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**Battle Mountain District Drought  
Management  
ENVIRONMENTAL ASSESSMENT**

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**BATTLE MOUNTAIN DISTRICT DROUGHT MANAGEMENT  
ENVIRONMENTAL ASSESSMENT DOI-BLM-NV-B000-2012-0005-EA**

**I. INTRODUCTION/PURPOSE AND NEED FOR ACTION**

***1.0 Introduction***

The Bureau of Land Management (BLM) Battle Mountain District (BMD) has prepared this Environmental Assessment (EA) to address potential environmental consequences associated with livestock and wild horse and burro management actions carried out during drought. The BMD manages approximately 10.5 million acres of public land within Lander, Eureka, Esmeralda and Nye Counties in Nevada, which is administered in two field offices, the Mount Lewis Field Office (MLFO) and the Tonopah Field Office (TFO) (see Map 1). The BMD also administers nine grazing allotments for the Winnemucca, Elko and Ely BLM Districts.

The BMD is located within the Central Basin and Range and Mojave Basin and Range ecoregions defined by the Western Ecology Division of the United States Environmental Protection Agency (see Map 2). Drought is considered a recurring event within both ecoregions.

This EA analyzes a range of management alternatives that may be implemented to mitigate the effects of drought and to address emergency situations. Emergency situations include but are not limited to wild horse and burro, livestock and wildlife starvation, water deprivation and death, major soil erosion events and rangeland degradation, etc.

***1.1 Purpose and Need***

The purpose of the EA is to analyze alternatives that would allow for the rapid response to drought in order to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.

Drought has been defined by the Society of Range Management as, “(1) A prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall. (2) A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water.” (Bedell 1998).

The effects of drought are often times far reaching, impacting the environment and economy of an area. This EA will focus primarily on the environmental impacts of drought. Specific impacts depend on drought severity but often include:

- Increased number and severity of fires
- Lack of forage and drinking water
- Decreased vigor and production of plants
- Damage to plant species
- Increased wind and water erosion of soils
- Reduction and degradation of fish and wildlife habitat
- Increased death loss of wildlife, wild horses and burros and livestock

Drought is a recurring, albeit unpredictable, environmental feature which must be included in planning (Thurow and Taylor 1999). The degree to which drought impairs the range depends on the intensity, frequency and timing of grazing (Howery 1999). A Drought Management Plan does not currently exist for the BMD. Therefore, the need for the action is to ensure that livestock and wild horse and burro management during drought does not adversely impact the range and compromise the BMD's ability to meet the fundamentals of rangeland health as mandated by the Land Use Plans and Policies brought forward in sections C and D of this document by accomplishing the following drought management goals:

1. Provide for the early detection of and response to drought conditions.
2. Promptly identify and prevent further degradation to affected resources on lands affected by drought within the BMD.
3. Provide for the rapid implementation of Drought Response Actions in order to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.

### ***1.2 Conformance with Land Use Plans and Other Plans***

The Proposed Action and Alternatives described below are in conformance with the following plans:

- Shoshone-Eureka Resource Management Plan (RMP) Record of Decision (ROD), 1986;
- Shoshone-Eureka RMP Amendment ROD, 1987;
- Shoshone-Eureka Rangeland Program Summary, 1988;
- Sonoma-Gerlach Management Framework Plan III, 1982;
- Sonoma-Gerlach Rangeland Program Summary, 1992;
- Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines;
- Sierra Front-Northwestern Great Basin RAC Standards and Guidelines, 1997, as amended;
- Tonopah Resource Management Plan, 1997 and,
- Mojave-Southern Great Basin (RAC) Standards and Guidelines, 2006 as amended.

### ***1.3 Relationship to Statutes, Regulations, Policy or other Environmental Analysis***

The Proposed Action and Alternatives would be in conformance, to the maximum extent possible, with the following Federal, BLM regulations:

- Taylor Grazing Act of 1934
- National Environmental Policy Act of 1969 (NEPA)
- National Historic Preservation Act of 1966, as Amended (NHPA)
- Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA)
- Endangered Species Act of 1973
- Federal Land Policy and Management Act of 1976 (FLPMA)
- Public Rangelands Improvement Act of 1978
- Wilderness Act of 1964
- 43 CFR §§4100 and 4700

## ***1.4 Additional Guidance***

Guidance on the development and implementation of responsive management actions when it is anticipated or evident that temporary measures are necessary to protect public land resources due to the impacts of drought are found in the BLM Nevada Handbook NV H-1730-1 Resource Management during Drought.

## **II. DESCRIPTION OF THE PROPOSED ACTION & ALTERNATIVES**

### ***2.0 Proposed Action***

The Proposed Action is to implement, either separately or in combination, Drought Response Actions (DRAs) identified below and described in the Drought Management Plan (DMP) (Attachment 2) during drought. The Drought Detection and Monitoring Plan (DDMP) (Attachment 1) would be used to facilitate the early detection and monitoring of drought conditions.

DRAs are designed to reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought. The early detection and prompt response to drought is intended to prevent further degradation to affected resources within the BMD. DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area. Decisions would be implemented within all appropriate laws, regulations and policies.

Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for wild horse and/or burro drought gathers would be thoroughly documented within a site-specific drought gather plan (see Attachment 3 for a Drought Gather Plan Outline). All Drought Gather Decisions would be implemented through effective upon issuance decisions pursuant to 43 CFR §4770.3(c). If it is determined that wild horse and/or burro removal from a Herd Management Area(s) (HMA) is warranted, pursuant to 43 CFR §4710.5, areas of allotment(s) that overlap with the HMA(s) would be temporarily closed to livestock grazing.

The implementation of DRAs would be activated by the drought indicators and drought response triggers identified below and described in Attachment 2:

### **A. Drought Indicators**

Drought indicators are observations signaling the start or continuation of a drought. The following discussion identifies the indicators that the BMD would use to determine the onset and/or continuation of a drought.

A two-part drought definition was provided within the purpose and need for the Proposed Action section of this document (page 1). The first part of the definition describes drought as, “a

prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall.” Tracking weather conditions provides an early indication of drought. The U.S. Drought Monitor (<http://droughtmonitor.unl.edu/>) would be consulted to determine if weather conditions indicate drought and to identify affected areas. Site visits to allotments and HMAs within drought-afflicted areas would be used to evaluate the current condition of water resources and determine if water shortages exist.

Part two of the drought definition describes drought as, “A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water”. The U.S. Drought Monitor and the Vegetation Drought Response Index (VegDRI) (<http://vegdiri.unl.edu/>) would be consulted to determine drought afflicted areas and vegetation condition as it pertains to drought stress. Site visits to allotments and HMAs within drought-afflicted areas would be used to evaluate the current condition and production of key forage species as described in the associated Ecological Site Descriptions (ESDs) for the area. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or existing monitoring data. Evaluations would be used to determine if plants are exhibiting signs of drought stress and if forage shortages exist. Signs of drought stress include reduced shoot and leaf growth, reduction in seed head development, induced senescence (i.e., premature aging) and plant death.

## **B. Drought Response Triggers**

Drought Response Triggers (Triggers) are thresholds associated with forage and water resources that indicate the need for site-specific drought response. Triggers would be used separately or in combination to activate DRAs. These Triggers have been placed into two categories: water and forage. The following is a list of the triggers for both categories, a more detailed description of the triggers is included in Attachment 1:

### **1. Water**

This Trigger is based on the presence or absence of available water. Field visits would be conducted in drought-afflicted areas to determine if there are adequate water sources (natural and/or developed) to provide for the management and/or distribution of wildlife, wild horses and burros and livestock while maintaining riparian area functionality or the health of upland areas surrounding developed water sources (e.g., wells, pipelines, guzzlers, etc.).

Water would be classified as “available” or “unavailable” within areas affected by drought. “Available” is defined as an amount of water sufficient to provide a safe and reliable source of drinking water for wildlife, wild horses and burros and livestock while maintaining resource values associated with the riparian areas and/or areas surrounding the water source. Resource values associated with riparian areas include riparian vegetation, bank stability, wildlife habitat and water quality. Resource values associated with upland areas surrounding water sources (e.g., wells, pipelines, etc.) include vegetation, nutrient cycling, soil site stability, hydrologic function and wildlife habitat.

“Unavailable” is defined as an absence of water or an amount of water that is insufficient to provide a safe and reliable source of drinking water for wildlife, wild horses and burros and livestock while maintaining resource values.

Field observations and professional judgment would be used to determine availability. Criteria such as reduced quantity, noticeable accumulation of animal waste, and unsafe conditions due to mud or severely eroded banks would be used.

## **2. Forage**

To survive, perennial plants must accumulate both above ground (shoot growth) and below ground (root growth) biomass through the process of photosynthesis, transpiration, and respiration (Howery 1999). A lack of available soil moisture usually reduces the length of the growing season. A shorter growing season directly impacts above and below ground production and ultimately forage quantity. The degree to which drought impairs the range’s potential for future forage production depends on the intensity, frequency, and timing of grazing (Howery 1999). Drought afflicted rangelands are unable to support pre-drought stocking levels. Overutilization during drought can negatively impact plant health and impair the ability (in the future) to meet, or make significant progress towards fulfillment of, the standards and guidelines of rangeland health. Permitted livestock grazing levels should be conservative so that grazing plans and grazing use levels can be sustained during periods of drought.

The following drought response triggers associated with forage are intended to ensuring proper utilization levels of upland and riparian key species, as described in the ESD associated with the site. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or past monitoring data). Appropriate utilization levels provide adequate residual matter for the maintenance of plant health especially during a drought. The triggers have been organized into three categories; utilization and stubble height triggers by vegetation community, livestock distribution, and plant production/drought stress.

### **Utilization and Stubble Height**

Utilization triggers were developed using the utilization guidelines proved by Holechek et al. (1988). The guidelines provide a range of use associated with rangeland condition. For the purpose of grazing management during times of drought, the BLM has chosen to limit utilization of key species to the lower utilization level. The lower utilization levels are consistent with those suggested for ranges in poor condition. These were chosen due to the reduced vigor and production of range forage plants resulting from drought. The following utilization levels would function as drought response triggers within each respective vegetation community and would trigger the implementation of DRAs. Stubble height triggers were developed to ensure adequate residual matter remains to maintain riparian plant communities. Generally, stubble heights of 4 to 6 inches provide effective stream bank protection, prevent sedimentation, and maintain or improve plant communities (USDI 1999-2001). Key species would be identified using the ESD for a specific area. In instances where key species referenced in the ESD are absent key species would be identified using site-specific and/or existing monitoring data.

- **Salt Desert Shrub**
  - o 25 % utilization of key species.
- **Sagebrush Grassland**
  - o 30% utilization of key species.
- **Pinyon-Juniper Woodland**
  - o 30% utilization of key species.
- **Mountain Shrub**
  - o 30% Utilization of key species.
- **Riparian Zones**
  - o Four inch stubble height of key riparian species.

### **Livestock\Wild Horse and Burro Distribution**

A pattern of use or distribution of livestock and/or wild horses and burros resulting in a concentration of animals, which contributes to grazing in excess of the aforementioned utilization levels and/or stubble heights, would trigger DRAs to improve animal distribution and prevent further rangeland degradation.

### **Plant Production and/or Drought Stress**

The following plant production and/or drought stress indicators would trigger DRAs:

- Drought induced senescence or reduced production of key upland and/or riparian species which results in an insufficient quantity of forage for wildlife, wild horses and burros, and livestock;
- Drought induced senescence of key riparian herbaceous species which results in insufficient plant growth/height to provide for stubble heights equal to or greater than four inches within riparian areas; and
- Noticeable signs of drought stress which impede the ability of key species to complete their life cycle (e.g., drought induced senescence, reduced seed head development, etc.).

## **C. Drought Response Actions**

The following DRAs would be implemented either separately or in combination upon reaching the criteria described under the Drought Response Triggers section. A more in depth discussion of each action can be found in Attachment 2. DRAs have been placed in two categories: livestock and wild horses and burros. These have been separated due to the differing nature and capabilities for management of livestock and wild horses and burros. Drought response actions would be selected based on site-specific information. In areas where livestock and wild horse and burro use overlaps, both livestock and wild horse and burro DRAs would be implemented concurrently.

### **1. Livestock**

DRAs would be selected on a case-by-case basis using site-specific monitoring data collected as outlined in the DDMP. The following process would be used for DRA selection:

*Step 1: Conduct field visits to “drought-afflicted” areas to assess drought response triggers.* Field visits would assess water and forage availability at predetermined sites using the monitoring methods as outlined in the DDMP. All data would be recorded on the Drought Monitoring Summary Form (Appendix A of the DDMP).

*Step 2: Pursuant to 43 CFR §4110.3-3(b), consult with, or make a reasonable attempt to consult with, affected permittees or lessees to determine appropriate DRA(s) to alleviate drought impacts.* DRAs would be selected using site-specific monitoring data and chosen on case-by-case basis suited to site-specific conditions. More than one DRA could be selected depending on conditions. Efforts should be made to select DRAs that could be implemented in a subsequent fashion to respond to changes in drought conditions.

*Step 3: Implement DRAs in selected order.* Order would be determined based on site-specific monitoring data.

*Step 4: Resort to partial or full closure of an allotment.* The BMD would resort to partial or full closure of an allotment if: 1) a permittee or lessee fails to voluntarily apply to implement appropriate DRA(s) after “a reasonable attempt” (43 CFR 4.110.3-3(b)) has been made to consult with that permittee or lessee, 2) all feasible livestock DRAs have been exhausted and immediate protection of resources on the allotment is required, or 3) if the BLM conducts a wild horse and burro drought gather, the area within the HMA will be temporarily closed to livestock grazing concurrently.

The following is a list of DRAs that would be used either separately or in combination to reduce the impacts of authorized livestock grazing on natural resources during drought.

### **Temporary Partial Closure of an Allotment(s)**

During drought, the forage resources and overall condition of affected allotments would be assessed. Portions of an allotment(s) that lack forage and/or water, are in poor condition, or are identified as critical areas to provide forage and/or water for wildlife and/or wild horses and burros could be closed to livestock grazing for the duration of the drought (43 CFR §4710.5). Partial closures would be accomplished by employing a combination of the other DRAs such as temporary fencing, temporary water hauls, active livestock herding, strategic supplementation etc. Closures would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery. The U.S. Drought Monitor and Vegetation Drought Response Index would be consulted to determine the cessation of the drought. Written notice signed by the authorized officer would be used to reopen areas to grazing.

### **Temporary Complete Closure of an Allotment(s)**

If it is determined that drought conditions (i.e., lack of forage and/or water, poor condition, and/or critical areas that provide forage and/or water for wildlife and/or wild horses and burros) exist over the entire allotment and all other livestock DRA options have been exhausted or

deemed impractical, complete closure could occur (43 CFR §4710.5). Closure would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery. The U.S. Drought Monitor and Vegetation Drought Response Index would be consulted to determine the cessation of the drought. Written notice signed by the authorized officer would be used to reopen areas to livestock grazing.

### **Temporary Partial Reduction in Animal Unit Months (AUMs)**

During drought, a reduction in livestock numbers could be necessary to ensure that adequate forage is available to meet wildlife, wild horses and burros and livestock requirements. Reduced livestock grazing would prevent overutilization of key forage species and prevent further adverse impacts to rangeland resources that are already affected by drought.

### **Temporary Change in Season of Use**

A change in the season of use could reduce livestock grazing related impacts during drought. The following modifications could be used either separately or in combination:

Changing the season of use to a time following the critical growth period (actual dates would vary with vegetation community type) of key forage species (ESDs correlated to specific locations would be consulted to determine key species. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or past monitoring data).

- This would allow plants to utilize available soil moisture and any additional moisture received during the critical growth period. Plants would be able to complete their life cycle thus allowing for seed dissemination and root growth and replacement. Plants could then be grazed after sufficient growth or dormancy occurs. Repeated grazing during the critical growth period does not allow plants to regrow before soil moisture is depleted; therefore, plants may not have adequate resource reserves to survive winter dormancy.
- Defer livestock grazing in riparian areas during the hot season (approximately July 1 through September 30) to avoid the degradation of riparian areas during drought.

### **Temporary Reduced Grazing Duration**

Moving livestock across an allotment or pasture more quickly would increase the amount of rest individual plants are given. Reducing grazing duration would increase a plant's ability to utilize available resources to regrow foliage, store carbohydrates reserves, and maintain vigor. Plants are unable to regrow if grazed repeatedly especially during times of limited soil moisture. Periods of deferment should be varied according to the rate of growth. Range plants initiate growth from meristems (i.e., growing points), once meristems are removed, plants must grow from basal buds which requires much more of the plants energy than regrowth from meristems. Plants that are continually forced to regrow from buds may reduce or even eliminate the production of new buds, which may reduce production in subsequent years (Howery 1999). During stress periods such as drought, growth slows and plants should be rested longer (Hanselka and White 1986). Reducing the duration of grazing would provide plants more time to recover after grazing pressure is removed.

## **Temporary Change in Livestock Management Practices**

The concentrated use of preferred areas in the landscape results in uneven distribution of animal impact, and periods of below average precipitation compound the effects of herbivory, providing periods of accelerated deterioration (Teague et al. 2004). Modification of grazing practices would improve livestock distribution. The following methods/tools could be used either separately or in combination to improve livestock distribution:

- Strategic placement of salt and/or mineral supplements away from water and in areas that were un-grazed or lightly grazed in previous years.
- Increased herding of livestock to previously un-grazed or lightly grazed areas.
- Concentrating livestock into a single herd in order to increase control and encourage uniform grazing. This would force livestock to utilize more of the less-preferred plants while limiting repetitive or selective grazing of preferred forage species. Herd sizes would be dependent on water availability; therefore, adequate water sources must be present to provide water to wildlife, wild horses and burros and livestock while maintaining riparian functionality. Use would not exceed utilization and stubble heights identified in the Drought Response Triggers section of this document.

## **Temporary fencing of critical areas**

During drought, temporary electric fencing could be used to exclude livestock from critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat etc. Temporary electric fences may also be used to confine livestock to areas dominated by invasive annual species. Temporary electric fences would be constructed using 3/8 inch diameter fiberglass fence posts and two strands of electric fence polywire. Posts would be spaced 16 feet apart. The height of the fence would be 30 inches (Hot wire) with the bottom wire being 20 inches (ground wire) above the ground. Signs warning of electric fence would be firmly attached to the fence at common crossing points and at 1/4 mile intervals along the fence. All temporary fencing would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

## **Temporary targeted grazing of invasive annual dominated communities**

Targeted grazing of communities dominated by invasive annuals (e.g., cheatgrass) could be used to alleviate grazing pressure on other areas that are dominated by native species. On these sites, prescribed livestock grazing could be applied to achieve maximum damage to annual grasses with little concern for non-target plants (Peischel and Henry 2006). Grazing would be focused during the spring and/or fall months to take advantage of early spring and fall growth of the annuals. Livestock would be removed upon reaching a two-inch average stubble height in order to provide some protection from wind and water erosion. Animals would be confined to these areas using temporary electric fence or herding. If an existing water source is not available, the use of temporary water hauls or temporary above ground pipelines may be used. Invasive annual dominated communities would be identified through site-specific monitoring.

### **Temporary change in kind or class of livestock**

According to Volesky et al. (1980), yearling cattle utilize pastures more uniformly over variable terrain than cows with calves or mixed classes. Cows and calves utilize forages nearest the water much more heavily than do yearlings. Therefore, selecting yearlings would improve grazing distribution and limit impacts to riparian areas.

Choosing a different kind of livestock could also affect how a range can be utilized. With their large mouths, cattle and horses may not select annual grasses as readily as sheep or goats because livestock prefer plants they can eat quickly and efficiently. Sheep or goats can get a full bite of annual grasses more easily than cattle or horses, especially when annual grass plants are small (Peischel and Henry 2006). Additionally, sheep and goats can be herded more effectively which allows for greater control and provides an opportunity to limit impacts to critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat, etc. Temporary changes from cattle to sheep would not be authorized in areas of known bighorn sheep habitat or areas within nine miles of known bighorn sheep habitat.

### **Temporary water hauls**

Temporary water hauls could be used in circumstances where: 1) adequate forage exists to support wild horses and burros and the existing permitted number of livestock, but water resources are insufficient due to drought or 2) to improve livestock distribution in areas located long distances from existing water sources, which have received limited use by livestock in previous years or 3) to reduce or eliminate impacts to riparian and wetland areas. Additionally, the BLM could authorize the use of temporary water hauls to augment existing water sources. Whenever possible, water haul sites would be located in areas dominated by invasive annual species in order to provide for targeted grazing of those species while providing rest of native perennial vegetation. Water haul sites would consist of livestock water troughs of various size and material, placed on public lands and filled as needed with portable water tenders or water trucks. Previously disturbed sites would be selected when available. All areas would be surveyed for cultural resources prior to implementation and bird ramps would be installed in water troughs to protect avian species. All temporary water would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

### **Temporary above ground pipelines**

Temporary above ground pipelines could be implemented in circumstances where: 1) adequate forage exists to support wild horses and burros and the existing permitted number of livestock, but water resources are insufficient due to drought or 2) to improve livestock distribution in areas located long distances from existing water sources, which have received limited use by livestock in previous years or 3) to reduce or eliminate impacts to riparian and wetland areas. Whenever possible, temporary pipelines would be located in areas dominated by invasive annual species in order to provide for targeted grazing of those species while providing rest of native perennial vegetation. Temporary pipelines would consist of an above ground pipeline, which would transport water from the end point of an existing pipeline to livestock water troughs of various size and material, placed on public lands and fitted with a float valve to prevent overflow and

saturated soil conditions around the trough(s). Saturated soils are at a greater risk for compaction or erosion. Any temporary above ground pipelines would require approval from the Nevada Division of Water Resources. Previously disturbed sites would be selected when available. All areas would be surveyed for cultural resources prior to implementation and no new ground disturbance associated with the installation of a temporary pipeline(s) would be authorized. Bird ramps would be installed in water troughs to protect avian species. All temporary above ground pipelines would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

## **2. Wild Horses and Burros**

The following is a list of DRAs that would be used either separately or in combination to ensure the welfare of wild horses and burros on public lands administered by the BLM. Wild horses and burros could be at risk of dehydration or starvation due to drought conditions. Special considerations are needed for the management of wild horses and burros during drought. These DRAs would help reduce the impacts of wild horses and burros on natural resources adversely affected by drought while ensuring their welfare. DRAs would be selected on a case-by-case basis using site-specific monitoring data collected as outlined in the DDMP. The following process would be used for DRA selection:

*Step 1: Conduct field visits to “drought-afflicted” areas to assess drought response triggers.* Field visits would assess water and forage availability at predetermined sites using the monitoring methods as outlined in the DDMP. All data would be recorded on the Drought Monitoring Summary Form (Appendix A of the DDMP).

