on genuine science to establish viable herd sizes to ensure our nation's wild equines do not become genetically bankrupt.	Opinion. Comment noted. Refer to responses 4.4, 11.3 and 11.5. There is no evidence to support the claim that the proposed gather will result in the herds being depleted to the point of irreparable genetic damage, or that the proposed gather would not allow the populations to remain self-sustaining. The Diamond Complex has been gathered twice with individual HMAs gathered additional times as noted in Chapter 4 and Appendix B. The current genetic data does not indicate that these gathers and removals have had negative impacts to the genetic variability of the Complex. Additionally, there is no information that indicates that the proposed gather would harm the genetic health of the Diamond Complex and movement between the HMAs within the Complex help ensure genetic variability.
4.9	The last time DNA samples were taken was in 2004. The timing of the sampling is crucial because some BLM offices have drawn hair from horses removed rather than horses released. Such methods are invalid because the specimens represent the status of animals that are no longer part of the herd. BLM needs to conduct a 100-percent evaluation of the genetic health. Armed with those results and guidance from Dr. Cothran, BLM must then develop management actions to maintain gene pool integrity. Such methods involve Best Management Practices, which	We make every effort to collect genetic samples from wild horses to be released to the range. In cases where a larger sample size is needed, samples are collected from horses transported to Short Term Holding Facilities and adoption. During the 2004 gather of the Diamond Complex, samples were collected from released wild horses. Refer to Response 4.4 and 4.8.

	BLM needs to develop with regard to its wild horse herds. The next roundup should be specifically for this purpose, with all horses DNA-sampled and then released. Once Dr. Cothran's test results are available, then BLM can schedule a roundup for purposes of reducing the herds, if necessary. Armed with the genetic profile for each horse, BLM can proceed with removals, carefully preserving lines and promoting diversity. The EA should fully detail the steps taken in this regard.	
4.10	Concerns of genetic drift and stochastic events -- random, chance happenings – that can eliminate important survival-supporting, adaptive genes from a population. Concern that removals and contraceptive application could randomly wipe out certain traits that are valuable and well-worth conserving. Concerns of the danger of creating a population bottleneck, and risks of small populations. Concern of founder effect -- which occurs when a new colony is started by a few members of the original population. The planned roundup, drastic level of removals are contraindicated. Here is that link (provided):	Comment noted. Refer to Sections 3.2 and Appendix B in the EA and Response 4.4 and 4.7 above.
	5. General Comments	
5.1	The Eureka County Board of Commissioners and the Eureka County Natural Resources Advisory Commission expresses full support for reducing wild horse populations in the Diamond Complex. Relieving the severe overpopulation of wild horses is imperative to improving range conditions and attaining multiple-use objectives. In the absence of active herd management, vegetation communities have been badly damaged, herd health is poor, wildlife habitat has been substantially reduced, livestock operations have suffered major economic losses, and hunting and recreational opportunities have been compromised. We cannot express strongly enough the importance of reaching and maintaining wild horse herd populations at AML over the long-term.	Comment noted.
5.2	We cannot fully support any of the gather and management alternatives as currently outlined in the EA. Alternative 1 (the Proposed Action) seems reasonable, but concerns for the phased approach that will not achieve desired low AML in the first gather and, a follow-up gather would be planned two to three years. Concern of uncertainties related to funding, holding space, and potential administrative actions. The work of the Diamond Complex Working Group came together to make difficult choices and compromise to set AML in the first place. This Group also agreed that the Diamond Complex would never again be allowed to be in the condition that it currently is and also agreed to a three year gather cycle for the Complex which was last gathered in 2004. The intent and desire by local BLM offices to gather the Complex again in two to three years is likely not realistic. Please revise the plan to adjust the Proposed Action to ensure a post gather result of low end AML. We are supportive of the other management provisions outlined in Alternative 1, the Proposed Action.	Comment noted. The MLFO does not have documentation showing agreements that would have required a three year gather cycle for the Complex. Despite District priorities, the National gather priorities, holding space limitations and budget allocations affect when gathers can be conducted to remove excess wild horses, as well as the number of wild horses to be removed. The Diamond Complex is scheduled for gather in January 2013 because it is both a District and national priority to remove the excess wild horses from the Complex based on available data and current rangeland conditions. There is not sufficient holding space at this time to remove the additional wild horses necessary to achieve low-range AML during the 2013 gather.
5.3	We request that the Proposed Action be adjusted to ensure 1) removal of excess horses to immediate post gather low AML; 2) fertility control in every mare returned back to the Complex; and 3) establishing a heavy male to female sex ratio to keep reproductive success low but at least a 60% male sex ratio. Given the past budget woes, increasing gaps in time between gathers, and the importance of keeping herds at or below AML, the number of wild horses gathered must be high enough to bring the herd to numbers at the lower range of AML. Fertility control and higher male sex ratios will facilitate keeping numbers within the range of AML longer.	Refer to Response 5.2 above. The Proposed Action currently includes the application of fertility control to all mares released and a sex ratio adjustment during gathers that do not achieve the low AML.

5.4	We thank BLM for being diligent in moving forward with the analysis to complete a gather of wild horses in the Diamond Complex.	Comment noted.
5.5	BLM should ... • Buy out grazing permits in allotments that are within or that adjoin the HMAs • Buy "checkerboard" private lands that are inside or bordering the HMAs • Buy state-owned lands that are inside or bordering the HMAs • Negotiate land swaps with the state and private property owners.	These recommendations are outside of the scope of the analysis. These actions are not appropriate for analysis in a wild horse gather plan and EA. These recommendations are more appropriate for consideration during the land-use planning process.
5.6	You are supposed to have a public meeting on the use of helicopters prior to the roundup aren't you...or has that come and gone in the mist...?	Refer to Section 1.7 and 7.0 in the Final EA. Information about the annual helicopter hearings was accidently left out of the Preliminary EA, but has been included in the Final EA.
5.7	Nevada Department of Transportation (NDOT) District III Elko sub-district supports the removal of excess horses from this area. Excessive horse populations poses a risk to the travelling public as stress causes the horses migrate further distances for food and water. This migration often causes them to cross roadways and even break through right-of-way fences. Horse vehicle accidents are very dangerous and often lead to fatal results. NDOT supports maintaining sustainable population of horses that are reasonable for the area in the current drought conditions. If any of the round-up activities occur near roadways controlled by NDOT, coordination between us and the federal agencies is requested to properly advise and protect the travelling public.	Comment noted. BLM will coordinate with NDOT as necessary.
5.8	The State Historic Preservation Office (SHPO) supports this document as written.	Comment noted.
5.9	The timing of the gather does not provide a reasonable period of time for the public to seek and acquire adequate administrative relief via IBLA appeal. The gather must be delayed to allow for the full administrative process to take place from the date of the issuance of the Decision Record (DR) in order to allow the public the legally required opportunity to file an IBLA appeal and have its public input appropriately considered.	Any gather operations would not commence until 31 days after the issuance of the Decision Record, to provide an opportunity for administrative appeal. However, due to the escalating conditions within the Diamond Complex and potential for such conditions to develop into an emergency that affects the health and well-being of the wild horses, BLM has determined that it is important to move promptly to conduct the proposed gather and removal of excess wild horses from the Complex.
5.10	• Oppose the Bureau of Land Management's (BLM's) proposal to round up and remove wild horses from the Diamond Complex. • Cancel the Proposed Action. • Select the No Action Alternative -- defer gather -- at this time. • I understand that herds need to be managed but do not approve of the method. Do not agree that removing wild horses is the solution to the ongoing problem of over grazing.	Comments and opinion noted.
5.11	The State Land Use Planning Agency, supports your efforts to reduce the horse population to AML.	Comment noted.
5.12	Due to the current situation I am in support of removals of animals from the affected areas to reduce stress on the range, with the recommendations listed below: 1. Selective removals as defined under the Act. Animals removed should first be selected based on age and suitability for the best opportunity in the adoption program. Every effort must be made to leave as broad a genetic diversity post-removal. Older animals that are not suitable for the adoption program should be left on the range whenever possible.	Comment noted. The order of priority for removal does consider adoption suitability (EA Section 2.1), the EA includes the expectations for humane treatment of gather animals (EA Sections 2.1, 3.9 and Appendix A), and BLM currently anticipates holding an onsite adoption event. Additional information pertaining to Agency expectations for humane treatment was also included in Section 2.1 and Appendix A.III.

	2. A clear standard for humane handling of the animals must be clearly outlined prior to any operation. Violation of this standard must be taken seriously and a recommendation that a single written warning, prior to a stop work order, be the ramification for violation of the handling standard. This addition to the Record of Decision is currently within BLM's authority. 3. I support an onsite adoption event. The opportunity to educate the public to adoptions, as well as the Diamond range, should be an included public outreach project.	
5.13	Included in the Final EA a post operation addendum should be included: 1. Impacts of others uses, and users, must be clearly understood prior to any further management actions. A timetable of livestock use and migratory map of wild horses must be studied. The impacts of domestic livestock released onto the range must be understood to avoid future over-utilization and identify areas of artificial impact. Time tables for turnout (etc) can be adjusted to maximize range recovery. 2. The impact of the drift fencing must be minimized. If the fencing creates an obstruction to natural movement within the HMA it must be removed from public land. During grazing season the current fence line essentially cuts off the western half of the HMA. This may create artificial movement creating an "off-HMA" population in the East into Ely. 3. To minimize the potential for genetic bankruptcy within the wild horse population every effort must be made to do identification of family bands, areas of utilization and accurate population growth. 4. The accuracy of original HMA boundary lines must be studied and adjusted where necessary.	These recommendations are outside of the scope of the analysis but would be considered through long term management planning for the Complex and RMP Revisions and/or Amendments.
5.14	A plan to set up feeding stations on the range similar to those for elk would be more cost effective and more humane.	This is outside of the scope of the analysis and has no bearing on the action alternatives. Refer to Sections 1.1, 1.2, 1.4, 3.2, 3.5, 3.6 and Appendix B and C which discuss the need for and the requirement for the gather. Leaving wild horses on the range and foregoing removal of excess wild horses would not be in conformance with the WFRHBA. Populations would continue to increase, continuing to impact the arid rangeland of the area.
5.15	Suggested alternative to the roundup. Use a more cost effective method that would not result in increased wild horses in facilities. Use bait/trap, give the mares fertility control but leave the water and possibly a few round bales of hay after. Set up more water facilities, again, with a few round bales left behind. This will help the area recover and benefit cattle/sheep. This would save money, assist the environment and help sustain all animals using the property.	Refer to Section 2.3.1 and 2.3.2 of the EA, and response 5.14 above. Additionally, providing supplemental water and hay to wild horses (and other users) does not constitute Thriving Natural Ecological Balance. Supplemental feeding on public lands is against BLM policy and runs counter to managing wild horses at levels consistent with the productive capacity of the range.
5.16	The EA should include any and all data for any wild horses captured in the past ten years including helicopter and bait or water trapping both on and off the HMA including adjoining private property.	The Preliminary and Final EA include past gather information in Section 1.1, 3.2, Chapter 4 and Appendix B.

5.17	Concern for the cost and percentage of the BLM budget spent on long and short term facilities, the capacity of the facilities to hold the wild horses removed from the Diamond Complex, low adoption demand where the removed wild horses will go, and the opposition to slaughter by congress and the public.	These concerns are outside of the scope of the analysis. The BLM is aware of the public's concerns. Repeated implementation of population controls in future years would improve the ability of the BLM to reduce the number of excess wild horses that need to be removed from the range, and would thereby help reduce long and short-term holding costs.
5.18	BLM managers refuse to manage the health of our public lands with all conflicting land-uses and alternatives considered in a comprehensive, common-sense way.	This is outside of the scope of the analysis. The reader is encouraged to review RMP documents for the three Districts involved, and Rangeland Health Assessments completed for allotments within the Diamond Complex for more information about how these areas are managed. The reader is also encouraged to provide recommendations to each of the three Districts for future RMP activities.
5.19	I support the decision to round up the mustangs. If they can't be adopted, I support sending them to slaughter.	Comment noted. The BLM does not transport unadoptable wild horses to slaughter and this would also be contrary to Congressional directives set forth in the most current Appropriations bills.
5.20	Support of having this round up. I am a horse owner, I love mustangs, but I also know there needs to be a balance and there are too many mustangs for that desert to support. By all means, Round them Up! I don't understand how these "save the mustangs" groups would rather see it starve to death then be used for some other purpose. I believe in conservation of the land and the mustangs.	Comment noted.
5.21	Implement the alternative to manage the Diamond Complex wild horses on the range using PZP fertility control and avert removals by reducing livestock grazing in these HMAs.	Comment noted. Alternatives to manage the wild horses within the Diamond Complex solely with fertility control was addressed in Section 2.3.1. Reduction of livestock was addressed in Section 2.3.3 of the EA. Refer also to Section 1.2 and 1.4 of the EA.
5.22	If this proposed action to obliterate the Diamond Mountains wild herds proceeds, BLM will never again be able to claim they are not managing America's wild horses and burros into extinction. Wild horses are being phased out and in grave danger of disappearing altogether due to the grossly unfair allocations of forage and rangeland for overabundant livestock usage. If the round ups and slaughter of these animals continue at the alarming rate they have been, the wild horse will soon be an endangered species.	Opinion. The BLM has gathered the Diamond Complex as a whole twice and portions of the Complex several times in its history. There is no basis for the suggestion that completion of a gather to remove excess wild horses and apply population controls would cause the herds to disappear or go extinct.
5.23	Recommend an adoption program to allow citizens to sponsor wild horses on the range, with amounts similar to that paid by ranchers per head for cattle, and offset revenue loss for removing cattle from the range.	This is outside of the scope of the analysis and is inconsistent with the WFRHBA.
5.24	Concern of sale of wild horses to meat buyers. Wild horses with BLM brands are being rescued from slaughter plants, and the whereabouts of others sold are unknown. Oppose sale of wild horses to those that would send them to slaughter. More control is needed.	Comment noted. BLM only sells wild horses "with limitations," which prohibits the purchaser from sending the wild horses for slaughter. BLM does not allow the sale of wild horses that would result in slaughter.
5.25	Will horses be rounded up in the HMAs in which they currently are found? Will they be driven into other HMAs? How will they be gathered? How many animals are currently in each HMA?	Refer to Sections 2.1, 2.2 and Appendix B in the EA. Wild horses would be gathered from within their respective HMAs with a few potential exceptions. Gather corrals in the Corta Allotment at the north end of the Diamond Range could be used to gather horses from all three HMAs. The BLM COR on-site would determine distance and direction to move wild horses to ensure their safety and humane treatment. Once gathered, wild horses would be sorted by HMA they were gathered from and marked with corresponding symbols with livestock paint. Wild horses released back to the range would be released back to the HMA they were gathered from.

