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Preliminary

Diamond Complex
Wild Horse Gather Plan

October 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

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Photos on cover clockwise from upper left: Diamond HMA white horse herd, October 2010, scenic view of open pinyon-juniper and Diamond Valley playa, June 2009, representative key management area, 2012 drought monitoring showing low vigor and production of forage.

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 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)."[1] 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. 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 removal numbers 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).

To further implement this strategy of increasing population controls as a management tool, the 2012 and 2013 BLM wild horse gather schedule increased emphasis to apply 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 includes the

1. 40 CFR Sec. 1508.9.

Proposed Wild Horse Gather Area Diamond Complex

Map 1

Legend

- Proposed Gather Area
- Herd Management Areas
- Nevada USFS Territories
- Districts

Highways

- US Highway
- State Route

Land Status

- Bureau of Land Management
- Forest Service
- Private

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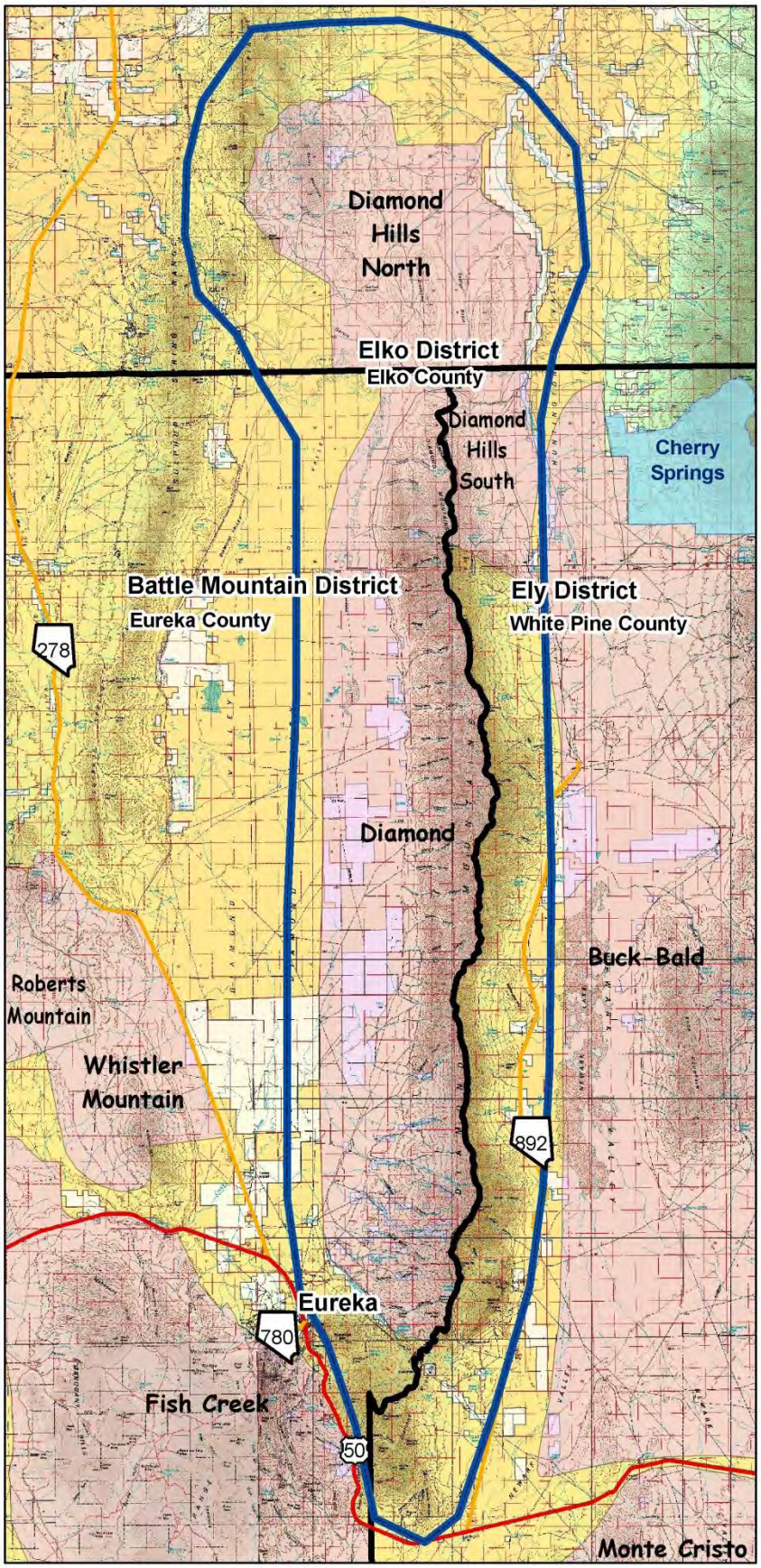
No Warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.

Mount Lewis Field Office 2012



Proposed Wild Horse Gather Area Diamond Complex

Map 2

Grazing Allotments

Legend

- Proposed Gather Area
- Districts
- Nevada USFS Territories

Highways

- US Highway
- State Route
- Herd Management Areas
- Grazing Allotments

Land Status

- Bureau of Land Management
- Forest Service
- Private
- Allotments in Proposed Gather Area

N W E S

0 2.5 5 10 Miles

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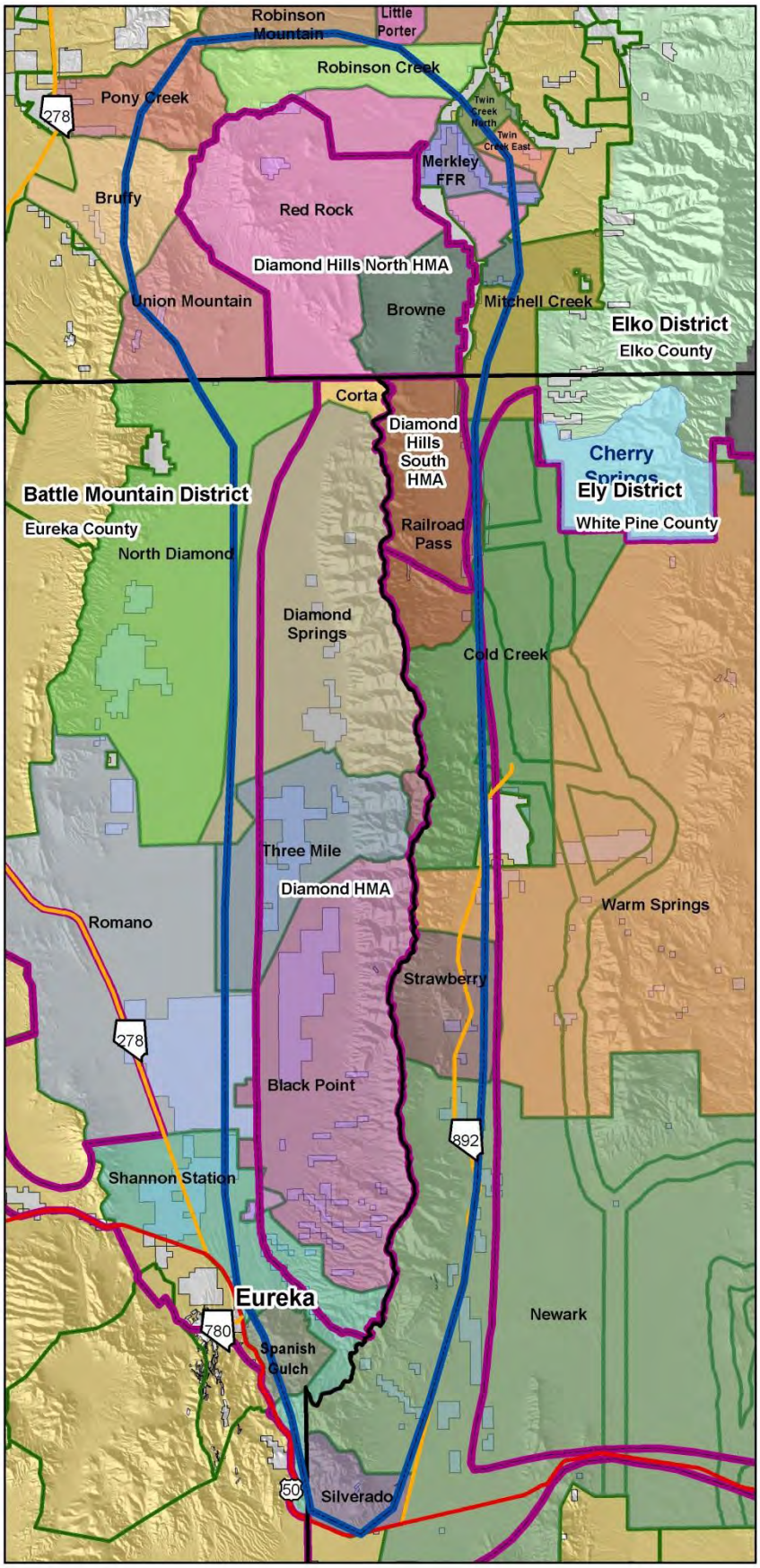
Mount Lewis Field Office 2012



reduced need for removal to only limited numbers of excess wild horses for which there is the greatest adoption demand.

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. Refer to Map 1 which displays the Diamond Complex.

Figure 1: Diamond HMA. August 2012.

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[2] 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.

The following table displays the acreages of the Diamond Complex, established AMLs, and 2012 estimated populations.

2. 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).

Table 1: Diamond Complex Overview

HMA	District/Field Office	Acres	AML	Estimated 2012 Population	% of AML
Diamond	Battle Mountain/Mount Lewis	164,929	151	342	226%
Diamond Hills South	Ely/Egan	19,000	10-22	282	1,282%
Diamond Hills North	Elko/Tuscarora	71,534	37	202	546%
Total		257,378	198-210	826	393%

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 proposals to adjust AML would not be included in this EA.

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.

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 703 excess wild horses are present within the Diamond Complex and need to be removed in order to achieve the established 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.

2012 presented severe and extreme drought conditions throughout Nevada, including the Diamond Complex, compounding the impacts by the current 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 low elevations which will limit availability to wild horses during the coming fall

and winter. Furthermore, monitoring indicates that a large number of wild horses are already using their 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 declining wild horse body condition and potential emergency situation. Figures 2-7 display representative forage and water conditions as documented during the 2012 field season.

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. 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 boundaries.

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 rate in order to prevent degradation of the public lands by protecting rangeland resources from deterioration associated with excess wild horses within and outside 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).

<u>Wild Horse & Burro Management Objectives:</u>

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"*.

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 the proposed 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

As part of the preparation of this EA, a scoping letter dated June 4, 2012 was mailed 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. Letters were also sent to Native American Tribal Representatives throughout Central Nevada on June 12, 2012, informing them of the proposed gather. Numerous comments were received through September 21, 2012. The overwhelming majority of these comments (707) were form letters reiterating identical comments. Unique comments or letters were received from approximately 38 individuals, agencies or organizations. The form letters and individual comment letters were reviewed and considered. As a result of the comments received, additional information and photos were added to the 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. Most comments that were reviewed fell among, but were not limited to, the following themes:

Support the action/importance of maintaining AMLs
Genetic health/AMLs too low
Outside of scope of analysis
Provide data to support removal
Inventory data
Viewpoint/matter of opinion
Concerns/effects of use of helicopters
Public viewing opportunities during gathers
Manage primarily for wild horses/remove or reduce livestock

Responses to scoping comments received are available in Appendix F

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 and selective removal of excess wild horses to achieve low range of AML (123 wild horses), and population growth control using fertility control treatments (PZP-22 or most current formulations). Under the Proposed Action, the BLM intends to continue with this treatment protocol over the next 10 years. The BLM would conduct maintenance gathers in the Diamond Complex to continue the population growth control protocols and remove adoptable 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 wild horses to achieve the management targets, to relieve resource concerns and/or concentrated groups of wild horses both inside and adjacent to the Diamond Complex.

Alternative 1: Use a single gather and selective removal of excess wild horses to achieve a post gather population of 123 wild horses (low AML) within the Diamond Complex <u>without</u> implementation of fertility control. Under Alternative 1, the BLM intends to continue with this treatment protocol over the next 10 years. The BLM would conduct maintenance gathers in the Diamond Complex to remove adoptable 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 concentrated groups of wild horses both inside and adjacent to the Diamond Complex.

Alternative 2: Use a single 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 intends to continue with this treatment protocol over the next 10 years. The BLM would conduct maintenance gathers in the Diamond Complex to continue the population growth control protocols and remove adoptable 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 wild horses to achieve the management targets, to relieve resource concerns and/or concentrated groups of wild horses both inside and adjacent to the Diamond Complex.

Alternative 3: Use a single 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 intends to continue with this treatment protocol over the next 10 years. The BLM would conduct maintenance gathers in the Diamond Complex to remove adoptable 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 wild horses to achieve the management targets, to relieve resource concerns and/or concentrated groups of wild horses both inside and adjacent to 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 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 Diamond Complex. The BLM would make every effort to place gather sites in previously disturbed areas, but if a new site needs 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 or to ensure safe gather operations.

Figure 8: 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. 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 wild horses to achieve the management targets, to relieve resource concerns, and/or concentrated groups of 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.

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. Prior to completing future gathers, appropriate NEPA documents would be completed if necessary.

2.2. Proposed Action and Alternatives

Proposed Action: Use Multiple gathers and selective removal of excess wild horses, and implement fertility control to achieve a post-gather population of 123 wild horses (low AML) in the Diamond Complex. 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 up to 762 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 holding space, limitations, it is likely the BLM may not be able to achieve the goals of the Proposed Action at this time with a single gather in 2013. The 2013 gather would 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 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 75% of the existing wild horses (approximately 616 excess animals) in the initial 2013 gather, resulting in an initial post gather population at approximately the high AML (210 wild horses). Since the first phase of the Proposed Action would not achieve the desired low AML, a follow-up gather would be planned in two to three years.