*Step 2: DRAs would be selected based on the evaluation of site-specific monitoring data, best available HMA specific population data and known animal behavior and distribution patterns.* DRAs would be chosen on case-by-case basis suited to site-specific conditions. More than one DRA could be selected depending on conditions. Efforts should be made to select DRAs that could be implemented in a subsequent fashion to respond to changes in drought conditions (e.g., temporary water haul followed by water trapping, if needed).

*Step 3: Implement DRA(s) in selected order.* If a drought gather is included as a DRA, interested public would be notified with drought gather being implemented through an effective upon issuance decision with an attached site-specific gather plan. Site-specific data related to the drought gather would be provided in the Decision and Drought Gather Plan documents.

### **Temporary Water Hauls**

In circumstances where it is determined that adequate forage exists to maintain the existing population of wild horses and/or burros, but water resources are deficient due to drought conditions, the BLM could employ temporary water hauls to augment existing water sources. Water haul sites would consist of livestock water troughs of various size and material, placed on public lands and filled as needed with portable water tenders or water trucks. Water haul

locations would be determined based on animal population density and distribution, and placed in previously disturbed areas such as gravel pits or roadsides. Troughs could be placed at the existing water sources that are either dry or inadequate to maintain healthy animals. The use of water hauls would continue until the existing waters are able to support the population or a drought gather occurs. All areas would be surveyed for cultural resources prior to implementation and bird ramps would be installed in water troughs to protect avian species.

### **Within HMA Wild Horse and Burro Relocation**

If monitoring data indicates that another area within an HMA has adequate forage and water resources capable of supporting the existing population of wild horses and/or burros, those animals could be relocated to the selected area. Relocation could be accomplished by moving animals from one part of the HMA to another with a helicopter, using helicopter capture to trap animals and then transport them to the selected area within the HMA for release, or bait/water trapping and subsequent transportation and release. If appropriate, animals could be “lured” from one area to another using temporary water hauls or bait. Justification for wild horse and/or burro within HMA relocations would be thoroughly documented within a site-specific Decision and gather plan. Luring animals using bait or water would not require a gather plan.

When trapping and subsequent release is needed to relocate the animals, bait and/or water trapping would be the preferred capture method in accordance with the criteria outlined in Section 2.0(c)(2). If the trapping and release method is used, animals would be released at water sources, with subsequent monitoring to ensure they acclimate to, and remain in the area. Animals would be painted with temporary livestock marking paint for future identification. This DRA would be limited to moving wild horses and burros within HMAs and would not involve moving wild horses and burros from one HMA to another.

### **Wild horse and burro removal**

A drought gather would be employed as a last resort and would only occur if the following conditions apply:

- 1) It is determined that drought conditions have resulted in insufficient amounts of forage and/or water to support the existing population of wild horses and/or burros within a HMA.
- 2) All other feasible DRAs have been exhausted and removal is needed for immediate protection of wild horses and burros and rangeland resources.

Pursuant to 43 CFR §4710.5, areas of allotment(s) that overlap with the HMA(s) would be temporarily closed to livestock grazing if necessary to protect the health of wild horses and burros or their habitat. The livestock grazing closure would be in effect for the duration of the drought plus one growing season following the cessation of the drought. If a livestock grazing closure is implemented, wild horses and burros would be removed from the range at varying levels (see “removal numbers” below) in order to prevent suffering and death due to drought conditions on the range and prevent further degradation of resources affected by drought. Gathers would be completed by removing varying numbers and using the following methods, either separate or in combination (refer to attachment 2 for a more detailed discussion):

### **a. Bait or water trapping**

When feasible and appropriate, bait and/or water trapping would be the primary gather technique used to capture wild horses or burros that need to be removed from the range in response to drought. Bait or water trapping would be selected unless the following circumstances apply:

- The number of water sources results in horses/burros being too dispersed;
- The location of water sources are too remote and restrict access for trap set up and animal removal;
- The urgency of animal removal (i.e. significant decline in animal body condition, death of animals) requires immediate action and utilization of alternate removal methods; or
- The number of animals needing to be removed is in excess of bait or water trapping capabilities. Water or bait trapping capabilities would vary depending on site-specific conditions.

Bait and water trapping involves the construction of portable corrals, and baiting animals into the corrals with the use of hay, water or other supplements. Specialized one-way gates are often used to prevent the animals from leaving the trap once inside. Bait and water trapping methods are usually only effective in areas where water or forage is absent, resulting in high motivation for animals to enter the trap to access them. These situations may occur during drought emergencies or severe winters. Typically, small groups of animals enter the traps at a time. This requires many days too many weeks to remove a substantial number of animals from an area. This option could be employed where small numbers of animals need to be removed, where it is deemed that the geography and resources of the HMA would ensure success, or in combination with helicopter gathers.

### **b. Helicopter capture**

The helicopter-drive trapping method would be employed when bait or water trapping is not effective, feasible or appropriate. The use of roping from horseback could also be used when necessary. Multiple gather sites (traps) could be used to gather wild horses and/or burros from within and/or outside the HMA boundaries.

### **Removal Target**

Removal numbers would be based on the assessment of forage, climate, water, rangeland health and the use of the range by wild horses or burros. Removal numbers would be identified to ensure that healthy animals remain on the range and have adequate resources for survival, and that rangeland degradation is minimized in order to allow for post drought recovery. The long term health and welfare of the wild horses and burros would be the overreaching goal of a drought gather. The removal numbers would be determined on an HMA by HMA basis. A summary of the data, and rationale for the removal numbers would be documented in the Decision and attached gather plan issued prior to a gather commencing.

#### **a. Removal of small localized Wild Horse and Burro Populations**

When it is determined that a specific group or groups of wild horses or burros need to be removed due to a lack of water and/or forage and other drought response actions have been exhausted those groups identified could be removed. Wild horses and burros within the other locations of the HMA where adequate forage and water sources remain would not be gathered. For example, localized removal could be used when: 1) a water source or multiple water sources within a portion of an HMA have dried up while other water sources within the HMA remain adequate 2) it is determined that HMA relocation is not feasible or appropriate due to horse and/or burro condition or 3) other factors exist that may pose a risk of potential injury to animals (e.g., the location and number of fences pose a high risk of horse injury during relocation) or could limit the success of relocations (e.g., forage and water conditions are only capable of supporting horses occupying other areas within the HMA).

#### **b. Removal of sufficient animals to achieve the high AML**

This situation would apply when the population is in excess of the high AML, and assessment of existing forage and water resources warrants limited removal of wild horses and/or burros to the high AML. This would also be implemented to restrict the number of animals removed due to constraints on holding space and long term holding costs. This option could be implemented in combination with temporary water hauls.

#### **c. Removal of sufficient numbers of animals to achieve the low range of AML**

Where the assessment of forage and water indicates that some relief is needed through removal of excess wild horses and/or burros, a gather could be conducted to achieve the established low range of AML. This would occur where the current population exceeds the low AML, and adequate resources do not exist to maintain healthy wild horses or burros at the current population level. This option could be implemented in combination with temporary water hauls.

#### **d. Removal of animals to a point below the low AML**

During a prolonged drought, forage and water resources could become severely limited to a point that wild horses and/or burros must be removed below the low range of AML in order to prevent widespread suffering and death. The post gather population target would be determined based on the existence and reliability of remaining resources. This option would be implemented in order to prevent subsequent emergency conditions due to ongoing or worsening drought conditions. This option could be implemented in combination with temporary water hauls.

#### **e. Complete removal of all animals in an HMA**

In extreme situations, the complete lack of forage and/or water in certain locations could warrant the removal of all locatable wild horses and burros to prevent their death. This situation would only apply as a last resort, and could involve holding wild horses or burros in contract facilities with release back to the range when adequate resources exist. Subsequent release of horses and/or burros would be subject to Nevada and Washington BLM office approval and could occur

several months after the gather. If complete removal and subsequent release is chosen, population control methods could be implemented prior to wild horses being released back to the HMA. Population controls would not be implemented in burro populations.

Population controls applied to wild horses released back to the range could be used in order to slow population growth rates, lengthen the time before another gather is necessary and enhance post drought resource recovery. Population controls include the application of fertility control vaccine to mares, and sex ratio modification to favor studs. Fertility control would be applied to all mares released to the range. Sex ratio adjustment could be applied alone or in combination with fertility control. Sex ratio adjustment would involve the release of studs and mares in a 60:40 ratio.

It is possible that a situation may warrant the removal of only mares and foals due to the fact that 1) they are typically the most affected by the limited resources and 2) it is determined that sufficient resources exist to support a larger number of studs. In this case, mares and foals would be gathered and removed from the drought affected area and studs would be released back to the range. This scenario could result in sex ratios in the remaining population exceeding 60% studs.

### **Type of removals**

Under normal gather operations, all located wild horses are captured. The desired number of horses for release and removal are then identified through a “selective removal” process. For drought related gathers gate cut removals would be used as the primary method. Gate cut removals would be used to limit any additional stress on the wild horses and burros within a defined gather area. In this situation, wild horses or burros would be gathered and removed regardless of age to reach the post gather target. Typically few or no animals would be returned to the range and no population controls would be implemented. When appropriate animals exhibiting superior condition and health may be returned to the range during a gate cut removal. The post gather target number of animals would remain undisturbed on the range. Gathers would be designed to remove animals from the areas most affected by drought and resource deficits. Gathers of burros are typically Gate Cut gathers.

#### ***2.1 Grazing Closure Alternative***

Under the Grazing Closure Alternative, all areas determined to be affected by drought (refer to Attachment 1) would be closed to livestock grazing for the duration of the drought and one additional growing season following the cessation of the drought. Grazing closures would remove livestock grazing from the public lands to eliminate the impacts of grazing during drought and provide one growing season of rest for plant recovery following the cessation of the drought. DRAs for wild horses and burros would be implemented as identified in the proposed action.

#### ***2.2 No Action Alternative***

Under the No Action Alternative, management responses to drought would require the preparation of individual, situation specific EAs for areas or circumstances across the BMD.

This would increase response times and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management actions would continue with no modifications and would be poorly suited to times of below average precipitation. During drought, livestock and wild horse and burro use would be concentrated around remaining water sources and riparian areas. Without the prompt implementation of management strategies, the effects of drought could be compounded by improper livestock and wild horse and burro use. If drought conditions persist for long periods of time the amount of forage and water for wild horses and burros would become limited. If actions are not taken, emergency conditions could develop and may lead to a reduction in wild horse and burro health, severe debilitation or death. Under the No Action Alternative wild horse and burro gather operations would need to be scheduled according to National and State priorities. This would delay response times and drought affected HMAs would not be gathered in a prompt manner.

### ***2.3 Alternatives Considered, but Eliminated from Detailed Analysis***

#### **Supplemental Feeding of Livestock and Wild Horses and Burros**

The BLM considered a Supplemental Feeding Alternative if drought conditions create insufficient forage to meet wild horse and burro and livestock needs; however, this Alternative was eliminated from detailed analysis because it would be inconsistent with 43 CFR 4700.0-6 (a) which states that, “Wild horse and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.” The WFRHBA requires the BLM to manage horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance (TNEB) on public lands (16 USC §1333(a)).

BLM Handbook H-4700-1 Wild horses and Burros Management Handbook, states that, “To achieve TNEB on the public lands, WH&B should be 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 (TES). WH&B herd health is promoted by achieving and maintaining TNEB.”

Supplemental feeding livestock or wild horses and burros on rangelands during times of drought would adversely affect areas on or near the location that feed is being supplied. Supplemental feed could contain weed seed, which could lead to the introduction of invasive and/or noxious weeds. Providing supplemental feed would concentrate animals, thereby, increasing utilization and trampling of native species; cause soil compaction in affected area(s); increase soil erosion and adversely affect water sources due increased sedimentation due to soil erosion.

Additionally, providing supplemental feed to wild horses and burros and livestock could lead to a myriad of safety and health-related impacts to the animals. For example, providing hay in areas without adequate water could lead to colic in horses and providing nutrient rich feed to cattle following low-quality feed could lead to bloat. Furthermore, supplying supplemental feed

would be cost prohibitive and unsustainable due to the inability to predict when the cessation of a drought would occur.

### III. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

#### 3.0 General Setting

The general setting of the project area is the administrative boundary of the BMD and nine allotments administered for the Winnemucca, Elko and Ely BLM Districts. The BMD is located in central Nevada. The northern portion of the district is administered by the MLFO and is characteristic of a cooler, semi-arid Great Basin Desert ecotype. The southern portion administered by the TFO and has characteristics of the Great Basin, Great Basin/Mojave transition and Mojave Desert ecotypes. The Mojave Desert is a hotter, more arid ecotype restricted to a small area near the southern administrative boundary of the TFO.

The BMD is generally characterized as, “Basin and Range” topography with broad bedrock pediments and fault block mountain ranges predominantly running in a north-south orientation separating vast, flat playa sinks or alluvial valley bottoms. Valley and playa elevations range from 4,000-5,000 ft. with an average annual precipitation of 2-9 inches. Mountain range elevations extend from 7,500-9,500 ft. with 10-20 inches of annual precipitation.

#### 3.1 Supplemental Authorities of the Human Environment

To comply with the 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 or No Action Alternative affects those elements.

Table 1: Supplemental Authorities

Supplemental Authority <sup>1</sup>	Not Present <sup>2</sup>	Present/Not Affected <sup>2</sup>	Present/May be Affected <sup>3</sup>	Rationale
Air Quality			X	See discussion in Section 3.3 A.
Area of Critical Environmental Concern (ACEC)	X			No Federally designated ACECs exist within the BMD
Bald and Golden Eagles			X	See discussion in Section 3.3 B.
Cultural/Historical			X	See discussion in Section 3.3 C.

<sup>1</sup> See H-1790-1 (January 2008) Supplemental Authorities to be Considered.

<sup>2</sup> Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward for analysis or discussed further in the document.

<sup>3</sup> Supplemental Authorities determined to be present/May be Affected must be carried forward for analysis in the document.

Supplemental Authority <sup>1</sup>		Not Present <sup>2</sup>	Present/Not Affected <sup>2</sup>	Present/May be Affected <sup>3</sup>	Rationale
Environmental Justice		X			The Proposed Action or Alternatives would not disproportionately impact any low income or minority populations as described in the Environmental Justice Executive Order (EO 12898).
Farmlands Prime or Unique		X			No Federally designated farmlands, prime or unique, exist within the BMD.
Floodplains			X		The Proposed Action or Alternatives do not meet the definition of “Actions Affecting or Affected by Floodplains or Wetlands” as described in 44 CFR Ch. 1§ 9.4.
Forests and Rangelands (Healthy Forest Restoration Act [HFRA] only)		X			This element applies only to HFRA projects; no forest fuels reduction projects are analyzed within this EA.
Human Health and Safety (Herbicide Projects)		X			No herbicides would be utilized, stored, or encountered by implementing the Proposed Action or Alternatives contained in this EA.
Migratory Birds				X	See discussion in Section 3.3 B.
Native American Religious Concerns				X	See discussion in Section 3.3 D.
Noxious Weeds/Invasive Non-native Species				X	See discussion in Section 3.3 E.
Riparian/Wetlands				X	See discussion in Section 3.3 F.
Threatened and Endangered Species	Animals			X	See discussion in Section 3.3 B.
	Plants			X	See discussion in Section 3.3 M.
Waste – Hazardous/Solid		X			No wastes, hazardous or solid, would be utilized, stored, or encountered by implementing the Proposed Action or Alternatives contained in this EA.
Water Quality				X	See discussion in Section 3.3 G.
Wild & Scenic Rivers		X			No Federally designated wild and scenic rivers exist within the BMD.
Wilderness				X	See discussion in Section 3.3 O.

**Elements Not Present/Not Affected:**

The following critical elements of the human environment are not present or would not be affected by the Proposed Action or Alternatives in this EA:

- ACECs
- Environmental Justice
- Flood Plains
- Prime or Unique Farmlands
- Wastes, Hazardous or Solids
- Wild & Scenic Rivers

**3.2 Other Resources**

Other resources of the human environment that have been considered for this environmental assessment (EA) are listed in the table below. Elements that may be affected are further described in the EA. Rationale for those elements that would not be affected by the Proposed Action and Alternative is listed in the table below.

Table 2: Other Resources

Other Resources	Not Present <sup>4</sup>	Present/Not Affected <sup>4</sup>	Present/May be Affected	Rationale
Grazing Management			X	See discussion in Section E8.
Land Use Authorization			X	See discussion in Section E9.
Minerals		X		Mineral resources exist on the BMD; however, no major soil disturbing activities would occur under the Proposed Action or Alternatives. Therefore, mineral resources would not be impacted.
Paleontological Resources		X		Paleontological resources exist on the BMD; however, no major soil disturbing activities would occur under the Proposed Action or Alternatives. Therefore, paleontological resources would not be impacted.
Recreation			X	See discussion in Section E10.
Socio-Economic Values			X	See discussion in Section E11.
Soils			X	See discussion in Section E12.

Other Resources		Not Present <sup>4</sup>	Present/Not Affected <sup>4</sup>	Present/May be Affected	Rationale
Special Status Species	Animals			X	See discussion in Section E2.
	Plants			X	See discussion in Section E13.
Vegetation				X	See discussion in Section E13.
Visual Resources			X		No large structures would be constructed and no major disturbances would occur under the Proposed Action or Alternatives. Therefore, visual resources would not be impacted.
Wild Horses and Burros				X	See discussion in Section E14.
Wildlife				X	See discussion in Section E15.

<sup>4</sup>Other Resources determined to be Not Present or Present/Not Affected need not be carried forward for analysis or discussed further in the document based on the rationale provided.

### ***3.3 Resources Present and Brought Forward for Analysis***

#### **A. Air Quality**

##### **Affected Environment**

Air quality and the emission of air pollutants are regulated under both Federal and Nevada law. The Federal Clean Air Act (CAA) requires the US Environmental Protection Agency (EPA) to identify national ambient air quality standards (NAAQS's). The CAA also requires EPA to place selected areas within the United States into one of three classes, designed to limit the deterioration of air quality. The air quality class for the entire BMD is Prevention of Significant Deterioration (PSD) Class II. PSD Class II allows for temporary, moderate deterioration of air quality. The State of Nevada, Bureau of Air Quality-Department of Environmental Protection air quality standards under NRS 445B.100 closely mirror the Federal standards.

##### **1. Environmental Consequences of the Proposed Action**

Under the Proposed Action, DRAs would be implemented to maintain vegetation within the BMD to minimize the potential for accelerated erosion events. DRAs such as temporary water hauls could result in the short-term increase of wind born particulate matter and vehicle emissions during the hauling of water. However, water hauls along with the other DRAs are designed to protect vegetation and stabilize soils and would decrease wind born particulate matter in the long-term. Any airborne particulate matter caused by the implementation of DRAs would not exceed air quality standards.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would remove all grazing from public lands determined to be affected by drought (refer to Attachment 1). Removing grazing during drought would benefit the growth of plants and ensure an adequate amount of cover remains. Wind velocity, and its potential to detach and transport dry soil, exponentially increases near the ground as vegetation's sheltering effect is reduced (Marshall 1973). Protection of living and standing dead plant cover provided by the Grazing Closure Alternative would have a beneficial impact on air quality.

## **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of management practices that are employed during times of normal precipitation. Current management practices may be poorly suited to drought. Drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use, which may lead to a further reduction in plant cover. Inadequate plant cover can lead to substantial wind or water erosion of valuable top soil (Reece et al. 1991). Wind erosion increases the amount of airborne particulate matter, which could reduce air quality causing public safety issues such as poor visibility or respiratory problems. Delayed implementation of DRAs could also increase the potential for invasion of undesirable plant species, which are less likely to stabilize soils. The No Action Alternative would adversely affect air quality.

## **B. Wildlife (Including Special Status Species, and Migratory Birds)**

### **Affected Environment**

Drought can have complex direct and indirect adverse impacts on wildlife species. In direct response to periods of water restriction, animals often undergo physiological and behavioral changes that can have energetic, survival and reproductive costs (McNab 2002). For example, animals may devote more time to searching for water, which can be energetically expensive and expose animals to greater predation risk. Indirectly, drought-induced reductions in plant and insect productivity can potentially limit the availability of important food and cover resources. Not surprisingly, many animals are food-limited during periods of drought and experience substantial weight loss leading to starvation, greater susceptibility to disease and predators, and reductions in reproductive potential (Rotenberry and Wiends 1989). In many cases, the combined impacts of drought are most pronounced among young animals (Longshore et al. 2002; McNab 2002).

Many wildlife species in the BMD are well-adapted to living in arid or semi-arid conditions. However, a number of these animals are susceptible to the negative impacts of drought, particularly during spring and early summer. These include animals that utilize 1) free water rather than metabolic water for the majority of their water requirements (e.g., most mammals and birds), 2) adequate supplies of surface water for all or portions of their life history (fish, amphibians, gastropods, many insects and other species), 3) riparian areas (e.g., several bird

species), 4) dense understory vegetation as cover from predators, or 5) insect species, grass or forbs for large portions of their diet.