5.26	Will BLM allow any bands to remain intact to naturally help regulate populations? Which bands? Why?	Gather efficiencies rarely exceed 85% of the population. Those bands which are not gathered will remain intact.
5.27	No alternative methods of capture are considered.	The Proposed Action and Action Alternatives include the use of helicopter and bait or water trapping. Additional methods of gathering were also considered in Section 2.3.2, and 2.3.4 of the Preliminary and Final EA.
5.28	Recommend Native American cowboys on horseback.	Alternative gather techniques including the use of wranglers on horseback were addressed in Section 2.3.4 of the Preliminary and Final EA.
5.29	Develop a new management plan that deals with today's fiscal realities and public sentiment against the roundups and in favor of humanely managing wild horses on the range while preserving their natural wild and free-roaming behaviors. Because of the number of wild horses in holding facilities and sale to kill buyers, the BLM must do everything possible to keep horses on the range.	Comment noted. This is outside of the scope of the analysis. Refer to Sections 1.1, 1.2, 1.4, 3.2 and Appendix C of the EA. Leaving wild horses on the range and foregoing removal of excess wild horses would not be in conformance with the WFRHBA. Populations would continue to increase, continuing to impact the arid rangeland of the area. Refer also to response 5.24.
5.30	The plan is contraindicated in its entirety.	Opinion. Comment noted.
5.31	The scoping letter states that wild horses have crossed State Route 892, and two have been killed. Why has BLM not erected safety fences along the highway and posted signs to warn motorists that they are entering a wild-horse area? Horses will roam. It is management's duty to keep them from places they should not be. Prevention is key.	This is outside of the scope of the analysis. Wild horses typically move outside of HMA boundaries as the populations increase which results from increased competition for resources. Monitoring and inventory data indicates that when these areas are not overpopulated, then fewer horses leave the HMAs. Leaving wild horses on the range and foregoing removal of excess wild horses would not be in conformance with the WFRHBA.
5.32	The EA should analyze an Alternative for returning Horses that have wandered off of the HMA back to the HMA	Action to prevent horses from leaving the HMA boundaries is outside of the scope of the analysis. Wild horses typically move outside of HMA boundaries as the populations increase due to increased competition for limited resources within the HMA. Monitoring and inventory data indicates that when the HMAs are not overpopulated, then fewer horses leave the HMAs. It is preferable to return horses to the range that they were captured from within the HMA in order to meet the post gather target numbers, rather than relocating those horses that have potentially established permanent residency outside a designated HMA, as such horses might return to those non-HMA areas. During inventory flights completed of the proposed gather area in November 2012, 311 wild horses were observed outside of the Diamond and Diamond Hills South HMAs along the entire east side of the Diamond Range. Inventory data displayed in Appendix B shows that as the population increased, so did the number of wild horses residing outside of the HMA boundaries. Additional information was added to the EA regarding wild horses outside the HMA boundaries and the November 2012 inventory. Moving the horses back into HMAs would not solve the inherent problem of wild horse overpopulation in relation to the available resources in the area. The determination of excess wild horses was made in the Preliminary and Final EAs with documentation of ongoing impacts from wild horses and lack of available resources to support wild horses.
5.33	Removing horses that have wandered outside the boundaries of an HMA creates a vacuum for "insider" horses to fill. Removal is not a true solution -- it perpetuates the situation and leads to the elimination of more mustangs than necessary. The outsiders may be only temporary visitors, not permanent residents. They may have been driven outside by the	Refer to response 4.6, 5.31, and 5.32. Returning excess wild horses to the Complex from outside the HMA boundaries would not resolve the current over-population of wild horses.

	inventory helicopter. First encourage the outsiders to return to their proper place, then address those factors that caused the animals to leave home. Do fences need repair? Do gates need to be checked frequently and closed? Would palatable plantings draw the wild horses to the areas BLM wants them to use? What about siting mineral licks inside the HMAs? Have guzzlers been installed to provide water sources within the boundaries? BLM should specify preventive measures in this regard as part of its management approach. Fence HMA perimeters -- after expanding them to correct all boundary-line discrepancies, migration routes, and any herd-area land previously taken away.	
5.34	I oppose the federal government managing wild horses as a subsidy to the cattle industry when horses should be left unmanaged as natural components of the natural ecosystem (with which they co-evolved). I also oppose the cruelty of the round ups and the wastefulness of the warehousing of the horses. Please allow the Horse Management areas to be managed by nature and let cattle live elsewhere.	Comment noted. Refer to responses 1.1, 1.2, 8.2 and 12.1. An alternative to "let nature takes it's course" was discussed in Section 2.3.5. An alternative to remove livestock was discussed in Section 2.3.3.
5.35	Please let the wild horses run free, as many as you can allow. They deserve to live as much as we do and any other living being on the planet. Thanks for all you can do to allow freedom for ALL!	Comment noted.
5.36	Research shows that "wild" animals, especially horses have an environmental advantage to areas as they migrate naturally to different areas and their feeding and waste cycles do benefit their the condition of the soil. The sheep and cattle are used to being moved by humans. Wild horses need to be protected and left to their natural cycles. At least conduct further studies with independent researchers.	Comment noted. Refer to Section 2.3.5 which discusses an Alternative to control wild horse numbers by natural means.
5.37	BLM removes thousands of wild horses with no place to put them, behavior representing that of a hoarder, but on a massive scale. Salazar's plan did not work as it contained little in the way of acceptable population control (PZP) and outraged advocates as it contained gelding (not reversible) and population skewing (unknownz).	Opinion. Comment noted.
5.38	You have removed too many horses already. You do not have a safe place for them. Leave them alone. Stop profiting from their slaughter. They do not belong to you. Quit killing horses. Stop hunting wild horses. Stop pestering wild horses. Wild horses are more crucial than kickback grazing deals. Wild horses are sacred.	Opinion. Comment noted.
5.39	The BLM doesn't know what it's doing. Mr. Salzar is nothing but a liar, allowing his neighbor to send those beautiful creatures to slaughter. Fire Salazar! all he wants is more land for cattle.	Opinion. Comment noted.
5.40	The BLM wants the horses gone, so they can profit from leasing our public land to cattlemen. The BLM is attempting to justify clearing the west of our wild equines from our public lands for other commercial uses they deem more profitable than protecting these iconic animals.	Opinion. This statement is completely untrue and without any foundation in fact. The Proposed Action is in conformance with law, policy, RMPs and Decisions establishing the AMLs in this Complex. Wild horses will continue to thrive in the Diamond Complex. Refer to Sections 1.1, 1.2, 1.4, 3.2, 3.5, 3.6 and Appendix C which discuss the need for and the legal mandate to remove excess wild horses.
5.41	Please save those horses.	Comment noted.
5.42	Studies have shown most wild animals, horses included, will not reproduce if there is insufficient food. There isn't enough evidence to prove otherwise. Instead of rounding up these wild animals, try just letting them be, nature will either provide for them or they will	Comment noted. Refer to Section 2.3.5 which discusses an Alternative to control wild horse numbers by natural means.

	not survive!	
5.43	BLM is duty-bound to count the number of comments expressing support for or opposition to the proposed management actions at issue. Consolidating thousands of comments, referring to them as "petitions" or "form letters," and weighting them as a single submission results in distortion -- a false picture of the magnitude of agreement or disagreement with particular Agency proposals. Publish the number of comments received in response to the EA. The Constitution provides for the right of citizens to petition the Government for a redress of grievances, and does not require each complainant to draft a unique letter. The very word "petition" connotes one document that multiple parties sign in agreement and solidarity regarding a particular issue. At court, there are even class-action suits, wherein many plaintiffs join together to seek justice in a matter of mutual concern. BLM should just state the facts: • How many comments were received, • How many and what percentage favored each alternative course of action and why, • What different alternatives were proposed, and • Identify the modifications, corrections, improvements BLM made per the public input. BLM is supposed to build consensus. The public involvement component is designed to get feedback from those persons interested enough to participate in the decision-making process. Disregarding feedback leads to decisions that are not supported by the majority of stakeholders. Each and every comment must be honored. That means considering all comments fully and individually as well as collectively, with the numerical results published	Comments received from the public are used as a means to improve management and ensure that issues have been identified and addressed. It is not a means to tally votes on the most popular form of management. BLM has a responsibility and legal mandate under the WFRHBA to remove excess wild horses so as to ensure the health of wild horses and of the rangeland. Refer to Section 1.7, 7.0 and Appendix F of the Final EA which summarize the public comment period and nature of comments received.
5.44	The EA revealed an absence of consultation and coordination with wild-horse stakeholders in preparing the document. Scoping alone is insufficient. All BLM offices with wild-horse-and/or-burro programs need to establish an advisory committee of mustang advocates and work with them to formulate policy. Cultivate partnerships with wild horse advocates. Implement coordinated resource management (CRM) with regard to your wild horse stakeholders -- cooperating, consulting, and coordinating with them, just as BLM does with its grazing permit-holders. The CRM approach will result in consensus-based decisions and the development of best management practices concerning wild horses.	Opinion. Comment noted.
	6. Managing the Area as a Complex	
6.1	Issuing a single EA for a proposed action against mustangs in three distinct HMAs is unacceptable. The recent practice of forming "complexes" for the purpose of annihilation and to be disposed of as quickly as possible is despicable.	Opinion. Outside of the scope of the analysis. The Diamond Complex has been managed as a Complex since the mid 1990's. It has long been realized that wild horses move between the HMAs within the Complex and in order to take into consideration the needs of the wild horses and the

		health of the land, it has been determined that these three HMAs needed to be managed as a Complex, even though they fall within different BLM administrative boundaries. The BLM and USFS commonly manage groups of HMAs as Complexes for these reasons.
6.2	The boundary lines of the HMAs may have originally been drawn inaccurately, and seasonal migration routes may have been omitted. BLM must correct these errors and omissions. The HMA boundaries must conform to their proper configuration and must provide for the horses' seasonal migration routes.	The BLM has no information that would indicate the HMA boundaries were drawn incorrectly.
6.3	Concerns that the Diamond Complex is not a Complex because it is managed by three different Districts, which calls into question whether a true metapopulation exists. If it did, then there would not be three different districts and three different field offices in charge of it."	Refer to response 6.1 and the Map 1of the Diamond Complex. Refer also to the Diamond Complex Inventory Maps 1 and 2 in Appendix B. Wild horses do not necessarily adhere to BLM administrative boundaries if on-the-ground conditions allow for wild horse movement between areas managed by different BLM offices, as is the case for the Diamond Complex.
6.4	BLM claims that the Diamond Complex constitute a metapopulation that mixes genetic information adequately. However, metapopulations cannot be created by decree. Even if you have adjoining HMAs, you cannot assume a metapopulation exists. This hypothesis must be investigated, tested, and substantiated with evidence collected by an independent expert in the field of metapopulation dynamics. Concern that the BLM is using a metapopulation theory in order to justify savage cuts in herd levels, keeping them below even the minimal size necessary to achieve genetic integrity. The BLM pretends that the population sizes are large enough, but they are not. Believe this is "gene-washing. Do not agree with it. Concern that managing areas as Metapopulations will lead to extinction as each population cycles in relative independence of the other populations and eventually goes extinct as a consequence of demographic stochasticity. The WFRHBA never intended for herds to be managed into extinction on the mere theory that horses from other herds would just move in to take their place. Natural and man-made obstacles block migration among these HMAs. Concern that it was not the intent of Congress to bring in by BLM from other HMAs to shore up declining herds and that BLM is intentionally creating extinction events in the horse herds under its care. It was not the intent of the Act for BLM to experiment to see just how low it could keep herd sizes or how it could reinstate a herd that went extinct. The metapopulation theory as used by BLM should be abandoned. I encourage BLM-Nevada staffers to reacquaint themselves with metapopulation theory and dynamics. The links provided below will prove useful (links provided).	The Diamond Complex was not referred to as a metapopulation in the Preliminary or Final EA. These three HMAs are contiguous with movement between the HMAs east-west and north-south. Refer to Sections 1.1, 3.2, and Appendix B of the EA for additional information about management of this area as a Complex. The HMAs do not constitute three separate populations, but one population. There is no indication that managing the Diamond Complex as a Complex would lead to extinction. This area has been managed as a Complex for over 15 years.
7. Public Observation		

7.1	Although logical that persons inexperienced with wild horses and/or bait trapping would not be allowed to wander unescorted in the area of the trap, the EA fails to discuss and implies that no members of the public will be allowed to ever view any of the trapping procedure at any time for the next ten years. Is this the plan? What possible reason does the BLM have for not allowing members of the public to view the trapping procedures escorted by the COR/PI during their required (minimum 25%) visitations? If no public observation is allowed, then what accountability will the public have regarding wild horses that have been captured? Will photos and videos of each horse be taken and provided to the public? Will documentation of animals trapped, animals shipped and name and location and dates of these actions be kept and will this documentation be current and available to the public (online) and exactly who will be responsible for this information and its validity? Will there be roads closed to public access for this trapping that is inaccessible to the public and if so details of these road closures must be provided to the public before the approval of this EA can be decided. Trapping operations of the public's wild horses that are done outside of public viewing and without documented validity of the process and the results is unacceptable. All methods of proof of safe capture and accurate record-keeping that are planned needs to be provided to the public before any part of this EA plan is approved. How will the public know if the trapped wild horses are sold directly from the range to auction or kill buyers or others?	BLM considers every day during a gather to be a public observation day and will publicize gather information for the benefit of members of the public who wish to observe the gather operations. For the safety of the public, BLM and contract staff and the wild horses, BLM provides specific observation areas for the public and does not allow for unescorted wandering in the vicinity of the trapping or holding areas as specified in Appendix G and H. Gather statistics (which includes numbers shipped to a holding facility) will be available on the Diamond Complex Gather page. After wild horses are accepted at the holding facility, they are tracked through the national WH system. While there will be no full road closures associated with this project, there may be temporary traffic delays if gather operations warrant. While humane euthanasia and sale without limitation of healthy horses for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds for this purpose between 1988 and 2004 and again in 2010, and this prohibition remains in effect. This choice reflects the public's values and passion for America's wild horses and burros and this option (destruction of healthy excess horses) is not a component of any of the action alternatives. After wild horses are accepted at the holding facility, they are tracked through the National Wild Horse and Burro system. If it is found that wild horses are being sold for slaughter, the individual responsible would be investigated for prosecution.
7.2	Concern that public will not be notified of/allowed at future gathers, violations of BLM observation protocol, lack of transparency. Will the COR/PI make inspections during the length of the contract for future bait and or water trapping and how will these inspection reports be documented and how and when will they be made available to the public? How does the BLM propose to guarantee to the public that this long term plan will be conducted in a safe and humane manner? Will the public be informed when each and every trapping procedure is to begin and end along with the number of wild horses to be trapped and then follow with data of the completed trapping immediately? What are the criteria of the BLM COR that would put a (temporary or permanent) stop to the trapping and/or to reevaluate and possibly dismiss the contractor?	The public would be notified of future gathers with public observation opportunities as described in Section 2.1, 3.9, and Appendix G and H. Bait and water trapping is not the proposed method for the Proposed Gather. However, in the future if bait and water trapping is implemented, the public would be notified and kept informed in the same manner as a helicopter gather. Reports would be posted online daily until the completion of the gather. Due to the nature and time frame of bait and water trapping, it is unlikely that any public viewing during trapping would be available; however opportunities to view wild horses captured through bait and water trapping would be provided. As stated in the EA, future gather activities would be completed in accordance with the provisions in the EA, mitigation measures discussed throughout the EA (including those summarized in Section 3.9) and in accordance with the SOPs in Appendix A. Gather data would be posted on the Diamond Gather website on a daily basis regardless of method of gather. The BLM COR follows federal contracting guidelines to address contractor issues during gathers and if they cannot be resolved, has the authority to halt the gather.
8. Analysis of Impacts to Wild Horses		