The Proposed Action alternative includes returning to the Diamond Complex every 2-3 years (starting in 2014 or 2015) 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 AML by using limited removals. 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. In future gathers, when low AML is achieved, only fertility control would be implemented as a population control, with sex ratio adjustment reserved for those 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 decrease 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 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.

After the first gather, the target removal number would be adjusted accordingly utilizing data from population inventories for the Diamond Complex. 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 gathers would attempt to 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. All wild horses residing in areas outside of the Diamond Complex would be gathered and removed. 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-in 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[3]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	342	308	34	191	117	151
Diamond Hills North	37	202	182	20	165	17	37
Diamond Hills South	10-22	282[4]	260	22	260	0	22
Total	210	826	750	76	616	134	210

2.2.2. Alternative 1: Selective removal of excess wild horses from a single gather in 2013 to achieve a post gather population of 123 wild horses (low AML) within the Diamond Complex, without implementation of population controls.

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 a single 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. Future gathers would occur on a 2-3 year interval to remove excess wild horses and would be conducted in a manner consistent with those described for the initial winter 2013 gather.

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

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[5]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	342	308	34	251	57	91
Diamond Hills North	37	202	182	20	180	2	22
Diamond Hills South	10-22	282[6]	272[7]	10	272	0	10
Total	210	826	762	64	703	59	123

2.2.3. Alternative 2: Selective removal of excess wild horses from a single gather in 2013, achieving 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.

3. Estimated gather numbers based on ability to capture 90% of the population, which could vary depending on terrain, animal location, weather conditions and actual population size experienced during the proposed gather.
4. Includes 232 wild horses outside of the HMA boundary, and 50 within the HMA boundary.
5. Estimated gather numbers based on ability to capture 90% of the population, which could vary depending on terrain, animal location, weather conditions and actual population size experienced during the proposed gather.
6. Includes 232 wild horses outside of the HMA boundary, and 50 within the HMA boundary.
7. It is estimated that 272 wild horses would need to be captured to meet the low AML target and remove wild horses from outside of the HMA, which would require higher than 90% gather efficiency.

Under this Alternative, the objective would be to achieve the high AML for the Diamond Complex with the removal of approximately 616 wild horses in a single gather in 2013. Future gathers would occur with 2-3 year intervals to remove excess wild horses, 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.

Table 4, Estimated Populations and Proposed Removals under Alternative 2

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[8]	EST. UN-GATHERED	EST. TO REMOVE	EST. TO RELEASE	EST. POST-GATHER
Diamond	151	342	308	34	191	117	151
Diamond Hills North	37	202	182	20	165	17	37
Diamond Hills South	10-22	282[9]	260	22	260	0	22
Total	210	826	750	76	616	134	210

2.2.4. Alternative 3: Use a single 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). 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. 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.

8. Estimated gather numbers based on ability to capture 90% of the population, which could vary depending on terrain, animal location, weather conditions and actual population size experienced during the proposed gather.
9 Includes 232 wild horses outside of the HMA boundary, and 50 within the HMA boundary.

Table 5: Estimated Populations and Proposed Removals under Alternative 3

HMA	AML	EST. POPULATION	EST. GATHER NUMBER[10]	EST. UN-GATHERED	EST. TO REMOVE	EST. POST-GATHER
Diamond	151	342	191	151	191	151
Diamond Hills North	37	202	165	37	165	37
Diamond Hills South	10-22	282[11]	260	22	260	22
Total	210	826	616	210	616	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 826 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 1.3. 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 1.3, and was eliminated from further consideration.

10. Estimated gather numbers based on ability to capture 90% of the population, which could vary depending on terrain, animal location, weather conditions and actual population size experienced during the proposed gather.
11. Includes 232 wild horses outside of the HMA boundary, and 50 within the HMA boundary.

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 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 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.

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 and limited forage and 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 majority of the Diamond Hills South HMA since 2009, and sheep use has occurred but 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, 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 <u>productive capacity of their habitat</u>"* (emphasis added).

As the vegetative and water resources are over utilized and degraded to the point of no recovery 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 was 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. 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. 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 9: 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. Refer to Map 1 which displays the HMAs. Appendix C includes precipitation data representative of the Diamond Complex.

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 (page 7) 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 826 within the Diamond Complex and adjoining areas and is based on a helicopter inventory direct count completed in March 2010. An inventory is also currently scheduled for November 2012.

Figure 10: Note freezemarked "AC" on left hip of black mare from 2004 fertility control treatment. August, 2012, Diamond HMA.

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 (Figure 10).

The current population in the Diamond Complex is approximately 393% of the high range of AML, nearly four times the level that has been allocated for wild horses. The 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 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. Livestock have been 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. 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 concentrations of wild horses go between foraging areas and limited water resources.

Approximately 232 excess wild horses have strayed out of the Diamond and Diamond Hills South HMAs in search of forage and water on public land. 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 areas that are not designated for wild horses.

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. 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 population nearly 4 times over AML have been even more limited, causing heavy concentrations of wild horses at remaining waters, and lack of forage in the lower elevations that will be important for winter use. Close monitoring continued throughout the summer to monitor wild horse body condition and water availability. Observations of forage and water availability were made during an overflight of the Diamond HMA completed in August 2012. 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. However, 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 11-12 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 11, 12: Typical mountain springs, and low water availability as documented during flight, August 2012. Diamond HMA.

Throughout the Diamond Complex a lack of growth on both herbaceous 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, the summer rain was not adequate to cause sufficient growth in vegetation or recovery of waters to alleviate the escalating conditions 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 impact 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 13 and 14 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.

Figure 13: Lower Judd Canyon on foothills. Representative example of complete lack of forage in the winter range habitat as nothing grew in these already degraded areas. Drought monitoring July 2012, Diamond HMA.

Figure 14: Diamond HMA, TM-3 2012 Drought Monitoring. 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, most 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.

Inventory flights of the Diamond Complex have been completed on a regular basis in September 2006, September 2008 and March 2010. An inventory flight is planned for November 2012 to obtain current population estimates, document current presence of foals in the population and distribution and health of animals throughout the Diamond Complex. 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[12] 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.

12. 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.

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	702	8,424	
Total	3,420	41,040	
Average	380	4,560	

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.*

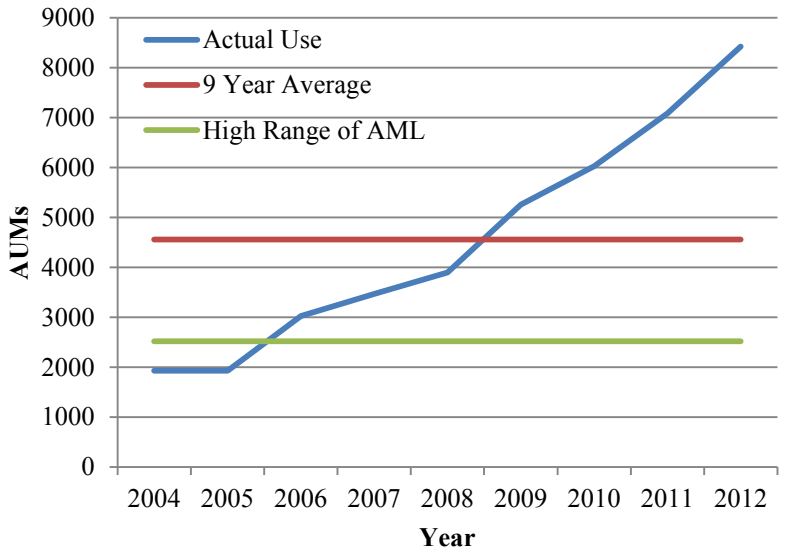


Figure 15: Diamond Complex wild horse actual use and average use relative to high range of AML.

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. Population data suggests that mountain lion predation may be having a mild effect on the population growth rates, but not substantial enough to 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. The Nevada Department of Wildlife and 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.

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. 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.

Wild horses are usually in very good fitness and are able to endure the physical requirements of the gather much better than their domestic counterparts. 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 proposed 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.

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 16-19 (below) 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.

Figure 16-19: 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 to conduct maintenance gathers to achieve the post gather targets. Gather and removal numbers would be based on estimated population size derived from helicopter inventories.

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 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 616-762 wild horses would be gathered from the Diamond Complex during the 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 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.

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).

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 616-703 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 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.

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 wild horses that would need 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 AML in a single gather rather than 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 4 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.

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 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 gathers. This scenario also would likely require 4 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 616 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%

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.

Figures 20-21: Diamond HMA helicopter overflight, August 2012. Mares treated with fertility control in 2004, with the identifying freezemark on the left hip.

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.

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.

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).

Figure 22: Diamond HMA, White horse herd, June 2006.

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 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.

Figure 23: 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.

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.

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 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 7-10, 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 the 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 LTHPs 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	Average Populations	Average Growth Rates	Gathered	Removed	Treated
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 24 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 could starve and die this winter.

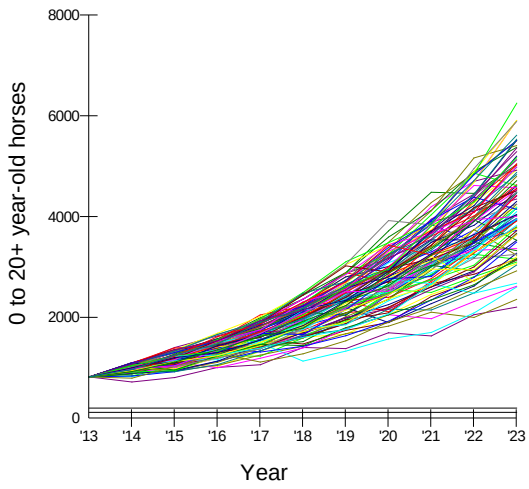


Figure 24; No Action Alternative -- Population Model Spaghetti Graph

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[13]. 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).

13. 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.

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 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. Two of the permittees still grazing the allotments are targeting cheatgrass with their livestock grazing. 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. A few of the permittees are being asked to rest part or all of their allotments during the 2013 critical growth period and hot season to allow the native grass and shrub species to recover from this year's drought. All livestock have been removed from the Diamond HMA as of the end of August 2012 due to 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.

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, 127-232 wild horses (1,524-2,772 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.

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 11 on the previous page.

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
MLFO	Black Point	98%	Cattle 5/1 - 11/30 Sheep 5/1 - 10/31	2,215 cattle 2,097 sheep	780	4,104
	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[a]	
EFO	Railroad Pass	70%	Cattle 5/1 - 10/31 Sheep 4/5 - 11/15	3,542	264	600[c]
	Railroad Pass/Corta Seeding[b]	100%	4/5 - 11/15	540	0	
	Total			4,082	264	
TFO	Browne	90%	5/16 - 9/15	657	72	2,424
	Red Rock	80%	4/15 - 11/17	7,502	372	
	Total			8,159	444	
Grand Total				24,348	2,520	7,128

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

b. *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.*
c. *Includes only the wild horses estimated in the Railroad Pass Allotment and does not include 232 wild horses (2,784 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). An AUM does not represent the actual number of animals and is defined in footnote 11 on the bottom of page 55.

Table 16: Actual Use by Livestock, Diamond Complex

HMA	Allotment	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	2,160 Cattle, 2,097 Sheep
	Diamond Springs	2,434	2,392	2,014	2,801[b]	2,111	2,889	3,138	1,605
	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	1,497 Cattle, 647 sheep
	Three Mile	547	605	471	723	768	544	746	847
	Corta	81	39	89	56	91	95	95	97
	Total	8,723	9,101	9,171	7,231	8,029	7,866	9,497	8,950
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	16,789
% of Authorized		50%	60%	70%	62%	82%	49%	67%	69%

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.*
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.

Environmental Consequences

Impacts common to Action Alternatives

The proposed gather would not directly affect livestock operations within the grazing allotments. Operations involved in removing wild horses may temporarily cause some disturbance to livestock present during the removal process. Livestock owners within the area of impact would be notified prior to removing wild horses enabling them to take precautions and avoid conflict with livestock. Most livestock would not be present on the range during the time period the gather is scheduled.

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 to remove excess wild horses and retreat females with fertility control under the Proposed Action 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. The indirect 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.

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 HMA, historic fires have resulted in frequent burn scars throughout foothills and lower slopes that are dominated by cheatgrass and annual mustard (Figure 25). 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. 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 (Figure 26). 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.

Environmental Consequences
<u>Impacts Common to Action Alternatives</u>

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 25: Wild horses and cattle graze on annual mustard and cheatgrass in a burn scar, Diamond HMA. 06/26/09.

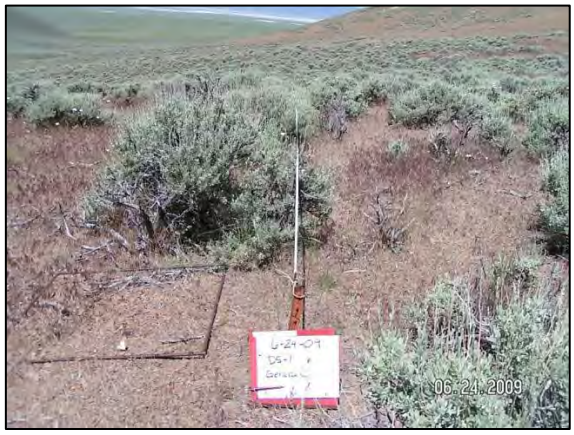


Figure 26: Diamond HMA, DS-1 Photo Trend study, June 2009. Nested frequency transect. Note dominant cheatgrass in understory.

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, 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 congruent with 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.

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.

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 18: 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.

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.

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. 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. Trend studies indicate some 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.