Within the BMD, wildlife species include 73 mammals, 231 birds, 24 reptiles, seven amphibians and 19 fish species. Of these, seven species are listed as threatened, endangered, proposed, or candidate species by the US Fish and Wildlife Service (USFWS) (Table 3). In addition, to federally listed species, the BLM protects, by policy (BLM Manual 6840), special status species designated as “sensitive” by the BLM Nevada State Director. Table 4 lists the special status species occurring, or likely to occur on the BMD. Below, the potential impacts of drought on select groups of critical species found on the BMD are assessed.

### *Fish*

In the BMD, Lahontan cutthroat trout (*Oncorhynchus henshawi*) inhabit drainages within the Roberts Mountains and upper Reese River, both administered by the MLFO. Drought and increasing summer temperature are considered the primary climate change risk factors likely to negatively affect persistence of these trout (Haak et al. 2010).

Railroad Valley springfish (*Crenichthys nevadae*) inhabit several warm springs in Railroad Valley near Current, Nevada administered by the TFO. This fish is very susceptible to water temperature fluctuations and sudden changes in water quality. Long-term drought and water divergence are considered factors that could negatively affect persistence of these fish (Abele 2011).

### *Mammals*

Mule deer (*Odocoileus hemionus*) typically occupy high elevation summer ranges where they are nutritionally dependent on shrubs/forbs characteristic of healthy and diverse mountain brush communities. Important plants for mule deer include mountain mahogany, serviceberry, snowberry, willow, sagebrush, aspen, wild rose, eriogonum, arrowleaf balsamroot, penstemon and sorrel. Streamside and meadow riparian habitats with aspen stands are important fawn-rearing areas.

Pronghorn antelope (*Antilocapra americana*), in modest but growing numbers, occupy the mid-to lower-elevations of Smith Creek, Grass, Antelope, Monitor, Little Smoky, Kobeh, Reveille, Stone Cabin, Ralston, Paymaster, Railroad, Fish Lake, Little Fish Lake, Ione, and Fish Creek Valleys. Pronghorn are dependent on sagebrush/salt desert shrub communities with an understory of forbs. The distribution of water is the most limiting factor for pronghorn.

Desert bighorn sheep (*Ovis Canadensis nelsoni*) occur in several mountain ranges within the TFO and the Desatoya and Tobin Ranges within the MLFO. Adequate forage within a two-mile radius of bighorn sheep watering areas is critical for their survival.

Rocky Mountain elk (*Cervus canadensis*) inhabit several central Nevada mountain ranges. Currently, most of the elk occupy NDOW Management Area 16, Table Mountain and Butler

Basin in the Monitor Range. There are also growing populations in the Hot Creek and Toquima Ranges. NDOW Management Area 17, Toiyabe Range, supports a small number of elk.

### *Birds*

Major avian communities within the BMD occur in sagebrush, phreatophyte, pinyon-juniper, montane, riparian, and aspen habitats. Within each of these habitats, bird populations are likely to be negatively impacted by low annual levels of precipitation (Rich 2002; Ballard et al. 2003).

Many migratory birds are heavily dependent on riparian systems. Seventy-seven bird species have been identified as either riparian obligate or riparian dependent in the western US (Rich, 2002). Willow, aspen and cottonwoods provide vital riparian under-story, mid-story and canopy cover to support a diverse bird community. Species using this habitat include northern goshawk (*Accipiter gentilis*), broad-tailed hummingbird (*Selasphorus platycercus*), northern flicker (*Colaptes auratus*), house wren (*Troglodytes aedon*), warbling vireo (*Vireo gilvus*), yellow-rumped warbler (*Dendroica coronata*), western wood pewee (*Contopus sordidulus*), lazuli bunting (*Passerina amoena*) and western tanager (*Piranga ludoviciana*).

Migratory birds occur in all habitats of the BMD throughout year with nesting predominantly occurring from March-July. Widely distributed species in shrub habitats include sage thrasher (*Oreoscoptes montanus*), sage (*Amphispiza belli*) and Brewer's sparrow (*Spizella breweri*), horned lark (*Eremophila alpestris*), and western meadowlark (*Sturnella neglecta*). Loggerhead shrike (*Lanius ludovicianus*), common nighthawk (*Chordeiles minor*), various wrens, warblers, and swallows are also common.

Yellow-billed cuckoos (*Coccyzus americanus*) live in riparian areas dominated by cottonwood and willow. In the BMD, they mainly occur in Beatty/Oasis Valley within the Tonopah Resource Area although there have been a few historical sightings in Eureka County. It is speculated that drought could have a significant negative impact on reproductive success, as vegetative understories in riparian woodlands are typically severely reduced during drought years (Wiggins 2005).

The southwestern willow flycatcher (*Empidonax traillii extimus*) has been documented in Beatty/Oasis Valley in the Tonopah Resource Area. The combination of severe drought and upstream diversion of water is thought to contribute to territory loss or abandonment (Finch et al. 2000).

Greater sage grouse (*Centrocercus urophasianus*) occur or historically occupied most sagebrush habitats in the BMD. Drought conditions are thought to play an important role in population decline across their range (Knick and Connelly 2010). Reductions in primary plant productivity and insect populations during a drought potentially impact sage grouse because they depend on tall perennial grasses for cover, and their diet is largely comprised of forbs and insects during the breeding and brood-rearing season. In Eureka County, NV, population declines during drought periods have been linked in part to increased mortality of young (Nonne et al. 2011).

*Reptiles and amphibians*

Desert tortoise (*Gopherus agassizii*) inhabit about 70,600 acres of the southern end of the BMD (Mojave Desert) within the Tonopah Resource Area. Drought has been implicated as having a major negative impact on tortoise activity, energetics, and survival (Duda et al. 1999; Longshore et al. 2002).

Columbia spotted frogs (*Rana luteiventris*) are found in slow-moving or ponded surface waters and in clear water with little shade. Reproductive success is affected by water temperature, depth, and pH; and vegetative cover and the presence/absence of predators (e.g., fish, bullfrogs, etc.). The Toiyabe spotted frog is an isolated distinct population of the Columbia Frog that occur on the BMD in the Toiyabe Range. This population is vulnerable to extinction due to their isolation from other population segments, the relatively arid environment they inhabit, and land use patterns that subject their habitat to fragmentation and loss due to lowered water tables, water diversions, and pond destruction (e.g., loss of beaver ponds resulting from loss of aspen and willow). Drought is likely to reduce the sites available to these frogs and affect the connectivity of extant populations. Local extinction may eliminate source populations (Conservation Agreement and Strategy 2003).

*Threatened, endangered and candidate species*

BLM is required by the Endangered Species Act of 1973, as amended to ensure that no action on the public lands jeopardizes a threatened, endangered, or proposed species. Threatened, endangered, proposed, and candidate species of the BMD include:

Table 3: Threatened, Endangered, or Candidate Species

	Common Name	Scientific Name	*T	E	C
<b>Birds</b>	Yellow-billed cuckoo	<i>Coccyzus americanus</i>			X
	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>		X	
	Greater sage grouse	<i>Centrocercus urophasianus</i>			X
<b>Fish</b>	Lahontan cutthroat trout	<i>Oncorhynchus henshawi</i>	X		
	Railroad Valley springfish	<i>Crenichthys nevadae</i>	X		
<b>Reptiles</b>	Desert tortoise	<i>Gopherus agassizii</i>	X		
<b>Amphibians</b>	Columbia spotted frog	<i>Rana luteiventris</i>			X

Lahontan Cutthroat Trout: Lahontan cutthroat trout inhabit both Birch and Pete Hanson Creek drainages of the Roberts Mountains, northwest of Eureka, Nevada within the Mount Lewis Resource Area.

Railroad Valley Springfish: Railroad Valley springfish inhabit several warm springs in Railroad Valley near Current, Nevada within the Tonopah Resource Area.

Desert Tortoise: Desert tortoise inhabits about 70,600 acres of the southern end of the BMD (Mojave Desert) within the Tonopah Resource Area.

Columbia Spotted Frog: The Columbia spotted frog has limited distribution along the Upper Reese River, in northern Nye County within the Tonopah Resource Area.

Yellow-billed Cuckoo: The Yellow-billed cuckoo has been documented in Beatty/Oasis Valley area of the BMD within the Tonopah Resource Area with a few historical sightings in Eureka County.

Southwestern Willow Flycatcher: The southwestern willow flycatcher has been documented in Beatty/Oasis Valley area of the BMD within the Tonopah Resource Area.

Special status species – wildlife

In addition to federally listed species, the BLM protects, by policy (BLM Manual 6840), special status species designated as “sensitive” by the BLM Nevada State Director. The following table lists the special status species occurring, or likely to occur on the BMD:

Table 4: Special Status Species

	Common Name	Scientific Name
<b>Mammals</b>	Pallid bat	<i>Antrozous pallidus</i>
	Pygmy rabbit	<i>Brachylagus idahoensis</i>
	Townsend’s big-eared bat	<i>Corynorhinus townsendii</i>
	Big brown bat	<i>Eptesicus fuscus</i>
	Silver-haired bat	<i>Lasionycteris noctivagans</i>
	Hoary bat	<i>Lasiurus cinereus</i>
	California myotis	<i>Myotis californicus</i>
	Small-footed myotis	<i>Myotis ciliolabrum</i>
	Long-eared myotis	<i>Myotis evotis</i>
	Little brown myotis	<i>Myotis lucifugus</i>
	Fringed myotis	<i>Myotis thysanodes</i>
	Long-legged myotis	<i>Myotis volans</i>
	Yuma myotis	<i>Myotis yumanensis</i>
	Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>
	Western pipistrelle	<i>Pipistrellus heperus</i>
	Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
	Fish Spring pocket gopher	<i>Thomomys bottae abstrusus</i>
	San Antonio pocket gopher	<i>Thomomys bottae curtatus</i>
<b>Birds</b>	Northern goshawk	<i>Accipiter gentilis</i>
	Tricolored blackbird	<i>Agelaius tricolor</i>
	Golden eagle	<i>Aquila chrysaetos</i>
	Short-eared owl	<i>Asio flammeus</i>
	Long-eared owl	<i>Asio otus</i>
	Burrowing owl	<i>Athene cunicularia</i>
	Juniper titmouse	<i>Baeolophus griseus</i>
	Ferruginous hawk	<i>Buteo regalis</i>
	Swainson’s hawk	<i>Buteo swainsoni</i>
	Greater sage grouse	<i>Centrocercus urophasianus</i>
	Snowy plover	<i>Charadrius alexandrinus</i>
	Black tern	<i>Chlidonias niger</i>
	Sandhill crane	<i>Grus canadensis</i>
	Pinyon jay	<i>Gymnorhinus cyanocephalus</i>
	Bald eagle	<i>Haliaeetus leucocephalus</i>

	<b>Common Name</b>	<b>Scientific Name</b>
	Yellow-breasted chat	<i>Icteria virens</i>
	Least bittern	<i>Ixobrychus exilis</i>
	Loggerhead shrike	<i>Lanius ludovicianus</i>
	Black rosy-finch	<i>Leucosticte atrata</i>
	Lewis's woodpecker	<i>Melanerpes lewis</i>
	Long-billed curlew	<i>Numenius americanus</i>
	Mountain quail	<i>Oreortyx pictus</i>
	Flammulated owl	<i>Otus flammeolus</i>
	Vesper sparrow	<i>Pooecetes gramineus</i>
	Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>
	Crissal thrasher	<i>Toxostoma crissale</i>
	LeConte's thrasher	<i>Toxostoma lecontei</i>
	Lucy's warbler	<i>Vermivora luciae</i>
	Gray vireo	<i>Vireo vicinior</i>
<b>Reptiles</b>	Gila monster	<i>Heloderma suspectum</i>
	Chuckwalla	<i>Sauromalus obesus</i>
<b>Amphibians</b>	Amargosa toad	<i>Bufo nelsoni</i>
<b>Fish</b>	Fish creek springs tui chub	<i>Gila bicolor euchila</i>
	Big smoky valley tui chub	<i>Gila bicolor ssp.</i>
	Fish lake valley tui chub	<i>Gila bicolor ssp.</i>
	Hot creek valley tui chub	<i>Gila bicolor ssp.</i>
	Railroad valley tui chub	<i>Gila bicolor ssp.</i>
	Big smoky valley speckled dace	<i>Rhinichthys osculus lariversi</i>
	Monitor valley speckled dace	<i>Rhinichthys osculus ssp.</i>
	Oasis valley speckled dace	<i>Rhinichthys osculus ssp.</i>
<b>Gastropods</b>	Elongate cain spring pyrg	<i>Pyrgulopsis augusta</i>
	Large-gland carico pyrg	<i>Pyrgulopsis basiglans</i>
	Oasis valley pyrg	<i>Pyrgulopsis micrococcus</i>
	Ovate cain spring pyrg	<i>Pyrgulopsis pictilis</i>
	Wongs pyrg	<i>Pyrgulopsis wongi</i>
	California floater	<i>Anodonata californiensis</i>
<b>Butterflies</b>	Big smoky wood nymph	<i>Cercyonis oetus alkalorum</i>
	Pallid wood nymph	<i>Cercyonis oetus pallescens</i>
	Railroad valley skipper	<i>Hesperia uncas fulvapalla</i>

## 1. Environmental Consequences of the Proposed Action

### Temporary Water Hauls and Pipelines

Augmenting water sources could directly benefit some wildlife species that cannot subsist entirely on metabolic water. Augmented water sources are most likely to benefit mobile species that can move relatively long-distances to access water sources (e.g., upland game birds, some songbirds, deer, pronghorn antelope, and bighorn sheep). Conversely, augmented water sources would largely be unavailable to many populations of sedentary animals that cannot access the water (e.g., many reptiles and small mammals). Water augmentation would not directly benefit animals that subsist solely on metabolic water or do not drink from open water sources.

Indirectly, water augmentation could benefit a wide range of species by attracting livestock and wild horses and burros thereby reducing impacts on natural water sources and riparian vegetation. During drought, livestock often concentrate in and around riparian areas which can

lead to degraded water quality and reduced vegetation cover. Thus, water augmentation would reduce competition between wildlife, wild horses and burros and livestock for these important riparian resources. Moreover, concentrations of livestock near augmented water sources would reduce impacts on rangeland vegetation outside of the footprint of the augmented water source. As a result, wildlife (including sage-grouse) that depend on understory vegetation during portions of their life-cycle would benefit from reduced grazing impacts range-wide.

Conversely, a potential negative impact of water augmentation concerns the concentration of livestock and wild horses and burros near the water source. Increased attendance at water sites by these animals could indirectly affect some wildlife by trampling and consuming vegetation. Wildlife are known to avoid areas near water developments that are heavily used by livestock (Leeuw et al. 2001), and these areas are thought to increase predation risk, interspecific competition, and provide avenues of disease transmission.

### **Temporary fencing riparian areas, wet meadows, and aspen stands**

Ecologically functioning riparian areas, springs, aspen stands and seasonally wet meadows are crucially important for Nevada's wildlife and fish. However, livestock tend to congregate and linger near water sources, oftentimes having an adverse effect on vegetation and wildlife communities (Saab et al. 1995). During drought, these adverse effects can be amplified. Thus, using temporary fences to restrict access by ungulates to these areas during a drought is an effective management tool to prevent severe degradation and potentially improve habitat. Several studies have shown that fencing riparian zones may in fact be a rapid method of habitat improvement important for wildlife and fish (Schulz and Leininger 1991; Giuliano and Homyack 2004). These areas include riparian habitat for southwestern willow flycatcher and yellow-billed cuckoo, and higher elevation wet meadows utilized by greater sage grouse during mid- to late-summer (see Beck and Mitchell 2000). It is especially important that livestock be excluded from Lahontan cutthroat occupied stream reaches.

Negative impacts to wildlife include avian fence-impact mortality, particularly sage grouse. However, this impact can be largely avoided by adopting specific measures to reduce sage grouse fatal collisions (Stevens 2011).

Fences can also limit access to water sources by large wildlife (e.g., mule deer, bighorn sheep, and elk).

### **Livestock, wild horses and burros: changes in grazing practices, removal, and rangeland utilization**

Some of the livestock, wild horse and burro management strategies (outlined in the Proposed Action) are designed to reduce stocking rates as a mechanism of minimizing long- and short-term adverse impacts to rangeland resources during a drought. Research has shown that reducing stocking rates during a drought is an important management tool for preventing overgrazing and maintaining critical wildlife habitats. Moreover, to protect important sage-grouse habitat, the BLM is instructed to evaluate the season of use and stocking rate as an important management strategy (IM-2012-043). Conversely, vegetation and water resources

important to sage-grouse and other wildlife can be severely degraded by the interactive effects of overgrazing and drought.

Although the specific benefits of the Proposed Action vary depending on the wildlife species, the drought triggers for implementing management action would ensure that habitat conditions provide resources for viable wildlife populations to persist over the long-term. By reducing stocking rates, wildlife would benefit from reduced competition for plant and water resources particularly during critical life stages. In sagebrush habitats, reducing stocking rates may especially benefit ground-nesting animals during the spring and early summer. Many of these animals require a dense understory of grasses and forbs for food and nesting cover. For example, sage grouse forage predominately on a suite of cool-season forb species that can be vulnerable to the combined effects of water stress and cattle grazing (Knick and Connelly 2010). The Proposed Action would also benefit the suite of wildlife and fish that utilize streams, riparian areas, wet meadows and aspen stands. During dry conditions, livestock often congregate near water sources, which can reduce vegetation cover by grazing and trampling and generally degrade water resources. Indeed, removing livestock from streams and riparian zones during critical periods is a key method of improving habitat for fish and wildlife (Mosely et al. 1997; Giuliano and Homyack 2004; Nelson 2010).

Wildlife and wildlife habitat would benefit indirectly by wild horse and burro gathers. Reduction of wild horse and/or burro populations during a drought would protect critical rangeland habitats from overuse and reduce drought-induced stress on wildlife. Implementing a gather would reduce the competition for forage and water resources. Habitat conditions in riparian areas, aspen stands, and uplands would be maintained, benefitting many wildlife species including sage grouse.

Wild horse and burro gathers in drought affected areas would have some, short-term negative impacts on wildlife. Wildlife present on or near trap sites or holding facilities could be temporarily displaced or disturbed during the gather activities. However, helicopter gather trap sites would typically be located in previously disturbed areas (i.e., gravel pits), and for short periods of time (1-3 days). Should a qualified biologist determine it to be necessary, trap sites would be inventoried prior to selection to determine the presence of sensitive species. If potential impacts could not be mitigated, these areas would be avoided.

Gather activities would not conflict with nesting periods for most bird species. Refer to the Standard Operating Procedures (SOPs) in Appendix A of the DMP (Attachment 2) for avoidance measures utilized to minimize impacts to sage-grouse and ferruginous hawks.

## **2. Environmental Consequences of the Grazing Closure Alternative**

Impacts of the Grazing Closure Alternative are essentially the same as those under the Proposed Action. However, the removal of livestock under the Grazing Closure Alternative would have greater long-term benefits to wildlife because livestock are removed from the range for an additional growing season.

### **3. Environmental Consequences of the No Action Alternative**

Under the No Action Alternative, wildlife species would not benefit by the management activities outlined in the Proposed Action. Instead, wildlife would be fully subjected to the potentially adverse impacts of livestock, wild horse and burro use during drought. These include exacerbated competition for forage and water between non-native and native wildlife and impacts on riparian areas and other water sources. Impacts on riparian areas and water sources can be severe because livestock tend to congregate in these areas, trampling and overgraze vegetation. Competition between wildlife, wild horse and burros and livestock would also be substantial when water and forage are limited and may lead to wildlife starvation and water deprivation. Moreover, wild horse and burros are known to drive away some wildlife species from natural water sources. The long-term recovery of wildlife habitat could also be reduced under this alternative. Rehabilitation of rangelands that are overstocked during drought can be a slow and expensive process. Thus, the long-term viability of special status species and other wildlife could be substantially compromised.

#### **C. Cultural/Historical**

##### **Affected Environment**

Central Nevada has been occupied by humans for at least 11,000 years. The first inhabitants occupied the area when many of the Pleistocene pluvial lakes contained water; therefore, cultural sites of this period are frequently found on the lower pluvial lake bench terraces. As the lakes dried up, subsistence became increasingly focused on resources not related to those found around lake or marsh environments. By the end of the prehistoric period, most central Great Basin groups centered much of their subsistence on Pinyon pine. Prehistoric cultural sites can be found throughout the BMD and vary from simple, open lithic scatters of limited research potential to complex rock shelters or extensive habitation sites often containing thousands of pieces of lithic debitage, ground stone, hearth features and rock alignments.

The majority of the BMD was inhabited by bands of Western Shoshone at the time of Euro-American contact, although informants also attest to a limited presence of Northern and Southern Paiute. Western Shoshone lived in family bands, dispersing to hunt and gather seasonal plant resources. In winter, larger groups would gather in seasonal villages, usually located in sheltered areas near water, with a southern or western exposure, often shifting annually to areas where Pinyon nuts had been harvested and cached. However, this traditional lifestyle was quickly disrupted by the influx of Euro-Americans starting in the 1840s. Peter Skene Ogden, a Canadian explorer, passed through the area in 1829; in 1833, Joseph Walker retraced Ogden's path and determined that following the Humboldt River westward was the most direct route to California. Westward immigration along the Humboldt route was initiated in 1841 by the Bidwell-Bartelson party (Bowers, Martha H. and Hans Muessig, 1982). The discovery of gold in California in 1848 brought many emigrants to the area, following what become known as the California Trail; during the migration, domestic livestock decimated traditional food plants along the Humboldt corridor. In 1862, the discovery of silver ore in Austin stimulated north-south settlement and brought an influx of Euro-American miners and settlers with livestock to the area, resulting in increased impacts to the native vegetation and the livelihood of the Western Shoshone.

Additionally, Pinyon pine trees were harvested for use as firewood or in construction and, most devastatingly, to manufacture charcoal to feed Eureka smelters.

The first government expedition into the region was led by John C. Fremont in 1848. This military reconnaissance team traversed the BMD through the Diamond, Kobeh and Big Smoky Valleys. In 1859, James Simpson explored a route that later became the Pony Express Trail and then the Overland Stage Route (Bowers, Martha H. and Hans Muessig 1982). These routes crossed the Diamond, Kobeh, Big Smoky, Reese River and Smith Creek Valleys.