8.1	Concern that protocols established by the BLM do not take into consideration the stress of separating social bands on wild horses. The Proposed Action should incorporate procedures for keeping social bands intact during the roundup, particularly for those horses that will be returned to the range. To accomplish this goal, please consider the Draft SOP provided by AWHPC (attached). The EA should include strict protocols for keeping family bands intact and for maintaining the integrity of social bands	The anticipated impacts of the Proposed Action and Alternatives are discussed in detail in Chapter 3 and 4. The SOPs provided by AWHPC entail identification of individuals and individual bands, color markers, photographic records of bands, and capture holding and release of individual bands. This method is not reasonable given the acreage of the gather area, approachability and access to animals, number of animals to gather and objectives for the gather. Experience has shown is also more disruptive to the population as a whole to attempt to gather individual bands. Once released to the range, the post gather population of 210 wild horses would be able to re-group into family bands if they chose.
8.2	Concern that the proposed action will have harmful effects on individual wild horses, wild horse herds or the environment. The EA does not adequately assess the impacts of the proposed action, including the removal of more than 700 wild horses from the range. The EA fails to analyze or provide scientific data or evidence regarding the impacts of the proposed action on the wild horses themselves. The EA fails to consider protocols to ensure humane treatment of horses during and after capture. BLM needs to consider the minimum standards for the social and physical safety of the horses. The EA should analyze an alternative which contains Strict Protocols for minimizing stress and trauma during any capture and release process The EA proposes but does not scientifically or completely analyze the impacts of both the proposed roundup and a long-term plan for the HMA.	The Environmental Consequences portion of Section 3.2 describes the potential impacts of the Proposed Action in detail. Please also refer to Chapter 4 which analyzes potential cumulative impacts, and Section 3.11 which summarizes mitigation measures that would be used to "ensure that potential impacts are minimized or avoided completely". Appendix A, also details Standard Operating Procedures developed over the past 35 years to ensure the well-being of wild horses during gathers and maintain human safety. Various professionals of the veterinary and equine community have observed gathers and holding facilities, and followed up with reports of their findings and recommendations to BLM. For the most part, the team members found that wild horse and burro gathers are necessary, and conducted humanely. Many of the recommendations have already been implemented by BLM and the gather contractors. These reports can be viewed at these locations: • Office of Inspector General (OIG)report on the WHB program: http://www.doioig.gov/images/stories/reports/pdf/BLM%20Wild%20Horse%20and%20Burro%20Program%20Public.pdf • American Horse Protection Association Independent Report: http://www.blm.gov/wo/st/en/info/newsroom/2010/december/NR_12_03_2010A.html • American Association of Equine Practitioners Report: http://www.aaep.org/images/files/AAEP%20Report%20on%20the%20BLM%20Wild%20Horse%20&%20Burro%20Program%20Final.pdf
8.3	The EA needs to include the effects of sex-ratio skewing on the wild horses that will be released back to the range.	This was included in Section 3.2 of the Preliminary and Final EA.
8.4	The current "Standard Operating Procedures for Wild Horse Gathers" was not analyzed to determine if improvements could be made to reduce potential stress and harm to the horses during the roundup. The EA doesn't consider new measures that would "minimize potential stress and injury to wild horses" during the roundup.	Following the annual helicopter hearings, the BLM reviews SOPs for adequacy. Nothing was proposed during the 2012 hearing that would warrant change. Refer to response 8.2 The SOPs include measures designed to minimize potential stress and injury to wild horses that are being gathered.
8.5	Improvements to the SOP that would minimize stress and injury to horses during roundups include: • Limit the distance horses/burros may be chased by a helicopter to no more than five (5) miles. Reduce the current limitation of the 7-10 mile radius to five (5) miles. Given the size of the HMA, this should be easily accommodated. • Require that the helicopter chase horses/burros at a pace that does not exceed the natural rate of movement of the slowest animal in the band. Every effort should be made to keep older, sick and young animals together with their bands as they are	These subjects were discussed in detail in the Preliminary and Final EA in Section 2.1, 3.2, 3.10 and Appendix A. BLM monitors conditions on the ground to ensure that the distance traveled by the horses is not excessive based on such factors as terrain, wild horse condition, temperature, etc. The helicopter does not "chase" the horses, but instead moves them at a comfortable pace, except when the wild horses reach the trap site and the pace is picked up to ensure the horses do not escape. Additional discussion pertaining to the Agencies expectations for humane treatment was also added to Sections 2.1 and Appendix A.III.

	moved into the trap. • Establish strict parameters for suspending helicopter roundup operations during extreme weather conditions (i.e. below freezing or above 85 degrees). BLM should consider incorporating suggestions for improving the humane care and handling of horses submitted by the Humane Society of the United States. (Attachment)	
8.6	A population model presented by Dr. Daniel Rubenstein of Princeton University at the International Equine Conference in September 2011 showed large spikes in population growth following removals of horses from the Shackleford Bank population in North Carolina, attributed to increased forage made available by the removal of horses from the habitat. Additional information indicates that destruction of social organization and removal of leadership horses from the herds can further increase reproductive rates.	The anticipated impacts of the Proposed Gather on wild horses are discussed in detail in Section 3.2, with projected population changes displayed in Appendix E. The referenced model is not applicable to wild horse herds of the Diamond Complex, as environmental conditions are starkly different. The impacts referenced are not anticipated.
8.7	The EA dismisses alternatives for humane capture methods, including bait and/or water trapping,	Bait and water trapping were discussed in detail in Section 2.0, 2.1, 2.3.2, 3.2, and Appendix A of the Preliminary and Final EA.
8.8	The BLM plans to decimating the already sparse herds to below the AML of 198-210 wild horses	Opinion. There is no information to suggest that the proposed gather would result in excessively low numbers of wild horses. The BLM has been gathering wild horses in the Diamond Complex since 1989, with growth rates that average 15-18% or higher per year. Genetics analysis indicates that there is no inbreeding in these herds and they have highly variable genetics.
8.9	The use of helicopters to round up wild horses is inhumane. Virtually all nationally recognized animal welfare organizations have so advised BLM. The mustangs are terrified by the thunderous, high-intensity noise and chaos as they are pursued by the low-flying helicopter. They are blasted with sand, dirt, and gravel from the rotor wash. Panicked, they stampede, injure themselves, and become separated from their babies and bandmates. Mares miscarry. Foals become orphans. Many horses die from stress, even more have to be euthanized. Helicopter-style roundups are abusive, especially to foals, older horses, and pregnant mares. Roundups during the heat of summer or the dead of winter are especially cruel. They are examples of worst management practices.	Opinion. The potential impacts of the use of helicopters to gather wild horses are discussed in detail in Section 3.2 of the Preliminary and Final EA, with additional discussion of methods to reduce stress and injury to wild horses included in Section 2.1, 3.2, 3.10 and Appendix A. Additional discussion pertaining to the Agencies expectations for humane treatment was also added to Sections 2.1 and Appendix A.III.
8.10	Abolish helicopter-style roundups. End roundups in extreme temperatures -- either the summer heat or the winter cold. Stampeding horses for miles -- causing them to lather with sweat and then bringing them to an abrupt halt -- must be prohibited. BLM should institute the kind approach to gathering wild horses -- when a gather is truly necessary. Roundups should be done slowly, quietly, and gently. They could even be contracted through equine advocacy groups with expertise in gentle methods. The mustangs should be gathered one band at a time to preserve family structure. Small roundups should be conducted every year in late autumn instead of massive rodeos every so many years. Small-scale, annual fall roundups will mean fewer horses will come up for adoption, and they will be available just in time for the holidays. The horse adoption market won't be overwhelmed -- as it is now -- and fewer mustangs will need to be placed in sanctuaries, preserves, or long-term holding. Such an approach will prove cost-effective, enabling BLM to redirect its budget to rangeland improvements	Refer to responses 8.1, 8.2, 8.3, 8.4, 8.7, and 8.9 above.
8.11	Renounce the use of helicopters, whips, and electric prods in gathering and maneuvering wild horses. Implement cruelty-free, whip-free, prod-free operations. The role of the Wild Horse and Burro Specialist will be enhanced by conducting gentle	Refer to responses 8.1, 8.2, 8.3, 8.4, 8.7, and 8.9 above. Helicopter gathers do not "stampede" horses for miles, but instead move the horses at a comfortable pace until they reach the trap site and the pace is picked up to ensure the horses do not escape. Contracting with equine advocacy groups to gather wild horses on horseback is beyond the scope of the present gather decision and would not

	gathers and showcasing BLM's new approach. BLM's public relations will improve as goodwill builds from media coverage of the kind new method of conducting wild horse roundups. Further, job security will be strengthened if the Wild Horse and Burro Specialist becomes more hands-on. How can the need for the position be justified when the only time it appears active is during a roundup every few years, with the actual work contracted to the private sector? One or two weeks' worth of mere coordination does not appear to support a full-time position. In this era of fiscal austerity, all staff members must be prepared to defend their continued employment. Kind methods -- bait and water trapping -- should be the techniques employed in the future, should roundups be needed. Bait-trapping should not just be another method of gathering horses but to be the method. Further, it should not be a continuous, year-round endeavor, and it should not be used in combination with the helicopter method. Bait-trapping should, at most, be a once-a-year event, and only when need is properly documented.	be a viable approach for removing the excess wild horses from the Diamond Complex at this time.
8.12	Concern of helicopter safety. If a crash occurred during a helicopter-roundup, the pilot, BLM staff, observers, and the wild horses could be hurt or killed.(link provided). Using helicopters for counting wild horses is inherently risky, with no greater purposes than administrative convenience and "efficiency." Such purposes do not justify the risks. There is no imminent threat to life or property that would require the use of helicopters to inventory and gather some horses. BLM is wrong to continue this hazardous activity.	Health and safety was analyzed in Section 3.9 of the Preliminary and Final EA, and specific protocols developed to protect the public, BLM, Contractor and wild horses from injury due to helicopter accident. Additionally, the contractors are required to maintain specific qualifications and comply with State and Federal Aviation Policy and procedure. Aircraft, specifically helicopter is the most efficient and accurate method to inventory wild horses or burros. BLM participants must maintain specific qualifications and attend periodic training and safety classes. The helicopter and pilot must also be carded for animal inventory through the DOI Aviation Management Directorate.
8.13	Concern of animal health and prolonged confinement in trailer. BLM's procedures call for mustangs that are in transit to be offloaded, rested, watered, and fed during journeys lasting more than 24 hours. The rest-stop provision may be waived if the "stress" of receiving a rest stop is deemed likely greater than the stress of uninterrupted travel. It is unknown who makes this determination or who monitors compliance. It is difficult to envision any scenario that would provide for an easy offloading of wild horses. Are there pre-identified facilities along the way for this purpose? BLM does not say, but probably not. Thus, the supposed provision for humane transport is merely theoretical. The mustangs suffer terribly, since these trips to long-term holding surely take more than 24 hours. On the "Tips for Traveling with Horses" episode of the "Best of America by Horseback" show that aired on RFD-TV on February 16, 2011, the guest veterinarian advised that horses should not be transported longer than 12 hours. Studies have disclosed a higher incidence of fevers and respiratory infections when travel-time exceeds 12 hours. Thus, there is no doubt that the wild horses, already stressed and crowded together in a cattle-car for more than twice that amount of time, will suffer illnesses as a direct result of the prolonged transport. The extended period in transit may be one reason why mustang fatalities in long-term holding (eight percent) exceed both those that occur in roundups (one percent) and those that take place in short-term holding (five percent). BLM should create a task force to come up with ways of routing horses so that time in	These comments are outside of the scope of the analysis and do not have any bearing on the Action Alternatives. The potential impacts of transporting wild horses to short and long-term holding in Section 3.2 of the EA. Refer also to response 8.14 below.

	transit is always less than 12 hours. The team needs to develop not just procedures but definitive ways of verifying driver compliance. Possibly, electronic tracking mechanisms could be placed on the trailers to monitor location, speed, and other data. Intermediate check-points could be established. The task force should include wild horse and burro advocates. This assignment is a perfect opportunity to implement coordinated resource management (CRM) with regard to the wild horse stakeholders. Doing so will admittedly be challenging because mustang advocates come from across the country. BLM needs to cooperate, consult, and coordinate with mustang advocates, just as the Agency does with its grazing permittees. The CRM approach will result in consensus-based decisions and the development of best management practices -- again, those BMPs -- concerning wild horses and burros.	
8.14	Concern about the length of time horses may be kept in trailers that are not moving. BLM's policy says that wild horses may not be left standing "... for a combined period of greater than three (3) hours." Crammed into a trailer in the hot sun, three hours is a long time. This provision needs to be reconsidered and reformed. Also, BLM needs to devise a way to monitor to ensure contract drivers are operating their truck safely, and in a way that minimizes stress on the horses. Total time for the horses to be confined in a trailer without the vehicle being in motion should be limited to 1½ hours. During rest and refueling stops, the trailer should be parked so that it is protected from the elements.	The BLM COR and APHIS veterinarian are on site to monitor wild horse, and environmental conditions at all times. The COR may direct the contractor to reduce the time wild horses are loaded if needed based on animal condition, temperatures or other conditions. The BLM observes contractor drivers and ensures that speed is appropriate.
8.15	I'll leave you with this information from Karen Sussman, president of ISPMB (INTERNATION SOCIETY FOR THE PROTECTION OF MUSTANGS AND BURROS). This is one of the oldest and most respected Wild Horse and Burro organizations in the country. It was founded in 1960. *The current removal methods have destroyed the horses' social structure, which have resulted in a severe lack of modeling to younger horses by the older and wiser horses. This has happened by younger and younger stallions taking over the harem bands. The best analogy is that the Harvard professors are no longer in charge of the harems which have given way to younger stallions, who are the equivalent of grade school children. We also believe that the future of the herds on public land is at great risk for survival over the long term because of the breakdown in their educational system through the destruction of their social harems.*	Refer to responses 8.1, 8.2, 8.3, 8.4, 8.7 and 8.9 above.
8.16	The EA stresses that for their health and safety newborn foals and dams gathered from inside the complex will be returned to the complex. The same logic should be applied to foals and dams gathered from outside the complex: they should be released inside the nearest HMA.	The EA states that in certain circumstances, some foals could be selected for release with their dam. This would only occur in rare cases. The objective for the gather is to transport all foals to BLM facilities for adoption.
8.17	If for some reason the gather cannot be completed promptly during early to mid-January, BLM should consider delaying the gather until fall 2013. Concern of gathering late in pregnancy and impacts to mares.	The BLM does not gather wild horses between March 1 and June 30, which period covers the six weeks before and six weeks after the peak of foaling.
8.18	The EA states on P. 32: "…(wild horse) metabolism that has evolved to allow them to survive in poor quality habitat (compared to their domestic counterparts)." Much has been made in the literature of the rugged, tough, long endurance abilities of the mustang. Frank Dobie said, "admire the tall, ride the small." Left to their own adaptation a 700 lb horse with small hard hooves capable of eating a wide range of forage would develop. Concern	Comment notes. Objectives of the gather include release of wild horses that exhibit historic traits of the herd.

	gather/adoption program is interfering with that natural occurance as conformation prejudices result in BLM managing for larger horses. BLM needs to facilitate the preservation of the tough little horse that better fills their niche in wildness.	
8.19	If and only if, any Wild Horses are captured, all of the older wild horses captured should be immediately returned to their range -- all wild horses over the approximate age of ten. Documentation shows that these older wild horses are most affected by the initial capture process. Please read and review this scientific report by Dr. Bruce Nock (link provided).	Refer to Section 2.1 which discusses the priority ages for removal and release. An emphasis will be placed on release of older horses back to the range.
8.20	Older horses also have the highest percentage of deaths immediately following capture due to: • less involved in accelerated reproduction of the herd • Susceptibility of infectious diseases commonly found in holding facilities (data available upon request). • much more difficult to adopt or sell to humane homes. • • Difficulty in transitioning to capture facilities – especially the ability to hold their physical health due to the sudden change to a diet of domestic hay. • Transport stress causing accentuated injuries from crowding, biting and kicking within trailers that Wild Horses are not accustomed to. • Gelding procedures done on older stallions. • High possibility of being sold to eventual questionable buyers For all these reasons, the capture procedure plan EA must include the option to allow all old horses to remain and live their lives and die on the range. This is humane treatment of the aged Wild Horses as well as fiscally responsible to the American public.	Comments noted. Refer to response 8.19.
8.21	What are you going to do with them once you got them? What kind of future do they have? Are we gathering wild horses like prisoners on the side of the road gather garbage for disposal?	Refer to the EA, Section 2.1, 3.2, and Appendix A for this information.
8.22	The potential impacts to this protected population are not clearly understood. This last year drought has impacted this range, as well as significant the over utilization noted by current domestic livestock users and patterns of use over time.	Comment noted. Monitoring and inventory will continue to collect information about the use of the Complex by wild horses, resource condition and recovery, and possible future management strategies.
9. Population Controls		
9.1	The EA is inadequate because it does not provide application, impact and results of past contraceptive use on the Wild Horses. Provide the name of the contraceptive that was previously used on mares in the Diamond Complex, what year was it applied and how many mares received the contraceptive. Provide detail about previous adjustment of sex ratios.	Information about past use of fertility control was included in the Preliminary and Final EA in Sections 1.1, 3.2, and Appendix B. Information about sex ratios of gathered and released wild horses is available in Section 3.2 and Appendix B.
9.2	I strongly support the use of PZP fertility control to manage the population of this herd. Use PZP to manage horses on the range, eliminate removals. Use birth control in the horse herds.	Comment noted. Fertility control is analyzed within the Proposed Action and Alternative 2.
9.3	Concern that the EA lacks scientific justification to adjust sex ratios to 60% studs. Data is lacking to show the proposal will contribute to population suppression, or that it will improve the genetic health of the herd.	The proposed adjustment to 60% studs is not an extreme departure from ratios found in unaltered herds. Normal sex ratios experienced through independent research and gathers conducted by the BLM over the past 35 years show that sex ratios in normal populations can vary from 40:60 favoring mares to 60:40 favoring studs. As stated in the EA: "*the adjustment of sex ratios to favor*