Figure 27-28: Key area TM-2, in the Diamond HMA. Contrast the difference in the production of grasses from 2005 when the wild horse populations were within AML and 2010 when the wild horse populations exceeded AML.

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 29-30).

Figure 29-30: Seeding, Diamond Hills South HMA. This area is being excessively utilized by wild horses.

Long-term monitoring data was collected on the Browne and Red Rock allotments 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 seeding. Observation within the Diamond Hills North HMA in August 2012 showed that plants were in poor vigor.

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

<u>Impacts common to the Action Alternative</u>

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.

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.

Figure 31: 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 32: Diamond HMA, DS-11 fall utilization monitoring. Erosion "pavement".

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 33 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.

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.

Figure 33: 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.

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. 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.

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 would be evaluated in future Rangeland Health Assessments and appropriate changes made at that time to improve livestock management and minimize degradation.

Mount Lewis Field Office, Battle Mountain District

Most 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.

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 has been very limiting to the overpopulation of wild horses in the Diamond HMA. 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 (Table19, Figure 33).

Table 19. 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 20, Figure 34a). 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 34b).

Figure 33: Distribution of PFC ratings for Lotic systems in Diamond HMA.

Table 20. 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

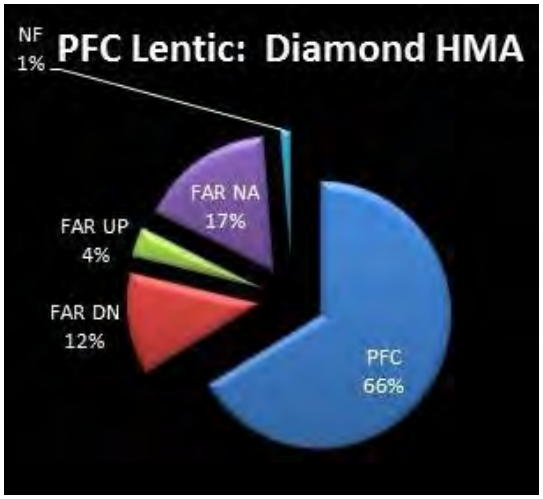


Figure 34a: Distribution of PFC ratings for all Lentic systems in Diamond HMA.

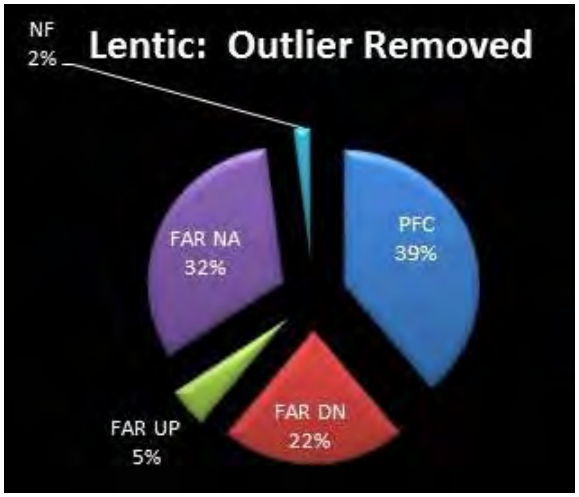


Figure 34b: Distribution of PFC ratings after outlier is removed.

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.

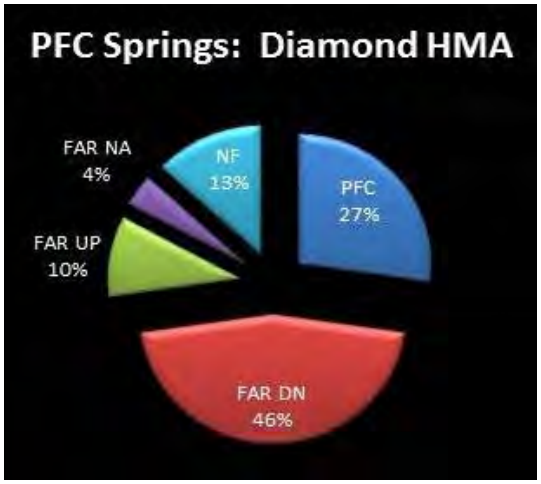


Figure 35a: PFC ratings for springs.

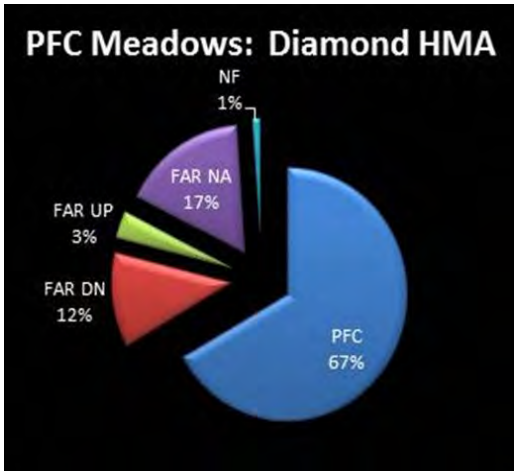


Figure 35b: PFC ratings for meadows.

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.

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.

It is recognized that livestock impact riparian areas, particularly the most accessible ones that are used as loafing areas. Livestock management in relation to riparian areas would be addressed in future Rangeland Health Assessments and subsequent Decisions. The following photos show current impacts occurring to riparian areas solely from concentrated wild horse use.

Figure 36: 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 37: Close-up of the spring in Figure 36. 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.

Figure 38**:** *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 39**:** *Diamond HMA, Three-Mile Allotment, 07/16/2012, downstream from photo 38. 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 38.*

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, located in the horse-free area, 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.

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 will be addressed in the future Rangeland Health Evaluation and appropriate changes made at that time to reduce livestock impacts to riparian areas.

Environmental Consequences

<u>Impacts common to all Action Alternatives</u>

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.

The proposed gather would indirectly affect riparian-wetland areas and water quality. 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 (Figures 36-39). 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. Decreasing the population would result in reduced consumption of soil stabilizing vegetation, bank, seep, and spring trampling, erosion and soil compaction near water sources. This will help to restore the natural balance between wetland resource supply and demand, enabling recovery through natural processes.

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.

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. Reducing the wild horse population would decrease adverse impacts on riparian areas. 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.

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 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.

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. 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. 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 21 summarizes the major range types listed and characteristics pertinent to each:

Table 21. Soil Types and Ecological Sites of the Diamond Complex

Site Number	Site Name	Precipitation Zone	Major Vegetative Species		Soil Factors
			Grass	Shrubs	
028BY003	Loamy Bottom	10-14"	Basin wildrye (LECI4), Nevada bluegrass (POSE)	Basin big sagebrush (ARTRT), rubber rabbitbrush (ERNA10)	Deep, well drained, susceptible to gullying
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

Site Number	Site Name	Precipitation Zone	Major Vegetative Species		Soil Factors
			Grass	Shrubs	
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

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

Figure 40: Diamond HMA, Fourmile Canyon Spring, August 2012. Impacts to drought affected spring by wild horses and livestock.

Figure 41: Fourmile Canyon Spring, 2012. Hummocking of the spring by wild horses and past livestock use.

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.

Figure 42: Wild horses side hill along the wall of a canyon. August 2011, helicopter flight. Diamond HMA.

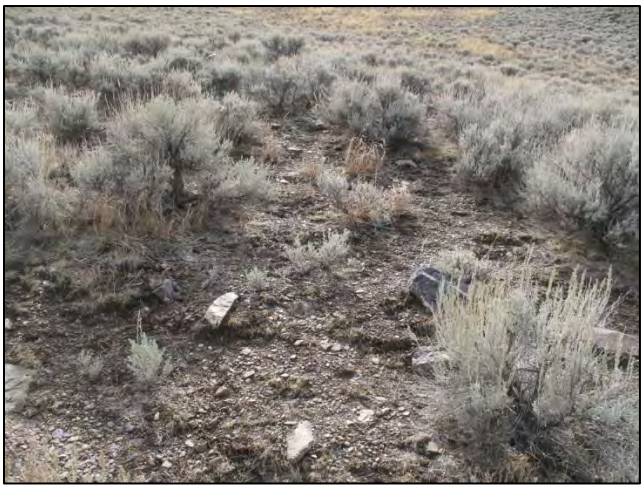


Figure 43: DS-2, fall, 2010 utilization. Photo shows bare ground and pedestalling occurring in the interspaces. Lack of vegetative cover and hoof action by wild horses increases the impacts. Diamond HMA.

Figure 44: DS-5 fall 2010 utilization monitoring, Diamond HMA. Wild horse tracks.

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.

Environmental Consequences

<u>Impacts common to all Action Alternative</u>

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.

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 around 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.

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.

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

Affected Environment

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 tridentata*) 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.

Figure 45: Diamond HMA, 4/18/11. Deer and wild horses graze together.

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.

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*

Environmental Consequences

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

Removing wild horses from 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 will be located in areas that have previously been disturbed (i.e. gravel pits) and will contain very little vegetation. Potential gather sites will also be inventoried to determine the presence of sensitive species and they would be avoided if observations indicate use.

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. 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.

Figure 46: Diamond HMA, TM-2 Spring 2011 utilization monitoring, Pronghorn antelope track.

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. 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).

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 393% 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. 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 2000 wild horses by 2019. 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. Degradation could be irreversible 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.

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. 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.

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 to or injury of the wild horses. 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.

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.

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. 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 (in 10-15 years). 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 resources distribution data will continue to be collected.

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

The BLM would analyze any future proposed projects within the Diamond Complex in an appropriate environmental document following site specific planning. Future project planning would also include public involvement.

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.

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.

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.

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 Wild Free-Roaming Horses and Burros Act which placed wild and free-roaming horses and burros, that were not claimed for individual ownership, under the protection of the Secretaries of Interior and Agriculture. In 1976 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.

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 in 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. Currently, management of the HMA and wild horse population is guided by the 2008 Ely District ROD and RMP. The AML range for the HMA

is 10-22 wild horses. 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.

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 SERA RMP. 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.

Today the Diamond Complex has an estimated population of 826 wild horses. Resource damage is occurring in portions of the Diamond Complex due to excess animals. 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.

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.

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. 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 two 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 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. Any future wild horse management would be analyzed in appropriate environmental documents following site-specific planning with public involvement.

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 47: 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. Future wild horse management in the BLM's Elko, Ely and Battle Mountain Districts would focus on an integrated ecosystem approach with the basic unit of analysis being the watershed. 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, 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. 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 holding 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 two years, most horses would be re-released back to the range resulting in fewer disturbances to existing social structures.

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.

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 within 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.

Figure 48: Wild horses are making concentrated use in the Three-Mile Allotment portion of the Diamond HMA. Helicopter flight, August 2012.

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 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 49: 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. Any future wild horse management would be analyzed in appropriate environmental documents following site-specific planning with public involvement.

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). In 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.

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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 administered by the BMDO.

A. Gather Area

The Proposed Gather Area includes the above referenced HMAs and areas outside of HMA boundaries where wild horses reside. The area is approximately 257,378 acres in size. Refer to Map 1 and 2, which display the HMAs, grazing allotment 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 2012. 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. BLM Wild Horse and Burro Specialists would be present during all aspects of the gather activities.

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 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 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-call or 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.

How would bait or water trapping be done?

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. Shawna Richardson (MLFO), Ruth Thompson (EFO) and Bruce Thompson (TFO), Wild Horse and Burro Specialists would serve as the 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. Respective Field Managers from each Field Office will take active roles to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the 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.

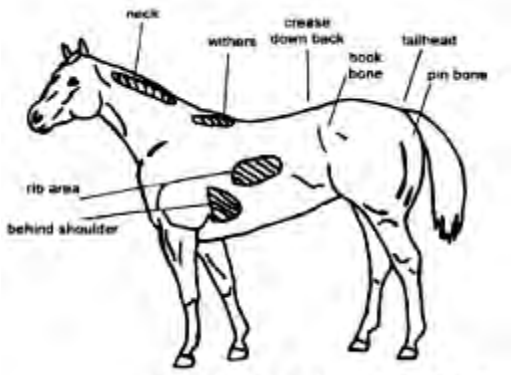
Should the contractor show negligence and/or not perform according to contract stipulations, he will be issued written instructions, stop work orders, or defaulted.

Figure A.1: Diamond HMA. November 2005 wild horses graze on cheatgrass in the foothills.

Figure A.2: Diamond HMA. 4/19/11.

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

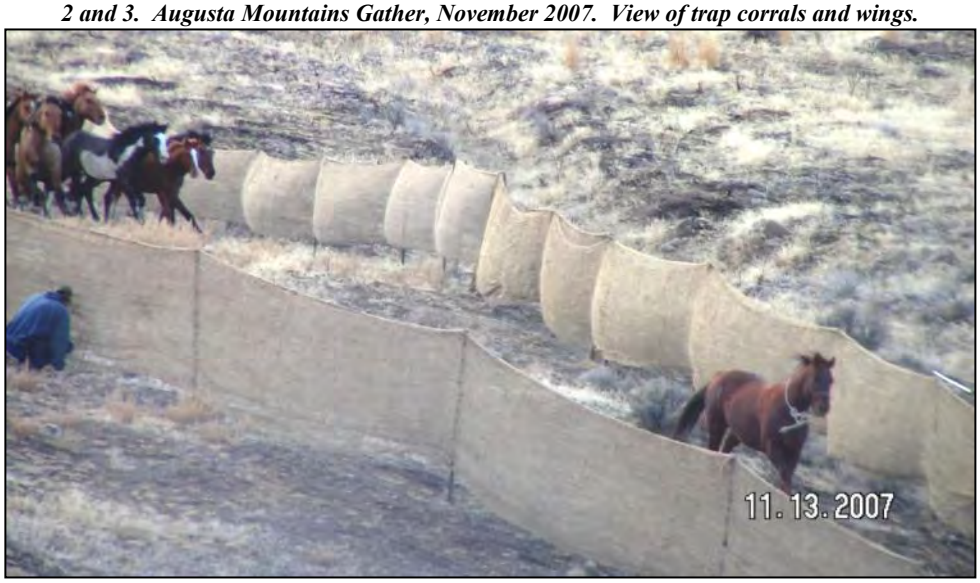
Condition	Neck	Withers	Shoulder	Ribs	Back	Tailhead Area
1 Poor (*extremely emaciated*)	Bone structure easily noticeable	Bone structure easily noticeable	Bone structure easily noticeable	Ribs projecting prominently	Spinous processes projecting prominently	Tailhead, pinbones, and hook bones projecting 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.