No more than 5% of the BMD has been subject to cultural resource inventory, most of which has been project specific. As a result, portions of some basins have been intensively surveyed for cultural resources while others have received little or no inventory. Historic sites include, but are not limited to, the remains of homesteads and horse traps, mining camps, town sites, Chinese borax mines, charcoal kilns and platforms, mining/milling sites, trash dumps, trails, roads, and railroad grades. Prehistoric sites include long-term habitation sites, temporary camps, task specific sites, pinyon caches, scatters of heat-altered rock, rock shelters, petroglyphs and pictographs, rock alignments including “geoglyphs”, and quarry sites. There are recorded properties of traditional cultural and religious importance within the BMD.

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects of a proposed action on properties included in, or eligible for, the National Register of Historic Places before approving or funding an action. The NHPA also requires Federal agencies to complete a cultural resources inventory prior to Federal actions or ground disturbing activities that occur on Federal lands and, in some cases, including private lands if those lands are subject to disturbance through a Federal undertaking.

Given the extensive area covered by this analysis, it is impossible to provide detailed, site-specific discussions of all the archaeological resources within the BMD. BLM can summarize some relevant information, for example, of the known archaeological sites within the BMD, many remain unevaluated for their eligibility for the National Register.

Table 5 identifies the number of sites, by County, listed on the National Register, eligible for the Register and those that remain unevaluated. For the purposes of Section 106 compliance, unevaluated sites must be treated as if eligible in terms of mitigation.

Table 5: National Register Eligibility of Sites within the BMD

<b>County</b>	<b>On the Register</b>	<b>Eligible for the Register</b>	<b>Unevaluated</b>
<i>Esmeralda</i>	1	86	313
<i>Eureka</i>	1	466	616
<i>Lander</i>	4	496	932
<i>Nye</i>	1	274	906
<b>Totals</b>	<b>7</b>	<b>1,322</b>	<b>2,767</b>

The BMD Cultural Resource Management Program is responsible for the study, evaluation, protection, management, stabilization and inventory of cultural resources. SOPs and agency guidance would reduce the likelihood of impacts to cultural resources. Before proceeding with

vegetation treatments, the effects of BLM actions on cultural resources would be addressed through compliance with the NHPA, as implemented through a National Programmatic Agreement and the BLM-Nevada SHPO protocol agreement. The BLM 8100 manual series addresses the process for identifying and evaluating cultural resources and includes relevant Native American consultation.

### **1. Environmental Consequences of the Proposed Action**

The effects of BLM DRAs on cultural resources would be addressed through compliance with the NHPA, as implemented by following the Nevada State Protocol Agreement between the BLM, Nevada and the Nevada State Historic Preservation Office (SHPO).

### **2. Environmental Consequences of the Grazing Closure Alternative**

Drought response measures to alleviate the impacts of grazing through reduction in authorized access would also act to reduce the severity of potential impacts to cultural resources generated by livestock.

### **3. Environmental Consequences of the No Action Alternative**

The No Action alternative could result in increased damage to cultural resources through accelerated erosion caused by trampling, and by the effect of trampling itself on newly exposed resources. Further, exposure would also increase the potential for illegal collection.

## **D. Native American Religious Concerns**

### **Affected Environment**

Located within the traditional territory of the Western Shoshone, the BMD administrative boundary contains spiritual/traditional/cultural resources, sites and social practices that aid in maintaining and strengthening social, cultural and spiritual integrity. Recognized tribes with known interests within the BMD are the Te-Moak Tribe of Western Shoshone (Elko, South Fork, Wells, and Battle Mountain Bands), Duck Valley Shoshone-Paiute Tribes of Idaho and Nevada, Duckwater Shoshone Tribe, Ely Shoshone Tribe, Yomba Shoshone, Fallon Paiute-Shoshone Tribe, Timbisha Shoshone Tribe and various other community members and individuals.

Though archaeological data and theory states that the Western Shoshone (Newe) began to inhabit the Great Basin area around 600 years ago, contemporary Western Shoshone contend they were here since “time immemorial.” Social activities that define the culture took place across the Great Basin. Pinyon Pine nut gathering, edible and medical plant gathering, hunting and fishing, spiritual/ceremonial practices and trade occurred as the natives practiced a hunting and gathering lifestyle. As with the delicate and sensitive nature of the resources of the Great Basin, the native cultures appeared to be heavily impacted by social, cultural and environmental change, which rapidly accompanied the non-native migration from east to west. The Western Shoshone and other Great Basin tribes continue to practice certain cultural/spiritual/traditional activities, visit their sacred sites and hunt and gather the available game, medicinal and edible plants. Through

oral history (the practice of handing down knowledge from the elders to the younger generations) many Western Shoshone continue to maintain a worldview not unlike that of their ancestors.

Such sites and activities of importance include, but are not limited to: existing antelope traps; certain mountain tops used for prayer; medicinal and edible plant gathering locations; prehistoric and historic village and grave sites; land forms associated with creation stories; hot and cold springs; material used for basketry and cradle board making; locations of stone tools such as points and grinding stones (mano and metate); chert and obsidian quarries; hunting sites; sweat lodge locations; locations of pine nut ceremonies, traditional gathering and camping; boulders used for offerings and “medicine” gathering; tribally identified Traditional Cultural Properties (TCP’s); TCP’s found eligible to the National Register of Historic Places; rock shelters; “rock art” locations; lands that are near, within or bordering current reservation boundaries; areas associated with tribal land acquisition efforts; water sources in general, which are considered the “life blood of the Earth.” Specific and detailed sites, locations, participant names, and uses are excluded and are considered highly confidential. Most of the lands administered by the BMD have not been subject to Native American Consultation or cultural resource inventory.

## **1. Environmental Consequences of the Proposed Action**

Although site-specific plans for the implementation of the DRAs identified in the Proposed Action are not analyzed under this document, the potential does exist to impact Native American sites and activities of a spiritual/cultural/traditional nature. Specific impacts are dependent on DRAs selected and dates of implementation. Therefore, affected tribes must be given the opportunity to give input and participate in the decision making process.

In accordance with the NHPA (P.L. 89-665), the NEPA(P.L. 95-341), the FLPMA (P.L. 94-579), the American Indian Religious Freedom Act (P.L. 95-341) the Native American Graves Protection and Repatriation Act (P.L. 101-601) and Executive Order 13007, the BLM must also provide affected tribes an opportunity to comment and consult on proposed projects. BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities and resources. Consultation with Native American tribes would occur through the decision process prior to the implementation of any actions. It is believed that Native American resources and sites of cultural, traditional and spiritual use maintain their physical and spiritual integrity due to their undisturbed and pristine locations. Not to say that certain areas lose their importance and sacredness due to being physically impacted. Some areas within the BMD have experienced past and present ground disturbance, but still maintain spiritual integrity. The fact that an important site has been disturbed in the past does not lessen its sacredness. However, ongoing disturbance can have an impact to the existing cultural/traditional/spiritual activities that currently take place in certain areas.

The Proposed Action is designed to alleviate the impacts of livestock and wild horses and burros during drought. The implementation of the DRAs described in the Proposed Action would reduce the probability of soil erosion, which would have a beneficial impact on the protection of Native American resources. Any of the DRAs that have the potential to be ground disturbing (e.g., temporary water hauls, electric fences and above ground pipelines) would be surveyed for cultural resources prior to implementation. The specific placement of temporary projects is

flexible and would avoid any known cultural resources. Any temporary electric fences constructed would be designed in a manner that would allow access at all current access points (e.g., trails, roads, etc.). BLM should not bar or prevent traditional practitioners from gaining access to existing and known medical/edible plant locations and other culturally important sites.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The implementation of the Grazing Closure Alternative would protect vegetation and reduce the probability of soil erosion, which would have a beneficial impact on the protection of Native American resources.

## **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and result in a continuation of current management practices, which are often poorly suited to drought. Drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use. This may lead to a further reduction in plant cover and increased soil erosion. An increase in soil erosion would provide the potential for the degradation of important cultural resources. Edible and medicinal plants may be reduced or eliminated from traditional cultural sites if overgrazing occurs during drought. Riparian areas may experience heavy use by livestock and/or wild horses and burros as upland vegetation dries out and becomes less palatable and water resources become scarce. The delayed implementation of DRAs under the No Action Alternative would have adverse impacts on Native American resources.

## **E. Noxious Weeds/Invasive Non-native Species**

### **Affected Environment**

In Nevada, noxious weeds are designated by statute and defined as, “detrimental or destructive and difficult to control or eradicate”. BLM further defines noxious weeds as, “generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new, or not common to the US” (USDI FES 2007). An invasive species is defined as, “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health” (Executive Order 13112). In plain language, a weed is any unwanted plant.

Noxious weeds and invasive, non-native species are spread directly or indirectly by people, equipment, animals or transported by wind and water. Weed infestations rise proportionally with increased human activities like mining extraction/exploration, road maintenance, livestock grazing, recreational activities/off-highway vehicles (OHVs) and general soil disturbing activities. The BLM’s strategy for noxious weed management is to, “sustain the condition of healthy lands, and, where land conditions are degraded, to restore desirable vegetation to more healthy conditions” (USDI FES 2007). Weeds threaten public lands by spreading into and infesting sensitive riparian ecosystems, important rangelands, wildfire scars and developed lands

such as rights of way and recreational areas. Threats can come in the form of reduced biodiversity, a weakened ecosystem, a higher propensity for soil erosion, increased frequency of wildfires and limited food resources for wildlife. Weeds on private lands have the potential to spread onto public lands and vice versa.

At this time, the BMD's priority weed suppression efforts are concentrated on Russian/spotted knapweed, tamarisk (salt cedar), perennial pepperweed (tall white top), hoary cress (white top), various thistle species and invasive annual grasses. The State of Nevada, Department of Agriculture (NDOA) keeps an up-to-date list of designated noxious weeds at [http://agri.nv.gov/nwac/PLANT\\_No WeedList.htm](http://agri.nv.gov/nwac/PLANT_No WeedList.htm). The most up-to-date Federal list is maintained by the US Department of Agriculture (USDA) and can be found at their website, <http://plants.usda.gov/java/noxious?rptType=Federal>.

Of the 10.5 million acres within the BMD boundaries and administered allotments, weed surveys have been conducted on about 2 million acres. Of the 2 million acres surveyed to date, it is estimated that 246,000 acres are infested by noxious weeds. Of the 10.5 million acres on the BMD, only "pockets" of treatment have been conducted on about 15,000 acres. Additionally, herbicide treatments have been site-specific with few repetitive treatments in the same location. Cheatgrass and red brome are not normally surveyed for because invasive annual grasses are so wide spread and established in the rangeland of the BMD.

## **1. Environmental Consequences of the Proposed Action**

Noxious weeds and non-native invasive species are more likely to invade areas that are in poor rangeland condition. Areas that maintain a healthy and diverse population of native species are more resistant to invasion. Drought or water stress affects virtually every physiological and biochemical process in plants (Hanselka and White 1986). Plants that are stressed are more vulnerable to grazing. The degree to which drought impairs the range depends on the intensity, frequency and timing of grazing (Howery 1999). The utilization of perennial bunchgrasses increases significantly during drought years (Bedell and Ganskopp 1980). Therefore, precautions must be taken to ensure proper management occurs in order to avoid overutilization and further degradation of range conditions during drought. The Proposed Action is designed to reduce the impacts of authorized uses and activities on natural resources. This would maintain existing plant communities and limit the degradation of range resources, which would reduce the potential for invasion by noxious weeds and invasive annual species.

The Proposed Action provides for targeted grazing of monotypic annual communities (e.g., monotypic cheatgrass stands). Targeted grazing of monotypic invasive annual communities would be used to reduce grazing pressure on areas dominated by native species. On these sites, prescribed livestock grazing can be applied to achieve maximum damage to annual grasses with little concern for non-target plants (Peischel and Henry 2006). Grazing would be focused during the spring and/or fall months to take advantage of early spring and fall growth of the annuals. Livestock would be removed upon reaching a two-inch average stubble height in order to provide protection from wind and water erosion. This, in turn, would result in the reduction of invasive annual species and limit adverse impacts to native perennial species.

A wild horse or burro drought gather could result in the spread of existing populations of noxious weeds, invasive or non-native species. Precautions would be taken prior to setting up trap sites and holding facilities to avoid areas where noxious weeds, invasive or non-native species exist to lessen the chance of spread. The Contracting Officers Representative (COR), Project Inspector (PI), or other qualified specialist would examine proposed holding facilities and traps sites prior to construction to determine if noxious weeds were present. If noxious weeds were found, a different location would be selected.

Temporary trap sites and holding facilities would be selected in previously disturbed areas such as gravel pits. Areas disturbed specifically by gather operations would be monitored, re-vegetated (if appropriate), and treated for potential new infestations of non-native invasive plants as a result of gather operations.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would provide rest for all drought afflicted areas. Resting these areas would provide the vegetation an opportunity to take full advantage of available soil moisture and nutrients. Uninterrupted growth would increase plant cover and reduce the potential for soil erosion. This would limit the opportunity for noxious weeds and invasive annuals to invade those communities.

The Grazing Closure Alternative would not provide for the targeted grazing of invasive annual species, which would limit the opportunity to reduce the vigor of invasive species that may compete with native vegetation for soil moisture and nutrients.

DRAs for wild horses and burros would be implemented as identified in the Proposed Action and would result in similar effects as described above, for the Proposed Action.

## **3. Environmental Consequences of the No Action Alternative**

Grazing management practices before, during, and following a drought influence the ability of native rangeland vegetation to recover (Encinias and Smallidge 2009). Lagged responses toward drought pose a threat to sustainable management of rangelands (Thurow and Taylor 1999). Although all rangelands are adversely affected by drought regardless of condition, rangeland in fair or poor condition is more adversely affected and recovers slower than rangeland in good or excellent condition (Howery 1999). The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices. Delaying the implementation of livestock and/or wild horse management strategies that are appropriate for drought conditions would increase the potential of noxious weed and invasive species establishment and spread by extending the period of time the range is in a poor or stressed condition.

## **F. Riparian-Wetland Zones**

### **Affected Environment**

Riparian and wetland areas adjacent to surface waters are the most productive and important ecosystems on the BMD. Riparian and wetland areas represent less than 1% of the BMD. However, these areas play an integral role in restoring and maintaining the chemical, physical and biological integrity of water resources. Research has shown riparian and wetland habitats have a greater diversity of plant and animal species than adjoining areas. Healthy riparian and wetland areas have the potential for multi-canopy vegetation layers with trees, shrubs, grasses, forbs, sedges and rushes and are valuable habitat for a wide variety of wildlife species. Healthy systems also filter and purify water, reduce sediment loads, enhance soil stability, provide micro-climatic moderation and contribute to ground water recharge and base flow. They stabilize water supplies, ameliorating both floods and droughts. Functioning riparian/wetland areas provide many values; recreation, fisheries, wildlife habitat, increased water supply, cultural, historic and economic. Economic values yield forage for livestock production, timber harvest and mineral extraction.

Functioning riparian areas dissipate energy created from water and sediment during runoff events. Riparian-wetland plants have adapted to the stressors associated with flooding and saturation of soils. Their above ground biomass presents a surface discontinuity that functions to slow the velocity of flowing water, deposit alluvial sediment and aid in floodplain development, stabilize stream banks, enhance infiltration and recharge groundwater supplies.

Grazing can have a negative impact on riparian and wetland zones. When not managed properly, livestock can remain in riparian areas damaging stream banks, over grazing riparian vegetation, compacting soils and contaminating streams with waste. Riparian areas that have experienced heavy grazing pressure pose a risk of becoming non-functioning and degraded, especially during times of drought. Livestock can also introduce non-native plant species. Non-native species may out-compete native species, altering the natural ecosystem.



**Concentrated livestock use on Alex Spring**



**Livestock concentration at Jersey Hot springs.**

Non-functioning riparian areas are less capable of slowing water velocity, catching sediment, stabilizing stream banks, allowing for infiltration and recharging groundwater supplies. Reduced vegetative densities could lead to increased surface runoff. Gullies would continue to down cut until they either achieve equilibrium or until bedrock is found. Non-functioning riparian areas lose the capability to store water in the soil and yield less water for late summer base flows increasing the potential for erosion. Riparian areas that have experienced heavy grazing pressure pose a risk of becoming non-functioning and degraded, especially during times of drought.



**Photo taken on 5/22/2012 of Ellendale Spring within the Saulsbury HMA showing drought afflicted riparian and upland areas.**



**McCullough Springs in the Fish Creek Allotment/HMA dry as of June 2012.**

## **1. Environmental Consequences of the Proposed Action**

The direct impact of the Proposed Action is the maintenance of riparian-wetland vegetation during drought. Marlow (1985) studied the distribution pattern of livestock in Montana during August and September and observed 80% of the forage came from the riparian and wetland resources, which comprised less than 4% of the pasture. Similar distribution patterns have been observed within the BMD. It is expected that livestock and wild horses and burros would utilize riparian and wetland resources to a greater degree as drought conditions worsen due to reduced production and palatability of upland vegetation during drought. The concentrated use of preferred areas in the landscape results in uneven distribution of animal impact, and periods of below average precipitation compound the effects of herbivory, providing periods of accelerated deterioration (Teague et al. 2004). DRAs identified in the Proposed Action would improve the distribution of livestock and/or wild horses and burros and protect riparian areas from overgrazing and trampling during drought. Implementing the drought response triggers described in the Proposed Action would require that 4-inches of residual stubble remain following grazing. Accumulating 4-inches of residual above ground vegetation would aid in filtering and stabilizing sediment, protecting stream banks and shorelines from trampling, providing shade and retaining water longer, dissipating flood energy and ensuring sufficient biomass to improve plant health and vigor (Clary and Leininger 2000).

The DRAs described in the Proposed Action would limit the impacts of livestock and wild horses and burros on riparian areas during drought. These actions would be implemented in combination or separately once drought response triggers are met.

Changes in season of use would be used to avoid hot season grazing of riparian areas. Livestock tend to congregate within riparian areas during years of normal precipitation. If drought occurs this behavior would be exacerbated due to a reduction in the quantity and quality of upland vegetation. Measures that exclude and/or intensely manage livestock grazing of these areas while drought conditions persist are needed to provide for the maintenance of riparian vegetation and protection of riparian systems.

Temporary range improvement projects such as water hauls, above ground pipelines or electric fences would be used to reduce the impacts of livestock and/or wild horse and burro use on riparian areas. Temporary water hauls and/or above ground pipelines would be used to provide water to livestock and/or wild horses in areas away from riparian areas. Providing off-stream water can be effective in altering distribution patterns of cattle grazing in riparian areas and adjacent uplands (Porath et al. 2002). Temporary electric fences would be used to protect and/or manage riparian areas separately. Sensitive areas can be separated from other areas and managed differently (Bailey 2004). The ability to manage riparian areas independently would ensure drought response triggers developed for riparian areas are not exceeded. Upon reaching the triggers, livestock could be excluded from the areas, which would reduce negative impacts of grazing to riparian areas during drought.

Partial or complete rest of an allotment and/or HMA would reduce the adverse impacts of grazing on riparian areas during drought. Resting these areas would allow riparian vegetation to make the best use of limited resources during drought. Improved root and shoot growth of

vegetation aids in bank stability, water retention, reduces sedimentation and leads to a better functioning riparian system. Wild horse or burro gather activities would not have any direct impacts to riparian wetland zones or water quality as trap sites and holding corrals would not be constructed near riparian areas.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would require all drought afflicted areas to be closed to grazing. The closure would remove livestock grazing from the public lands to eliminate the impacts of grazing during the drought and provide one additional growing season of rest for plant recovery following the cessation of the drought. Rest of these areas would allow riparian vegetation to make the best use of limited resources during drought. Improved root and shoot growth of vegetation aids in bank stability, water retention and reduces sedimentation and leads to a better functioning riparian system.

DRAs for wild horses and burros would be implemented as identified in the Proposed Action and would result in similar effects as described above, for the Proposed Action.

## **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to periods of drought. As stated earlier, drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use. Grazing can have a negative impact on streams. When not managed properly, livestock and overpopulation of wild horses and burros can remain in riparian areas damaging stream banks, over grazing riparian vegetation, compacting soils and contaminating streams with waste. Riparian areas that have experienced heavy grazing pressure pose a risk of becoming non-functioning and degraded, especially during times of drought. Livestock can also introduce non-native plant species. Non-native species may out-compete native species, altering the natural ecosystem. The No Action Alternative would adversely impact riparian resources within the BMD.

## **G. Water Quality**

### **Affected Environment**

The Nevada Division of Water Resources (NDWR) has designated 14 Hydrographic Regions. The BMD overlies three hydrographic regions (see Map 4). These Hydrographic Regions include: Humboldt River basin in the northwestern portion of the BMD, the Central region, which comprises most of the BMD, and the Death Valley basin, a minor area in the extreme southern portion of the BMD. The BLM district boundaries do not correspond to NDWR region or basin boundaries. These regions are characterized by internal surface drainage and ground water flows. The northern half of BMD drains surface and ground waters into the Humboldt River system, depositing it into the Humboldt Playa. The Central and Death Valley regions are

driven by many internal basins with individual “terminal” playas. Groundwater contained in carbonate geology layers drain into adjacent playas resulting in shallow and intermediate groundwater aquifers that are present across BMD, feeding seeps and springs.

Average precipitation in the BMD ranges between 5 and 25 inches with the majority being received as snow during the months of November through March. Numerous perennial and intermittent streams flow within the area with peak flows occurring during the spring in response to melting snow.

Runoff from mountain ranges is the major source for perennial and intermittent streams, reservoirs and aquifers in the valleys. Ground water resources provide water for domestic use, mining, irrigation, wildlife and livestock. Surface water resources such as streams, ponds, reservoirs, springs and seeps provide water for domestic use, mining, irrigation, wildlife, livestock and recreation.