	The EA discusses impacts on the wild horse populations and behaviors, when compared to natural sex ratios, which favor females. Concern that the social, behavioral, environmental and health implications of sex ratio alteration are not analyzed adequately. Concern that the EA does not analyze potentially dangerous impacts of sex ratio adjustment. The proposed action could have significantly negative impacts on individual wild horses and the herds as a whole. Other BLM wild horse roundup EAs have surmised that: "*competition for mares **would be expected** to increase, recruitment age for reproduction among mares **would be expected** to decline [meaning younger mares would begin breeding] … Fighting between band stallions and surplus stallions could result in the mares and foals not being allowed to feed and water naturally as the herd stallion tries to keep them away from bachelor bands."* (See Black Mountain Hard Trigger EA, p.19 In 2008 implementation team minutes obtained under the Freedom of Information Act, BLM team members raised many unanswered questions about this strategy. These questions included: • Does it affect natural behavior and do we care? • If we have more stallions will band structure change? • Will the mares and colts be beaten down at water sources? • Since we don't have any evidence that this is bad, should BLM be allowed to do this on a large scale? • We do not know if it's bad, so we should wait til we know. • The burden of proof is on BLM to prove this is a good idea. • We need to find out what is the ratio of males to females that will benefit the program in reduction of population. Four years later, these questions remain unanswered. Yet BLM is implementing this strategy on a large-scale in HMAs across the West. The EA/EIS must address these questions and potential impacts, and acknowledge that the answers are unknown.	*stallions would be expected to have relatively minor impacts to overall population dynamics. . . . the effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges*". The adjustment of sex ratios is a tool to help reduce population growth rates and thus help to increase the health of both the wild horses and their habitat. The likely and potential impacts of sex ratio adjustment were analyzed in Section 3.2 and are based on resource specialist expertise. BLM has been implementing this type of minor sex ratio adjustment for several years without incident. Refer to Section 3.2 of the EA. There is no indication that moderate adjustment to sex ratios would have significant impacts to the wild horses or the herd as a whole. Analysis in other BLM EAs is not relevant to the analysis for the Diamond Complex, nor are BLM meeting notes from 2008 as each situation has to be analyzed based on the specific proposed action being contemplated and the information being provided out of context here does not allow for a meaningful comparison or response.
9.4	Drop the proposal for sex ratio adjustment in the Proposed Action.	Comment noted. Sex ratios would only be adjusted under the Proposed Action during gathers that do not achieve the low AML.
9.5	Gender skewing is not natural. It causes behavioral disruption, which is incompatible with the principle of a thriving natural ecological balance. Given that any wild horses that elude capture are likely to be males, the ratio will be further lopsided. A herd with too many stallions vying for a few mares is a recipe for chaos and injuries. Especially if contraceptives were used.	Opinion. Comment noted. Refer to response 9.3
9.6	Concern that the option of managing the Diamond Complex horses with fertility control as an alternative to removals was dismissed without proper consideration. PZP fertility control has been available for 24 years and has been used to successfully control a wild horse population on the East Coast for more than two decades *without a single removal* (attachment provided). Given the long-term availability of fertility control and its proven effectiveness for managing wild horse populations, the BLM should have implemented this	The BLM has brought forward what we believe to be the most viable options for managing this Complex, and the most responsible way to ensure the welfare of the wild horses and protection of the habitat. BLM believes that the Proposed Action, which includes removals, is the best available option for the Diamond Complex at this time. Please refer to Appendix E which displays the results of the Population Modeling, including graphs and tables for a Fertility Control Only scenario, which is also discussed in Section 2.3.1.

	method over a decade ago in the Diamond Complex.	The East Coast model referenced by commenter does not provide useful insights at this time for wild horse populations in the West. For example, refer to response 9.10 (3) below.
9.7	There should be an immediate suspension of PZP contraceptive treatments until: • Each mustang-herd population reaches at least 500 individuals of breeding status (with stud book and careful genetic management) and • Test results from Dr. Cothran establish that high genetic diversity has been achieved. PZP should be implemented only if natural "green" population control measures on their own are not yet enough. Should disaster strike the herds, fertility needs to be quickly restorable. The best candidates -- mares with a strong immune system that keeps them healthy -- could, ironically, be unavailable for herd restoration due to sterility caused by over-reaction to PZP or from repeated treatments. Unfortunately, PZP tends to select for immuno-compromised mares, who foal despite contraception because their weak systems under-react to it.	Comment and opinion noted. Refer to responses 4.1-4.4, 4.8, 4.10, 11.3 and 11.9.
9.8	Oppose treating any Wild Horse mares that might be returned to the range with PZP or any other contraception from and around the Diamond Complex.	Comment and opinion noted. Options which do not include fertility control application were analyzed in Alternative 1 and 3 and 4.
9.9	There is no evidence provided to the public and decision makers that any past removals or PZP management procedures have provided a consistent and healthy thriving natural ecological balance on this HMA.	As discussed in Sections 1.1, 3.2, and Appendix B, fertility control was applied during the most recent gather in 2004. The fertility control was applied during summer months in which the efficacy is not as high as for winter application. Removals and population controls have not been implemented consistently enough in the past to maintain populations at AML.
9.10	The following statement is from Christine DeCarlo, Ph.D. Dr. DeCarlo's background is in equine reproductive immunology and wildlife conservation. I am quoting from one of her letters to the BLM regarding the policy of PZP use and I require a valid scientific response: "…I must include a statement on long term consecutive use of PZP. Any form of PZP contraception is not completely reversible in mares depending on the length of use of PZP. Contraception can only be reversed when the antibody titer decreases to 50-60% of the positive reference sera (Liu et al. 2005). Mares treated for 7 consecutive years do not return to viable fertility (Kirkpatrick and Turner 2002; Kirkpatrick et al. 2009). The issue of reversible contraception is very important to be able to maintain wild equines in the United States. Long term treatment with PZP has inherent negative potential for [a] herd."	Application of fertility control is analyzed in Section 3.2 of the EA. In any gather there is a percentage of mares that will not be caught and either they never get treated or their treatment wears off by the next potential chance to be treated. In most likelihood, not every mare treated one time will be caught next time so repeated/consecutive treatments will not be the standard. BLM can adjust the treatment strategy with subsequent treatments by not retreating some of the mares to avoid a series of consecutive treatments if determined to be necessary through evaluation of gather and post gather population data and herd management strategies outlined in a Herd Management Plan. Per Dr. John Turner, wild horse fertility control researcher via e-mail October 2010: *1) The issue of non-reversibility of PZP effect after 7 years of continuous contraception is taken out of the context of well-designed management. The BLM goal is not to treat all mares for 7 years in a row. Younger previously treated mares can be left untreated for at least one cycle of gather/treat, which will allow them to produce foals in that period (ie, her genes have not been removed from the pool). Thereafter, if BLM wishes to keep a given mare infertile continuously, it is not really a problem, but it is unlikely that this can occur, since the percent of mares that can be captured in a given gather is way below the 95% level. (Dr. De Carlo appears to assume that the Assateague model of keeping 95% of mares infertile year after year is applicable to Western herds).* *2) The data to date for Western herds show that 1) the capture rate (therefore the treatment rate) is in the 60-80% range and 2) the efficacy of the 2-yr vax , even ideally, leaves 15-25% of mares fertile in year 2 and >30% fertile in year 3. Thus, Dr. DeCarlo's 'catastrophic' impact of fertility control*

		in any herd is overstated. The likelihood is that GROWTH rate cannot even be zeroed, let alone a reduction in population, at least until treatment efficacy and level of access to mares increases. *3) Note that the Assateague data proved that it took 16 years of intensive treatment (95%) to reduce that population by 34%. Theoretically, with persistent pursuit of this program on Assateague, it will take another 30 years to reach the threat of herd extinction.*
9.11	Do not use SpayVac on the mares.	Spay Vac is not being proposed for use at this time.
	10. Monitoring and Data Collection	
10.1	There is no data provided to the public to support the premise that the Wild Horses are the cause of range degradation or that removing them will improve range conditions. The EA lacks range monitoring and other data to delineate the impacts on the rangeland of wild horses from the impacts on the rangeland caused by the livestock. There is no clear indication that heavy utilization levels by wild horses are distinguished from livestock grazing. The public must be provided proof which must include studies of livestock utilization and wildlife utilization as well as Wild Horse utilization. I am confident that this cannot be provided to the public or decision makers if for no other reason than the unbalanced ten times more AUMs allocated to livestock than is proposed for Wild Horses. Because BLM fails to clearly differentiate livestock impact from horse impact, it fails the standard by which BLM may gather and fails the public disclosure requirements of NEPA. BLM assumes impacts around water sources to be attributable to wild horse with little more analysis indicating how it differentiates livestock and wild horse impact. The BLM just saying that it is the Wild Horses that cause rangeland overuse is not proof of a scientific study and data. Anecdotal examples of wild horse range usage are not sufficient to justify the Proposed Action given the damage that has been done to the range by historic livestock overgrazing in the area. The EA needs to include scientific monitoring data which clearly delineates and compares the impacts (historic and current) on the range between livestock, wild horses, wildlife, and other uses; and the % of usage for each.	The BLM is not required to separate out the impacts of wild horses from those of livestock in order to determine and remove excess wild horses from the range. The Secretary is mandated to remove excess wild horses if available data demonstrates that "an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals." 16 U.S.C. § 1333(b)(2). As discussed in the EA, available data indicates that excess wild horses are a causal factor in rangeland deterioration and that excess wild horses need to be removed to promote rangeland health. Discussions about collection of monitoring data and wild horse impacts are located throughout the Preliminary and Final EA in Sections 1.1, 3.2, 3.5, 3.6, 3.7, 3.7 3.8 and Appendix C, supported by photos throughout the document. Further detail about differentiating wild horse use from that of wildlife of livestock has been added to the Final EA in Sections 3.5, 3.6 and Appendix C. Further analysis of monitoring data would take place in future Rangeland Health Assessments in which use and impacts of all users are assessed as well as resource condition and needed changes to management
10.2	Concern that BLM has sought out areas of heaviest use by wild horses (and livestock) to conduct rangeland assessments when it seeks to manage wild horses. Concern that BLM overlooks heavy use by livestock and does not objectively collect data/inconsistently collects livestock and wild horse data to favor livestock. A double standard exists in this EA and is arbitrary and capricious. No rangeland health assessments are included in the EA.	This claim is completely without merit and reflects commenter opinion. The BLM employs approved methods for monitoring which are detailed in Technical References. Data is collected objectively in conformance with monitoring protocols by experienced personnel. Rangeland Health Assessments are lengthy documents and are available from the respective Field Office. It is not appropriate to include the Rangeland Health Assessments in a wild horse gather EA, but the relevant information is summarized in the EA, along with available monitoring data. Available data indicates that excess wild horses are impacting rangeland health. Refer to response 11.2, 11.18, 11.9, 12.1 and 12.3.

	Rangeland health assessments and an explanation of the methodology used for conducting assessments of the impacts for both wild horses and livestock and wildlife must also be included in the final EA/EIS.	
10.3	Please read and follow this legal decision from the Honorable U.S. District Judge Beryl A. Howell stated in her23-page opinion_that the agency [BLM] "may not simply remain **studiously ignorant of material scientific evidence** …" (link unavailable)	This comment from an unrelated gather has no bearing on the action alternatives. The BLM has used the best available information to assess the potential impacts of the proposed gather. The EA includes detailed information about monitoring data, wild horse inventory, past gathers, and genetics.
10.4	The Office of Inspector General, April 2010, report #WR-EV-MOA-0014-2009, Mary Kendall, acting director---"To date, Interior (BLM inclusive) has never had a comprehensive scientific integrity policy....our objective was to determine whether codes of conduct for scientific research and publication exist and in what form...Interior has never had in place requirements to track allegation of scientific misconduct.... without sound policies to protect the scientific community and general public from potentially flawed scientific research, data and publications, Interior's reputation and its Public trust are at risk" As is the general situation with stampedes conducted by BLM, this one in the Diamond Complex conforms to the above charges of poor research, data gathering, and integrity in quality as detailed in the OIG report.	This report is not specific to the BLMs Wild Horse and Burro Program and has no bearing on the action alternatives. Refer to response 10.3. Helicopter gathers do not "stampede" gathered horses as implied by this comment.
11. Appropriate Management Level, Perceived Inequality of Livestock and Wild Horses		
11.1	BLM has allocated ten times the amount of forage to livestock than to wild horses in the Diamond Complex. Concern that there is not an appropriate and fair distribution of resources between livestock, wild horses and other wildlife species in these HMAs. Livestock are appropriated a great deal more forage than the wild horses and greatly outnumber wild horses. BLM cannot justify removal when more resources are allocated to livestock.	Neither the WFRHBA nor FLPMA require the equal allocation of forage to wild horses and livestock on public lands. It is not a matter of choosing to manage wild horses and burros rather than domestic livestock or native wildlife. By law, BLM is required to manage wild horses in a thriving natural ecological balance and multiple use relationship on the public lands and to remove excess wild horses immediately upon a determination that excess wild horses exist. Excess wild horses are being removed as required by the WFRHBA in order to maintain healthy herds of wild horses on public lands, not for the benefit of livestock. Section 3.3 in the EA discusses relevant information regarding livestock grazing in the Diamond Complex. Refer also to information in Section 1.2 and 1.6. Removing or reducing livestock was addressed in Section 2.3.3, and increasing AML for wild horses was addressed in Section 2.3.7. Refer also to responses 12.1 and 12.3. Changes to the overall multiple use relationship and allocations of forage between wild horses, livestock and wildlife would need to be addressed through the land-use planning process and any future land-use plan amendments. Until such time as the RMP is amended, BLM is required to manage the wild horses within the Diamond Complex in conformance with the applicable land-use plans. 43 C.F.R. § 4710.1.
11.2	The proposed gather needs to be delayed, reviewed and reevaluated in order for the BLM to address the disproportionate allocation of resources on these public lands and increase the Wild Horse AML. There is room for forage adjustments in this HMA, and enough active AUMs in this HMA to accommodate the 700 horses that the BLM wants to remove.	As stated in Sections 1.6 and 2.3.7, of the Preliminary and Final EA, the purpose of the EA is not to adjust the wild horse AMLs. The need for the gather, forage availability and determination of excess wild horses is further discussed in in detail in Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C. Refer to response 11.1.

11.3	Development of the AMLs failed to account for existing livestock use. The impacts of cattle grazing – including how grazing may have been altered since any old AML was established - needs to be examined. Concern that livestock impacts or other multiple uses are not taken into consideration when determining the optimum number of wild horses to remain on the range, because resource impacts are more likely to occur where livestock use has occurred.	As stated in Sections 1.1, and Appendix B, of the Preliminary and Final EA, the AMLs for each of the HMAs in the Complex were established following interdisciplinary analysis and review of monitoring and other pertinent data within Final Multiple Use Decisions, RMPs, and Livestock Use Agreements. These AMLs were established through processes that provided for participation by the interested public. All relevant uses and resource issues on public lands within the HMAs were considered when formulating the approved AMLs.
11.4	Two of the HMAs in the Complex do not have an AML range. BLM guidance directs the agency to establish AML's as a range. Concern that BLM is proposing to arbitrarily reduce wild horse populations without following the guidance to manage as a range. AML ranges should be set through the NEPA process via an EIS at this time.	Single AMLs are still valid. AML ranges would be established through future Rangeland Health Evaluations. Refer to responses 11.2 and 11.3 above.
11.5	BLM needs a current 2012 hard look at capability, carrying capacity, use of forage, water and space by wild horses must be examined. Decades have passes since BLM assessed the AML numbers within the scope of the Diamond Complex. Basic planning level data reassessing the numbers of AMLs given the public support for wild horses and changed conditions on the ground needs to occur.	As stated in Sections 1.2, 1.6 2.3.3 and 2.3.7, adjustments to wild horse AML or livestock management are not analyzed in the Diamond Complex Gather EA. Refer to responses 12.1 and 12.5. Through future Rangeland Health Assessments, the BLM would evaluate the AMLs for wild horses, and other relevant parameters to determine if changes to management are needed – including changes to livestock management or other uses. Refer to response to 11.12. The relative allocation of forage between wild horses and livestock would also be assessed through the BMD RMP. http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/rmp.html
11.6	Concern that 123 wild horses is arbitrary given the distribution and normal land use of the wild horses. Is one of the HMAs at what BLM considers to be "appropriate" AML levels but another dramatically over ?	The establishment of AML for these HMAs was discussed in Section 1.1 and Appendix B of the Preliminary and Final EA. The post gather target of 123 wild horses is further discussed in Section 2.2
11.7	The AML is dangerously low.	Opinion. Comment noted.
11.8	The concept of AML needs to be reformed and renamed.	This is outside of the scope of the analysis.
11.9	Recommend an alternative way for BLM to set AML per "proper population parameters" -- PPP or P^3. A baseline of at least 500 horses. Recommendations of the International Union for Conservation of Nature (IUCN), a leading authority on the preservation of genetic diversity in wild equids, including feral horses and burros. Captive populations -- minimum size: 500 individuals, a studbook, and careful genetic management; or Wild populations -- minimum size 2,500 individuals. BLM needs to: • Perform a complete genetic evaluation of each herd as it stands now, • Create and maintain a studbook, and • Practice careful -- timely, accurate, responsible -- genetic management. The Diamond Complex fails to reach the minimal threshold of 2,500 individuals, lacks a studbook, and has not been carefully managed genetically, they are under-populated and need to increase their herd-size baseline accordingly. Details about the Serengeti Ecosystem provided (link provided and additional detail on animal levels in the Serengeti and recommended population levels and animals per acre for	This recommendation is outside of the scope of the analysis. Refer to responses 11.2, 11.3, and 11.5. Given the nature of the ecological sites in the Great Basin, soils, site specific characteristics of the Diamond Complex, topography water availability and lack of natural predators, the referenced approach is not applicable.