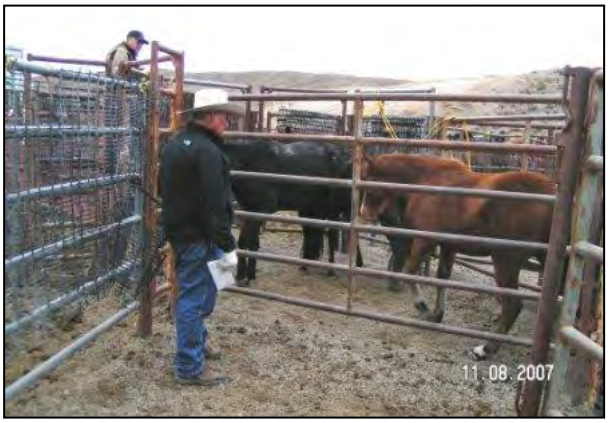


4. Augusta Mountains Gather, November 2007. Prada horse leads the wild horses into the mouth of the trap. Crew stands by to secure gates.

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)

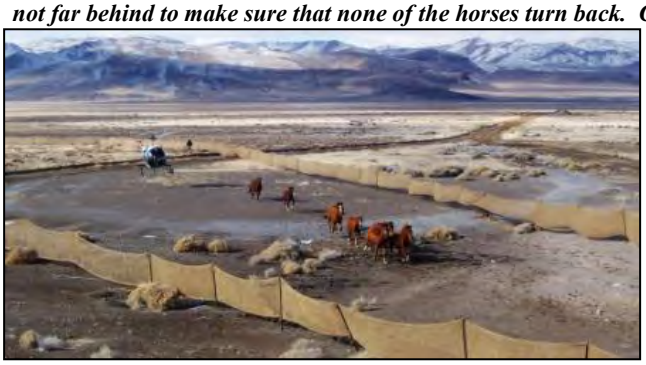


8. New Pass/Ravenswood Gather, November 2007. The Brand Inspector checks the horses for possible brands before transport to the BLM WHB facilities.

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.

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, 06/26/09.

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 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.

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. 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 no 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. 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.

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 in March 2010. An overflight to document forage, water and wild horse conditions was made of the Diamond HMA portion of the Diamond Complex in August 2012. A comprehensive inventory of the entire Diamond Complex is planned for November 2012, prior to issuance of the Final EA. 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 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%

HMA	Allotment	Inside HMA				Outside HMA				Total				Yrlg %	Foal %
		Adult	Yrlg	Foal	Total	Adult	Yrlg	Foal	Total	Adult	Yrlg	Foal	Total		
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 horses, as shown in the above table. 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 16-19, 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 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.6). Higher elevation water sources consisting of primarily small springs and pools were also observed (Figure B.7-B.8). 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. 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.

August 2012 helicopter flight photos

Figure B.4: 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.5; A group of wild horses at higher elevations in sagebrush communities. All appeared healthy and of good body weight.

Figure B.6: Wild horses located at higher elevations had access to additional quantities of forage consisting of residual bunchgrasses.

Figure B.7: Group of wild horses trailing away from a small, high elevation spring source.

Figure B.8: Typical high elevation spring source and spring development to t a trough.

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. During summer months, wild horses are typically in the higher elevations on ridges and steep side hills utilizing perennial bunchgrasses. 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.

Figure B.9: Diamond HMA, June 2010. Wild horses trail through an open gate next to a cattleguard into the adjoining area.

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 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.

For the most part, populations in the southern portion of the Diamond HMA have been low since the last gather, with highest concentrations found in the Three-Mile and Diamond Springs Allotments in the northern half of the HMA.

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.

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%

Age	% of Mares	% of Studs	Total Gathered
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%

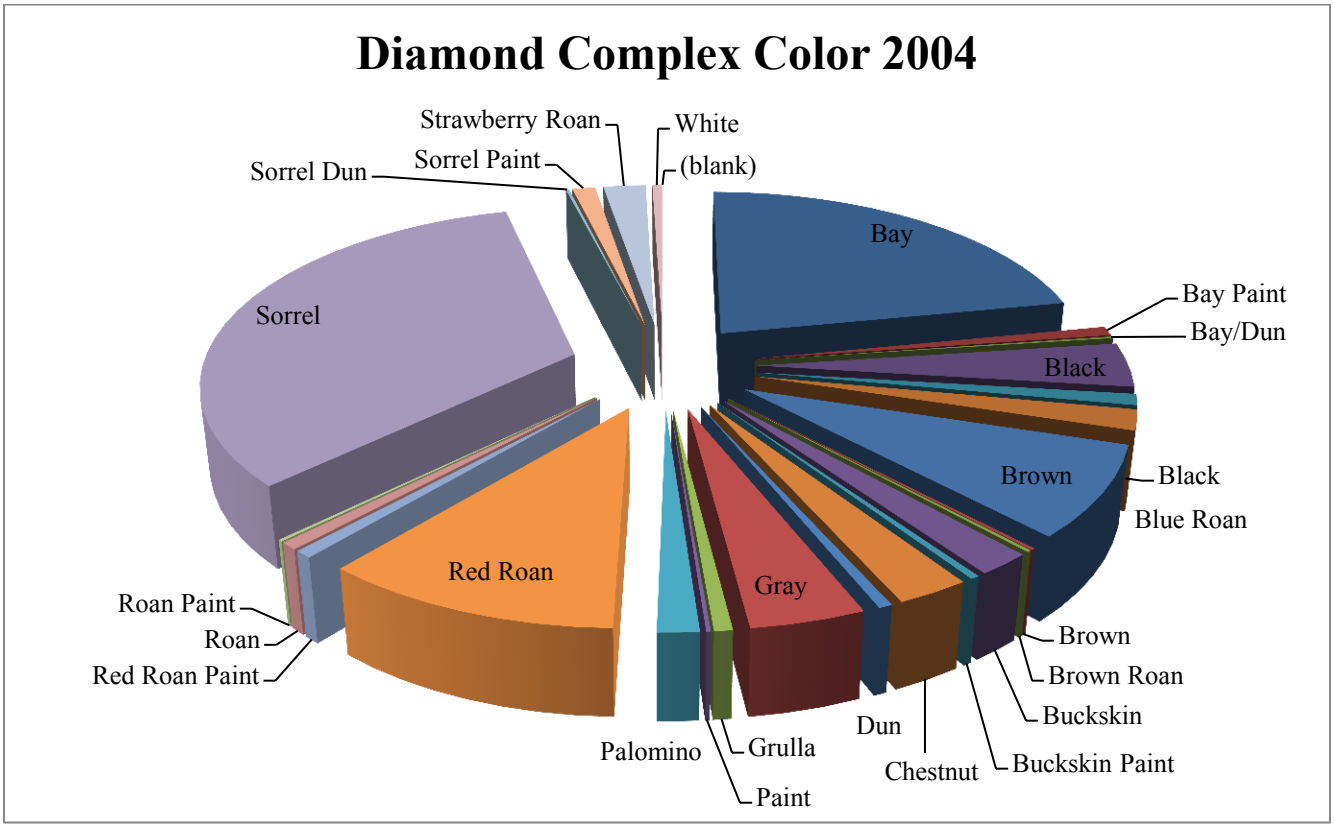


Figure B.10: Color Pattern, 2004 Diamond Complex Wild Horses

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.12: Wild horses in the Diamond HMA, June 2006.

Figure B.13: Currently, additional forage is available on the high elevation slopes easily accessible to wild horses until snow precludes their use.

Appendix C: Precipitation, Drought and Monitoring
Diamond HMA

Precipitation Eureka Weather Station

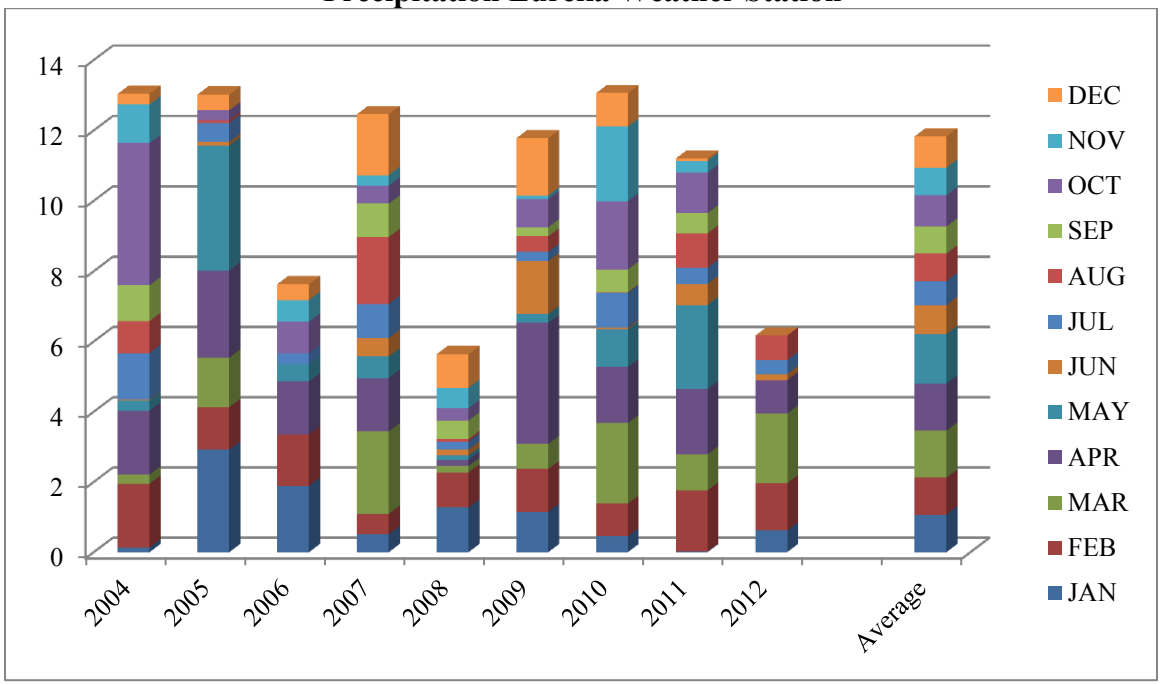


Figure C.1

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.

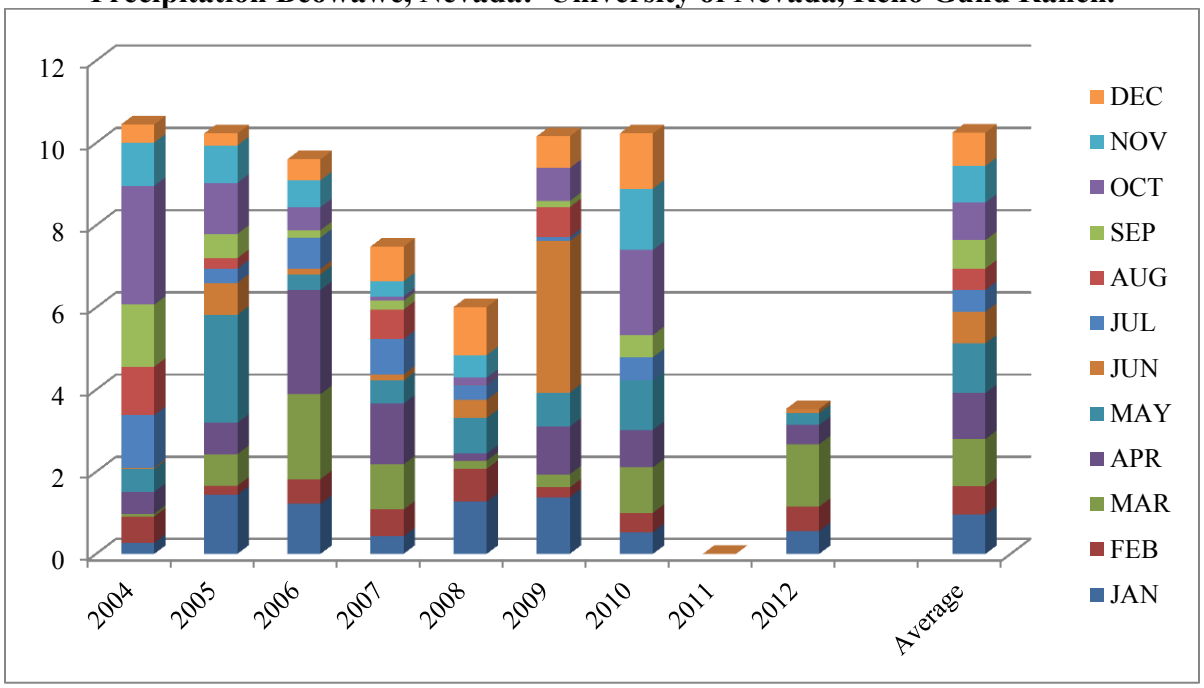


Figure C.2

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 Diamond HMA. 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. 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 has been better than expected with Henneke scores averaging 5.0 (moderate), and few thin animals observed. 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 have had to travel long distances to water, and often remain at the source for long periods of time waiting for recharge in order to satisfy the animals.