Available water quality data indicate that surface and ground waters often exceed the Environmental Protection Agency and state of Nevada standards for drinking water. Typical constituents are fecal and total coliform, arsenic, mercury, dissolved solids, manganese, sulfates, carbonates, copper and iron.

Many of the constituents are inherent in the water as a result of natural processes in the aquifer or surface strata. Current surface water quality problems, in part, are the result of stream bank erosion and sedimentation through the reduction of vegetative cover in watersheds and streams.

The Clean Water Act requires that Federal actions comply with State water quality standards and do not impair surface or ground waters. Standards are established in relation to the beneficial use provided, such as human consumption, irrigation, fisheries, livestock or recreation. The natural quality and composition of water is driven by soil interactions, transported solids, rocks, vegetation, groundwater and the atmosphere.

## **1. Environmental Consequences of the Proposed Action**

Marlow (1985) studied the distribution pattern of livestock in Montana during August and September and observed 80% of the forage came from the riparian and wetland resources, which comprised less than 4% of the pasture. Similar distribution patterns have been observed within the BMD. It is expected that livestock and wild horses and burros would utilize riparian and wetland resources to a greater degree as drought conditions worsen due to reduced production and palatability of upland vegetation during drought. As livestock and/or wild horse and burro use of riparian areas increases, the probability of disease-causing organisms contaminating human water supplies increases (Belsky 1999). Increased animal waste associated with riparian grazing also introduces nutrients to aquatic systems. This could increase the food base for the aquatic system and if excessive, could lead to large algae blooms and subsequent decomposition. This could lead to low dissolved oxygen concentrations and endanger aquatic organisms (Belsky 1999).

The concentrated use of preferred areas in the landscape results in uneven distribution of animal impact, drought compounds the effects of herbivory, providing periods of accelerated deterioration (Teague et al. 2004). This could lead to an increase in sedimentation and a reduction in overall water quality.

The DRAs described in the Proposed Action are designed to limit the time livestock and/or wild horses and burros spend in riparian areas. Depending on the action(s) selected, livestock may be excluded from riparian areas during times of drought. The reduction of time or complete exclusion of livestock and/or wild horses and burros from riparian areas would reduce fecal deposition and ensure grazing use does not exceed drought response triggers (i.e., maintain a 4-inch stubble height). Clary and Leininger (2000) found that accumulating 4-inches of residual above ground vegetation would aid in filtering and stabilizing sediment, protecting stream banks and shorelines from trampling, providing shade and retaining water longer, dissipating flood energy and ensuring sufficient biomass to improve plant health and vigor. Adhering to drought response triggers and implementing the DRAs would have a positive effect on water quality.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would close all drought-afflicted areas to grazing. The closure would remove livestock grazing from the public lands to eliminate the impacts of grazing during the drought and provide one growing season of rest for plant recovery following the cessation of the drought. Rest of these areas would allow riparian vegetation the ability to make the best use of limited resources during drought. Improved root and shoot growth of vegetation aids in bank stability, water retention, reduces sedimentation and leads to a better functioning riparian system. No new animal waste would be deposited in or near water, which would eliminate the introduction of bacterial contamination. The Grazing Closure Alternative would have a positive effect on water quality.

DRAs for wild horses and burros would be implemented as identified in the Proposed Action and would result in similar effects as described above, for the Proposed Action.

## **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to drought. As stated earlier, the concentrated use of riparian areas is exacerbated during drought. This would lead to the increased use of riparian areas by livestock and/or wild horses and burros. The result would be an increase in the introduction of animal wastes, a decrease in vegetative cover and increased erosion. A reduction in water quality would occur and may be long lasting depending on erosion and sedimentation rates.

## **H. Grazing Management**

### **Affected Environment**

There are currently 87 permittees and 8 lessees on the BMD, which are authorized to graze livestock across 10.5 million acres of public land. The BMD is divided into 94 grazing allotments, 52 administered by the MLFO and 34 administered by the TFO. Fifty-six allotments have been evaluated and management plans implemented to ensure conformance with multiple use objectives. Livestock operators graze cattle, sheep and horses within these allotments. Annually, the BMD authorizes approximately 362,869 AUMs.

In addition to livestock grazing, multiple range improvements (e.g., fences, wells, pipelines) have been authorized on the public lands administered by the BMD. These range improvements have been constructed to aid in the control of livestock and improve grazing management.

#### **1. Environmental Consequences of the Proposed Action**

The Proposed Action would result in an increase in grazing management practices on allotments occurring within drought-afflicted areas of the BMD. Depending on the DRAs selected, grazing management would be modified. This would lead to increased inputs from permittees. The specific consequences of these inputs have been analyzed within the Socio-Economic Values section of this document. Implementation of drought gathers to remove wild horses or burros from drought affected areas would improve recovery from drought, resulting in healthier, more productive plant communities and riparian areas in future years, which would benefit future opportunities for livestock grazing.

#### **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would require the removal of livestock from the drought afflicted public lands within the BMD. The removal of livestock would result in the elimination of grazing management for the duration of the drought. If no livestock were being grazed on public land, no grazing management would be needed. The closure of grazing allotments could cause a financial hardship for permittees resulting from the loss of opportunity to graze livestock on public lands. The impacts to permittees resulting from a grazing closure have been analyzed within the Socio-Economic Values section of this document. The Grazing Closure Alternative would eliminate grazing within drought afflicted areas for the duration of the drought and one additional growing season following the cessation of the drought. This could improve the vigor of plants during drought and improve post drought recovery. In the long-term the Grazing Closure would be beneficial to grazing management, in that it would ensure future opportunities for grazing due to improved rangeland conditions.

#### **3. Environmental Consequences of the No Action Alternative**

Under the No Action Alternative, management responses to drought would require the preparation of separate EAs for individual areas across the BMD. This would increase response time and reduce the effectiveness of management during a drought. In many instances current

livestock and wild horse and burro management actions would continue with no modifications and therefore there would likely be no short-term impacts to grazing management. However, as discussed previously, a continuation of current livestock grazing management during drought could lead to the degradation of rangeland resources. During prolonged drought, rangeland degradation may adversely affect the sustainability of rangeland grazing and create situations where rangelands fail to meet BLM Standards and Guidelines (S&Gs) for rangeland health. If S&Gs for rangeland health are not met, the BLM is mandated to implement changes to management activities so that rangelands "...are, or are making significant progress toward..." meeting rangeland health S&Gs (43 CFR §4180, Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration) and the appropriate Resource Advisory Council Guidelines. Additionally, the BLM could cancel portions of or entire permits on allotments that fail to meet S&Gs, which could adversely impact grazing management.

## **I. Land Use Authorization**

### **Affected Environment**

The BLM administers the majority of the land within the BMD and provides for land use authorizations including utility lines, water pipelines, access roads, temporary use permits, public purpose leases, airport leases, wind energy monitoring towers and communication use leases located on mountaintops. The privately held lands are owned by individuals (e.g., homes, businesses and ranches), the county, and mining companies.

#### **1. Environmental Consequences of the Proposed Action**

The Proposed Action would reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought. The DDMP identified in the Proposed Action would provide for the early detection and prompt response to drought. A quick response to drought would prevent further degradation to affected resources within the BMD.

The maintenance of rangeland health would reduce soil erosion and the potential for noxious weed invasion. This would have a positive impact on land use authorizations by reducing the maintenance cost of right-of-ways as well as protect access to sites or the sites themselves.

#### **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would have similar impacts as the Proposed Action. The removal of grazing would maintain vegetative cover and reduce the potential for soil erosion and noxious weed invasion.

#### **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would increase response time and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management actions would continue with no modifications. This would lead to an overall decline in rangeland health associated with a reduction in plant cover and increased susceptibility

to soil erosion. Noxious weeds and non-native invasive species are more likely to invade areas that are in poor condition. Noxious weeds increase the costs for maintenance and soil erosion could damage access to sites or the sites themselves; therefore, the No Action Alternative would negatively impact land use authorizations.

## **J. Recreation**

### **Affected Environment**

The BMD offers a wide variety of dispersed recreation opportunities including hunting, fishing, camping, shooting, horseback riding, OHV use, hiking, photography, historical sightseeing, rock hounding, wild horse and burro viewing and photography, and nature study. Although many of the recreation activities are dispersed across the district, several developed and undeveloped recreation sites occur within the BMD.

Developed recreation sites include Mill Creek Campground, Hickison Petroglyph Recreation Area and Rhyolite Historic Town. Undeveloped recreation sites include Tonkin Spring Reservoir, Roberts Creek, Smith Creek Playa, Spencer Hot Springs, Lunar Crater Back Country Byway, Pony Express National Historic Trail and Crescent Sand Dunes.

Each year the Tonopah Resource Area has several OHV-motorized events. Indications are that the number of events will probably increase over the next several years. There are several areas within the BMD, which are known for their scientific, educational and/or recreational values. These areas include, but not limited to Hickison Petroglyph Recreation Area, Railroad Valley Wildlife Management Area, Lunar Crater Backcountry Byway and the Crescent and Clayton Valley Sand Dunes Areas.

### **1. Environmental Consequences of the Proposed Action**

The Proposed Action would have a minimal negative impact on recreation within the BMD due to the installation of temporary water sources and fencing (e.g., temporary water hauls, water pipelines, and fencing). These installations could affect the aesthetics of rangeland and riparian resources within the BMD, and depending on location, could limit access to areas used for recreation.

Changes in livestock management practices (e.g., change in season of use, reduced grazing duration, partial reduction in AUMs, partial or complete closure of an allotment(s), targeted grazing of invasive annual communities, and temporary change in the kind or class of livestock) under the Proposed Action would have a minimal positive impact on recreation within the BMD. Recreation within the BMD is dispersed and primitive in nature and livestock grazing occurs in areas that coincide with recreational use. Some recreation areas could see a reduction in conflicts with livestock if these actions are implemented.

Wild horse and burro gathers under the proposed action could have a negative impact on wild horse and burro viewing within the BMD. In recent years, there has been an increased interest in wild horses and wild horse viewing within the BMD. If gathers are implemented under drought

conditions, this could reduce opportunities to view wild horses and burros within the BMD in the short-term. However, the Proposed Action would provide for the viewing of healthy wild horses and burros in future years.

Relocating wild horses and/or burros within HMAs would have similar impacts to the impacts for hauling water and conducting drought gathers, and would be congruent with the numbers of animals moved. The receiving portion of the HMA would experience an increase in the population and viewing opportunities. The portion of the HMA where animals were moved from would endure benefits similar to those that would be expected following a drought gather to remove all or some of the wild horses and/or burros.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would have a positive impact on recreation within the BMD. Recreation within the BMD is dispersed and primitive in nature and livestock grazing occurs in areas that coincide with recreational use. Removing livestock from the range would reduce the potential for conflicts between livestock and the recreating public. Additionally, safety would improve as the potential for collisions between vehicles and livestock would be eliminated. These benefits would last for the duration of the drought plus one growing season following the cessation of the drought.

## **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would negatively impact recreation within the BMD. Under drought conditions, livestock, wild horses and burros would congregate in areas that receive a higher abundance of moisture, especially riparian areas. Some of these riparian areas could also be used by recreationist. Potential negative impacts include the degradation of rangeland and riparian resources. Degradation could include, but is not limited to, vegetation trampling, soil compaction, erosion, and water contamination.

## **K. Socio-Economic Values**

### **Affected Environment**

The BMD includes all or portions of Lander, Esmeralda, Eureka and Nye Counties, Nevada. The primary economic activities that contribute to the economic base for lands within the BMD are mining, gaming, transportation, agriculture and recreation.

Esmeralda County is a rural county with a large amount of undeveloped open space; the largest town in the county is Goldfield with an estimated population of 415 (Esmeralda County 2011). The entire county has a population below 1,000 and has experienced a slight decrease in population over the last ten years (US Census Bureau 2009). The county has always been sparsely settled except during the first decade of the 20th century when the population of Goldfield reached perhaps as many as 30,000 as a result of a gold mining boom (Esmeralda County 2011). Mining activity subsided by the end of the 1910s and the economy and population declined afterwards.

Population density as of 2010 was estimated to be approximately 0.2 people per square mile, among the lowest densities for counties in the continental US. Today, the sparsely populated county continues to rely on a mining, ranching, and agricultural economy as well as tourism, recreational resources, and an emerging potential for renewable energy production (Esmeralda County 2010). Recreationally, Esmeralda County offers hunting, fishing, hiking, and four-wheel drive trails as well as old mining camps and ghost towns (Esmeralda County 2011).

Median household income was \$44,118 (per 2005-2009 average); per capita income was \$30,763; and 7% of people fell below the poverty level. Unemployment rates in the county have ranged from a high of 8.6% in 2000 to a low of 3.2% in 2007. Unemployment in 2010 was 8.3% (Bureau of Labor and Statistics 2011). Esmeralda County had the largest proportion of government-employed workers in 2008, at 20%, with the national average at 13.5% (Headwaters Economics 2011).

Like Esmeralda County, Eureka County is a rural county. The Eureka County economy is primarily dependent on ranching, agriculture, and mining (Eureka County 2011a). The town of Eureka was settled in 1865 after the discovery of a rich ore deposit in the area and was designated the county seat in 1873. Beowawe, now largely abandoned, was originally established as a supply point for mining districts in the area. Demand for energy and precious metals has historically bolstered economic activity through the production of gold. Eureka has gone through boom and bust cycles, which are inherent in a mining economy. Eureka County, at just under 2,000 people, has the second smallest population of any county in the state of Nevada (Eureka County 2011b; US Census Bureau 2010).

Population density as of 2010 was estimated at around 0.5 people per square mile, which is extremely low when compared to the state of Nevada, at 24.6 people per square mile (US Census Bureau 2010). Mining comprises a large proportion of the economy in Eureka County. Agriculture, although it comprises a much smaller portion of the total labor force, is vital to the county's economy and has been a steady economic force for decades. Recently, travel, tourism and recreation have grown in importance to the local economy (Eureka County 2003).

Median household income was \$61,472 as per 2005-2009 average, which is the highest of all four counties in the BMD, and makes Eureka the only county above the state average of \$55,585 in median household income for 2005-2009. Eureka also had the lowest rate of persons below poverty (4.8% for 2005-2009) of any of the four counties in the planning area (US Census Bureau 2009). As per 2005-2009 averages, Eureka County had the highest percentage of people employed in the agriculture, forestry, hunting and fishing, and mining industries at 41% (US Census Bureau 2009).

It should be noted that for Eureka County (and other counties as well), the statistics provided by the US Census Bureau and other similar sources are representative of the larger demographic and geographic area outside of the BMD and should be received in that context. Eureka County's population, for example, totaled 1,987 people in 2010 (US Census Bureau 2010). There are, according to the Eureka County Profile, only three established communities in the county: Eureka, Crescent Valley, and Beowawe. Only one of these established communities, the town of Eureka, exists within the BMD. The majority of the County's residents live in the

unincorporated town and county seat of Eureka, and a remaining number of people live in Crescent Valley and Beowawe. The 2000 Census reported that 1,103 people lived in the Eureka Census County Division and 548 lived in the Beowawe census county division (Eureka County 2011b). Eureka County is over 2,673,300 acres, and over such a large expanse of land, resources vary geographically and different areas are inclined to different industries.

Lander County is a county of about 6,000 people (US Census Bureau 2010). The Town of Battle Mountain is the seat of government for Lander County. The Town of Battle Mountain began as a rail stop servicing the Battle Mountain Mining District, formed in 1866. The rail line is still in service and has been a major factor in the economic life and resulting urban form of Battle Mountain. The town continues to serve as a regional center in support of mining, ranching and tourism (Lander County 2011). Kingston Canyon is a historic mining district, which dates back to silver mines in the 1860s, and now hosts some of the best-varied trout fishing in the state (Lander County 2011). About 30% of people privately employed in Lander County are employed in the mining industry (Headwater Economics 2011). Lander County's economy has been dominated by mining, but agriculture also plays a significant role in the local economy. Currently, over 85% of the county is public land managed by federal agencies. Lander's population density as of 2002 was estimated at around .99 people per square mile (Lander County 2011).

Median household income was \$66,525 (per 2005-2009 average); per capita income was \$25,287; and 12.2% of people fell below the poverty level. Unemployment rates in the county have ranged from a high of 15.2% in 1994 to a low of 2.9% in 2005 and 2007. Unemployment in 2010 was 7.4% (Bureau of Labor and Statistics 2011).

Nye County has experienced considerable population growth in the last few decades: the population of Nye County was about 9,000 people in 1980; 18,000 people in 1990; 32,000 people in 2000, and about 44,000 people in 2010 (US Census Bureau 1995, 2000, 2010). Nye County is the third-largest county in the continental United States in terms of land area, and the vast majority of this land area is managed by the federal government. Of the 11,560,960 acres that comprise Nye County, 822,711 acres, or just over 7% of the total, is private land (Nye County 1994). As of 1990, 18% of Nye County residents made their living in mining, which includes oil and gas extraction (Nye County 1994). Additionally, a number of ranchers graze cattle on allotments in Nye County. Many of the retail and service establishments in the county draw a substantial portion of their business from tourism and recreation visitors using and viewing attractions on public lands throughout Nye County and adjacent counties (Nye County 1994).

Nye County: Median household income was \$41,181 (per 2005-2009 average); per capita income was \$22,687; and 18.9% of people fell below the poverty level. Unemployment rates in the county have ranged from a high of 18.8% in 2010 to a low of 3.1% in 1990. The average unemployment in 2010 was 17.2% (Bureau of Labor and Statistics 2011).

Although small or corporate classes of livestock operations both contribute social and economic benefits to northern Nevada, economic challenge to smaller family operations is probably most likely to harm the social fabric of small communities. This would be especially true if permittees

were forced to leave the area because of financial stress. Family operations are typically of great importance to county governments and even to some of the general public. BLM is concerned about and aware of the potential socio-economic consequences of rangeland management actions. Nevertheless, rangeland management decisions in the BMD must balance the need to reasonably support the social fabric and economies of small communities as well as maintain the public land natural resource base upon which the livestock industry relies. Thus, BLM decisions must be crafted in light of the public land's capacity to support wild horses and burros and livestock herds. And where carrying capacity is limited by drought conditions, BLM is compelled by law and by federal regulation to take actions that would result in sustainable grazing use and functioning rangelands, according to the S&Gs and 43 CFR § 4180. BLM has no access to individual permittee financial records. Further, the BMD does not intend to request financial records from ranchers for socio-economic analysis purposes. Consequently, this EA section estimating socio-economic impacts of the Proposed Action and Alternatives would only address animal unit month (AUM) changes and costs associated installing temporary range improvement projects (i.e., water troughs, pipelines, fencing). Because BLM cannot conduct a thorough and accurate analysis of how permitted AUMs may affect individual ranchers economically, it is also not possible to predict accurately the consequences to ranches under AUM reductions. This may or may not lead to existing ranches becoming economically unviable. The BLM also assumes that if existing ranches fail, some other corporation or individual could purchase the base property and grazing privileges. It is not possible to foresee which base properties, if any, may change out of livestock production and into some other form of business. If base properties remain active for livestock production, the industry as a whole would continue to exist but under different ownership and likely with reduced income.

It is important to note that BLM is directed by the Taylor Grazing Act to take actions that would stabilize the livestock industry that is dependent upon public rangeland forage. However, it may not be possible for BMD BLM to guarantee that every existing livestock permittee would survive as an economic unit or in a manner to which existing ranchers are accustomed in the event that BLM must reduce AUMs to mitigate rangeland impacts due to drought conditions.

For smaller family operations, economic setbacks or other production limitations could greatly challenge their ability to remain viable and a part of the community in which they choose to live. The livestock industry is not alone in facing potential changes to preferred lifestyles and ways of generating income. The same type of economic pressures and concerns about maintaining a way of life that are affecting permittees, are also affecting other commodity producers and businesses.

Aside from the AUM changes described in this EA, ranch viability (e.g., sustainable ranching operations capable of supporting families and paying for necessary additional help) would likely be influenced by factors beyond BLM control. These factors may involve livestock price fluctuations, foreign competition, transportation and fuel costs, public land forage limitations due to drought, winter livestock feeding costs, private pasture rental fees, and other similarly unpredictable factors.

## **1. Environmental Consequences of the Proposed Action**

The Proposed Action is designed to prevent degradation of rangeland resources and protect uplands and riparian areas during drought, which would promote rangeland sustainability for wild horses and burros, livestock, and wildlife. Providing for sustainable grazing management that prevents degradation of habitat conditions for wildlife and wild horses would in turn increase economic opportunities for livestock operations, help sustain livelihoods for the multiple families employed by these ranching operations, and foster more desirable social opportunities.

Continuing viable ranching operations would also enhance the economies of Esmeralda, Eureka, Lander, and Nye Counties through taxes and goods and services purchased by the ranches and people employed by these ranches. By maintaining viable ranching operations and protecting rangeland conditions in the BMD, traditions associated with the ranching communities within the BMD would be maintained.

Under the Proposed Action, public lands within the BMD would continue to contribute environmental amenities such as open space, scenic quality and recreational opportunities (including hunting, bird watching, sightseeing, hiking, and OHV). These amenities would remain but could be reduced if rangeland resources are not protected during drought so that they may provide recreational opportunities such as wildlife viewing and hunting.

Costs associated with the materials, labor, and transportation necessary to implement temporary range improvement projects (i.e., water troughs [water hauls], above ground pipelines, fencing) under the Proposed Action could adversely impact permittees. Conversely, the goods and services purchased by permittees to implement temporary range improvements could enhance the economies of local communities and counties. These economic impacts would be expected to be of short-term duration; however, protecting degradation of rangeland resources (through the use of temporary range improvements) would promote rangeland sustainability thereby providing available forage resource to support livestock grazing in the future.