	the Diamond Complex).	
11.10	The range is under grazed. Recommend Allan Savory "Holistic Management" to increase the number of grazing animals to create more "disturbances". BLM-Nevada should send staff members to a Holistic Management workshop. BLM could very well succeed in achieving harmony among the various stakeholders and their animals -- livestock, wildlife, and wild horses. (link to the Holistic Management International site provided).	Refer to Response 11.9.
11.11	Note: This comment is beyond the scope of the EA. Expect to see it again in commentary for RMP, FMUD, and RAC etc. I do not believe that the allotment of AUMs to cattle as compared to those for horses represents Ecological balance or management for multiple use. After compensating for season of use, differences in ability of cows, sheep and horses to utilize forage, difference in the amount of forage consumed (horses eat 30% TO 60% more than cows), difference of preference for particular types of forage, the allocation of forage seems to favor livestock by a factor of 2-3. I continue to try to understand the justification for this situation and can only conclude today that the decision is based something other than on science or sense of fairness. My recommendation would be to maintain the horses at AML as proposed in this EA but reduce livestock allotments so that forage is consumed in equal amounts by livestock and horses. Then after 3-4 years of monitoring, assuming that the resource has been restored, increase AUMs for both livestock and horses on a the basis of pound for pound consumption, divided equally between horses and livestock until the desired percentage of utilization is reached.	Comment noted, refer to responses 11.1, 11.2, 11.3, 11.5, 12.1, 12.3, and 12.5. These comments will be forwarded for consideration in RMP planning.
11.12	Current appropriate management levels, set years ago, have been invalidated by subsequent scientific studies.	This is outside of the scope of the analysis. Through monitoring, and review of other relevant factors, we have determined that excess wild horses are present and need to be removed not only to prevent degradation of the range, but to curtail existing impacts by wild horses and ensure wild horse health and welfare, as well as improvement and health of the habitat. At present, no information exists to suggest that the AMLs are not valid. The need for the gather, forage availability and determination of excess wild horses is further discussed in in detail in Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C.
11.13	BLM is not required to maintain any specific numbers of animals or to maintain populations in the numbers of animals existing at any particular time (with references to Dahl v. Clark provided). Concern that AMLs are established for BLM administrative reasons because it was the level of the wild horse and/or burro use at a particular point in time. Concern that establishing AMLs of wild horse use without adequate and current information to make the decision is illegal. Concern that AML is synonymous with restoring the range to a thriving natural ecological balance and protecting the range from deterioration and removal of more than the number of excess wild horses is not allowed. The AML's were originally established (and this admitted to by BLM) for administrative convenience, rather than based on a determination of the optimum number of wild horses and/or burros that would maintain the range in a thriving natural ecological balance. There is no evidence that BLM has engaged in any current range assessments adequate to allow BLM to conclude that removing only the proposed number of Wild Horses from this HMA would achieve that optimum number and return and maintain the range to its natural ecological balance.	The Proposed Action does not suggest maintaining specific numbers of animals that existed at a particular time. The AMLs established for the three HMAs were based on interdisciplinary review of monitoring data and other relevant information within FMUDs, RMPs and Livestock Use Agreements which included coordination with the interested public (refer to Sections 1.1 and Appendix B of the EA). There is nothing to suggest that these AMLs are arbitrary or established for administrative reasons or that the determination of excess wild horses is not based on review of current data, to include climate, population inventory, and monitoring data. Refer to responses 11.2, 11.3, 11.4 and 11.5 above, and Section 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA
11.14	The EA should include the reasoning behind the AML of the wild horses on this HMA such	The documents that established the AMLs are available from the Mount Lewis, Egan and Tuscarora

	as climate, water availability, number of livestock permitted (currently use or not) and range studies that support this AML and date of decision (RMP and otherwise).	Field Offices. Refer to Sections and Section 1.1, 1.2, 3.2, 3.3, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA and response 10.2.
11.15	The BLM continues to use the term "thriving ecological balance" but gives no explanation of this term and this phrase could be interpreted in many ways. Please provide to the public the BLM's definition of "thriving ecological balance". What are the specific measurements that define the range conditions that the BLM uses that determine a thriving natural ecological balance? This must be specifically explained in detail to the public before this EA can even be or approved	IBLA decision and definition of "thriving ecological balance" is found in Chapter 1.1 Background. This definition was also provided in Appendix F of the Preliminary EA response 73: *Thriving Natural Ecological Balance -- WH&B are managed in a manner that assures significant progress is made toward achieving the Land Health Standards for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations, as well as other site-specific or landscape-level objectives, including those necessary to protect and manage Threatened, Endangered, and Sensitive Species* (4700-1 Wild Horses and Burros Management Handbook).
11.16	The BLM is simply using an old AML without thoroughly analyzing current utilization data for both livestock and Wild Horses as directed in the BLM wild horse and burro handbook and an IBLA decision listed here: (provided, excerpts from IBLA, the WFRHBA and Dahl v. Clark).	Refer to responses 11.12, and 11.13 and Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA.
11.17	The EA must provide an accurate and comprehensible information or chart that shows the number of animals and number of AUMs on HMA per the 1) the Wild Horses 2) livestock and 3) foraging wildlife (deer, elk, bighorn sheep, antelope). I realize that the wildlife AUM's are not managed by the BLM but these estimates are available from the Dept. of Wildlife. I give this clear illustration and chart (below) as an example of what forage data the BLM must evaluate and the public needs to be informed of in formulating the EA (chart provided, not included here).	This is outside of the scope of the analysis. Information about the permitted livestock and actual use levels was provided in Section 3.3 of the Preliminary and Final EA. Information about the current populations of wildlife is discussed in Section 3.8. Wild horse estimated populations are provided in Tables 1, 2-5 Section 1.1, 2.2, 3.2 and Appendix B including the most recent inventory flight conducted in November 2012.
11.18	The law does not require that wild horses be removed because they are over AMLs; rather, the agency must show that the existence of the horses on the range – as opposed to livestock or other factors – are causing harm to the "Thriving Natural Ecological Balance".	The BLM is not proposing to remove wild horses simply because the population is over AML. The action alternatives were developed to address the excess wild horse numbers to maintain the thriving ecological balance of the area. Refer to Section 1.2 of the EA. Ongoing and current monitoring has been completed in the Diamond Complex (including review of climate data, actual use, trend, utilization, inventory, and water and forage availability), which in conjunction with other factors considered resulted in the determination that excess wild horses exist and that a gather needs to be conducted to remove them. Refer to Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA. The BLM is not required to separate out the impacts of wild horses from those of livestock in order to determine and remove excess wild horses from the range; however, available data supports the conclusion that wild horses are contributing to rangeland deterioration. As noted by the IBLA: "*Proper range management dictates removal of horses before the herd size causes damage to the range land.*" (118 IBLA 75). Further delays in removal of the excess wild horses will cause damage to the range and threaten the health and well-being of the wild horses within the Diamond Complex.
11.19	The EA does not include range monitoring and other data/scientific research reports that the BLM has done the required analysis and disclosed the annual census data alleged to determine/support that there are "excess" wild horses in the HMAs.	The need for the gather, forage availability and determination of excess wild horses is discussed in in detail in Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA. The BLM is mandated to maintain a current inventory of wild horses, and is not required to complete annual "census" of HMAs. The most recent inventory data is included in Section 1.1, 2.2 3.2 and Appendix B of the EA.
11.20	Wild horse removals should be considered only if "excess" wild horses can be proven or an actual "emergency" situation (such as drought or fire) exists on the range. All means of mitigating the situation (such as water hauling or fending off fires) should have been	Refer to responses 1.1, 11.2, 11.3, 11.12, and 11.18. Supplemental feeding or watering of wild horses on the range is not consistent with proper range management or thriving natural ecological balance and clearly indicates that the population is too large to be supported by the existing

	attempted and livestock removed.	resources. Waiting for an emergency situation to occur would be inconsistent with the mandates of the WFRHBA and with BLM's responsibilities to manage for rangeland health and multiple use.
12. Livestock Management		
12.1	Consider/analyze/implement an alternative action that would forgo wild horse removals by reducing/eliminating livestock grazing. An alternative of this nature was dismissed from consideration in the Preliminary Environmental Assessment (PEA). An option to cancel/revoke all livestock grazing permits must be included as an alternative for the pubic to review and consider. The alternative to remove livestock was not carried forward for detailed analysis because of the identified Purpose and Need For Action includes the need to manage for TNEB. Concern that TNEB is impacted/threatened to a more significant degree by livestock. The BLM's decision to forego alternatives which include reductions in livestock are arbitrary and capricious given the fundamentally integral relationship between livestock use/impact and wild horse use/impact to objectives for which the action is being proposed. The BLM Mount Lewis office will be taking an action outside the NEPA law if it refuses to include and analyze the alternative to remove or reduce livestock. Only a fraction of the AUMs of the livestock authorized to graze on allotments within the HMA would need to be removed to accommodate the current population of horses. This would eliminate the need to remove horses and save millions of tax dollars associated with removing and warehousing these horses in pens and pastures for life. This plan must be fairly reviewed in any proposal to "manage" the Wild Horses and to manage the HMA for the purpose of maintaining a thriving ecological balance.	There is no requirement of the WFRHBA or the regulations to reduce or eliminate livestock as a means to restore thriving natural ecological balance. Administration of livestock grazing on public lands fall under 43 CFR Subpart D, Group 4100. Additionally, livestock grazing is also managed under each Districts respective RMP. Livestock grazing on public lands is also provided for in the Taylor Grazing act of 1934. Removal or reduction of livestock would not be in conformance with the existing RMPs, is contrary to the BLM's multiple-use mission as outlined in the FLPMA and PRIA, and would be inconsistent with the WFRHBA, which directs the Secretary to immediately remove excess wild horses. Additionally this would only be effective for the very short term as the horse population would continue to increase. Eventually the Complex and adjacent lands would no longer be capable of supporting the wild horse populations. The BLM understands the opinion of members of the public who would like to see an increase in wild horse AMLs and decrease in livestock grazing. The purpose of the EA is not to adjust livestock use, or increase the level of AML for these HMAs, which was discussed in Section 2.3.3 and 2.3.7 of the EA. Adjustments to livestock grazing cannot be made through a wild horse gather EA. A land-use plan amendment or revision would be necessary to reallocate use between livestock and wild horses. Refer also to Sections 1.2 and 1.6 of the EA. The need for the gather, condition and availability of forage and water and determination of excess wild horses was discussed in detail throughout the EA in Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C.
12.2	BLM violates the law by allowing cattle on public lands. The agency arbitrarily authorizes thousands of livestock and sheep to graze year round in these same public lands that have been legally designated for wild horse use. Livestock are arbitrarily and capriciously authorized by the BLM.	Refer to response 12.1.
12.3	Livestock (sheep and cattle) has been responsible negative impacts/degradation to the rangeland in the Diamond Complex. The BLM's failure to properly manage public land livestock grazing ought not to justify condemning publicly-supported and federally-protected wild horses. If the Mount Lewis BLM can substantiate that it is the wild horses and not the livestock that are over-using the forage resources on this HMA then this monitoring data must be provided and both livestock and wild horse AUMs could be reduced equitably.	Refer to response 12.1. Impacts of Livestock grazing are outside the scope of this analysis as such impacts have been analyzed and changes to livestock grazing have been made through prior livestock grazing decisions and will be further analyzed as part of grazing permit renewal decisions consistent with the applicable regulations. Refer to 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA. Additional information regarding dietary overlap and impacts of wild horses and livestock have been added to Section 3.2. Ongoing and current monitoring has been completed in the Diamond Complex (including review of climate data, actual use, trend, utilization, inventory, and water and forage availability), which in conjunction with other factors considered resulted in the determination that excess wild horses exist and that a gather needs to be conducted to remove them.
12.4	Concern that the BLM understates forage usage by livestock. The understatement of forage consumption and overstocking of grazing allotments results in extensive livestock damage	This is outside of the scope of the analysis and has no bearing on the action alternatives. Refer to additional information pertaining to wild horse/livestock dietary overlap and foraging behavior in

	to the range, further demonstrating that the BLM has inadequate evidence that the damage is being caused by horses.	Section 3.2.
12.5	I wish to agree with the previously published BLM statement: "Where livestock have access to riparian areas including seeps, springs and streams, conditions are generally degraded". Resource degradation including over-utilization of riparian forage, trailing, bank erosion, trampling, and soil movement caused by livestock occur at most public land springs where livestock are allowed to forage. It is apparent that the BLM has current monitoring that shows heavy and increasing trailing by livestock between and near water sources and foraging areas. Examples of increased soil erosion are most apparent in the vicinity of small spring meadows currently experiencing high levels of disturbance and bare ground from the current excessive livestock.	Refer to Sections 1.6, 2.3.3 and 3.3 of the EA. Mount Lewis, Egan and Tuscarora Field Offices will assess livestock use in the future Rangeland Health Evaluations, following the analysis of monitoring data and coordination with the interested public. Appropriate changes to livestock would be made at that time.
12.6	Livestock drive away Wild Horses and wildlife from water and cause fence damage to riparian areas. I personally have witnessed the exact occurrence numerous times and provide two recent photos of grazing permit livestock INSIDE a water trough on public land and the fence damage they have done – on an HMA. Many more photos of livestock damage to grazing fences and water sources are available upon request.	Comment noted.
12.7	The area assessed (Diamond HMA) showed significant over utilization by grazing interests. The primary use of the HMA allotted acreage is domestic livestock. The uses (sheep and cattle) demonstrate a pattern of over-use. This significant use is present on the range without any data to support the effects of this use to natural movement, behavior is unknown. The likelihood that impact is so significant that it creates substantial influence on range utilization of wild horses is high. (link provided to range drought assessment)	Comment noted. Refer to response 12.5.
12.8	Stop making deals with ranchers or whoever you do. Everybody knows and there is no morality in all this. Stop being unethical.	Opinion, comment noted. Refer to response 12.1.
12.9	The BLM has the clear legal authority to reduce or eliminate livestock grazing in the Diamond Complex of HMAs, pursuant to 43 C.F.R. 4710.3-2 and 43 C.F.R. 4710.5(a), in order to improve conditions and forage availability for wild horses. If necessary, the current fiscal crisis faced by the agency can certainly be considered an "emergency" warranting use of this authority to avoid the unnecessary removal of wild horses. The EA is outside the NEPA law by not considering this removal of livestock in accordance with 43 C.F.R. 4710.3-2 and 43 C.F.R. 4710.5(a). Because the livestock forage usage percentage is almost ten times the wild horse forage usage, this livestock removal/reduction alternative must not only be analyzed but must be considered as a vital solution to any over utilization of resources on the Diamond Complex land.	Refer to response 12.1. Additionally, refer to the EA, section 3.3 which discusses voluntary removal of livestock in the Diamond HMA during the 2012 grazing season as a result of drought, and reduced use levels in other allotments within the Complex. See also that agreements are being formulated to reduce grazing where needed during the 2013 season for drought recovery. The overall average actual use by livestock within the Allotments associated with the Diamond Complex HMAs was 63% of the permitted use. Refer to Section 2.3.3 of the EA. CFR 4710.5 is invoked in cases such as would be encountered following large wildfire or extreme drought. Pertaining to CFR 4710.3-2, Wild Horse and Burro Ranges are identified through the land use planning process, and require a Secretarial designation which is beyond the scope of this EA. They are managed *principally, but not necessarily exclusively*, for wild horses and burros. To be considered for designation as a Wild Horse or Burro Range, the HMA must have unique herd characteristics, outstanding viewing opportunities, unique landscape, or significant historical or cultural features. This was addressed in Section 2.3.8 of the EA. BLM manages four WH&B Ranges: the Nevada Wild Horse Range (1962), the Pryor Mountain Wild Horse Range (Montana, 1968), Little Bookcliffs (Colorado, 1980), and the Marietta Burro