Drought monitoring of the Diamond HMA was completed between May 7 through September, 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.3: Diamond HMA, DS-2 Horse Canyon Utilization monitoring Fall, 2005. Looking southwest at production of perennial grasses (bluegrass species, buckwheat).

Figure C.4: Diamond HMA. DS-2 2012 Drought monitoring. Looking south at witness post. Note lack of perennial grasses.

Figure C.5: August 2012 helicopter flight. Burn scar now supporting cheatgrass and annual species. Diamond HMA.

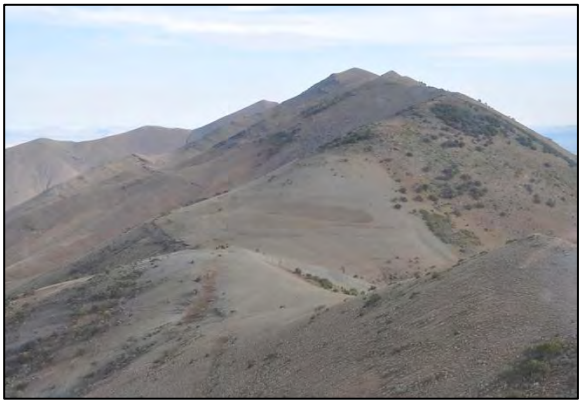


Figure C.6: August 2012 helicopter flight. Wild horses are able to cross the mountain ridge at many locations due to lack of fencing.

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

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.

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%).

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 is 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 in normal and water source availability is normal.

Figure C.7-8: 2012 Drought monitoring, Diamond HMA. Lack of 2012 growth, heavy utilization, and lack of forage for wild horses in low and mid elevations.

Figure C.9: Diamond HMA. TM-4 Utilization monitoring fall 2005, frequency transect. Most of the vegetation is cheatgrass. Needleandthread grass, Indian ricegrass and Sandberg's bluegrass also present.

Figure C.10-11: TM-4 2012 drought monitoring. At frequency post, looking east. Note lack of 2012 production, heavy utilization and bare ground.

Figure C.12-13: 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.15-16: 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.17-18: Corta Allotment 2005 (left) and 2012 (right). The site reflects substantial reduction in key perennial grasses.

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 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. Appropriate NEPA would also be completed prior to a future gather being conducted. 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

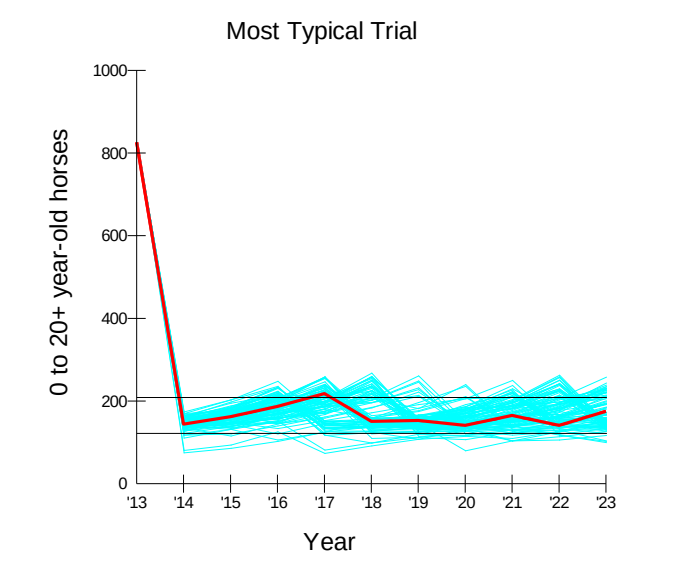


Figure E.1: Proposed Action

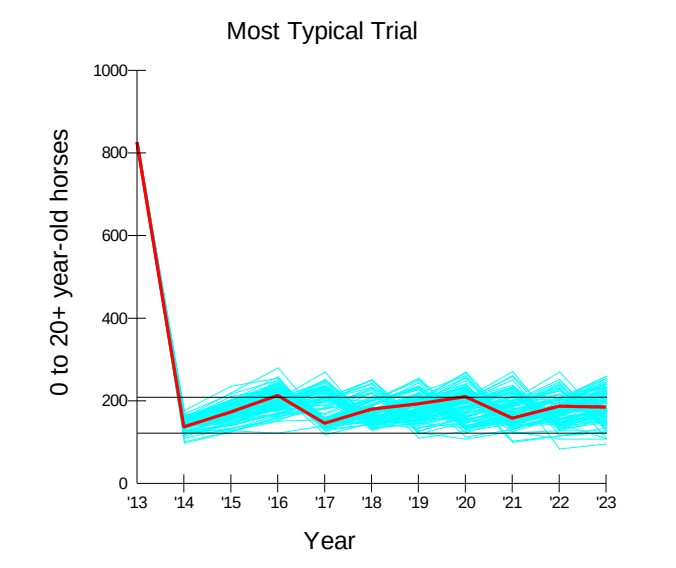


Figure E.2: Alternative 1

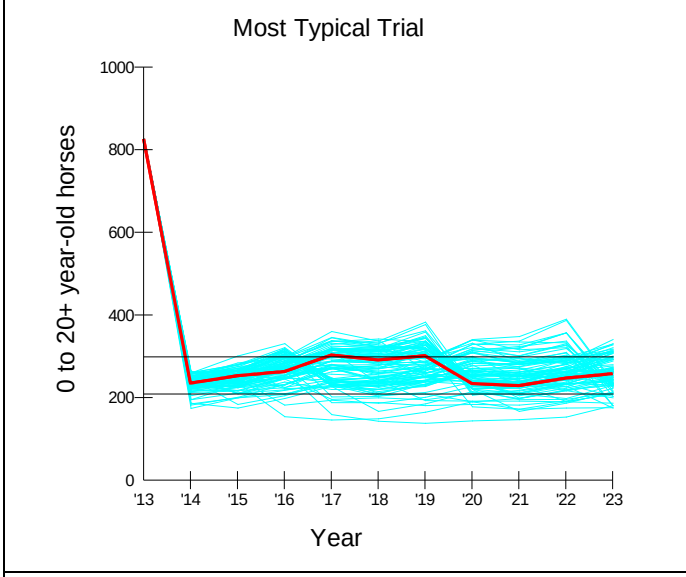


Figure E.3: Alternative 2

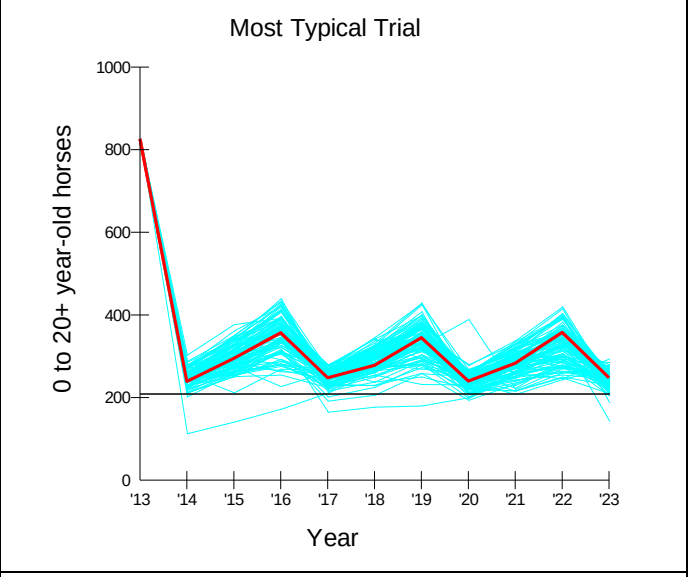


Figure E.4: Alternative 3

Modeled Gather Frequency Graphs

Figure E.5: Proposed Action

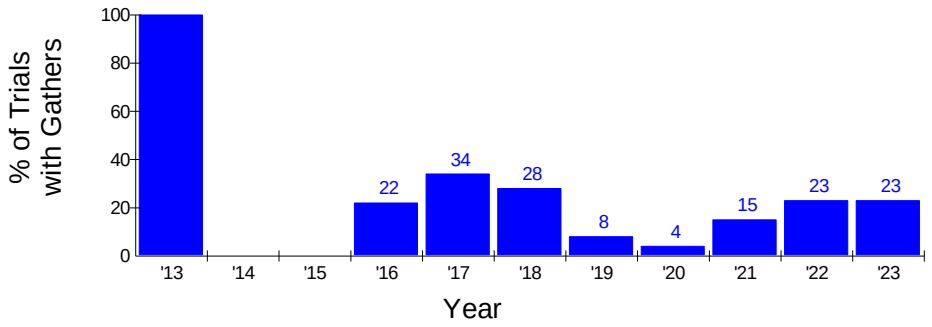


Figure E.6: Alternative 1

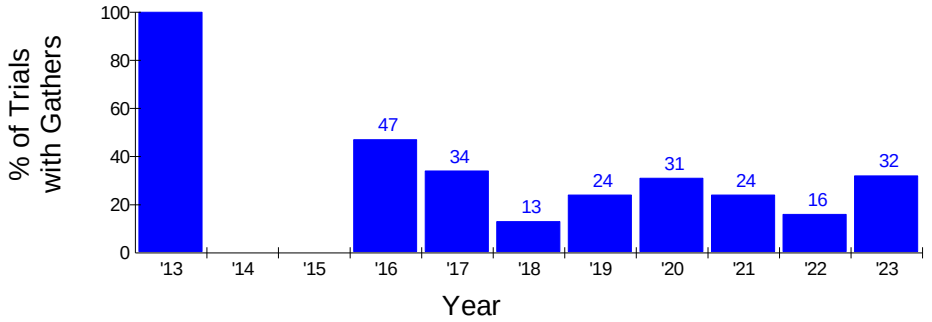


Figure E.7: Alternative 2

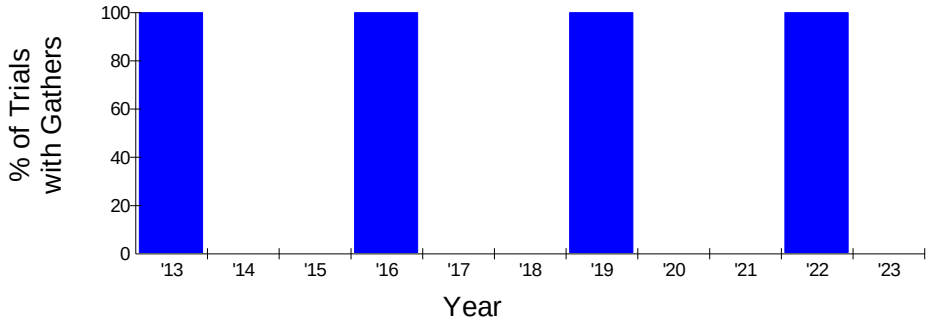
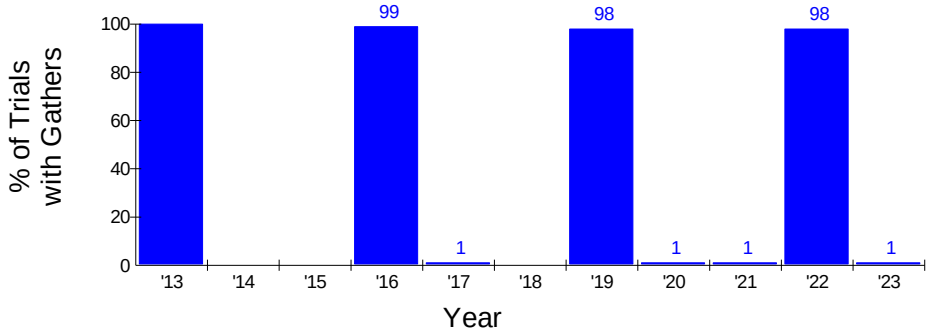