Under the Proposed Action, temporary reductions in authorized AUMs could adversely impact permittees. As directed in BLM Washington Office instruction memorandum (IM) No. 2012-070, the cost to permittees to find alternative forage in Nevada is estimated at \$13.00 per AUM to place livestock on private pasture, which does not include labor, fuel, and equipment for hauling livestock if only distant pasture is available. According to BLM WO IM No. 2012-070 the BLM charges permittees \$1.35 per graze livestock on BLM lands; a difference of \$11.65 per AUM. The cost of providing hay is variable based upon annual supply and demand, but is likely to be much higher than pasture. Additionally, ranches within the BMD may not be able to support their current number of employees, which could have an adverse impact on local economies. Viability and sustainability of the ranches holding grazing permits within the BMD could decline in periods of prolonged drought, potentially affecting their way of life.

Changes in livestock grazing management practices (i.e., reduced grazing duration, change in season of use, targeted grazing of invasive, annual communities, etc.) under the Proposed Action would likely have minimal social and economic impacts to permittees or local economies within

the BMD. Implementing changes in livestock grazing practices would not necessarily include a reduction in AUMs; therefore, minimal material, labor, or transportation cost would be incurred by permittees. It should be noted, however, that if a temporary change in kind or class of livestock is implemented to mitigate drought impacts, the BLM would assess a \$4.08/AUM surcharge (BLM WO IM No. 2012-070) if the permittee leases livestock.

If wild horses and burros were gathered under the Proposed Action, impacts to socioeconomics would be temporary in nature and would cease upon gather completion. These impacts would consist of hiring contractors to conduct the gather operations, and contributions to local economies/towns for food and lodging during gather operations. There would be no permanent changes in employment or population from the proposed action or alternatives. Removing wild horses and burros during drought would prevent additional degradation of rangeland resources thereby promoting rangeland sustainability and providing available forage resource to support wild horse and burro populations in the future.

## **2. Environmental Consequences of the Grazing Closure Alternative**

Under this alternative, grazing closure of drought afflicted areas would likely result in short-term adverse impacts to grazing permittees. As referenced above, the cost to permittees to find alternative forage in Nevada is estimated at \$13.00 per AUM (BLM WO IM No. 2012-070) to place livestock on private pasture, which does not include labor, fuel, and equipment for hauling livestock if only distant pasture is available. The BMD currently authorizes permits for livestock grazing totaling 362,869 AUMs. Under this alternative, the projected annual cost to permittees to graze private land may total up to \$4,717,297.00 (assuming 2012 estimated rates). Additionally, the BLM BMD would not collect up to \$489,873.15 (for 2012 BLM grazing rates are \$1.35/AUM) annually in grazing fees from permittees. The cost of providing hay is variable based upon annual supply and demand, but is likely to be much higher than pasture.

Ranches within the BMD may not be able to support their current number of employees during periods of drought, which could have temporary adverse impacts on local economies. Viability and sustainability of the ranches holding grazing permits within the BMD could decline in periods of prolonged drought, potentially affecting their way of life.

Closing drought-afflicted areas to livestock grazing under this Alternative, however, would prevent degradation of rangeland resources and protect uplands and riparian areas during drought. This would have long-term beneficial impacts for livestock grazing permittees by providing for sustainable grazing management, which would in turn increase economic opportunities for livestock operations, help sustain livelihoods for the multiple families employed by these ranching operations, and foster more desirable social opportunities.

Continuing viable ranching operations would also enhance the economies of Esmeralda, Eureka, Lander, and Nye Counties through taxes and goods and services purchased by the ranches and people employed by these ranches. By maintaining viable ranching operations and protecting rangeland conditions in the BMD, traditions associated with the ranching communities within the BMD would be maintained.

### **3. Environmental Consequences of the No Action Alternative**

Under the No Action Alternative, the DRAs contained within the Proposed Action and the Grazing Closure Alternative would not be implemented. No changes to the current livestock grazing and wild horse and burro management activities would be implemented.

Continuation of current livestock and wild horses and burros management during drought would likely lead to the degradation of upland and riparian health. If drought conditions persist for prolonged periods, cumulative degradation of rangeland health could result in grazing allotments failing to meet rangeland S&Gs in the future. If S&Gs for rangeland health are not met, the BLM is mandated to implement changes to management activities so that rangeland "...are, or are making significant progress toward..." meeting rangeland health S&Gs (43 CFR § 4180, Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration). Additionally, the BLM could cancel portions of or entire permits on allotments that fail to meet S&Gs, which could adversely impact affected permittees.

The No Action Alternative could also adversely affect permittees who are required to implement rangeland improvement projects so that degraded rangelands "...are, or are making significant progress toward..." meeting rangeland health S&Gs. Economic setbacks or other production limitations may greatly challenge the ability of livestock producers to remain viable. As previously stated, it would not be possible for BMD BLM to guarantee that every existing livestock permittee would survive as an economic unit or in a manner to which existing ranchers are accustomed in the event that BLM must cancel portions of or entire permits due to a failure to meet S&Gs.

#### **L. Soils**

##### **Affected Environment**

The extremes of climate, relief, aspect and geologic type combine to form a wide variety of soil types. Soils vary with differing parent materials, position on the landscape (landform), elevation, slope, aspect and vegetation. Soils range from those on the valley floors that are frequently deep, poorly drained and alkaline with a high salt content to shallow mountain soils formed over bedrock with pH levels near neutral.

Order 3 soil surveys have been completed for the counties within the BMD. The information obtained from these surveys is used in evaluating land-use potential, potential natural plant communities and developing reclamation and rehabilitation plans. Of the ten soil orders, most of the soils within the BMD are aridisols, mollisols, and entisols.

The soils in the valleys are mainly mineral soils of two types: those that do not have water continuously available for three months when the soil is warm enough for plant growth (Aridisols); and soils showing little evidence of the soil forming process, the development of horizons or layers (Entisols). Aridisols dominate deserts and xeric shrub lands and have a very low concentration of organic matter. Water deficiency is the major defining characteristic of aridisols. Entisols accumulate on land surfaces that are very young (alluvium, mudflows),

extremely hard rocks or disturbed material, mined land, highly compacted soils, or toxic material.

The mountains within the BMD consist of aridisols and entisols, and some deeper mineral soils with grass cover and a brown surface horizon (mollisols). Generally, entisols occur on steep mountain slopes where erosion is active. They also occur on flood plains and alluvial fans where new material is deposited. Aridisols and mollisols are older and occur on more stable alluvial fans and terraces.

Average annual soil loss varies across the BMD. Some soils exhibit high rates of erosion rates while others are expected to exhibit much lower erosion rates. In general, as disturbance increases and/or soil cover is reduced, soil loss increases compared to what is expected. Management actions which maintain or improve vegetation cover and reduce disturbance are expected to reduce the rate of wind and water erosion.

### **1. Environmental Consequences of the Proposed Action**

Soil site stability is an important rangeland health attribute. Stability is important for soil biotic integrity and resistance to erosion. Under the Proposed Action, DRAs would be implemented to maintain vegetation within the BMD, which would minimize the potential for accelerated erosion events. 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.

Dry soils usually encountered during drought are at risk of erosion. The erosion hazard during a drought is increased when prolonged grazing pressure has further reduced plant cover (Thurow and Taylor 1999). 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 and are likely to lodge in 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 reduce the impact of raindrops and promotes water infiltration. Soil cover also inhibits crusting by reducing raindrop impact; thereby, reducing water erosion (Gates et al. 2003). The prevention of accelerated erosion depends on the ability to respond to reduced vegetative growth quickly, so that adequate plant and litter cover remain (Reece et al. 1991). The Proposed Action would provide for prompt detection of drought conditions through the DDMP. The triggers defined in the plan would be used to activate the DRAs described in the Proposed Action. These actions are designed to promote proper utilization of vegetation by livestock and wild horses and burros within the BMD. As stated earlier, proper utilization would provide for adequate cover needed for soil protection during drought. The specific DRAs selected would depend on the situation. Forage and water conditions would be assessed and monitored using the DDMP referenced in the Proposed Action.

A majority of the DRAs are intended to improve livestock and/or wild horse and burro distribution and prevent the over grazing of vegetation during drought. DRAs intended to

improve distribution include temporary range improvement projects; change in livestock management practices; and temporary change in kind or class of livestock. The remainder of the actions brought forward would be used to address timing and duration of grazing and adjust stocking rates to match forage and water supplies. These include change in season of use, change in grazing duration, partial reduction in AUMs, partial closure of an allotment(s), and wild horse and burro removal.

Actions designed to improve distribution would limit soil erosion by ensuring grazing pressure is distributed across an allotment(s) or HMA(s). Temporary range improvement projects such as water hauls, above ground pipelines or electric fences would result in a temporary congregation of livestock and/or wild horses and burros within certain areas (i.e., the immediate area near the improvement). The congregation of livestock and/or wild horses and burros near temporary rangeland improvements could lead to an increase in soil compaction, a reduction in vegetative cover and an increased potential for soil erosion. However, the use of temporary range improvement projects would improve the overall distribution of livestock and/or wild horses and burros. This would limit the overuse of vegetation by evenly distributing grazing pressure across and allotment(s) or HMA(s). Proper utilization of vegetation, especially during drought is needed to provide adequate vegetative cover needed to reduce soil erosion. Temporary electric fences could also be used to exclude livestock from critical areas such as riparian areas, meadows, critical areas for wildlife or areas where soil erosion is likely.

Livestock and wild horse and burro use around temporary improvement projects would be monitored. Once the aforementioned utilization triggers are met, livestock and the temporary range improvement projects would be removed from the area. In circumstances where wild horses and burros are the primary grazers, conditions would be assessed to determine if an adequate amount of forage and water remain to support the animals. The use of temporary range improvement projects would only be used when it is determined that adequate forage resources exist to allow for continued grazing of an area in a manner that would not further impact rangeland resources.

DRAs that address the timing and duration of grazing would ensure that grazing occurs at the appropriate time and for the appropriate duration during drought. Reduction of AUMs would adjust livestock grazing to a level consistent with available forage and water supplies. Changing the season of use can reduce adverse grazing impacts during drought; adjustments would be made according to the availability of water and forage and rangeland condition. In most areas, shifting the season of use to a time outside of the critical growth period would allow forage plants to take full advantage of available soil moisture and nutrients. Allowing plants the opportunity to grow unimpeded would increase ground cover and reduce soil erosion.

Reductions in grazing duration are often needed during drought to protect rangeland resources from degradation. Grazing durations, as currently permitted, may result in plants being grazed multiple times. Plants that are grazed repeatedly may have little or no opportunity to regrow between successive defoliations and may become stressed (Howery 1999). Reduced grazing durations would provide for an increased amount of rest for plants already stressed by drought and, thereby, increase ground cover and protection from soil erosion.

Targeted grazing of cheatgrass and other non-native annual species could be used to provide forage while providing rest for native species and reduce undesirable plants and hazardous fine fuels. Annual bromes such as cheatgrass can provide a valuable forage resource under drought conditions (Reece et al. 1991). Targeted livestock grazing on monotypic annual communities can help reduce fire hazards by disrupting fine fuel continuity and reducing fuel loads (Peischel and Henry 2006). According to Reece et al. (1991), moderate defoliation of annual species can enhance the production of perennial grasses by reducing plant competition and minimizing soil moisture depletion. This would reduce the risk of soil erosion by increasing perennial plant cover.

Partial reduction in AUMs, partial or complete closure of an allotment, and/or wild horse and burro removal are all intended to balance animal stocking rates with forage supply and water availability. As stated before, drought often results in a reduction of forage and water resources. If it is determined that forage and/or water supplies are insufficient to meet livestock and/or wild horses and burros needs, temporary AUM reductions may be implemented. DRAs that improve livestock and/or wild horse and burro distribution are only viable when adequate forage and water resources exist within an allotment or HMA; therefore, when resources are insufficient to meet livestock and wild horse and burro needs, continuation of pre-drought stocking rates would result in overutilization of plants and an increase in soil erosion.

During wild horse or burro drought gathers, direct impacts such as soil displacement and compaction would occur at trap sites (less than 1 acre in size). Trap sites are ideally located in areas previously disturbed. Precautions would be taken during the gather to limit the impacts to soils during gather operations (refer to Attachment 2 for Gather Plan and SOPs).

Relocating wild horses and/or burros within HMAs would have similar impacts to the impacts for hauling water and conducting drought gathers, and would be congruent with the numbers of animals moved. The receiving portion of the HMA would experience an increase in the population, some impacts to vegetation, soils riparian areas and water could be expected due to the additional travel, trampling, trailing or utilization that could occur. The portion of the HMA where animals were moved from would endure benefits similar to those that would be expected following a drought gather to remove all or some of the wild horses and/or burros.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would provide rest for all areas afflicted by drought. Resting these areas would provide vegetation an opportunity to take full advantage of available soil moisture and nutrients without interruption. This would ensure adequate cover remains and the potential for soil erosion would be reduced. Grazing closure would remove livestock grazing from the public lands to eliminate the impacts of grazing during the drought and provide one growing season of rest for plant recovery following the cessation of the drought.

DRAs for wild horses and burros would be implemented as identified in the Proposed Action and would result in similar effects as described above, for the Proposed Action.

### **3. Environmental Consequences of the No Action Alternative**

Wind velocity and its potential to detach and transport dry soil, exponentially increases as vegetation cover is reduced (Marshall 1973). Proper use of range forage allows plants to survive dry periods, recover quickly, and provide cover to protect the soil and promote water infiltration (Hanselka and White 1986). Protection of range plants during drought years allows for quick recovery following a drought (Howery 1999). The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to periods of drought. Without the prompt implementation of management strategies, the effects of drought could be compounded by improper livestock and wild horse and burro use. The No Action Alternative would negatively impact soils resources within the BMD due to an increased likelihood of erosion.

#### **M. Vegetation (Including Special Status Species)**

##### **Affected Environment**

##### **Dominant Vegetation Communities**

The following description of dominant vegetation communities occurring within the BMD has been adapted from information provided by Weisberg (2010).

The geography and rugged topography within the BMD have given rise to a diversity of vegetation types. Mojave Desert vegetation dominates the southern portion of the BMD. Great Basin vegetation occupies the northern part of the district, which is characterized by high, sagebrush-dominated valleys and numerous mountain ranges with the boundary between these two main ecological zones occurring roughly between Goldfield and Beatty. The Mojave Desert is known for extremely hot summers, but it has cool winter temperatures. The Great Basin is considered a “cold desert” because of its snowy winters, although summers can be quite hot and dry.

##### *Mojave Desert*

Much of the Mojave Desert is dominated by creosote bush (*Larrea tridentata*), a widely distributed shrub with olive-colored foliage that is resinous and exudes a strong creosote odor. Creosote bush occurs with white burrobush (*Ambrosia dumosa*) on deep, sandy soils and with shadscale (*Atriplex confertifolia*) on shallower soils. The shallow soils often have “desert pavement” on the surface or are underlain by caliche (hard layers of calcium carbonate that are nearly impervious to water penetration). At higher elevations, creosote bush diminishes, and blackbrush (*Coleogyne ramosissima*) becomes more abundant.

The overall structure of Mojave vegetation is dominated by desert shrubs, generally of short to medium height and somewhat evenly spaced. However, other plant life forms are important including grasses, herbaceous flowering plants, succulent (water-storing) species such as cacti and yucca, and even some trees. Many annual plant species in the Mojave emerge only in years

with strong winter rains (winter annuals) or summer rains (summer annuals), causing the “desert to bloom” during irregular, favorable periods. Annual plants germinate, grow to reproductive maturity, flower, set seed, and die within a single growing season. Some annual plant species in the desert complete their entire life cycles in 6-8 weeks or less (desert ephemeral species), thus avoiding the hot temperatures of the summer months.

### *Desert Oases (Riparian Zone)*

Desert oases surround spring-fed pools or occur where groundwater is sufficiently close to the surface. Such ecosystems do not suffer the same water limitations as the surrounding landscape and so include a diversity of plant species not found elsewhere. Tree species include screwbean mesquite (*Prosopis pubescens*), western honey mesquite (*Prosopis glandulosa*), velvet ash (*Fraxinus velutina*), several willow species including *Salix exigua* and *Salix gooddingii*, and Fremont's cottonwood (*Populus fremontii*). Woodland, wet meadow, marsh, and shrub thicket plant communities occur in complex mosaics, and due to the vast distances separating many desert spring ecosystems, often include species that have evolved or persisted in isolation and occur nowhere else (endemic species).

### *Joshua Tree*

The Joshua tree (*Yucca brevifolia*), is an unusual member of the lily family that grows to 30 feet in height and occurs in extensive, open stands, grows on high alluvial fans and marks the transition zone between the Mojave and Great Basin deserts. Its northernmost occurrence is in the vicinity of Goldfield, although it reaches its greatest abundance far to the south.

### *Great Basin*

Nevada's other important vegetation types are characteristic of the Great Basin and vary according to elevation zone. Rainfall increases and temperature decreases with increasing elevation from valley bottom to mountain peak. In an average year, many of BMD's higher mountain ranges are covered in snow all winter, while many valley bottoms are snow-free for much of the season. The distribution of plant species tracks these climatic differences, resulting in a similar zonation of vegetation types in the various mountain ranges. For simplicity, the Great Basin's vegetation zones can be lumped into several distinct types: Salt Desert (Shadscale Zone), Sagebrush Grassland, Pinyon-Juniper Woodland and Mountain Shrub. Salt Desert and Sagebrush Grassland are characteristic of valley bottoms.

### *Salt Desert Shrub*

Salt Desert is most prevalent in the low, saline valleys. In the poorly drained playas characteristic of this vegetation type, the water table fluctuates periodically. This results in the development of a salty crust on the surface, as well as extensive wind erosion during dry periods. Plant species that occur in the Salt Desert, such as shadscale and greasewood (*Sarcobatus vermiculatus*), are well adapted to high salt levels and drought conditions. Although there is more biodiversity than what is always apparent to the observer, the general aspect of this vegetation type is one of uniformity, as it is dominated by low, nondescript shrubs that are often

spiny and of a greenish-gray hue. Vegetation cover is typically only about 10–15% of the ground surface.

### *Sagebrush Grassland*

At somewhat higher elevations and on well-drained soils, Salt Desert transitions into Sagebrush Grassland. Shrubs here are taller and less spiny than in the Salt Desert zone, and vegetation cover is typically 15–40%. Annual precipitation of at least eight inches is typically required to support this vegetation type. Dominant shrub species include big sagebrush, low sagebrush (*Artemisia arbuscula* var. *arbuscula*), black sagebrush (*Artemisia arbuscula* var. *nova*), *Ephedra* species, antelope bitterbrush (*Purshia tridentata*), spiny hopsage (*Grayia spinosa*), desert gooseberry (*Ribes velutinum*), snowberry, (*Symphoricarpos* spp.), littleleaf horsebrush (*Tetradymia glabrata*), and rabbitbrush (*Chrysothamnus* spp.). Also important in the Sagebrush Grassland are a variety of forbs (flowering herbaceous plants) and perennial bunchgrasses such as Great Basin wild rye (*Leymus cinereus*), squirreltail (*Elymus elymoides*), needle-and-thread (*Heterostipa comata*), and Indian rice grass (*Oryzopsis hymenoides*). Such grasses are referred to as “perennial” because plants survive over multiple seasons, and with proper management, they can develop deep root systems for surviving drought.

The balance between shrub and grass dominance in the Sagebrush Grassland zone depends upon the timing and overall amount of precipitation, land use history, and grazing practices. More abundant precipitation favors bunchgrasses, particularly if it occurs as rainfall in summer months (i.e., a more monsoonal climate). Over-grazing favors shrubs of low palatability, such as big sagebrush and can lead to an increase in bare ground.

Invasion by exotic plant species such as cheatgrass (*Bromus tectorum*) is also prevalent in this vegetation zone and can be exacerbated by overgrazing. Because it dries out in early summer and becomes highly flammable, cheatgrass changes the fire frequencies in sagebrush communities from 50 or more years to 10 or fewer years between burns. After a few fires, slow-growing, fire intolerant shrubs are eliminated, perennial grass species decline, and a cheatgrass monoculture becomes established. Such a vegetation type is of little use to wildlife, wild horses and burros or livestock.

### *Riparian Zones*

The mountain ranges of the Great Basin are dissected by innumerable canyons, which often contain Sagebrush Grassland vegetation at their bottoms. Riparian plant communities occur where perennial streams flow through canyon bottoms. Such communities may be dominated by grassy meadows, shrubs, or trees, depending upon the physical setting, geology, flood regime, and history of human disturbance characteristic of a particular canyon. Narrow stringers of flood-adapted tree and shrub species occur along steep, confined reaches. Stately groves of quaking aspen (*Populus tremuloides*) and narrowleaf cottonwood (*Populus angustifolia*) can be found in deep canyons of some of the mountain ranges within the BMD. Common shrubs of the Great Basin riparian zone include water birch (*Betula occidentalis*), wild rose (*Rosa woodsii*) and several willow species (*Salix* spp.) Finally, geomorphic features such as debris fans sometimes

create areas of elevated water tables in the riparian zone, giving rise to springs and wet meadows dominated by graminoids (grasses, sedges and rushes).

### *Pinyon-Juniper Woodland*

Above the canyon floors lies the Pinyon-Juniper Woodland, often a broad belt that begins at the margin of mountain and valley and extends upwards to approximately 7000 feet in elevation. Development of substantial tree cover generally requires annual precipitation of at least 12 inches. This zone is typically a complex mosaic of shrub- and tree-dominated patches, intergrading into mountain shrub communities at higher elevations and on north-facing aspects. Dominant tree species are singleleaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*).

### *Mountain Shrub*

Many of the mountain ranges within the BMD lack subalpine forest vegetation. Instead, Pinyon-Juniper Woodland gives way to a diverse Mountain Shrub community at higher elevations and on moister sites. The Mountain Shrub community occurs as a band above the cold tolerance limit of pinyon and juniper, over extensive areas in the BMD between 7,500 and 10,000 feet in elevation. Mountain big sagebrush (*Artemisia tridentata* subsp. *vaseyana*) dominates mountain shrub communities together with a diverse mixture of other shrub species, grasses, and flowering herbaceous plants. Many important shrub species in this vegetation type are members of the rose family, including bitterbrush, cliffrose (*Purshia mexicana* var. *stansburiana*), western serviceberry (*Amelanchier alnifolia*), dwarf ninebark (*Physocarpus alternans*), western chokecherry (*Prunus virginiana* var. *demissa*), and wild rose. Interspersed within the montane sagebrush grassland are patches of curlleaf mountain mahogany (*Cercocarpus lediifolius*) along ridge tops and groves of quaking aspen in canyon bottoms and bedrock hollows.