		Range (Nevada, 1991). Neglecting to manage HMAs as multiple use area would not be in conformance with the existing land use plan and is contrary to the BLM's multiple-use mission as outlined in FLPMA, and also would be inconsistent with the WFRHBA and PRIA. It was Congress' intent to manage wild horses and burros as one of the many uses of the public lands, not a single use. Therefore, the BLM is required to manage wild horses and burros in a manner designed to achieve a thriving natural ecological balance between wild horse and burro populations, wildlife, domestic livestock, vegetation and other uses.
12.10	Removal of livestock is the most cost-effective, humane and publicly supported approach.	Refer to responses 12.1, 12.9 and 12.11.
12.11	The BLM received over 7000 comments urging the BLM to remove livestock rather than wild horses in the Diamond Complex.	Refer to response 14.13.
12.12	BLM wild horse roundups, removals and off-the-range warehousing cost taxpayers $60 million annually, while taxpayers pay in excess of $500 million per year to subsidize livestock grazing on public lands.	This is outside of the scope of the analysis.
12.13	The EIS must explain the contradictions between the wild horse roundup EA and the grazing allotment EAs.	The specific issues with grazing allotment EAs were not divulged in the comment. Unable to address.
12.14	BLM also has to take into account how, where and when livestock are grazed and at what numbers, and what use level is allowed.	This is outside of the scope of the analysis, and does not have any bearing on the action alternatives. Refer to responses 11.3, regarding consideration of when formulating AMLs.
12.15	BLM cannot just rely on calendar dates for grazing permits – the environmental review needs to be based on an analysis and consideration of what is actually occurring on the ground.	Refer to response 12.14.
12.16	If resource conditions are not being met/range damage is occurring, then livestock should be removed/reduced before wild horses are removed. Wild horses are not as destructive as livestock.	Refer to response 12.1. Impacts of Livestock grazing are outside the scope of this analysis as such impacts have been analyzed and changes to livestock grazing have been made through prior livestock grazing decisions and will be further analyzed as part of grazing permit renewal decisions consistent with the applicable regulations. Refer to 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA. Ongoing and current monitoring has been completed in the Diamond Complex (including review of climate data, actual use, trend, utilization, inventory, and water and forage availability), which in conjunction with other factors considered resulted in the determination that excess wild horses exist and that a gather needs to be conducted to remove them. Monitoring data shows that wild horses are negatively impacting upland and riparian resources in the Diamond Complex. Refer also to additional information provided in Section 3.2 regarding the foraging habits of wild horses as compared to livestock. Livestock can be controlled through herding and supplementation and their numbers and time of use can also be controlled. Wild horses are present on the range year round.
12.17	The BLM claims that removing horses is needed because the range is suffering due to the number of horses in the Diamond Complex HMAs and that if the removal doesn't take place the environment will suffer. Yet, BLM has decided that livestock grazing can	Refer to responses 12.1, 12.3, and 12.5.

	continue to be authorized at a significantly higher level, and that reduction of livestock grazing is not needed to restore or maintain TNEB. The same is true of mining and water use upstream. Despite the less than desirable range conditions cited in the EA and apparent noncompliance of some the livestock grazing permittees, the BLM continues to maintain the current livestock grazing levels.	
12.18	How has BLM made sure that trespass by livestock has not occurred in sites where it has been conducting monitoring?	This is outside of the scope of the analysis, and does not have any bearing on the action alternatives. When unauthorized livestock are observed or reported, the issue is managed through BLM grazing management procedures.
12.19	Livestock use of the public lands grazing allotment in the Diamond Complex has risen alarmingly since the LUP/RMPs were issued.	This statement is untrue. Livestock grazing throughout the Diamond Complex has decreased since original RMP designations through allotment evaluations and Rangeland Health Evaluations that resulted in modifications to grazing management and authorized grazing levels to ensure grazing is consistent with achieving rangeland health. Refer to this information in Section 3.3 and Table 16 of the EA which shows an average of 63% of the permitted use since the last gather in 2004.
12.20	Government favors cattle ranchers and after removing thousands of wild horses, replaces that HMA with livestock.	Opinion. Refer to response 12.1.
12.21	6.0 EA claims all livestock have been removed from the Diamond HMA as of the end of August. On Nov. 7 – 9 I found cattle on the HMA in the following places: 12-16 cattle ruminating near temporary water trough on Cottonwood rd around 9th St; 4 cattle near the entrance to Judd Canyon;. a cow at the upper end of 4-Mile Canyon. I would not regard two of these locations (Black Point and 4-Mile Canyon) as prime locations for autumn cheatgrass grazing. So why are cattle still there?	There were some cattle that escaped gathering that were in the areas referenced. Furthermore, livestock locations noted during the November 2012 wild horse inventory were shared with the Range Management Specialists to make proper contacts for removal. Refer to Section 3.3 for updated information about the Black Point Allotment and the 2012 grazing season.
12.24	Wild horses have been allocated fewer AUMs than that allocated to livestock. In the Battle Mountain District, livestock outnumber the wild horses and burros by a ratio of greater than 7:1. In these times of drought, BLM must order its priorities to designate the elimination of commercial livestock grazing before any wild horses are targeted for removal.	Refer to responses 11.1 and 11.2. Grazing permittees have voluntarily removed livestock during 2012 due to drought conditions (EA Section 3.3).
12.25	Do not want to subsidize livestock grazing.	Comment noted.
12.26	The published EA states: "The BLM is not required to justify wild horse gathers based on improvement of rangeland health." (response #81) Nothing could be further from the truth than to say that the rangeland health is "outside" the scope. The definition of scoping is "to look at - especially for the purpose of evaluation". How can any evaluation or assessment of any proposal for this HMA land be even remotely considered without analyzing the large usage of livestock? It cannot.	Refer to responses 11.1, 12.1, and 12.3. Many factors are considered in determining the presence of excess wild horses including actual use, trend data, climate, wild horse inventory and other monitoring data collected on an ongoing basis. The BLM is not required to show that improvement has occurred on the range since the last gather in order to determine that excess wild horses exist and need removed. Refer to Sections 1.1, 1.2, 3.2, 3.5, 3.6, 3.7, 3.8 and Appendix B and C of the EA.
13. Inventory and Population Data		
13.1	The EA doesn't disclose census data that relates to individual HMAs. Estimates of the entire Diamond Complex give no indication as to the history of the population rates and to what degree intervening factors may or may not have affected those population rates. By consolidating the three HMAs into a single Complex, the BLM doesn't disclose, how the numbers are being crunched on the ground, where the actual impact or alleged excess populations may be.	Table 1 of the Preliminary and Final EA includes population estimates broken out by HMA, which have been updated to reflect the direct count documented during a current inventory November 6-7, 2012. Tables 3-5 also reflect estimated populations and gather numbers by HMA, also updated from the November 2012 inventory. Section 4 of Appendix B, Tables 3-6 display detailed results of the inventories completed since the last wild horse gather, providing numbers of wild horse adults and foals documented within each allotment within each HMA, depicting the number of wild horses

	Provide census data for each HMA for the past 10 years. If no individual HMA census were conducted, the final EA/EIS should explain why. An inventory flight was tentatively scheduled for October 2012 and has not been confirmed. The EA fails to provide to the public the detailed Wild Horse population survey report completed and referenced in the EA. This is a violation of the NEPA law. The EA states that this survey will be used in the decision making but is not provided to the public.	observed within or outside of the HMA boundaries. Diamond Complex Inventory Maps 1 and 2 depict wild horse locations and flight lines obtained via GPS during the flight. The results of the November inventory and a map of the wild horse locations is also posted on the Diamond Complex Gather website at http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_programs/wild_horse_and_burro/Diamond_Complex/docs.html
13.2	The final EA/EIS should include full disclosure of any and all activities within the HMAs that could be causing a) the population to increase dramatically within the HMA (i.e. has mountain lion killing increased? b) causing the population to increase outside the HMAs. What sorts of activities in and around the HMAs could be influencing these actions? Are individuals leaving gates open?	Appendix B includes background information about the Diamond Complex including distribution and movement patterns, observed growth rates. Refer to the inventory Tables 3-6 which show growth of the population through time. As the population has increased, movement outside of the HMA has increased. Various activities could affect wild horse distribution as in any HMA: environmental conditions (lack of forage or water, snow cover), hunting and recreation, etc. Mining, geothermal and solar activities are minimal within the Complex.
13.3	The agency has "guesstimated" the population to be 826 mustangs (including newborns) within and around the Diamond Complex. The BLM uses arbitrary guestimates. The BLM fudges wild equine numbers in an attempt to justify roundups. Abandon dependence on assumed birth rates and extrapolations to project population growth.	Opinion. The BLM consistently utilizes the best management practices when conducting helicopter inventory flights to insure the highest accuracy. Between flights, the population is estimated based on historic rates of increase, which account for foals born and mortality within the population annually. It is not feasible, nor reasonable to conduct annual inventory flights of all of the HMAs managed by the BLM. Current direction is to complete inventory flights of approximately half our HMAs each year. Tables 3-6 in Appendix B of the Final EA clearly show a reasonable and expected growth of the population through the years, consistent with annual increases of 15-18%. The most recent inventory conducted in November 2012, further validated the 2012 estimated population. Additional discussion was added to Section 3.2, Appendix B and C regarding the methods utilized to ensure quality results during inventory flights, as well as photos illustrating the observation of wild horses in Appendix B;.
13.4	Concern of perceived inaccuracy of mustang population numbers and the need for an independent aerial survey to establish the actual number of wild horses there truly are, not just in this HMA, but in all of the wild equines' western ranges. The BLM needs to use a proven, technological method for counting and tracking horses with accuracy. Use independent census takers and scientific methods for counting wild horses Concern that the helicopter-census method results in inflated numbers: • difficult to accurately count mustangs • hard to tell horses apart and to avoid double counting • cows may be mistaken for horses. Deer may get counted too • difficulty in differentiating wild horses from rocks • observer fatigue and airsickness may become an issue • confirmation bias at work as the goal is to locate excess wild horses projected by the models and for which funds for removals have been allocated.	The BLM has historically employed the "direct count" method for conducting wild horse inventory. It has become well accepted that this method results in observers not seeing and therefore counting all of the horses, due to tree cover, terrain, and overall visibility factors. Without a statistical/scientific way to determine the number of "missed" horses, most BLM offices have not added correction factors to the direct flight results. The flight and gather data has continually shown that direct count flights undercount wild horses on the range. The Government Accountability Office (GAO) concluded through their review that "*research and experience have shown that BLM's on-the-range population estimates are too low*", and stated that "*regardless of which method is used, counting wild horses and burros can be challenging, particularly when the animals are obscured by trees or when the rangeland is covered with snow*" (GAO 09-77). In order to improve inventory methods and results, the USGS has been working with BLM for many years to study existing and potential methods that could be implemented. The BLM is currently implementing some of the methods developed by USGS. Specifically, the BMDO in 2011 began using the Simultaneous Double Count technique. The results are analyzed by a statistician using multiple parameters that affect the sightability of the horses, and sighting accuracy of the observers. The outcome will be an estimated population range. You can read more about the work of USGS and these methods at this website.

		http://www.fort.usgs.gov/WildHorsePopulations/Counting.asp The BLM may employ both a direct count and a simultaneous double count method to determine the population of wild horses during helicopter inventory. For the direct counts, the BLM uses no correction factor or extrapolation to correct for any wild horses or area that may have missed. During inventories the BLM maintains Best Management Practices to ensure the highest quality data and most accurate inventory. On most flights, three experienced BLM observers participate, in addition to the pilot, who is also very skilled at completing wild horse inventory. Inventory flights are conducted at low altitude (below 100' at times) and low speeds, with trained WHB Specialists and oftentimes Wildlife Biologists or other Resource Specialists. It is very easy to distinguish wild horses from livestock, and even more so from wildlife. The helicopter pilot records the location of the horses with an onboard GPS, which also records the flight path. The flight area boundaries are also viewed by the pilot on the onboard computer screen to ensure the entire area is covered. The location of previously observed wild horses is also verified on the onboard computer screen if needed. BLM staff record wild horses on 1:100,000 maps, and the number and description of bands observed are recorded on data sheets. As the flights progress, natural landforms or barriers are used to ensure movement of wild horses doesn't occur between the areas as they are completed. Observers take great care to document characteristics of groups of horses encountered such as color, leg markings, face markings, and direction of travel, so as to decrease the chance of counting any bands or horses twice. Refer to additional information added to the Final EA in Section 3.2, as well as photos in Appendix B.
13.5	Concern that with only two service providers used for conducting inventories and roundups that there is an apparent conflict of interest pertaining to the incentive to increase revenues through providing billable services and more billable horses.	Different aircraft companies are used to conduct population inventory flights than those used during the gather operations. Gather contractors employ their own helicopter pilots.
13.6	The current approach has proven unreliable. Impossibly-high estimates of wild horse populations have led to unnecessary removals, costly holding, and impaired relations with grazing permit-holders.	Opinion. Refer to responses 13.3 and 13.4 above. Data provided in the Preliminary and Final EA does not support a claim that the population estimates have been overstated.
13.7	BLM states that 139 horses were not captured during the 2004 roundup, based on a pre-roundup population-estimate of 782 and a gather success of 643. The public is being asked to conclude that the escapees are still at large, breeding away. BLM makes claims that the horses are out there cleverly hiding themselves, which is not credible. Because the helicopter contractor (in addition to the flat-fee-for-service), earns a per-horse-fee, they would not leave 139 horses behind if they were there. Concern that there were no horses left ungathered in 2004, and BLM's estimates were off -- just as they are now -- exaggerated, inflated, ginned up to justify the pre-scheduled roundup and to spend the money in its budget that had been allocated for that purpose. A further conclusion is that the roundup got pretty much all the wild horses resident in the Diamond Complex, except for 30 stallions and the 86 mares treated with the contraceptive-sterilant	Inventory data provided in the Preliminary and Final EA do not support this opinion. The Preliminary and Final EA in Appendix B state that there were an estimated 45 wild horses uncaptured, with 117 released (116 released into the Complex, 1 escaped into another HMA), bringing the post gather population to 161. Refer to the EA, Sections 1.1, 3.2 and Appendix B. During that gather, of the 117 released, 86 were mares given fertility control and given a freezemark on the left hip. During inventory flights, these mares have still been observed in the Complex. Refer to photos 10 and 20-21 in the EA. Natural mortality would have decreased the number of these released wild horses in the Complex; however wild horses are long lived species and many of them are likely still present in the Complex. Gather efficiencies average 80-95%. In the case of the Diamond Complex gather completed in 2004, wild horses scattered into high elevations and took cover in trees making them difficult to see or gather. It is certainly not unreasonable for there to have been 45-100 wild horses ungathered thoughout the Complex. Inventory data collected in 2004