Figure E.8: Alternative 3



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

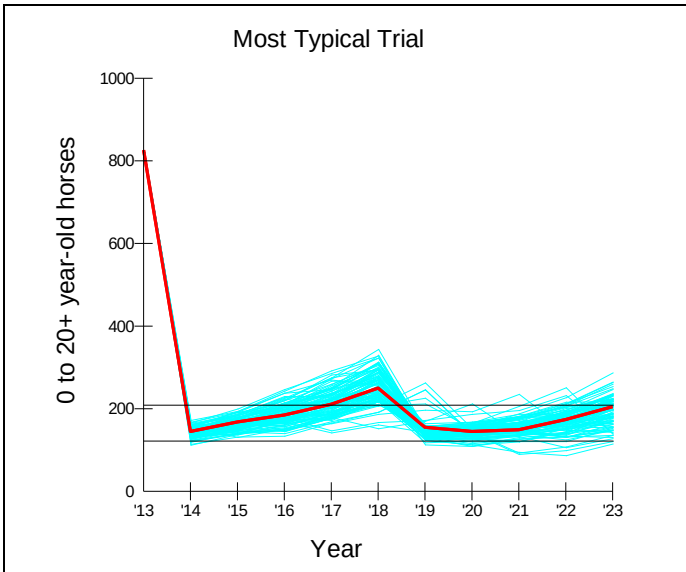


Figure E.9: Proposed Action

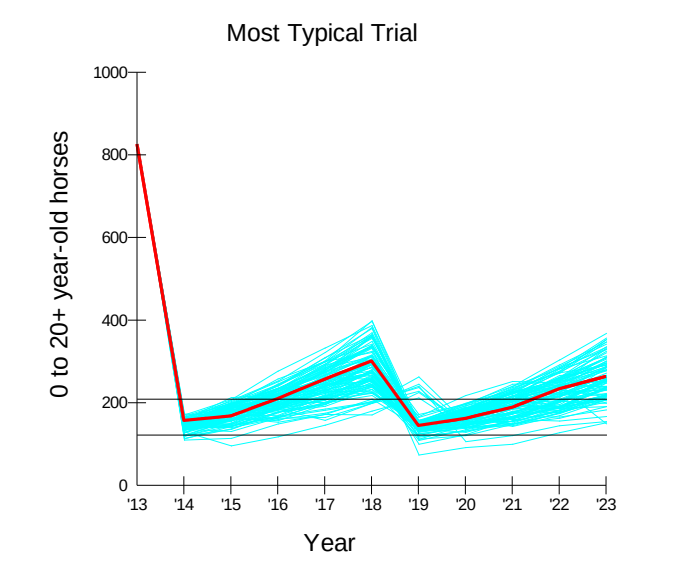


Figure E.10: Alternative 1

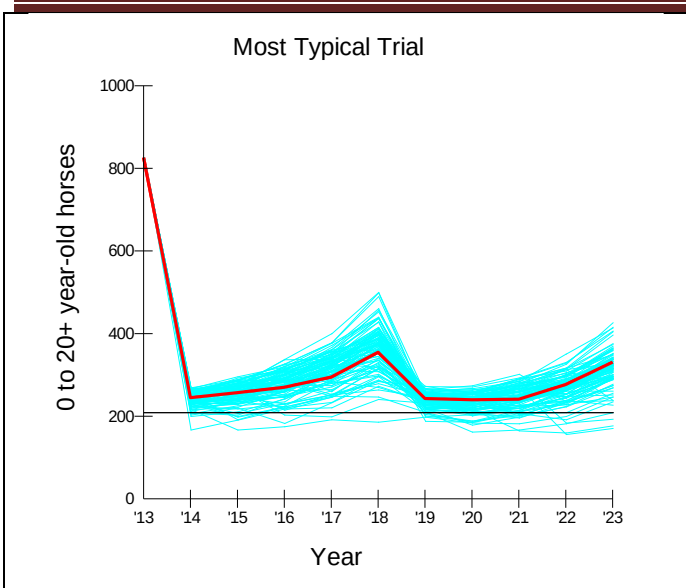


Figure E.11: Alternative 2

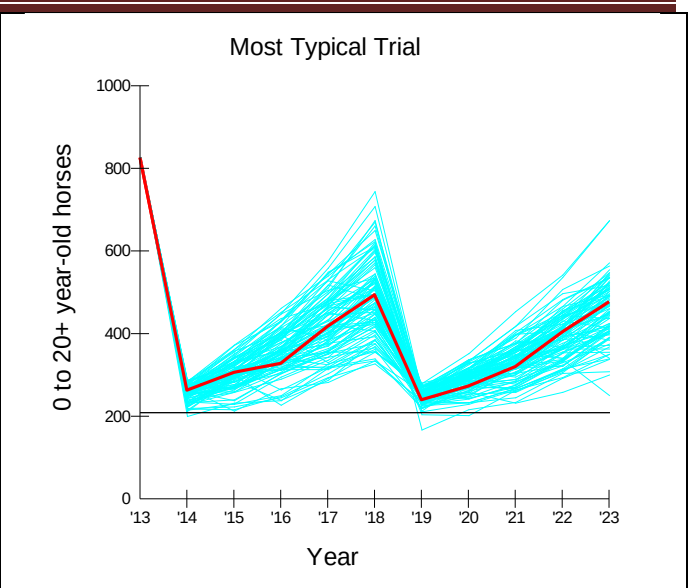


Figure E.12: Alternative 3

Modeled Gather Frequency Graphs

Figure E.13: Proposed Action

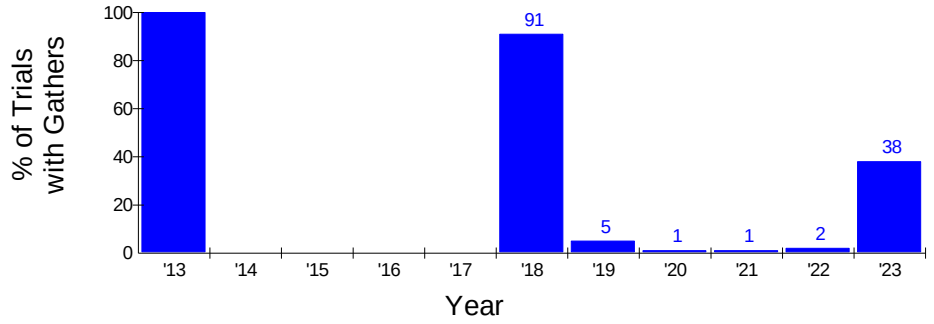


Figure E.14: Alternative 1

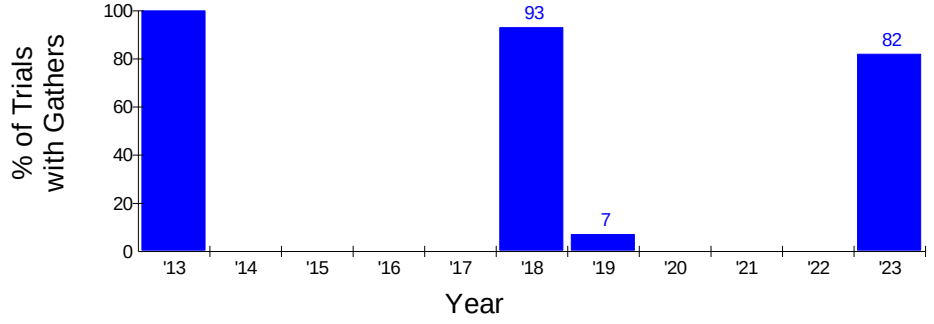


Figure E.15: Alternative 2

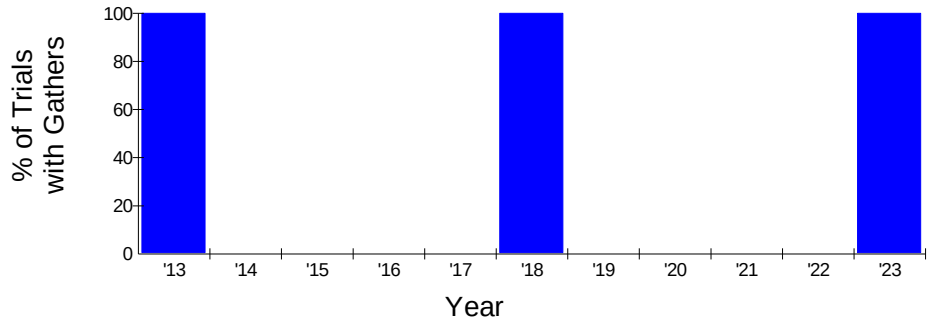
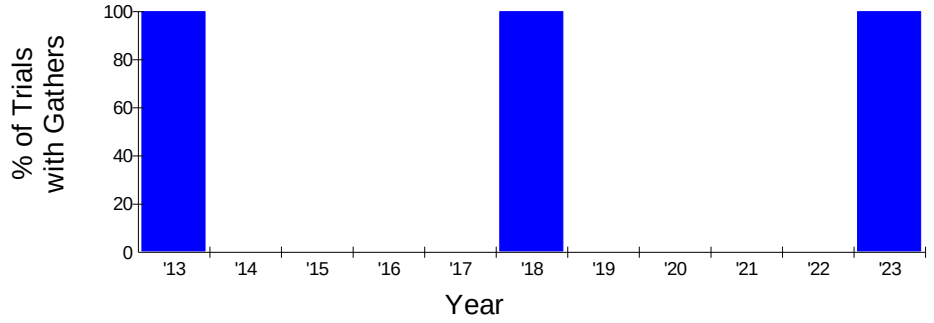


Figure E.16: Alternative 3



Fertility Control Only, No Removals

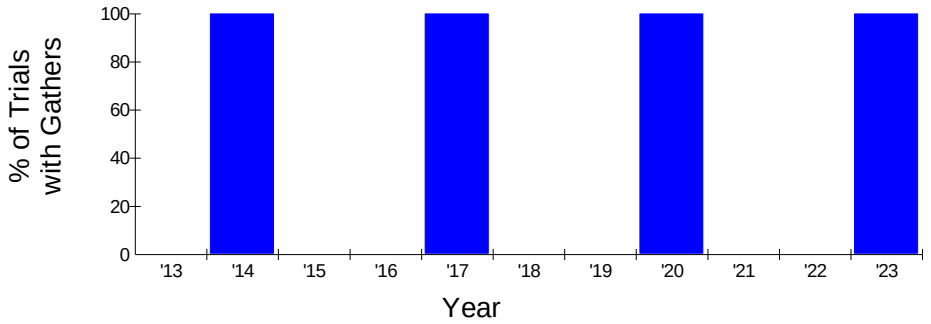


Figure E.17: Fertility Control Only, Modeled Gather Frequency

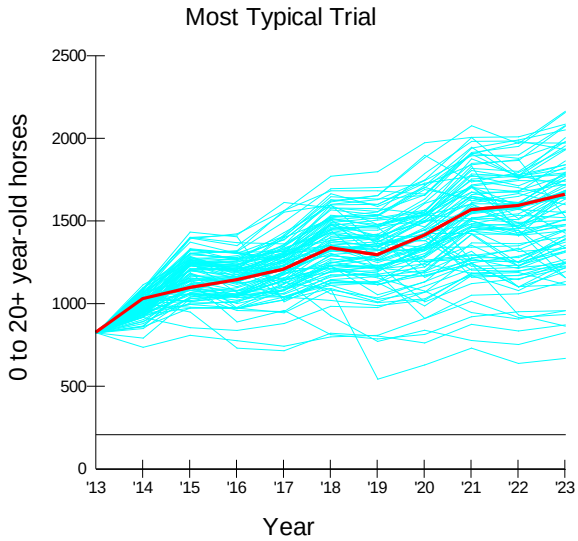


Figure E.18: Fertility Control Only, Most Typical Trial

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

Numerous comments were received through September 21, 2012 following the issuance of the scoping letter in June 2012. The overwhelming majority of these comments (707) were form letters reiterating the same comments. The form letters and individual comment letters were reviewed and considered. Unique comments or letters were received from approximately 38 individuals, agencies or organizations. As a result of the comments received, additional information and photos were added to the 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.

Most comments that were reviewed fell among, but were not limited to, the following themes:
Support the action/importance of maintaining AMLs
Genetic health/AMLs too low
Outside of scope of analysis
Provide data to support removal
Inventory data
Viewpoint/matter of opinion
Concerns/effects of use of helicopters
Public viewing opportunities during gathers
Manage primarily for wild horses/remove or reduce livestock

No	Commenter	Comment	BLM Response
OPPOSED TO THE GATHER			
1	AWHPC[14], TCF[15], Individuals	We oppose the removal of *any* horses from this Complex outside a true emergency situation. Oppose the gather.	Comment noted.
SUPPORT OF THE GATHER			
2	Nevada Dept. of Wildlife	NDOW supports multiple-use objectives on public rangelands and provides the following information and recommendations to aid in your decision making process. NDOW supports the Bureau of Land Management's proposal to bring the wild horses in the Diamond Complex back into Appropriate Management Levels (AML).	Comment noted.

14 American Wild Horse Preservation Campaign
15 The Cloud Foundation

No	Commenter	Comment	BLM Response
		NDOW further supports BLM's efforts towards stabilizing population growth rates and remaining within the AML through fertility control. NDOW supports the BLM's efforts at managing wild horses within the AML and would encourage the earliest gather date feasible to promote vegetative recovery.	
3	Individual	The proposed gather of the Diamond Complex makes sense to me, I just wish more people would adopt.	Comment noted.
4	Individual	I'm writing today in strong support of the proposed horse gather in the Diamond complex. I spend a lot of time in the Diamond Mountains and have seen first-hand the effects of an excessive wild horse population.	Comment noted.
5	Eureka County Board of Commissioners, Eureka County Natural Resource Advisory Commission	Full support of reducing wild horse populations in the Diamond Complex. The economic impacts related to wild horse overpopulation should not be diminished and should be incorporated into the EA.	Comment noted.
6	Individual	I support any and all efforts to remove excess horses from Nevada rangeland, modest as they are in my view, fully and enthusiastically.	Comment noted.
7	Nevada Dept. of Transportation	The Elko Subdistrict supports the gathering of wild horses in excess of the specified amount on designated range. When overpopulation occurs, these animals pose a significant risk to the travelling public on NDOT rural highways.	Comment noted.
GENETICS/HERDS TOO SMALL			
8	AWHPC, Individuals	126 wild horses left on the range is dangerously low even with interchange. The post-gather population of 126 is not genetically viable.	Refer to Section 2.1, 3.2, 4.2 and Appendix B, Section 2, 4 and 5 in the Preliminary EA (PEA).
9	Craig Downer	BLM has in the past chosen to greatly reduce the AML, making it a sub-viable population, one subject to inbreeding and chance die-out.	
10	Individual	Allowable population levels (AML) for wild horses within the Diamond Hills North and South HMAs prescribe 37 and 22 wild horses respectively, certainly not sustainable according to the scientific recommendations.	
11	Leslie Peeples, Individuals	Provide proof that horses are intermingling through the three HMA's. There needs to be definitive proof provided that horses are intermingling throughout the three HMAs. If intermingling or crossover of horses between HMAs is not occurring on a regular basis the AML of 37 at Diamond Hill North and 10-22 at Diamond Hills South are not genetically viable for long term survival.	