Lower temperatures and higher precipitation allow the mountain shrub communities to be much more productive than structurally similar sagebrush communities at lower elevations. As a result, they provide abundant forage for a great number of animal species. Mule deer, pronghorn, bighorn sheep, and elk undertake seasonal migrations up the mountains in summer and early fall where they concentrate their foraging activities in mountain shrub communities. Several of the shrub and tree species (bitterbrush, cliffrose, mountain mahogany, aspen) are preferred mule deer food sources.

### **Special Status Species**

In addition to federally listed species, BLM also protects by policy (see BLM Manual 6840), other special status plant species, most notably species designated as “sensitive” by the Nevada BLM State Director. Table 6 identifies those sensitive plant species for the BMD.

Table 6: BMD SSS Plants

Scientific Name	Common Name
<i>Astragalus uncialis</i>	Currant milkvetch
<i>Arabis falcifruca</i>	Elko rockcress
<i>Asclepias eastwoodiana</i>	Eastwood milkweed
<i>Epilobium nevadense</i>	Nevada willowherb
<i>Eriogonum anemophilum</i>	windloving buckwheat
<i>Parthenium ligulatum</i>	ligulate feverfew
<i>Penstemon tiehmii</i>	Tiehm beardtongue

The BLM Nevada also protects plants listed by the State of Nevada as critically endangered. Two critically endangered plants occur on the BMD: Monte Neva paintbrush (*Castilleja salsuginosa*) and Williams’ combleaf (*Polycytenium williamsiae*).

### 1. Environmental Consequences of the Proposed Action

To survive, perennial plants must accumulate both above ground (shoot growth) and below ground (root growth) biomass through the process of photosynthesis, transpiration, and respiration (Howery 1999). Excessive removal of above ground biomass during the growing season reduces root growth. A healthy root system is paramount in the growth of any range plant, especially during dry years when competition for water and nutrients is most severe (Bedell and Ganskopp 1980). Proper use of range forage allows plants to survive dry periods, recover quickly, and provide cover to protect the soil and promote water infiltration (Hanselka and White 1986). Rangeland conditions and vegetation types vary throughout the BMD. Differences in vegetation communities and the condition of those communities would determine their ability to withstand drought. The Proposed Action defines drought response triggers for each major vegetation community known to occur within the BMD. The utilization triggers were developed using the utilization guidelines proved by Holechek et al. (1988) and would be used to activate DRAs to ensure that proper utilization occurs for each vegetation type within the BMD.

The degree to which drought impairs the range’s potential for future forage production depends on the intensity, frequency and timing of grazing (Howery 1999). The DRAs described in the Proposed Action would implement management strategies intended to limit the impacts of livestock and wild horses and burros on vegetation including special status species during drought. These actions would be implemented in combination or separately once drought response triggers are met.

The concentrated use of preferred areas in the landscape results in uneven distribution of animal impact, and drought compounds the effects of herbivory, providing periods of accelerated deterioration (Teague et al. 2004). Many of the DRAs described within the Proposed Action are designed to improve livestock distribution and prevent the overuse of vegetation during drought. DRAs intended to improve livestock distribution include temporary range improvement projects; change in livestock management practices; and temporary change in kind or class of livestock.

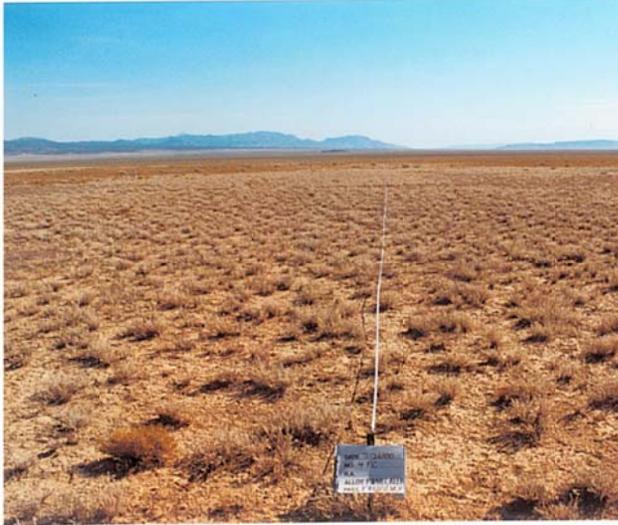
Temporary range improvement projects such as water hauls, above ground pipelines or electric fences would result in a temporary congregation of livestock and/or wild horses and burros

within certain areas (i.e., the immediate area near the improvement) but would improve the overall distribution of livestock and/or wild horses and burros. This would limit the overuse of vegetation by evenly distributing grazing pressure. Livestock and wild horse and burro use around temporary improvement projects would be monitored. Once the aforementioned utilization triggers are met, livestock and the temporary projects would be removed from the area. In circumstances where wild horses and burros are the primary grazers, conditions would be assessed to determine if an adequate amount of forage and water remain to support the animals. The use of temporary water hauls and/or temporary above ground pipelines would only be used when it is determined that adequate forage resources exist to allow for continued grazing of an area in a manner that would not further impact rangeland resources. Temporary electric fences would facilitate targeted grazing within monotypic annual plant communities. Temporary electric fences could also be used to exclude livestock and wild horses and burros from critical areas such as riparian areas, meadows, critical areas for wildlife or areas where sensitive plant species are likely to occur.

Changes in livestock management practices such as strategic placement of salt and/or mineral supplements increased herding and concentrating livestock into a single herd can be used to improve livestock distribution. Strategic placement of low moisture blocks is effective in attracting cattle to graze high and rugged rangeland (Bailey et. al 2008a). Low-stress herding is effective in focusing grazing in an area that typically receives little grazing use (Bailey et. al 2008b). Bradford (1998) observed that managing with a single herd strongly affects livestock distribution and grazing patterns. It was found that “bunching” the cattle created a more even utilization pattern and resulted in cattle moving into areas that had not been used before.

A temporary change in kind or class of livestock can provide opportunities to improve livestock distribution and protect vegetation from over utilization. Yearling cattle utilize pastures more uniformly over variable terrain than cows with calves or mixed classes; cows and calves utilize forages nearest the water much more heavily than yearlings (Volesky et al. 1980). Selecting yearlings would improve grazing distribution and limit impacts to riparian areas. Choosing a different kind of livestock would also affect how a range can be utilized. With their large mouths, cattle and horses may not select annual grasses as readily as sheep or goats because livestock prefer plants they can eat quickly and efficiently. Sheep or goats can get a full bite of annual grasses more easily than cattle or horses, especially when annual grass plants are small (Peischel and Henry 2006). Sheep and goats can be herded more effectively which allows for greater control and provides an opportunity to limit impacts to critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat etc.

During drought, growth slows and plants should be rested longer (Hanselka and White 1986). A significant impact of drought on rangelands is a severe reduction in herbage production (Bedell and Ganskopp 1980). DRAs that address timing, duration and stocking rate have been developed. These include change in season of use, change in grazing duration, partial reduction in AUMs, partial or complete closure of an allotment(s), and wild horse and burro removal from drought afflicted areas.



**A winterfat (*Krascheninnikovia lanata*) site in the Little Smokey Valley (BMD) during drought in 2000. Note lack of production of the vegetation.**



**The same monitoring location the following year with normal precipitation. The difference in the plant community is very obvious.**

Changing the season of use in which livestock are grazed can reduce grazing impacts during drought. Excessive removal of plant material during the growing season reduces root growth and replacement; thereby, reducing a plant's ability to harvest solar energy and soil moisture needed for maintenance and growth (Howery 1999). The specific season of use chosen would be fitted to the situation at hand. In most areas, shifting the season of use to a time that is outside of the critical growth period would allow forage plants to take full advantage of available soil moisture and nutrients. Plants can then be grazed after sufficient growth or dormancy occurs. In areas dominated by cheatgrass, spring grazing and/or fall grazing may be appropriate to take advantage of the annual forage while it is green.

Reductions in grazing duration are often needed during drought to protect rangeland resources from degradation. Grazing durations, as currently permitted, could result in plants being grazed multiple times. Plants that are grazed repeatedly may have little or no opportunity to regrow between successive defoliations and may become stressed (Howery 1999). Reduced grazing durations would provide for an increased amount of rest for plants already stressed by drought and lead to an increase in ground cover and protection from soil erosion.



**Reduced production and vigor of winterfat and Indian ricegrass within Antelope Valley (Fish Creek Ranch Allotment, Fish Creek HMA).**



**Close up of winterfat and Indian Ricegrass illustrating reduced growth and vigor.**

Targeted grazing of cheatgrass and other non-native annual species could be used to provide forage while providing rest for native species and reduce undesirable plants and hazardous fine fuels. Annual bromes such as cheatgrass can provide a valuable forage resource under drought conditions (Reece et al. 1991). Targeted livestock grazing can help reduce fire hazards by disrupting fine fuel continuity and reducing fuel loads (Peischel and Henry 2006). According to Reece et al. (1991), moderate defoliation of annual species can enhance the production of perennial grasses by reducing plant competition and minimizing soil moisture depletion.

Partial reduction in AUMs, partial closure of an allotment, and wild horse and burro removal are all intended to match stocking rates to forage supply and water availability. Drought often results in a reduction of forage and water resources. If it is determined that forage and/or water supplies are not sufficient to provide for livestock and/or wild horses and burros, temporary AUMS reductions could occur. DRAs intended to improve livestock and/or wild horse and burro distribution are only viable when adequate resources exist within an allotment or HMA. A continuation of current stocking rates would result in overutilization of plants and degradation of rangeland resources. Heavy use of plants during drought results in permanent damage and high death loss of forage plants (Hanselka and White 1986). If necessary a drought gather could occur. Some disturbance to vegetation as a result of a drought gather would occur localized the gather trap and holding corrals. However, overall improvement and/or maintenance of vegetation is expected to occur due to a decrease in use (matching animal population to forage supply) and improved distribution as a result of fewer animal numbers.

Relocating wild horses and/or burros within HMAs would have similar impacts to the impacts for hauling water and conducting drought gathers, and would be congruent with the numbers of animals moved. The receiving portion of the HMA would experience an increase in the population, some impacts to vegetation, soils riparian areas and water could be expected due to the additional travel, trampling, trailing or utilization that could occur. The portion of the HMA

where animals were moved from would endure benefits similar to those that would be expected following a drought gather to remove all or some of the wild horses and/or burros.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The Grazing Closure Alternative would provide rest for all areas afflicted by drought. Resting these areas would allow vegetation to take full advantage of available soil moisture and nutrients without interruption. Protection of range plants during drought years allows for fast recovery following a drought (Howery 1999). The Grazing Closure Alternative would remove livestock grazing from the public lands to eliminate the adverse impacts of grazing during the drought and provide one growing season of rest for plant recovery following the cessation of the drought.

The Grazing Closure Alternative would not provide for the targeted grazing of invasive annual species and would limit the BLM's opportunity to reduce the vigor of invasive species that may compete with native vegetation. Closing drought-afflicted areas to livestock grazing under this Alternative would prevent degradation of rangeland resources and protect upland and riparian vegetation communities as well as sensitive plant species during drought. This would have long-term beneficial impacts to vegetation within the BMD.

DRA's for wild horses and burros would be implemented as identified in the Proposed Action and would result in similar effects as described above, for the Proposed Action.

## **3. Environmental Consequences of the No Action Alternative**

“It is obvious that when it comes to drought, it is not a question if drought will occur, but rather when it will occur, how long will it last, and are we prepared?” (Howery 1999). Drought or water stress affects virtually every physiological and biochemical process in plants (Hanselka and White 1986). Grazing management practices before, during, and following a drought would influence the ability of native rangeland vegetation to recover (Encinias and Smallidge 2009). Lagged responses toward drought pose a threat to sustainable management of rangelands (Thurow and Taylor 1999). The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to drought. Livestock and wild horse and burro use would be concentrated around remaining water sources and riparian areas. This would result in an uneven or patchy distribution of grazing pressure with areas of heavy use, leaving other areas far from water unused. As stated earlier, drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use. The No Action Alternative would negatively impact vegetation resources within the BMD directly affecting the present condition and limiting the ability of vegetation to survive and recover from dry periods in future years. Unsustainable range use can cause an increase in the frequency and consequences of drought (Thurow and Taylor 1999). Hanselka and White (1986) found that weakened root systems affect the ability of plants to pull moisture from the soil and that closely grazed plants will permanently wilt when there is still 6-8 percent moisture in the soil.

## N. Wild Horses and Burros

### Affected Environment

The BMD administers 28 Herd Management Areas (HMAs) encompassing over 3.6 million acres of public lands. The MLFO administers 12 HMAs, and the TFO 16 HMAs, while three others are administered by adjoining BLM Offices (see Map 3). HMAs within the BMD range in size from 11,500 acres to over 407,000 acres. The MLFO and TFO also cooperatively manage several US Forest Service Wild Horse Territories (WHTs). The 2012 estimated population within the BMD is approximately 4020 wild horses and 345 wild burros. The following table outlines population estimates per HMA administered by the BMD.

Table 7: BMD Wild Horse and Burro Herd Management Areas Populations effective June 2012

Mount Lewis Field Office HMAs							
HMA	HMA Number	AML	Species	2012 Estimated Population	Acreage	Last Gather	Administered By
Augusta Mountain	NV311	308 total	horse	437	177,640 total	2011	WDO
		89 MLFO			55,899 MLFO		
Bald Mountain	NV603	129-215	horse	179	139,879	2010	MLFO
Callaghan	NV604	134-237	horse	279	156,203	2011	MLFO
Desatoya	NV606	180 total	horse	543	161,741 total	2004	CCFO
		82 MLFO			139,283 MLFO		
Diamond (Complex with Diamond Hills North and Diamond Hills South)	NV609	210 total	horse	826	258,504 total	2004	MLFO
		151 MLFO		342 MLFO	166,055 MLFO		
Fish Creek (south of Hwy 50)	NV609	101-170	horse	256	233,513	2006	MLFO
Hickison (with USFS portion)	NV608	16-45 MLFO	burro	133 (including FS)	73,845 total	Never	MLFO
		USFS TBD			57,285 MLFO		
New Pass/Ravenswood	NV609	545-566 total	horse	514	285,878 total	2011	MLFO
		476 MLFO			260,257 MLFO		
North Monitor (with USFS portion)	NV610	8 MLFO	horse	43 (including FS)	32,720 total	2006	MLFO
		USFS TBD			11,512 MLFO		
Roberts Mountain	NV611	150	horse	273	99,990	2008	MLFO
Rocky Hills	NV612	86-143	horse	147	83,998	2010	MLFO
Seven mile (with USFS portion)	NV613	60-100	horse	307 (including FS)	156,733 total	2006	MLFO
					97,500 MLFO		
South Shoshone	NV614	60-100	horse	298	133,099	2008	MLFO
Whistler Mountain/Fish Creek North	NV615	20-34	horse	58	62,547	2008	MLFO
Tonopah Field Office HMAs							
HMA	HMA Number	AML	Species	2012 Estimated Population	Acreage	Last Gather	Administered By
Bullfrog	NV629	58-91b	burro	76	150,885	2012	TFO
Fish Lake Valley	NV622	54 TFO	horse	114 including USFS & CA	248,913 total	2005	Various
		USFS unknown			67,123 TFO		
Gold Mountain	NV628	78b	burro	9b & 1m	107,638	1996	TFO
Goldfield	NV626	24-37b	burro	23 h, 35 b	62,353	1996	TFO
Hot Creek	NV616	41	horse	25	54,661	2006	TFO
Little Fish Lake (with USFS Portion)*	NV614	39 TFO	horse	460 total	117,098 total	2006	TFO/USFS
		93 USFS		183 TFO	28,862 TFO		

Tonopah Field Office HMAs							
Montezuma Peak	NV625	0	horse	55h 78b	77,930	2010	TFO
Palmetto	NV624	76	horse	0	118,278	N/A	TFO
Paymaster	NV621	38	horse	30	100,591	2010	TFO
Pilot Mountain	NV314	415 total	horse	402	477,137 total	2005	CCDO
					219,737 TFO		
Reveille	NV619	138	horse	121	105,494	2010	TFO
Sand Springs West	NV630	49	horse	119	150,313	2012	TFO
Saulsbury*	NV620	40	horse	145	135,239	2012	TFO
Silver Peak	NV623	0	horse	87 h	242,463	2006	TFO
Stone Cabin (Monitor WHT not included – 339,428 acres)	NV618	364 TFO	horse	327	409,311 total	2012	TFO
		USFS TBD			407,851 TFO		
Stonewall	NV627	5-8b	burro	22	23,883	1996	TFO

HMAs are land areas designated through the Land Use Planning process for the long-term management of wild horses and/or burros. Many HMAs encompass mountain ranges and include mountain shrub, meadow, mahogany, pinyon and juniper vegetation types interspersed with perennial streams and springs. Wild horses and burros also use sparsely vegetated, rocky mountains with limited water. Winter habitat typically consists of valley bottoms and lower elevations that may support winterfat or other salt desert shrub vegetation. The primary vegetation types used by wild horses consist of Wyoming or mountain big sagebrush with an understory of perennial grasses. Wild burros are able to thrive in more desert type conditions than wild horses. Wild horse and burro populations generally move throughout or between HMAs in response to forage and water quantity, precipitation, temperature and other factors that change seasonally. Competition resulting from increased populations would also influence wild horse and burro movement within and/or between HMAs as well as outside HMA boundaries.

In drought years, reduced winter snow and spring precipitation limits the recharge of springs and streams, as well as the overall availability of water to wild horses or burros. HMAs vary widely in their abundance and productivity of water sources. Some HMAs have many productive water sources available that are marginally impacted by drought. Other HMAs have few water sources or water sources that are more reactive to drought. The number and productivity of waters in relation to the population of wild horses or burros is an important consideration as well. Effects from drought in HMAs that are overpopulated and support limited waters would be more substantial when compared to HMAs with normally plentiful water and populations at AML.



**The water source at Slough Creek had dried to a mud hole. Approximately 60 horses were relying on this water source.**



**Water was limited, to access water, horses had to wade through mud or strain and reach over the bank.**

Wild horses and burros travel between water sources and foraging areas. They can usually travel several miles back and forth from water and forage. During drought years, forage productivity can be a fraction of normal. In areas where forage is limited and/or wild horses or burros are overpopulated, animals have to move increasing distances from water to obtain adequate forage and go into less desirable areas that support lower quality forage.



**1996 Esmeralda County emergency gathers. Body condition of this horse speaks to the extreme situation at the time, necessitating nearly complete removal of wild horses and burros. The vegetation in the background consist of shrubs which are not palatable or acceptable forage for wild horses.**

In general, wild horses and burros 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 physical condition, have strong bones and hooves and rarely succumb to ailments that plague domestic horses. Wild horses and

burros 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. As the resources are consumed, and travel distances become longer the animals deteriorate in body condition. Burros are able to utilize brush and other browse and lesser quality forage and maintain better body condition than wild horses during drought conditions. Burros are also able to survive with less water and less frequent visits to water. Therefore, emergency situations in burro HMAs are less likely, but do still occur under severe drought conditions especially when coupled with large numbers of animals.

The health of the range and the recovery of the vegetation and waters from drought are also concerns. With reduced productivity of rangeland forage plants, the existing population of animals can cause excessive utilization of the range especially where the HMA supports larger concentration of animals or in HMAs populations of wild horses above the AML. Wild horses and burros also cause damage through excessive trailing and hoof action, which causes destruction of vegetation and increases erosion and trampling of riparian areas; thereby, causing bank shear, contaminating water quality and affecting riparian function.

The majority of wild horse foals are born annually between March 1 and July 1. Throughout the BMD, populations increase by 10-22% annually. Burros may foal year-round, yet burro populations may not increase at the same rates as wild horses.

Wild horses and burros are a long-lived species with documented survival rates exceeding 92% 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 or burro population levels. Throughout the BMD, there are few predators 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 wolves or bears do not exist.

The BMD has been collecting samples for genetic analysis since 2001. Sixteen of the 28 HMAs administered by the BMD have been analyzed with several having been sampled more than once. Results indicate high genetic variability with no concerns for inbreeding. Potential concerns are documented for a few HMAs which will be re-sampled in future years with current technology and reassessed at that time.

The BLM is responsible for the protection, management and control of wild horses and burros on public lands in accordance with the WFRHBA as amended (Public Law 92-195 Act) which states that BLM, "...shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a TNEB on the public lands."

Monitoring data is collected annually within BMD HMAs. During times of drought monitoring is focused on the assessment of forage and water availability for wild horses and burros (see DDMP, Attachment 2). Reduced precipitation associated with drought often results in substantially reduced forage growth and a lack of water due to reduced flows and/or drying up of springs and streams. These factors typically lead to concentrated wild horse and/or burro use on riparian areas, resource degradation and ultimately the reduced health and/or death of wild horses and burros. When a drought occurs the BMD would collect site-specific data in accordance with

the DDMP and consider wild horse and burro population levels and past drought related issues to select appropriate DRAs.

## **1. Environmental Consequences of the Proposed Action**

### **A. Drought Response Actions**

#### **1. Livestock**

The DRAs identified within the Proposed Action, were developed in order to reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought. The DRAs pertaining to livestock management would have minimal direct impacts to wild horses or burros. Actions implemented within HMAs would indirectly affect wild horses and burros. Temporary water hauls, or pipelines would improve distribution of livestock and wild horses and burros as well as reduce impacts to drought affected water sources.

Additionally, the DRAs implemented within HMAs would indirectly affect wild horses and burros by reducing competition among wild horses or burros, wildlife and livestock as additional water sources would be available to offset the reduced water supply due to drought.