	PZP-22. Therefore, the figure closer to the reality is a post-gather population of 116.	shows an increase from an estimated 161 wild horses in 2004 to 289 observed in 2006. With expected growth rates (of 15-18%), the data supports the position that there were likely over 200 wild horses left in the Complex following the 2004 gather.
13.8	BLM states that 232 wild horses were seen outside the boundaries of the Diamond Hills South HMA, which doesn't seem credible, given that BLM estimates that the entire HMA has just 282 horses, including the 232. This claim is being used to justify permanent removal of horses outside the HMA. Concerns this is an instance where horses may have be driven outside their HMA fleeing the inventory helicopter -- maybe even a pre-inventory helicopter.	Refer to the map of the November 2012 inventory located in Appendix B of the EA and on the Diamond Complex website (response 13.1 above). Refer also to Table 6 in Appendix B. The map and associated data clearly show a current population of 311 wild horses located outside of established HMA boundaries. Wild horses are not "driven" during inventory flights.
13.9	The EA is inadequate and should provide current and ten year/historical documentation including photographic proof of herd population count/census numbers and a complete demographic breakdown of the wild horses (number of bands, stallion/mare ratio, number of foals, yearlings two year olds, three year olds and aged horses).	Inventory data since the 2004 gather is provided in Tables 3-6 of the EA. An estimated age structure is also provided in Table 2 of Appendix B.
13.10	The EA doesn't provide maps and photos and reports and titles of participating observers of most current aerial and land population census methods and results for wild horses and wildlife species.	Inventory reports and titles of participating observers is outside the scope of the analysis. Many photos were included in the Preliminary and Final EA to show the public conditions of the range and wild horses as well as overviews of the topography/landforms and vegetation to illustrate information provided in the Affected Environment discussions. Additional photos were also added to the Final EA, throughout the document with a reference Table in Section 9.Refer to response 13.1.
13.11	The current wild horse population level (estimated at ~213) is within the law.	The direct count method employed during the November 2012 inventory documented 813 wild horses within the Diamond Complex, with 311 of those located outside of HMA boundaries. As documented in the EA, review of monitoring, inventory and other data led to the conclusion that excess wild horses are present and need to be removed in order to restore a thriving natural ecological balance on the range, prevent further range degradation and protect wild horse health.
	14. NEPA	
14.1	The BLM presents the public with a customary and foregone conclusion to round up wild horses in its Diamond Complex in total contravention of and complete contempt for the letter and the spirit of NEPAs mandate to take a hard look at • all reasonable alternatives. • alternatives that would protect and manage the Wild Horse herd and fulfill the agency's multiple use mandate. • all available and relevant information is required by the NEPA law	The BLM's National Gather Schedule is merely a planning tool not a decision to implement any action, and the Diamond Complex scoping and issuance of the Preliminary EA were part of a decision-making process where the proposed action remains subject to change depending on the outcomes of the NEPA and public decision-making process. NEPA directs the BLM to "Study develop, and describe appropriate alternatives to recommended courses of action in any proposal that involve unresolved conflicts concerning alternative uses of available resources…"(NEPA Handbook 1790-1 page 49). BLM believes that it has included a reasonable range of alternatives (CEQ, Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981). The BLM has considered all viable alternatives which would meet the purpose and need, the most reasonable options for the Diamond Complex, and the most responsible way to ensure the welfare of the wild horses and their habitat. In the EA, four alternatives in addition to the Proposed Action were analyzed including the No Action Alternative. Additionally, eight alternatives were considered but eliminated from further analysis in Section 2.3 of the EA.
14.2	• The EA is inadequate because it fails to analyze the scope and consequences of the proposed gather in a comprehensive way. • The range of alternatives that are not consistent, compliant, and adequately supported by current planning level environmental review.	The BLM has completed the analysis within the EA based on the most current, accurate and best available information which includes current and historic monitoring data, climate data, inventory data, and information acquired through BLMs 37 year history of gathering wild horses. Refer to responses 15.1, and 14.1.

	• Concerns that the environmental review is inadequate, questionable, based on faulty data, assumptions and calculations. • Concern that the Diamond Complex EA contains incomplete and contradictory information • This EA does not consider alternatives that would mitigate any need to remove any or all of the horses currently targeted for removal.	
14.3	The National Environmental Policy Act (NEPA) requires agencies to prepare an EIS regarding all ―major Federal actions significantly affecting the environment, 42 U.S.C. § 4332(C), and the CEQ implementing regulations set forth a number of criteria governing when an action is to be considered ―significant for this purpose. 40 C.F.R. § 1508.27. Concern that the scope of environmental review is inadequate given the size, controversy and jurisdictional issues present. The BLM has overshot the lawfully defensible scope of its proposed round-up. Concern that a single EA is not adequate for the number of HMAs being considered for the gather: Concern that the HMAs have been joined into a Complex unlawfully that BLM is aggregating HMAs into complexes in an effort to skirt its legal obligation to conduct adequate, site specific, and comprehensive environmental review. BLM is folding districts and field offices with stale NEPA review into adjacent management jurisdictions that have more recent/updated NEPA coverage. An EIS is needed in order to provide a more thorough and comprehensive environmental analysis of the impacts of the proposed roundup. The proposal should to be tiered to a single, comprehensive environmental review that considers all uses and impacts that an EIS can provide. Management of the Diamond Complex should be analyzed in an EIS if only one NEPA document is completed.	Comments noted. Refer to responses 6.31, 6.4, 15.2 and 15.3. The management of the Diamond Complex HMAs as a Complex for purposes of inventory and gathers to remove excess wild horses has been in place since the mid 1990's, and is done so in order to take into account the natural movement of wild horses throughout the HMAs in the Complex. The authorizing officer will make the determination whether there will be any significant impacts that require preparation of an EIS.
14.4	Regarding the phased gather approach: Concerns that the public hasn't been provided with • sufficient details and analysis about when the proposed gathers will take place, • how many gathers will take place and where • adequate analysis of actual conditions that would be experienced in future gathers. This information should be a part of an EA.	The phased approach was adequately detailed in the Preliminary and Final EA in Sections 2.0, 2.1, 2.2 and 3.2. The exact timing of follow-up gathers over the next 10 years is not known at this time, but such gather would be conducted consistent with the initial gather procedures, though with significantly fewer excess horses requiring removal to achieve low range AML and a greater focus on fertility treatment for gathered mares. BLM would notify the public when a follow-up gather has been scheduled and would provide public observation opportunities as for the initial gather.
14.5	BLM is attempting to unlawfully substitute the EA process for an appropriate and legally defensible EIS process. A "long term management strategy" requires an EIS as opposed to this EA, with subsequent EAs tiered to that EIS for particular HMA actions proposed in order to • provide the anticipated dates for each round-up event • provide the public a more clear, thorough, and legally required disclosure of the season and particular conditions for each gather event • ensure that environmental impacts can be appropriately commented on and	The authorizing officer will make the determination whether there will be any significant impacts that require preparation of an EIS. Refer to response 14.4. Impacts of the action alternatives were analyzed in detail in the Preliminary and Final EA.

	considered by BLM. give the public the due process that does not prejudice any outcome the public is lawfully entitled to.	
14.6	EAs will have to be completed for future actions that involve roundup, fertility control application and/or removals in the Diamond Complex due to changing environmental as well as requirements under NEPA for public participation HMA. The public wants and expects an opportunity to comment on the environmental impacts of all roundups and trapping and removals and contraception applications that will occur in the Diamond Complex over the future years as stated in the EA proposal.	Refer to responses 14.3, 14.4 and 14.5. The Proposed Action is for a phased gather approach over a 10-year period. Future gather activities beyond the decision authorized for this 10-year period would be subject to a new decision-making process and NEPA compliance.
14.7	Oppose a long term management plan to continue future gathers without issuance of EAs to the public and allowing public comment/appeal.	Comment noted.
14.8	The public must be given information as to all multiple use activities within the HMA. • Mining projects • Gas and Oil exploration/extraction • Geothermal/solar power plants • Recreation activities (OHV, Hunting) What % of usage (there would have to be a breakdown of each multiple use activity within the HMA) Concern of effects of mining activities and water use on aquifer and water sources available to both wild horses and cattle. These impacts and how they have affected grazing use and wild horse use and impacts of the public lands should be analyzed in the EA. Would water availability and wild horse distribution be improved if different management standards existed for permit of mining and other water uses up the watershed? This and other questions need to be analyzed in an EIS.	This is outside of the scope of the analysis. Pertinent information was analyzed in Chapter 4 for cumulative impacts. The effect of mining activities on water sources would have been analyzed in the EIS completed for the specific mine project.
14.9	The EA should analyze an alternative for managing Wild Equine Herds on the range, implementing a comprehensive "on the range/reserve design" management program: Reserve Design *is the process of planning and creating a natural reserve in a way that effectively accomplishes the goal of the reserve. Successful reserves incorporate important ecological and social factors into their design. Such factors include the natural range of predators.*	This is outside of the scope of the analysis and would not meet the Purpose and Need as identified in Section 1.2 of the Preliminary and Final EA. Leaving wild horses on the range and foregoing removal of excess wild horses would not be in conformance with the WFRHBA. Populations would continue to increase continuing to impact the arid rangeland of the area. *If the record establishes current resource damage or a significant threat of resource damage, removal is warranted*" (118 IBLA 75). Repeated implementation of population controls in future years will improve the ability of the BLM to reduce removals. This recommendation was incorporated into Section 2.3.1 and 2.3.5.
14.10	While documentation is not the end of the NEPA process, it is important that a reasonably good job of communicating the purpose and need of the project; the values used to develop and compare alternatives; the results of [accurate] analysis for direct, indirect impacts, and cumulative impacts; and mitigation as required by relevant regulation. It provides [accurate] evidence to the public and participating agencies [showing] a commitment to, and satisfaction of the NEPA requirements. Environmental documentation must communicate clearly [and accurately] the results of project analysis and the subsequent decisions. (link provided). At its most basic level, NEPA requires that the decision-makers, as well as the public, be fully informed, i.e. "that environmental information is available to public officials and	Comment noted. Refer to response 14.1 and 14.2 above.

	citizens before decisions are made and before action is taken." 40 C.F.R. § 1500.l(b). NEPA ensures that the agency "will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience." Robertson v. Methow Valley Citizens Council.	
14.11	Without BLM's willingness to supply complete, accurate and non-politically driven information and to review all scientific and logical information provided to the agency; any proposed EA or decision will be illegal.	Refer to response 14.1 and 14.2 above.
14.12	The EA does not address the costs that would be incurred in carrying out the proposed project. The EA should analyze the proposed action's economic impacts. The EA needs to disclose and analyze the costs to taxpayers for subsidies paid to ranchers who graze their livestock on public lands costs for the roundup, removal, and short- and long-term holding of wild horses, adoption preparation, fertility treatment. The proposed expenditures of government funds have not been justified. BLM must complete an analysis of all costs, both immediate and long-term, of the action it plans. A comparative analysis of the costs of the alternatives, including the alternative preferred by the public, should be included in the final EA. Costs should be compared to an on the range, in the wild management program. The cost-benefit analysis needs to "crunch the numbers" to ensure that public funds would be spent prudently. A thorough analysis will bring clarity to the decision process. You may very well determine that a better use of program funds would be for range improvements and rain-catchment projects. The documentation supporting the cost-benefit analysis must be incorporated as an attachment to the EA	This type of cost data was not developed for this EA, is not part of the mandates under the WFRHBA and therefore has no bearing on the action alternatives and need and purpose. Costs of previous gather operations, if available, can be requested under the Freedom of Information Act. The BLM has brought forward what we believe to be the most viable options for managing this Complex, and the most responsible way to ensure the welfare of the wild horses and protection of the habitat. The WFRHBA does not authorize a cost-based decision-making process if excess horses are present. "*Proper range management dictates removal of horses before the herd size causes damage to the range land. If the record establishes current resource damage or a significant threat of resource damage, removal is warranted*". (118 IBLA 75). BLM has a responsibility per the WFRHBA to remove excess wild horses, ensuring the health of wild horses and of the rangeland. .
14.13	Concern that the EA doesn't consider the social factors associated with the Proposed Action. The importance of these factors was highlighted in a 1982 National Research Council report on the BLM's wild horse and burro program. Public comments received by BLM recommending alternatives to large scale removals and opposing the sterilization of wild free-roaming horses indicate public opposition. The BLM received an over 7,000 comments on the Preliminary Diamond Complex EA urging an alternative to the proposed action. Public opposition constitutes a "prevailing public preference" that wild horses remain on the range and demonstrates a degree of public controversy that should prompt initiation of an EIS. There is popular support and governing statutes which support maintaining wild horses on the landscape.	With regard to public opposition of wild horse gathers, comments received from the public are used as a means to improve management and ensure that issues have been identified and addressed. It is not a means to tally votes on the most popular form of management. BLM is mandated under the WFRHBA to remove excess wild horses, ensuring the health of wild horses and of the rangeland.

14.14	During the scoping period, the Eureka County Board of Commissioners sent comment specifically asking that economic impacts be Included in analysis. We are disappointed that BLM did not include any analyses or discussion about the local socio-economic impacts that occur when wild horses are above AML especially given the fact that the County provided much of the analysis and discussion that could have been very easily incorporated. In fact, Eureka County's Master Plan requires that BLM incorporate socio-economic analyses into its decisions. We again ask for economic impacts related to wild horse overpopulation to not be diminished and be incorporated into the EA including the following 7,392 AUMs of forage unavailable for economic benefit in Eureka County in 2012 Public land grazing is vital to Eureka County and its residents. Cattle/calves and sheep/Iambs historically average 40% of the annual agricultural sales Livestock production is responsible for generating $10,000,000 worth of product sales in Eureka County in 2007. University of Nevada Report: Reno Technical Report UCED 2005/06- 14 Updated Economic Linkages in the Economy of Eureka County. • The livestock sector has an income multiplier of 1.6812 and an employment multiplier of 1.4439. • For every $1 generated by livestock production, total county household income increases by $1.68 • For every job added by the livestock sector, total employment in Eureka County increases by 1.44 employees. *Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada (Resource Concepts, Inc. March* 26, *2001).* Table 3 of the Report summarizes the economic impacts of 1 AUM of grazing in Nevada as follows: • The total economic impacts, which include the industry impacts and value added impacts, for every AUM lost (or gained)totaled to $53.40 per AUM ($29.40 direct and $24.00 in indirect and induced impacts). Economic impacts related to potential decreases in recreation and sporting should be included in the analysis. The participation in these activities is directly related to habitat health and wildlife population numbers. Any impact to wildlife habitat by an overpopulation of wild horses will have a negative effect upon the stability and socioeconomics of Eureka County and the State as a whole. 2006 Survey of Fishing, Hunting and Wildlife Associated Recreation: For every dollar spent by an individual for hunting alone is estimated to return $1.60 to the economy based on direct and induced benefits. Decline in hunting tags or other recreational opportunities attributable to wild horse impacts could result in substantial economic impacts. The overpopulation of wild horse numbers is already impacting mule deer numbers through degradation of habitat. If not	Refer to response 14.12 above. Although the economic data presented by commenter provides some insights into the socio-economic benefits of livestock grazing as a general matter, it does not necessarily translate into the specific economic impacts to the livestock operations within the Diamond Complex from the presence of excess wild horses, since many factors, including drought and permittee business decisions may affect livestock grazing management in this area, and cannot be readily quantified.

	addressed, there will be a continued loss of economic benefit tied to tag sales and hunting. Wild horses do bring some tourism in the form of camping and picnicking to view the herds. Majority of camping and picnicking is associated with locations of water and water related habitat. Excessive wild horse use of these areas has the potential to degrade these sites and decrease the camping and picnicking associated with them.	
15. Land Use Plans/Resource Management Plans		
15.1	The BLM manages many of the HMAs considered in this proposal by relying on a management regimen developed in 1986 and the Elko District BLM is relying on a Range Management Plan adopted in 1987 BLM tiers to stale planning-level review. Concern that the Elko RMP Wild Horse Amendment Record of Decision (October 14, 2003) analysis is stale, and was only an EA. Planning level environmental review in the Elko District has not taken place since 1987. Significant changed circumstances have occurred since and need to be considered, published for public scrutiny and accounted for in a new EIS. The Battle Mountain and Elko Districts are managed under dated LUPs and whose management planning levels have not been updated to reflect contemporary best science, public sentiment, changed environmental conditions and other developments important to the scope of this proposal.	Out of the scope of this analysis. The BLM relied on the best available data for analysis in this EA. The current RMPs, and RODs are still valid and control until new RMPs are issued through the public decision making process mandated under BLM's regulations. The Battle Mountain District is in the planning stages to update and issue a current RMP. Public scoping was conducted in 2010.
15.2	Elko's RMP Amendment considered in the Elko RMP Wild Horse Amendment ROD and Ely's RMP cannot appropriately serve as proxy planning-level NEPA review for HMAs in the Battle Mountain District. The Diamond Complex Gather EA is attempting to do an end-run around its legal obligation to update Battle Mountain District and Ely District planning-level environmental review and analysis. BLM does so by contriving a consolidation of Battle Mountain District and Ely District HMAs into a "Diamond Complex" proposal supported by RMP planning-level NEPA review that took place in either an entirely separate jurisdiction or an entirely separate generation – or as it appears to the public here, both. BLM needs new planning-level NEPA for its Battle Mountain District and Ely District, or if it wants to consolidate the three jurisdictions of Elko, Battle Mountain and Ely districts, it needs to do so by terminating this EA and re-initiate its proposal via a scoping process preceding an Environmental Impact Statement.	Refer to Response 15.1. Despite management as a Complex, each of the three HMAs exists within the boundaries of a different BLM District and are administered under the specific RMP or LUP for that District. The BLM commonly manages multiple contiguous HMAs as Complexes to take account of inherent movement patterns and year round needs of wild horses or burros regardless of administrative boundaries. The Diamond Complex has been managed as a Complex since the mid 1990's.
15.3	The HMAs are managed under at least three different land-use management plans in three different district jurisdictions whose management is tiered under the planning-level environmental review of at least three different planning-level reviews.	Outside of the scope of the analysis. This has no bearing on the action alternatives. Refer to response 15.1 and 15.2.
15.4	Analysis should clearly indicate or differentiates and tailor management pursuant to the different districts' planning level documents. BLM makes note of the different jurisdictions' planning-level documents in passing, but ignores their direction, mandates and particular landscape-level analysis and concerns identified for the unique landscape and wildlife needs of the different districts/field offices.	As stated in Section 1.3 of the Preliminary and Final EA, the Proposed Action is in conformance with the RMPs approved by each of the three Districts. These documents are available on the following websites: • http://www.blm.gov/nv/st/en/fo/elko_field_office/blm_programs/planning.html • http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/rmp.html • http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_programs/planning/approved_plan_and.html