No	Commenter	Comment	BLM Response
12	TCF, Individuals	Make available to the public all genetic data on each of the herds (include in the EA appendix); analyze the impacts of the proposed action on the genetic health of each herd	
13	TCF	The genetic health and future viability of the herd must be analyzed in the EA.	
TRAPSITE ADOPTION			
14	Laura Leigh, Individuals, Bonnie Kohlereiter	In order for this to be a success BLM must publicize widely and in a timely manner. Tell the story of the horses from the area, provide photographs of the horses in the wild and those in successful adoptive homes. Clearly explain to the public the benefits to the horses, they have never been touched, they have no bad experiences, they are not going to be exposed to disease in a facility, people can really get a feel for where and how there new horse lived etc. Provide info to people on where, how to get there, where to stay and make an event out of it, invite folks to come watch, participate, and have a barbecue, make it an event. If an adoption is done right at the range, advertise 1-2 months ahead of time… in fliers, newspapers…offering connections for transport and gentling. Try to get some individual(s) to assist you with advertising.	Comments noted.
15	Elyse Gardner, Dream Catcher	I am opposed to the practice of "adopting" horses straight from Temp Holding or straight from the Trap.	Comment noted.
GATHER COST			
16	AWHPC	Given the fiscal crisis facing the agency as a result of the BLM's unsustainable practice of stockpiling of tens of thousands of wild horses in government-holding facilities, alternatives to the removal of any horses from these HMAs must be considered and implemented.	These comments are outside of the scope of the analysis. Please refer the Alternatives outlined in the PEA, including those considered but not analyzed, and the No Action Alternative. 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 Wild Free Roaming Horses and Burros Act (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.*" (118 IBLA 75). 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.
17	Individual	A cost comparison must be done that outlines the removal /off range management against other options, (in light of the West Douglas ruling).	
18	Individuals	BLM is creating the spiraling out of control cost associated with stock piling horses by not utilizing more creative management techniques, such as more fertility control, leaving predators, etc. BLM"s primary tool continues to be roundup and removal. We do not need any more horses in holding. It is time to dig in and find a better way to manage our wild horses. Holding of removed horses represents the bulk of cost to the program, finding ways to manage horses on the range would be more cost effective and would ensure wild horses are truly managed in accordance with the ACT. "	

No	Commenter	Comment	BLM Response
OUTSIDE HMA			
19	AWHPC, Individuals	Move horses residing outside of the Complex Boundary back inside Consider fencing to keep wild horses inside HMA boundaries.	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 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. It is desirable to return horses to the range that were captured from within the HMA in order to meet the post gather target rather than those that have potentially established permanent residency outside a designated HMA.
RANGE DEGRADATION BY WILD HORSES			
20	AWHPC, TCF, Individuals	Provide data showing that horses are contributing to degradation and data that differentiate wild horse use from livestock use.	Impacts of Livestock grazing are outside the scope of this analysis. Refer to Section 1.1, 3.2, 3.5 and Appendix C of the PEA. 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. 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.
21	Individuals	BLM is stating water concerns. In order for the public to trust BLM's word, provide a full accounting of all water sources on the range, including who owns or controls what water source, will it be available to horses, how fencing affects usage and how engineering of wells and springs for livestock grazing has impacted water availability for wild horses and other wildlife species.	Outside the scope of this analysis. Refer to the Sections of the EA identified in Response 20.
EA AND ALTERNATIVE ANALYSIS			
22	AWHPC	The proposed removal of wild horses will have significant and negative impacts on the affected region; on wildlife and the natural environment, on the wild horses that inhabit this public lands area; on those individuals with interests in the region, including recreational users who enjoy watching and visiting the wild horses and burros; as well as members of the public with interest in wild horse and burro management and protection. As you know, wild horses are subjects of significant public interest throughout the country. These impacts must be adequately assessed in any future EA. The EA must also take a hard look and give serious analysis of reasonable alternatives to the Proposed Action, as required by the National Environmental Policy Act (NEPA), as outlined in these comments. The EA must consider the social factors that play a role in land use decisions and management policies, and it must adequately considered the BLM's	Refer to the Diamond Complex Preliminary EA and Gather Plan and associated Appendices. 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). BLM believes that it has considered all viable alternatives which would meet the purpose and need, and the most viable options for the Diamond Complex, the most responsible way to ensure the welfare of the wild horses and their habitat The WFRHBA requires that the BLM remove excess wild horses immediately thus adaptive management is not appropriate. Future management strategies will be identified during revision of the BMDO RMP and completion of an HMAP for the Diamond Complex with public input.

No	Commenter	Comment	BLM Response
		authority to modify land use decisions, such as wild horse AML's and livestock grazing allotments through a variety of tools, including the agency's adaptive management strategy as well as agency regulations.	There will be many wild horses to view within the Diamond Complex and the Battle Mountain, Ely and Elko District. There are also numerous HMAs in the surrounding area in which to view wild horses. The public will continue to enjoy viewing wild horses in these areas, and even more so when both the animals and the habitat are healthy and thriving. The BLM has conducted several gathers of the Diamond Complex in the past and wild horses have always been present for viewing opportunities after the gathers.
23	AWHPC	The EA Must: Properly Describe Federal Land Policy and Management Act of 1976 (FLPMA) Include Comprehensive Monitoring Data, Analysis Analyze and Incorporate Social Factors Affecting the Proposed Action Take a Hard Look at Mandatory Reduction or Elimination of Livestock Grazing *BEFORE Wild Horses Are Removed* Take a Hard Look at Managing Wild Horse Population on the Range and Eliminate Proposed Horse Removals Ensure that All Operations Adhere to Humane Standards and Transparency Disclose ALL BLM Data on Impacts to Horses Removed From the Range	Several of these requests are outside the scope of this analysis. Refer to the Diamond Complex Preliminary EA and Gather Plan and associated Appendices for the inclusion and analysis of relevant information pertaining the impacts associated with the Proposed Gather. Several of these comments were addressed in Sections 1.1, 1.4, 1.6, 2.3.3, 2.3.5, 3.2, 3.5, 3.6, 3.10, and Appendix B-C.
24	Leslie Peeples, Individuals	Make public in the EA all users of public land that may affect horses in the Diamond Complex.	This comment is outside of the scope of the analysis. The purpose of the EA is to assess the potential site-specific direct, indirect and cumulative impacts of an action. The EA does include discussions under the Affected Environment Sections of the various resources which may be affected by the proposed gather.
ADJUSTING SEX RATIOS			
25	Individuals	No Stallion skewing. The cost to the horses is too high in defending PZPed mares from an excess of stallions all year depletes their fat reserves needed for winter and causes excessive fighting and injuries.	Comment noted.
26	TCF, AWHPC, Dream Catcher, Individuals	A thorough and scientific analysis should be provided on societal structure and family bands if sex ratios are skewed. Provide data documenting the effects of sex ratio adjustment, and fully analyze those effects. Thoroughly analyze and provide scientific data to support the proposed skewing of the sex ratio to 60:40 males/females and the impacts and effectiveness of sex	The potential impacts of adjusting sex ratios under Alternative 2 are included in Section 3.2 of the EA. The Proposed Action does not include any altering of sex ratios when the low AML would be achieved.

No	Commenter	Comment	BLM Response
		ratio skewing and/or permanent sterilization (chemical or surgical).	
FERTILITY CONTROL			
27	Marybeth Devlin	BLM does not need to use PZP because most of its herds need to grow.	Comment noted.
28	Individuals	Consider chemical sterilization (Spay-vac, Gonacon) of specific (but not all) mares over 8-10, who have already contributed to the gene pool.	The BLM currently has no chemical sterilization options approved for use on wild horses.
29	TCF	Every mare 1 year and older should be darted with PZP	Comment noted.
30	Ms. Gregg	The PEA must include data of all fertility treatments of mares (or gelding of stallions) that were returned to the range after the last roundup or subsequently for any reason (on-range scientific studies, etc.). Number of horses treated, method of treatment (PZP or Spay-Vac etc.) date of treatment, date horse returned to range, etc. per each of the HMAs. PEA must include the total number and estimated age of mares and total number and age of stallions (or geldings) that were returned to the range since last roundup, per each HMA.	This request is outside the scope of this analysis. Refer to Section 1.1, 3.2, 4.1 and Appendix B in the PEA. No gelding has been implemented in the Diamond Complex.
31	Individuals	Manage the existing populations through the use of non-hormonal, safe and reversible PZP fertility control – no removals.	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.
32	Bonnie Kohlereiter	You claim 126 is the number with the PZP and sex trimmings so that you won't have to go back soon. But you'll be back in two years to PZP because you have to keep your jobs going when you don't have any left to gather and remove. Don't use the "the extended gather interval time" as a justification to leave only 126 horses. It angers the public who looks at your actions and not at your words and knows that justification is a lie.	Comment noted. The BLM will likely need to return in 2-3 years to re-apply fertility control vaccines. Fewer wild horses will need to be removed long-term as BLM continues to implement fertility control. The use of fertility control and/or sex ratio adjustment could also lengthen the time between gathers as displayed in the graphs and tables in Appendix E. Also refer to Section 3.2 of the PEA which summarizes the population modeling results as they pertain to the application of fertility control and sex ratio adjustment.
DATA/JUSTIFICATION FOR REMOVAL			
33	AWHPC	Include Comprehensive Monitoring Data, Analysis showing that wild horses are contributing to rangeland degradation.	The BLM is not mandated to wait until rangeland degradation occurs before removing excess wild horses. "*Proper range management dictates removal of horses before the herd size causes damage to the range land.*" (118 IBLA 75). Refer to Section 1.1, 1.4, 3.2, 3.5, 3.6 and Appendix C of the PEA.
34	Leslie Peeples, Individuals	Provide data that demonstrate how horses and cattle use the range, including what plants they each eat, how they bite or tear (damage done) and impact of each separately on riparian areas.	This is outside the scope of this analysis. Refer to Response 20 above.
35	Debbie Coffey	Did the BLM take photographs or video during the 2010 population inventory helicopter flight to PROVE the claimed "excess" of wild horses?	Mt. Lewis Field Office personnel takes several photos during each inventory flight to document wild horse and range condition, as well as to document other resources, like wildlife. However, the BLM does not photo-document every wild horse encountered for the sake of

No	Commenter	Comment	BLM Response
			"proving" excess wild horses exist. Please refer to Section 1.1 of the PEA which discusses the determination of excess wild horses in the Diamond Complex, as well as Sections 3.2, 3.5, 3.6 and Appendix B and C.
CENSUS/INVENTORY DATA			
36	AWHPC	Provide all monitoring documentation of wild horses which has been, as stated in the scoping letter, "ongoing, including population inventory helicopter flights in 2006, 2008, and 2010." All census data for in and around the HMAs – including photographic documentation, flight census data, reports and notes. *Exact direct count census numbers must be provided for each of the HMAs*. The EA may also include adjustment calculations and estimated population numbers explained and justified.	This is outside the scope of this analysis. The monitoring and inventory data is discussed and summarized in Sections 1.1, 3.2, 3.5, 3.6, and Appendix B and C. Photos of monitoring, inventory and wild horses on the range are also included in throughout the document.
37	Individual	The numbers (census) which I understand are not a head count, but rather a count in a specific place within the area multiplied by the spaces that size in the total management area being targeted. It is an estimate that is faulty since the formula is faulty and will only provide erroneous estimates.	The BLM employs both a direct count and a simultaneous double count method to determine the population of wild horses in an area. For the direct counts, the BLM uses no correction factor or extrapolation to correct for any wild horses or area that may have missed. The simultaneous double count method takes into account flight direction, time of day, vegetation cover, snow cover, terrain, etc. to create a sightability accuracy for each passenger (3 BLM employees). This sightability accuracy is then used to determine a range for a population instead of an exact number. WHB Specialists take great care to document characteristics of each band 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. Inventory flights are conducted at low altitude and low speeds, with trained WHB Specialists and oftentimes Wildlife Biologists. It is very easy to determine wild horses from livestock, and even more so from wildlife. Please refer to Appendix B for more information about the inventory flights completed.
38	Marybeth Devlin	The helicopter-census method most certainly results in inflated numbers. It is difficult to accurately count mustangs by means of a flyover, hard to tell horses apart and to know for sure that they haven't been counted already…. Cows may be mistaken for horses. Deer may get counted too.	
39	Leslie Peeples	Provide a population marked HMA map directly after the October 2012 inventory flight.	This request is beyond the scope of the analysis.
40	TCF	Need an exact number outside of HMA, not approximate. BLM should have a census for the EA, not an estimates based on 2 years ago.	Refer to Appendix C of the PEA for a summary of most recent inventory flight. It is not realistic to conduct annual flights of HMAs, and Standard Operating Procedures are to conduct inventory flights every 2-3 years with estimates in between inventories based on historic herd increases.
GATHER IMPACTS TO WILD HORSES			
41	TCF	The effects of a helicopter roundup should be considered in the EA, particularly as it relates to societal structure and family bands.	Refer to Section 3.2 of the PEA.
PREDATOR CONTROL			
42	AWHPC, Individuals	Predators must be looked at as an option for managing wild horse populations.	Comment noted.

No	Commenter	Comment	BLM Response
43	AWHPC	Create MOU with state agencies to protect predators in HMA.	Beyond the scope of this analysis.
44	Ms. Gregg	How many predators were killed or removed to protect private livestock interests on these HMAs since the last roundup?	The Nevada Dept. of Wildlife manages wildlife populations.
WATER/ RANGE IMPROVEMENTS			
45	Individuals	Provide information on location of all fencing within the HMAs analyze the impacts of existing fencing on wild horses. Consider alternative for removal of fencing to facilitate movement of wild horses or adding perimeter fencing to keep horses in HMA's.	Beyond the scope of this analysis.
46	TCF	Reduce interior fencing to allow for freedom of movement in the HMAs.	Beyond the scope of this analysis.
47	Ms. Gregg	The PEA must include fence perimeter boundaries between the HMAs. (include detailed fence map please) Do these fences prevent wild horses from intermingling and/or from seasonal migration – please explain in detail. Include information on the perimeter fence boundaries and their effectiveness for wild horse management**.**	This request is beyond the scope of this analysis. Refer to Section 7 in Appendix B.
48	Ms. Gregg	The PEA must include detailed map of all water sources within each HMA and availability (Seasonal? Fenced? Other?) of each of these for wild horses. If some water resources are not available to wild horses, explain the reasons in detail including what or who does have use or control of these.	This request is beyond the scope of this analysis.
49	Bonnie Kohlereiter	Be specific as to cattlemen obstructing the movement of the horses and denying their water uses to the horses at any time of the year. What are the names of the permittees. Could this be negotiated?	This request is beyond the scope of this analysis. There is no indication that permittees obstruct the movement of wild horses or deny the use of water to them.
PERCIEVED INEQUALITY OF WILD HORSES VS. LIVESTOCK, LIVESTOCK NUMBERS, REDUCE LIVESTOCK			
50	AWHPC	The BLM allocates more than seven times more resources (in active AUMs) for private livestock grazing than wild horses in the Diamond Complex. The details of this livestock grazing data must be disclosed in the Preliminary Environmental Assessment (EA) in order that the public can comment on the BLM's assertion and basis for the proposed action that wild horses must be removed because they are "contributing to degradation of riparian resources, over-utilization of perennial vegetation and soil erosion through trampling and trailing."	Section 3.3 in the PEA discusses relevant information regarding livestock grazing in the Diamond Complex. Neither the WFRHBA nor FLPMA require the equal allocation of 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.
51	Craig Downer, TCF	Unfair AML and forage allocations	Removal or reduction of livestock would not be in conformance with the existing Land Use Plans, is contrary to the BLM's multiple-use mission as outlined in 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 wild horse population would continue to increase. Eventually the Diamond Complex and adjacent lands would no longer be capable of supporting the horse populations.
52	Individual	It seems you are prescribing the very low numbers for wild horses as the culprits when it is the cattle that must be reduced in numbers and perhaps zeroed out and off of public lands.	
53	Individuals	I urge BLM to actually "BALANCE" the allocated resources so the wild horses actually have a fair share	

No	Commenter	Comment	BLM Response
54	TCF	Livestock should be immediately removed if necessary to accommodate horses.	The purpose of the EA is not to adjust livestock use, or increase the level of AML for the Diamond Complex. A land-use plan amendment or revision would be necessary to reallocate use between livestock and wild horses. Removal of livestock was addressed in Sections 1.6, and 2.3.3. Refer to Section 3.3 of the EA for more information about livestock use levels and 2012 removals due to drought.
55	TCF	Degradation from livestock should be analyzed in the EA	This is beyond the scope of this analysis. Refer to Response 20 above.
56	Individuals	Designate the HMAs to be managed principally for wild horses.	This comment was addressed in Section 2.3.8. 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 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*."
GENERAL			
57	Marybeth Devlin	I urge BLM to categorically reject the use of helicopters and to end roundups in any season but the fall, when temperatures are moderate and foals are older	Refer to the PEA Section 3.2 which analyzes the effects of gathering with a helicopter, and the effects of gathering in the winter.
58	Leslie Peeples, Laura Leigh, Individuals	Reassess and redraw the HMA boundary lines to include seasonal movement. The original HA boundary lines were more extensive and the HA has been reduced, BLM must take into account seasonal migration as demonstrated in BLMs statement. If the horses are moving outside the HMA during the winter then the original boundary lines were not properly drawn to take into account "where the horses are currently found" as stated in the Act." When and how and why have the HA/HMA boundary lines been changed over time needs to be made public. The original assessment must be made public (all data and individual comments) to evaluate conflicts of interest.	This is beyond the scope of the analysis. Refer to Appendix B which discusses the designation of HMAs.
59		I urge BLM to accept all comments as individual comments whether in "talking points" or "form letters". Each individual that has concerns for the wild horses	The BLM reviews all comments received, however, comments received from the public are used as a means to improve management and ensure that issues have been identified and

No	Commenter	Comment	BLM Response
		may not have the time or the letter writing expertise to send original comments, that does not mean however, that each individual does not want exactly what is in the form letter conveyed to BLM. Accept all comments as individual comments.	addressed. It is not a means to tally votes on the most popular form of management. BLM has a responsibility per the WFRHBA to remove excess wild horses, ensuring the health of wild horses and of the rangeland. There have been approximately 750 comments received from the scoping of the proposed gather.
60	Leslie Peeples, Dream Catcher, Individuals	BLM in the "scoping" notice states that AML has not been established for Diamond and Diamond Hill North HMA"s but BLM will gather below the established AML??? Since BLM has not established AML, it has not defined "excess" horses. BLM is only authorized to remove ***excess*** horses, so at this point your gathers are outside the bounds of the law, and the Wild Horse and Burro Program is in serious violation of the 1971 Act.	The scoping notice state that an AML *range* has not been established for the Diamond or Diamond Hills North, but a single number AML has been established for each of these HMAs as discussed in section 1.1 and Appendix B. Gathering below this established AML would increase the time interval before this herd once again exceeds AML. Refer to Section 1.2 of the PEA for the determination of excess.
61	Individuals	Wild horses need to studied and true scientific data compiled regarding such things as, patterns of reproduction in undisturbed herds verses manipulated herds, and the imapct on horses from other users (industry, roads, fencing, horse territory or seasonal migrations, the consequences of PZP and stallion skewing, and how removals affect increased reproduction.	Outside the scope of this analysis.
62	Individuals	A humane care policy, clearly defined parameters for humane handling must be in place prior to any action.	Refer to Appendix A in the PEA to review the Standard Operating Procedures (SOP). When the BLM developed a humane care policy or Comprehensive Animal Welfare Program, those protocols would be implemented during gathers. Refer to Section 3.2 and 3.10 which discuss methods employed to reduce impacts to wild horses during gathers.
63	Individuals	Focus primarily on removal of horses in the "concentrated" areas where true range damage is occurring and reduce livestock grazing by the same amount. That is in "balance".	Priority for removal will be given to those wild horses captured in areas of concentrated wild horse use with range degradation, and those captured outside the HMA boundary. Livestock management actions would not be analyzed in this EA. The Decisions regarding AML establishment and Livestock Grazing have already been made. Refer to Sections 1.6, 2.3.3, and 3.3.
64	Individuals	I urge BLM to adjust the AML upward or adjust removals downward, remove less horses far the sake of "balance" and not contributing to the abundance of horses in holding. BLM should increase AML	Refer to comments 51-54. These comments have been addressed in Sections 1.6 and 2.3.7.
65	Individuals	BLM should consider trapping in winter when the horses are in the lowlands.	Comment noted, the Proposed Gather is being planned to take place in winter.
66	Individuals	Relocate any horses outside of the HMAs or WHT back into the designated area instead of removing them, add fencing, improved water sources, to improve the conditions that are causing horses to leave the HMA/WHT.	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 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.
67	Individuals	Install fencing or "Striderlites" along State route 892 rather than removal and to protect horses and drivers.	

No	Commenter	Comment	BLM Response
			It is desirable to return horses to the range that were captured from within the HMA in order to meet the post gather target rather than those that have potentially established permanent residency outside a designated HMA.
68	Individuals	Provide forage allocations, for livestock and horse usage (Animal Unit Months or AUMs) and listing of livestock grazing allotments within the HMAs for each of the past 10 years. Include all current grazing and projected grazing for the next 12 months.	This request is beyond the scope of this analysis. A summary of livestock use since the most recent gather is provided in Section 3.3. Wild horse AML and current estimated population in AUMs is also provided in Section 3.3 and Table 6 in Section 3.2.
69	Laura Leigh, Individuals	BLM must study and define "viability of use" for the wild horses in the 236,000 acre HMA. That viability of "fair share" use of resource must be defined at a minimal standard. Minimal resource must at all times be available and in no way impacted by growing permittees.	Beyond the scope of this analysis.
70	Individuals	Only remove horses that are potentially of an adoptable, age, conformation, and temperament.	Horses selected for removal will include consideration of the mentioned attributes, however, other factors must also be considered to reach objectives. Attempts would be made to remove younger animals when possible as described in Section 2.1. Refer to comment 63.
71	TCF, AWHPC, Individuals	No helicopter roundup, bait and water trapping should be used instead.	Refer to Section 2.3.2 of the PEA which discusses bait trapping. The size, accessibility, approachability and numbers of the horses in the Complex preclude the use of only bait and water trapping.. The use of Bait trapping though effective in specific areas and circumstances, would not be timely, cost-effective or practical as the primary gather method for this and would not meet the objectives of the gather.
72	TCF	BLM should consider the family band structure of wild horses when preparing this EA.	Refer to the Environmental Consequences portion of Section 3.2, which details the anticipated impacts to wild horses of implementation of the Proposed Action and Alternatives.
73	Ms. Gregg	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? Specifics please.	As defined in the 4700-1 Wild Horses and Burros Management Handbook: *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.*
74	Ms. Gregg	The proposed EA must include the number of current acres in each HMA (sub-portion of the Complex) and number of acres in each original Herd Area and brief reason for change of acreage. (sold/exchanged/etc). If original HA land is no longer managed for wild horses – please explain when and why, including reason(s) that the proposed captured wild horses are not allowed to dwell on those legally designated wild horse herd area lands.	Refer to Table 1 of the Preliminary EA for acreages of each HMA. The area of the original HA and changes made to HMA boundaries are outside the scope of this analysis. Refer to Appendix B for additional information about the designation of these HMAs.
75	Ms. Gregg	The PEA must include analysis on all capture methods planned (i.e. bait trapping, helicopter, roping) and approximate percentage of each method.	Refer to Section 2 of the PEA which describes the Proposed Action and Alternatives, as well as Section 3.2 which details the anticipated impacts of each.
76	Ms. Gregg	The PEA must include procedures to avoid undo stress to the foals and elders during and following the proposed roundup.	Refer to Section 2.1, 3.2, 3.10 and Appendix A of the PEA.
77	Ms. Gregg	If after the initial roundup is complete, will the public be told of any future helicopter or other roundups and if so how much in advance? This includes any emergency roundups	When future gathers are proposed, the interested public would be informed through scoping letters, posting on the BLM internet and/or News Releases as appropriate.

No	Commenter	Comment	BLM Response
78	Ms. Gregg	Please discuss the considerations the BLM uses to designate a drought condition on an HA that would cause an emergency roundup. (example: 3 successive years of precipitation below 50% of "normal")	Beyond the scope of this analysis. Please refer to the Battle Mountain District Drought EA DOI-BLM-NV-B000-2012-0005-EA, available here: http://www.blm.gov/nv/st/en/fo/battle_mountain_field.html .
79	Ms. Gregg	If water/bait trapping is done on these HMAs, when and how will the public be informed of this action? If bait/water trapping is done, how will the public be kept informed of the progress of this trapping (numbers trapped and numbers taken to BLM holding, dates of these actions, etc.)? If bait/water trapping will be done, will any public observation be available and how will this be arranged?	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 adequate visitation would be arranged to view captured wild horses.
80	Ms. Gregg	The PEA must include scientific monitoring data and report for post 2004 (most recent?) roundup including but not limited to aerial and ground observation that verifies the post roundup population of WH&B. (links to online reports are acceptable).	Refer to Section 3.2 and Appendix B and C of the PEA for relevant monitoring and inventory information.
81	Ms. Gregg	The PEA must include scientific monitoring data and report for post 2004 (most recent) roundup that verifies that the roundup contributed to range health improvement solely due to the removal of wild horses. This report must include any population data and changes of livestock usage as well as any changes in wildlife usage**.**	Refer to comments 20, 50-54, and 80. The BLM is not required to justify wild horse gathers based on improvement of rangeland health. "*Proper range management dictates removal of horses before the herd size causes damage to the range land.*" (118 IBLA 75). 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. Refer to Sections 1.1, 3.2, 3.5, 3.6, and Appendix C of the PEA.
82	Ms. Gregg	Include an accurate and comprehensible chart that shows the number of animals and number of AUMs per each HMA per the 1) the Wild Horses 2) Livestock and 3) foraging wildlife (deer, elk, bighorn sheep, antelope).	This request is outside the scope of this analysis. Actual use of wild horses is displayed in Table 6, Section 3.2. Actual use by livestock is available in Table 15 of Section 3.3. Wild horse inventory data is available in Appendix B.
83	Ms. Gregg	Provide an accurate and detailed census chart for the past ten years for each of the herds including: a) pre-roundup population and method and report and map to substantiate b) number (and sex) of animals returned c) subtractions of herd size due to roundup activities (accurate number removed and number of deaths during roundup) d) annual estimated death rate e) annual foaling rate f) number of mares (remaining/returned) given contraception drugs	Though this request is outside the scope of this analysis, much of the information requested is available in the PEA in Appendix B.
84	Individual	I would like to know what if any management practices were in place to avoid this situation before the need for removal?	Beyond the scope of the analysis.
85	Individuals	Manage the existing population by using patient, slow, safe, and careful bait/water trapping to administer PZP fertility control to suppress population growth.	Refer to comments 71 and 79.

No	Commenter	Comment	BLM Response
		Bait/water trap contractors must meet a set of parameters for experience in wild horse handling Why have water trap methods not been used when there is a drought instead of stampeding horses/foals that are in poor condition already due to the drought, for miles and miles in hot weather?	
86	Individual	Why are the gathers held in peak foaling season and when the temperatures are above 90 degrees?	The Proposed Gather would take place in winter, outside of peak foaling season.
87	Bonnie Kohlereiter	Gather "humanely." Have the COR use her authority and responsibility in protecting these animals when the contracted employees are performing inappropriate behavior.	Comment noted. The SOPs will be closely followed, and an experienced COR will be onsite at all times.
88	Individuals	Provide all EA and Decision information online	All of the planning documents associated with the Proposed Gather will be made available to the public online on the BLM Battle Mountain District's webpage.
MINIMUM FEASIBLE LEVEL			
89	Individuals	All management activities shall be at the minimal feasible level.	Comment noted. "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.

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.

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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