	16. Predator Control	
16.1	Referring to the EA: *Wild horse populations in the Diamond Complex are not substantially regulated by predators, as evidenced by the 15-18% annual increase in the wild horse populations within these HMAs. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95% and are not a self-regulating species.* This level of analysis concerning natural predation/regulatory mechanisms of wild horses is uninformed, incomplete, and came straight out of the recent Owyhee Complex EA page 19.	The referenced statement is based on data collected through research efforts and known to be standard estimates of wild horse survival rates. It is not possible to collect survival rates for each individual HMA or Complex. Population growth rates for the Diamond Complex indicate that these survival rates and conclusions are appropriate to the Diamond Complex.
16.2	Concern that monitoring or attempts to gather information from state wildlife agencies, or any other analysis or consideration has not been extended to evaluate the effect of natural predators on wild horse populations in the Diamond Complex. The EA is inadequate because it does not provide detailed and historical information of population numbers and type of wildlife species that are hunted in the HMA as well as estimated numbers of these wildlife species and the impact of hunting of wildlife on this HMA. BLM should evaluate an alternative that includes an informed consideration of natural predation and its effect on regulation of population of wild horses. Promote and protect native predators to permit natural control of the wild-horse population on the range. The EA should disclose all information on mountain lions in the HMA, including: • All predator-killing activities (Numbers of hunting tags issued, USDA Wildlife Services predator removal activities, etc.) in the Diamond Complex HMA, including annual kill rates for each of the last ten years. • Any and all information about mountain lion populations in the area. • Any information about changes in activities within and adjacent to the Diamond Complex HMA that could have impacted mountain lion populations there over the past 4 years. Alyson Andreason from the University of Nevada Reno presented the findings of her research in May 2012, regarding mountain lions and their rate of predation on wild horses to the National Academy of Sciences wild horse and burro review committee. This research indicated high levels of predation on wild horses and foals, and that mountain lions killed four times more horses than deer in the Virginia Range. If protected, mountain lions could play a role in regulating some wild horse populations. The BLM must incorporate predator protection into its HMA management plans. Prohibit hunting mountain lion. Promoting and protecting pumas -- and re-introducing wolves and other large carnivores -- have been proven to keep wild-horse herds in check. Such an approach would favor survival of the fittest and keep the herds' population in equilibrium without human interference, just as the Act envisioned.	This is outside of the scope of the analysis. The BLM manages the habitat for which wildlife species depend on public lands. The Nevada Department of Wildlife manages the wildlife throughout the state. BLM and NDOW work together to monitor wildlife, wildlife habitat, plan restoration or enhancement activities and coordinate on management activities. The BLM does not manage the wildlife of Nevada, nor does the BLM manage any predator control programs.

Appendix G: Daily Visitation Protocol and Ground Rules

Daily Visitation Protocol and Ground Rules for the Diamond Complex Wild Horse Gather

BLM recognizes and respects the right of interested members of the public and the press to observe the Diamond Complex wild horse gather. At the same time, BLM must ensure the health and safety of the public, BLM's employees and contractors, and America's wild horses. Accordingly, BLM developed these rules to maximize the opportunity for reasonable public access to the gather while ensuring that BLM's health and safety responsibilities are fulfilled. Failure to maintain safe distances from operations at the gather and temporary holding sites could result in members of the public inadvertently getting in the path of the wild horses or gather personnel, thereby placing themselves and others at risk, or causing stress and potential injury to the wild horses and burros.

The BLM and the contractor's helicopter pilot must comply with 14 CFR Part 91 of the Federal Aviation Regulations, which determines the minimum safe altitudes and distance people must be from the aircraft. To be in compliance with these regulations, the viewing location at the gather site and holding corrals must be approximately 500 feet from the operating location of the helicopter at all times. The viewing locations may vary depending on topography, terrain and other factors.

General Daily Protocol

- A Wild Horse Gather Info Phone Line will be set up prior to the gather so the public can call for daily updates on gather information and statistics. Visitors are strongly encouraged to check the phone line the evening before they plan to attend the gather to confirm the gather and their tour of it is indeed taking place the next day as scheduled (weather, mechanical issues or other things may affect this) and to confirm the meeting location.

- Visitors must direct their questions/comments to either their designated BLM representative or the BLM spokesperson on site, and not engage other BLM/contractor staff and disrupt their gather duties/responsibilities - professional and respectful behavior is expected of all. BLM may make the BLM staff available during down times for a Q&A session. However, the contractor and its staff will not be available to answer questions or interact with visitors.

- Observers must provide their own 4-wheel drive high clearance vehicle, appropriate shoes, winter clothing, food and water. Observers are prohibited from riding in government and contractor vehicles and equipment.

- Gather operations may be suspended if bad weather conditions create unsafe flying conditions.

- BLM will establish one or more observation areas, in the immediate area of the gather and holding sites, to which individuals will be directed. These areas will be placed so as

to maximize the opportunity for public observation while providing for a safe and effective horse gather. The utilization of such observation areas is necessary due to the use and presence of heavy equipment and aircraft in the gather operation and the critical need to allow BLM personnel and contractors to fully focus on attending to the needs of the wild horses and burros while maintaining a safe environment for all involved. In addition, observation areas will be sited so as to protect the wild horses from being spooked, startled or impacted in a manner that results in increased stress.

- BLM will delineate observation areas with yellow caution tape (or a similar type of tape or ribbon).
- Visitors will be assigned to a specific BLM representative and must stay with that person at all times.
- Visitors are NOT permitted to walk around the gather site or temporary holding facility unaccompanied by their BLM representative.
- Observers are prohibited from climbing/trespassing onto or in the trucks, equipment or corrals, which is the private property of the contractor.
- When BLM is using a helicopter or other heavy equipment in close proximity to a designated observation area, members of the public may be asked to stay by their vehicle for some time before being directed to an observation area once the use of the helicopter or the heavy machinery is complete.
- When given the signal that the helicopter is close to the gather site bringing horses in, visitors must sit down in areas specified by BLM representatives and must not move or talk as the horses are guided into the corral.
- Individuals attempting to move outside a designated observation area will be requested to move back to the designated area or to leave the site. Failure to do so may result in citation or arrest. It is important to stay within the designated observation area to safely observe the wild horse gather.
- Observers will be polite, professional and respectful to BLM managers and staff and the contractor/employees. Visitors who do not cooperate and follow the rules will be escorted off the gather site by BLM law enforcement personnel, and will be prohibited from participating in any subsequent observation days.
- BLM reserves the right to alter these rules based on changes in circumstances that may pose a risk to health, public safety or the safety of wild horses (such as weather, lightening, wildfire, etc.).

Public Outreach and Education Day-Specific Protocol

A public outreach and education day provides a more structured mechanism for interested members of the public to see the wild horse gather activities at a given site. On this day, BLM attempts to allow the public to get an overall sense of the gather process and has available staff who can answer questions that the public may have. The public rendezvous at a designated place and are escorted by BLM representatives to and from the gather site.

.

Appendix H: BLM IM Number 2010-164

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

July 22, 2010

In Reply Refer To:
4710 (260) P

EMS TRNASMISSION 07/23/2010
Instruction Memorandum No. 2010-164
Expires: 09/30/2011

To: All Field Officials (except Alaska)

From: Assistant Director, Renewable Resources and Planning

Subject: Public Observation of Wild Horse and Burro Gathers

Program Area: Wild Horse and Burro Program

Purpose: The purpose of this Instruction Memorandum (IM) is to establish policy for public observation of wild horse and burro (WH&B) gathers.

Policy/Action: The Bureau of Land Management's (BLM's) policy is to accommodate public requests to observe a gather primarily through advance appointment, on days and at times scheduled by the authorized officer. Planning for one public observation day per week is suggested.

Specific viewing opportunities will be based on the availability of staff with the necessary expertise to safely and effectively host visitors, as well as other gather-specific considerations (e.g., weather, terrain, road access, landownership). The public should be advised that observation days are tentative and may change due to unforeseen circumstances (e.g., weather, wildfire, trap relocation, equipment repair, etc.). To ensure safety, the number of people allowed per observation day will be determined by the District Manager (DM) and/or Field Office Manager (FM) in consultation with the Contracting Officer's Representative/WH&B Specialist (COR) for the gather.

The DM/FM has the primary responsibility for effectively planning and managing public observation of the gather operation. Advance planning will:

- Ensure that the public have opportunities to safely observe wild horse gathers;
- Minimize the potential for disruption of the gather's execution;
- Maximize the safety of the animals, visitors, and the BLM and contractor personnel;
- Provide for successful management of visitors; and
- Ensure preparedness in the event of unanticipated situations.

The authorized officer will consider the following when planning for public observation of WH&B gather

operations. Also see Attachment 1 (Best Practices When Planning for Public Observation at Gathers).

A. Safety Requirements

During WH&B gathers, the safety of the animals, the BLM and contractor personnel, and the public is of paramount importance. Because of the inherent risk involved in working with WH&B, the public will not be allowed inside corrals or pens or be in direct contact with the animals. Viewing opportunities during the gather operation must always be maintained at a safe distance (e.g., when animals are being herded into or worked at the trap or temporary holding facility, including sorting, loading) to assure the safety of the animals, the BLM and contractor personnel, and the public.

Unless an emergency situation exists, the BLM's policy prohibits the transportation of members of the public in Government or Contractor-owned or leased vehicles or equipment. Therefore, observers are responsible for providing their own transportation to and from the gather site and assume all liability for such transportation.

The helicopter/aircraft is the private property of the gather contractor. Due to liability and safety concerns, Bureau policy prohibits observers from riding in or mounting cameras onto the aircraft. Should observers create unsafe flying and gathering conditions, for example, by hiring an aircraft to film or view a gather, the COR, in consultation with the gather contractor, will immediately cease gather operations.

The COR has the authority to stop the gather operation when the public engage in behavior that has the potential to result in harm or injury to the animals, employees, or other members of the public.

B. Planning for Public Observation at WH&B Gathers

During advance planning for public observation at WH&B gathers, the authorized officer should consult with the State External Affairs Chief or appropriate Public Affairs office. An internal communications plan will be developed for every gather (Attachment 2). It may also be helpful to prepare answers to frequently asked questions (Attachment 3).

C. Law Enforcement Plan

A separate Law Enforcement Plan should be developed if the need for law enforcement support is anticipated. The Law Enforcement Plan must be approved in advance by the Special Agent-In-Charge (SAC) or the State Staff Ranger of the State in which the gather is occurring.

D. Temporary Closure to Public Access

Under the authority of section 303(a) of the Federal Land Management and Policy Act (43 U.S.C. 1733(a)), 43 CFR 8360.0-7, and 43 CFR 8364.1, the authorized officer may temporarily close public lands within all or a portion of the proposed gather area to public access when necessary to protect the health and safety of the animals, the public, contractors and employees. Completion of a site-specific environmental analysis of the environmental impacts associated with the proposed closure and publication of a Federal Register Notice is required.

E. Gather Contract Pre-Work Conference

· Talk to the contractor about how many members of the public are expected and when. Discuss, and reach mutual agreement, about where best to position the public at the individual trap-sites to allow the gather to be observed, while accomplishing the gather objectives and assuring the humane treatment of the animals and the

safety of the BLM and contractor personnel, and public.

· No deviation from the selected viewing location(s) should be made, unless the gather operation is being adversely impacted. The COR will consult with the gather contractor prior to making any changes in the selected viewing locations.

· The BLM's policy prohibits it from ferrying observers in the helicopter or any other mode of conveyance unless an emergency situation exists. Review this policy with the contractor during the pre-work conference.

F. Radio Communication

· Assure there is effective radio communication between law enforcement personnel, gather COR or project inspectors (PIs), and other BLM staff.

· Identify the radio frequencies to be used.

· Communication with the gather contractor is through the BLM COR or PI, and from the gather contractor to the helicopter pilot. Direct communication between BLM personnel (other than the COR) and the helicopter pilot is not permitted, unless agreed upon by the BLM authorized officer and the contractor in advance, or the pilot is requesting information from the COR.

G. Pre- and Post-Action Gather Briefings

· Pre-briefings conducted by knowledgeable and experienced BLM staff can be helpful to the public.

· The pre-gather briefing is an opportunity to explain what individuals will see, why the BLM is conducting the gather, how the animals will be handled, etc.

· Post-action briefings may also be helpful in interpreting and explaining what individuals saw, what happened, why certain actions were taken, etc.

H. Summary of Individual Roles and Responsibilities

1. District and/or Field Office Managers

DMs and/or FMs are responsible for keeping the State Director and State WH&B Lead fully informed about the gather operation. Included is working with State/local public affairs staff to prepare early alerts if needed. An additional responsibility is determining if a law enforcement presence is needed.

2. Public Affairs Staff

The local district/field office public affairs staff is responsible for working with the COR, DM/FM, other appropriate staff, the State WH&B Program Lead, and the State Office of Communications to implement the communications strategy regarding the gather.

3. Law Enforcement

Develop and execute the law enforcement plan in consultation with District/Field Office Managers, the COR/PI, and the State's Special Agent-In-Charge or State Staff Ranger.

4. Contracting Officer's Representative (COR)/Project Inspectors (PIs)

The COR and the PI's primary responsibility is to administer the contract and manage the gather. A key element of this responsibility is to assure the safe and humane handling of WH&B. The COR is also responsible for working closely with the DM/FM and Public Affairs Staff to develop the communication plan, and for maintaining a line of communication with State, District, and Field Office managers, staff and specialists on the progress of, and any issues related to, the gather operation.

Timeframe: This instruction memorandum is effective immediately.

Budget Impact: Higher labor costs will be incurred while accommodating increased interest from the public to attend gather events. The budget impacts of unanticipated situations which can occur during WH&B gathers include substantial unplanned overtime and per diem expense. Through advance planning, necessary support staff can be identified (e.g., law enforcement, public affairs, or other BLM staff) and the cost-effectiveness of various options for providing staff support can be evaluated. In situations where public interest in a gather operation is

greater than anticipated, the affected state should coordinate with the national program office and headquarters for assistance with personnel and funding.

Background: Heightened interest from the public to observe WH&B gathers has occurred. Advance planning for public observation of gather operations can minimize the potential for unanticipated situations to occur during WH&B gathers and assure the safety of the animals, the BLM and contractor personnel, and the public.

Manual/Handbook Sections Affected: No change or affect to the BLM manuals or handbooks is required.

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

Contact: Questions concerning this policy should be directed to Susie Stokke in the Washington Office at (202) 912-7262 or Lili Thomas in the National Program Office at (775) 861-6457.

Signed by:
Bud C. Cribley
Acting, Assistant Director
Renewable Resources and Planning

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

Appendix I: FAA General Operating and Flight Rules Sec. 91.119

Federal Aviation Administration

Part 91 GENERAL OPERATING AND FLIGHT RULES
Subpart B--Flight Rules General

Sec. 91.119

Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

[(d) Helicopters, powered parachutes, and weight-shift-control aircraft. If the operation is conducted without hazard to persons or property on the surface—

(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.]

Amdt. 91-311, Eff. 4/2/10