Changes in season of livestock use, grazing duration or livestock management practices would also result in indirect effects to wild horses and burros. The moderation of utilization levels, improvement of distribution and protection of forage resources from concentrated use would ensure the long term productivity and health of the range. The degree to which drought impairs the range's potential for future forage production depends on the intensity, frequency and timing of grazing (Howery 1999). Therefore the aforementioned DRAs would also provide for quicker recovery from drought.

The DRAs also include reductions in livestock AUMs and the partial or complete closure of an allotment(s). Pursuant to 43 CFR §4710.5(a), the authorized officer may close appropriate areas of the public lands inhabited by wild horses or burros if necessary to protect for wild horses and burros. These actions implemented either separately or in combination with other DRAs would help ensure that adequate forage and water are available for wild horses, burros and wildlife. Additionally, these DRAs would promote the recovery of rangelands afflicted by drought.

Other actions include temporary fencing, targeted livestock grazing of monotypic invasive annual communities and change of class of livestock, which would have minimal indirect effects to wild horses or burros, and would ultimately benefit forage and riparian resources both in the short and long term.

## **2. Wild Horse and Burro Drought Response Actions**

### **Temporary Water Hauls**

In order to augment water sources for wild horses or burros until an drought gather could be completed or until normal precipitation and water availability resume, temporary water hauls could be authorized at select locations within HMAs or at existing (but dry or limited) water sources. Large (500 gallon or larger) water trucks or trailers would be used to replenish waters

in tanks, ponds or other available catchments. In most cases, existing roads would be used, and water haul tanks would be placed in disturbed locations following a cultural resources inventory. Where possible, supplemental water troughs would be placed on existing wild horse or burro trails to encourage use. All water troughs would be equipped with bird ladders to protect avian species.



**During the 2004 Fish Creek HMA drought emergency, the BLM utilized temporary water hauls in the Slough Creek area and had a contractor keep them filled to help the wild horses maintain their health until a gather could be performed. Here, a wild horse and burro specialist puts electrolytes in the water to further help the distressed wild horses being affected by the drought.**

Minor soil disturbance would be expected depending upon the number of animals using the water source. No adverse impacts to wild horses or burros would be expected; however, temporary water hauls would help maintain animal health and aid in preventing death due to dehydration. The use of water hauls would continue until natural or developed water becomes available that is adequate to support the existing population, or a drought gather occurs to reduce the existing population to levels that can be sustained with the existing resources.

### **Within HMA Relocation of Wild Horses and Burros**

Relocating wild horses and/or burros within an HMA could result in similar impacts described for helicopter removals, bait or water trapping or hauling water; however would not be removed from the range at this time. The animals may suffer some anxiety being moved to another location, but would soon acclimate to the new area. It is possible that the animals would move back to the area they were moved from. Depending on the population of wild horses in the receiving portion of the HMA, fighting among studs could increase until such a time that the animals are able to adjust to each other. It is also possible that some animals do not acclimate to the new area, are disoriented in relation to available waters and do not thrive. Follow up monitoring may determine that the relocated animals should be gathered and removed from the range to ensure their welfare.

### ***Bait or Water Trapping***

When feasible and appropriate in accordance with the criteria outlined in section 2.0(c)(2) bait and water trapping would be used as the primary gather method. In cases where water is the most limiting factor, it may be practical to remove wild horses or burros through water trapping. The use of hay or supplement (a.k.a. bait) could also be used to trap animals targeted for removal due to drought conditions. Impacts of this method of removal are similar to impacts of helicopter gathers and include ground disturbance at the trap location, and minor displacement of

wildlife. Traps would be placed on disturbed locations when possible after an archeological survey has been conducted. In the case of water trapping, pens would be placed around developed rather than natural water sources where possible to reduce impacts to riparian areas.

Water or bait trapping generally results in the capture of a few animals at a time, and requires lengthy time periods to gather larger numbers. Therefore, gather operations could be ongoing for many weeks or months to remove drought affected animals verses helicopter which would be accomplished in a matter of days. As a result, animals debilitated from lack of forage and water would persist for a longer time before being gathered and cared for properly.

Injuries to wild horses and burros through bait or water trapping are similar to those described for helicopter removals. Animals would not endure the exertion from being herded several miles to a trap location (by helicopter) but may experience injuries associated with bites and kicks while in the trap, during loading into stock trailers and transportation to BLM preparation facilities. If foals enter the trap with adult animals, they could become injured or killed by adult wild horses or burros fighting. Similarly, if adequate facilities did not exist to separate animals by sex or age, foals and adult animals could be injured or killed during transport in stock trailers.

Bait and water trapping would be accomplished through the gate cut method, and no wild horses or burros would be returned to the range. The effects would be similar to those described for gate cut removals below. Various removal strategies could be employed with the use of bait or water trapping as described in the section titled "Removal Numbers".

### **Wild Horse and Burro Removal**

If it is determined that wild horse and/or burro removal is warranted (i.e., all other feasible DRAs have been exhausted), all livestock within the HMA would be removed prior to the commencement of a gather. Removal of excess and drought affected animals would improve herd health and prevent widespread suffering and death of wild horses and burros. Decreased competition for remaining forage and water resources would reduce stress and promote healthier animals, as the actual population becomes balanced with available forage and water resources.

Further deterioration of drought stressed rangeland and riparian resources would be avoided which would also promote range recovery (and healthy animals) over the long-term. The following discussion outlines the impacts of specific elements of gathers on wild horses and burros.

### ***Helicopter Capture***

The BLM has been gathering excess wild horses and/or burros from public lands since 1975, beginning in the Stone Cabin HMA, and using helicopter gather since the late 1970's. Appendix A of Attachment 2 includes information regarding methods that are utilized to reduce injury or stress to wild horses and burros during gathers. Since 2004, BLM Nevada has gathered over 35,000 excess animals. Of these, mortality has averaged only 0.5%, which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. This data affirms that the use of

helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses and burros from the range. 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 of Attachment 2 would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impact or injury to the wild horses and burros. In their August 2011 BLM Task Force Report, the American Association of Equine Practitioners concluded that the care, handling and management practices utilized by the BLM are appropriate for this population of horses and burros and generally support the safety, health and welfare of the animals.

Over the past 35 years, various impacts to wild horses and/or burros from gathers have been observed. Individual, direct impacts include handling stress associated with the capture, sorting, handling, and transportation of the animals. The intensity of these impacts varies by individual and is indicated by behaviors ranging from nervous agitation to physical distress. Observations made through the completion of gathers show that the majority of the wild horses captured acclimate quickly to the holding corral environment, becoming accustomed to water tanks and hay, as well as human presence. Wild burros generally exhibit less agitation and are calmer albeit resistant to handling. The BLM Wild Horse and Burro Specialists and the gather contractor and crew are very attentive to the needs of all animals captured during gathers, ensuring their health and safety.

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 animals gathered (0.5-1.0%). Injuries sustained during gathers could 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 or burros could encounter barbed wire fences and could receive wire cuts. These injuries are generally not fatal and are treated with medical spray at the holding corrals until a veterinarian can examine the animal. On some gathers, injuries to horses or burros occur more frequently due to animal temperament and/or body condition. However, on other gathers, no animals are injured or die.

Most injuries to horses and burros are sustained once the animal has been captured and occur within the gather corrals, holding corrals, or during sorting. These injuries result from kicks and bites or from collisions with corral panels or gates, and are less common in burro gathers because burros tend to act less aggressively. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and then animals 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, animals could sustain a spinal injury or a fractured limb which requires humane euthanasia but these injuries are rare. Similar injuries could be sustained if wild horses or burros were captured through bait and/or water trapping, as the animals would still need to be sorted, aged, transported, and otherwise handled following their capture.

During summer gathers, environmental conditions come into play as the temperatures are higher, roads and corrals dusty, and water more limited on the range. During times of drought, water could be greatly limited or nearly non-existent. Animals could have to travel long distances to find water, which may lead to animal dehydration or water stress. The exertion of a gather can

exacerbate already debilitated conditions, leading to heat exhaustion or other complications. Wild horses or burros may be located at higher elevations and in areas with dense tree cover during summer months, increasing the difficulty of the gather. The helicopter pilot, regardless of season, allows horses to travel slowly at their own pace. During gathers of drought affected animals, the pace would be slowed to allow weak or debilitated animals to travel to the trap corrals as a group. If necessary, crew members may be instructed to capture the animals by roping and loading the animals into stock trailers for transport in order to reduce the stress on the animals. Mares and small foals are especially vulnerable to drought stress and may become weak; therefore, extra care would be taken to ensure their safe capture and recovery.

Heat stress does not occur often but if it does, death may result. If wild horses or burros are in a weakened state due to a shortage of water or forage, higher mortality could occur. In these cases, the BLM would take extra precautions to ensure the safe capture and post-gather care of these animals. Special care would be taken to ensure the health of the animals by limiting the distance horses must travel to a trap, not gathering during the heat of the day, etc. An Animal Plant Health Inspection Service (APHIS) veterinarian or other contract veterinarian would be available to examine animal condition and provide recommendations for care. Electrolytes may be added to the drinking water during summer gathers that involve animals in weakened condition. Additionally, the BMD Wild Horse and Burro staff maintains a supply of electrolyte paste that could be administered to affected animals as needed.



**Extra care of foals is taken by contractor and BLM staff during summer gathers. This young foal was given electrolyte after being gathered. He was then paired with his dam.**



**The next day, the contractor carefully escorted the foal to the truck for transport. The foal was calm and curious enough to approach the crew member this way.**

The BLM and the contractor are also proactive in controlling dust in and around the holding facility and gather corrals. These areas are sprayed down to reduce dust and limit wild horse and burro exposure to dust during summer months. Additionally, moderate travel speeds on roads reduce dust exposure during transport. The horses and burros could be sprayed in an effort to reduce body temperature and improve overall comfort of the horses and/or burros. In cases of extreme heat, the gather operations would be suspended once high temperatures are reached. Temperatures vary across the BMD on a daily basis during summer months. Length of gather

period each day would be determined by closely monitoring the condition of the animals captured, rate of respiratory recovery, whether the animals are coming in excessively sweaty or lathered, and/or showing any other signs of distress. Distances that horses and burros would be herded would be determined based on the aforementioned criteria as well as landscape features such as topography, temperatures and other factors affecting wild horse and burro travel and gather operations. All determinations on gather period length and distances that horses and burros would be herded would be made by the COR and may vary as conditions change. During summer gathers, operations often conclude between noon and two pm, and can be suspended earlier if the COR deems it necessary to ensure animal health.

In rare cases, water toxicity or poisoning can occur when waters are extremely limited or non-existent, which can lead to cerebral edema and death. To prevent the occurrence of water poisoning, recently gathered animals may be held off of full water for some time until they have time to cool down and slowly become hydrated, at which time free access to water would be provided. Similarly, hay may be fed sparingly if there is a risk of colic or other complications due to the malnourished state of recently gathered animals.

Indirect individual impacts are those impacts that occur to individual animals after the initial stress event. These impacts, like direct individual impacts, are known to occur intermittently during gather operations. An example of an indirect individual impact would be a brief skirmish amongst stallions following sorting and release into the stud pen. Fighting among jack burros during gathers is less common. Traumatic injuries usually do not result from these conflicts. Spontaneous abortion events among mares or jennies following capture is very rare. Observations following capture indicate the rate of miscarriage varies, but can occur in about one to five percent 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 and burros are examined for health, injury and other defects. BLM Euthanasia Policy IM-2009-041 is used as a guide to determine if animals should be euthanized (refer to SOPs in Appendix A of Attachment 2). Animals that are euthanized for non-gather related reasons include those with old injuries (e.g., broken hip or leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain adequate body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, 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. During drought situations animals could be gathered that could be severely debilitated or emaciated and following examination, the APHIS or attending vet could identify that the animals prognoses for recover is unlikely and should be humanely euthanized as an act of mercy.

It should be noted that drought gathers are not intended to meet long-term management goals (e.g., managing healthy wild horse and burros within the productive capacity of the range), but as a management action to preserve animal health and range condition. It is the intent of BLM to intervene during drought or other emergencies to remove wild horses and burros if necessary, before body condition declines and animals become weak from starvation or dehydration.

Unless emergency conditions exist, the BLM does not gather wild horses by helicopter during the foaling season (i.e., the six weeks before or after the peak of foaling (April and mid-May)), per instruction memorandum (IM) 2010-183. Most foals are born during the aforementioned period; however, it is not uncommon for a very small number of young foals (less than two months old) to be encountered during any month of the year. If foals too young to wean are gathered, they are matched up with the dams. In summer months, young foals may be more prone to dehydration and complications from heat stress. Additionally, the handling, sorting and transport can be stressful for young animals; however, on-site BLM staff are attentive to the condition and needs of the animals and take precautions to limit stress.

Foals can sometimes be orphaned during a gather. This can occur if the dam rejects the foal; the foal becomes separated from its dam and cannot be matched up following sorting; the dam dies or must be humanely euthanized during the gather; the foal is ill or weak and needs immediate care that requires removal from the dam; or the dam 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 dam rejected it or died. These foals are usually in poor, unthrifty condition. Every effort is made to provide appropriate care to orphaned foals. Veterinarians could administer electrolyte solutions to aid in hydration and overall health. Orphan foals could be fed milk replacer as needed to support their nutritional needs. Orphaned foals could be placed in a foster home to receive additional care. Although fostering is usually successful, despite these efforts, some orphaned foals could die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor. As illustrated in the photos below most orphaned foals gathered are placed in a foster home where they are nursed back to health to live a long and healthy life.



**This young, emaciated filly was gathered during an emergency removal in 2000. She was quickly taken by a foster home and nursed back to health. As a result of these efforts, she survived, and is shown as a yearling in the photo to the right.**

### ***Wild Horses and Burros Remaining (or Released into the HMAs following complete removal)***

Following a wild horse or burro drought gather, deterioration of the range associated with wild horses or burros would be reduced and rangelands would have the opportunity to recover from

the impacts of drought. Protecting rangeland resources from severe use during drought would improve sustainability and enhance resiliency so that rangelands can support future generations of healthy wild horses and burros. Goals of a drought gather would include: the management of wild horse populations in balance with the available forage and water resources and other rangeland uses, and allowing individual animals to better maintain optimum body weight and overall health during future drought years. This would lessen the potential for individual animals and/or herds to be affected by drought, and avoid or minimize the need for future emergency actions.

Depending upon the gather objectives, some wild horses or burros (whether escaped from capture or intentionally left undisturbed) would remain on the range following the gather. The wild horses or burros that are not captured may be temporarily disturbed and moved to another area during gather operations. Over the last 20 years, it has been proven that, with the exception of changes to herd demographics, direct population-wide impacts are usually temporary in nature and with most; if not all impacts to individual wild horses or burros disappearing within hours to several days after the gather is completed. No observable effects associated with these impacts would be expected within one month of release except for a heightened awareness of human presence.

Primary direct impacts to the wild horse or burro populations related to gather activities include changes to herd population dynamics, age structure and/or sex ratio, and subsequent changes to growth rates and population size over time.

Site-specific data would be used to determine the need for a drought gather. Justification for a drought gather would be thoroughly documented within a site-specific Decision and gather plan. Should it be determined that a drought gather is necessary, HMA-specific gather and removal objectives would be developed based on detailed environmental and animal conditions. This information would be included in the Decision and gather plan (see Attachment 3) issued prior to the gather commencing. Depending on the gather objectives, numerous outcomes would be expected. These are discussed by gather type below.

### ***Gate Cut***

Wild horses or burros encountered would be gathered and removed until removal and post-gather population objectives were achieved. Typically few or no animals would be returned to the range and no population controls would be implemented. When appropriate animals exhibiting superior condition and health may be returned to the range during a gate cut removal. In most cases the number of horses or burros removed would equal the number gathered. The animals may be removed from specific portions of an HMA or Complex where resources are most limiting, leaving all animals in the remainder of the HMA alone. Only the drought affected animals would be gathered and exposed to the additional stresses of handling. This type of removal is most common during drought and emergency gathers, as it does not pose additional stresses on animals identified to remain on the range, and is the standard method used for burro gathers.

Wild horses or burros that are not gathered could be minimally impacted due to the helicopter activity but would otherwise be unaffected. All impacts would cease once gather operations were completed. 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 predict.

Without the ability to selectively remove animals from the range by age, a larger number of older wild horses could be removed under a gate cut gather. These animals would likely be transferred to long-term pastures (LTPs) Experience within the BMD shows that generally 40-50% of wild horse populations fall into age groups older than 5 years of age, for which there is little to no adoption demand.

Gate cut gathers eliminate the ability to remove wild horses and burros based on animal health or desirable or historical characteristics, which often results in unintended impacts to the remaining herds. For example, horses of larger size (draft), gentle disposition, or bright/light coloring are often easier to locate and capture. Therefore, they are typically the first to be removed using the gate cut method. This has the potential to permanently remove these genetic traits from herds. However, when appropriate animals exhibiting these traits and considered to be healthy and able to survive may be returned to the range during a gate cut removal. Additionally, utilizing the gate cut method could distort the distribution within an HMA by removing all animals concentrated in areas where capture is easiest, while leaving animals in the outlying areas that are more difficult to gather (e.g., areas of trees, rough terrain, or long distance from trap site). These areas are often times characterized by lesser quality habitat. In the case of drought gathers, the emphasis for gather and removal would be for the horses and/or burros that inhabit the areas in the worst condition and with the fewest resources to sustain them. In cases where it is feasible and appropriate, attempts would be made to gather animals equally across the HMA to avoid disproportionate removal.

Because no wild horses would be released back to the range, no adjustment to sex ratios or application of 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 horses would not be stressed by additional handling to apply fertility control. Fertility and foaling rates would be unaffected in the un-gathered population with the population increasing at an average rate of 17-19% per year.

### ***Removal Numbers***

Because site-specific data would be evaluated prior to conducting a drought gather, removal numbers would be detailed in the site-specific Decision and gather plan (see Attachment 3). The following scenarios are provided for analysis:

### **Removal of small localized Wild Horse and Burro Populations**

When it is determined that a specific group or groups of wild horses or burros need to be removed due to a lack of water and/or forage and other drought response actions have been exhausted those groups identified could be removed. Other wild horses and burros within the

other locations within the HMA where adequate forage and water sources remain would not be gathered. For example localized removal could be used when a water source or multiple water sources within a portion of an HMA have dried up while other portions of the HMA remain and within HMA relocation is not considered to be feasible or appropriate due to horse and/or burro condition or other factors (e.g. location and number of fences pose a high risk of horse injury during relocation, forage and water conditions are only capable of supporting horses occupying other areas within the HMA). Impacts would be limited to the specific group or groups of horses and burros selected for removal. Those animals that are located within areas that have sufficient water and forage resources would not be affected. It is not expected that genetic health would be impacted under this option because only a small, localized portion of the population would be removed.

### **Removal of sufficient numbers of animals to achieve the low range of AML**

Under this strategy, only sufficient numbers of wild horses and/or burros would be removed to achieve the low range of AML for applicable, drought affected HMAs. This strategy is consistent with most gathers conducted throughout the District, where excess wild horses are removed to low AML and through the following years the population is allowed to increase to the high AML at which time another gather is scheduled. Most HMAs in the BMD have had gathers completed within the past 10 years. Comprehensive EAs, which analyzed environmental impacts of the gathers, were completed for each gather conducted. If it is determined that a drought gather(s) is needed, site-specific details would be provided in the Decision and gather plan (see Attachment 3) documents for the drought gather(s). Drought gathers would only be conducted after consultation or a reasonable attempt to consult with interested parties.

### **Removal of sufficient animals to achieve the high AML**

This strategy has also been analyzed in numerous gather EAs written by the BMD within the past 10 years. If the analysis of environmental and animal conditions trigger the need for a drought gather in a particular HMA, it may be determined that the population need only be reduced to the high AML in order to avoid emergency conditions and sustain the wild horse and burro populations during drought. Further gathers to achieve low AML would be scheduled based on additional monitoring data and through the BMD and State gather priority process. Impacts to wild horses or burros would be similar to those under the low AML gather option. Range impacts would be proportional to the residual wild horse and burro population. Impacts to rangeland health could be expected, primarily due to trailing and trampling of riparian areas. The level of impacts realized would vary depending on the health of the rangeland within the HMA(s).

Under this option, the established AML would be exceeded following spring foaling. If drought conditions persisted, rangeland health and post drought recovery could be hindered by overpopulation.

It is not expected that genetic health would be impacted under either the low or high AML options. Most wild horse herds sampled have high genetic heterozygosity, genetic resources are

lost slowly over periods of many generations, and wild horses (and burros) are long-lived with long generation intervals (Singer, 2000).

### **Removal of animals to a point below the low AML**

Removal of wild horses and/or burros to achieve a population below the low AML would occur when drought severely limits water and forage resources and animals need to be removed to prevent further suffering or death as well as to prevent significant rangeland degradation. HMA-specific data and animal health analysis would be used to estimate how many animals could be supported on the range, and where animals should be removed to ensure animal health and resource recovery. This data along with other site-specific data would be included in a site-specific Decision and gather plan (see Attachment 3).

In order to safeguard genetic variability of the animals remaining on the range, genetic analysis of the horses and/or burros within an HMA would be considered as well as known movement between HMAs. Due to the amount of animals that could be removed under this option, genetic variability could be negatively impacted. However, the immediate welfare of the wild horses, burros and their habitat take precedence over the long-term genetic variability. Hair samples would be collected for genetic analysis, and should future analysis indicate that action is needed to enhance or maintain the genetic variability of the herd; a strategy would be developed to address the specific issues. Strategies may include introducing animals from one HMA into another. Genetic sampling has completed on 16 of the 28 HMAs within the BMD, with several having been sampled more than once. Out of the 16 HMAs sampled, only a few have resulted in potential concerns for genetic health. Future sampling and evaluation of all pertinent factors would continue.

AML would not be permanently adjusted. The population would be allowed to increase to the high AML before another gather was scheduled, as long as resource conditions and animal health allow.

### **Complete removal of all animals in an HMA**

This option would be employed only under extreme circumstances and is, therefore, unlikely. However, it is analyzed here as a worst-case scenario. While it would be undesirable to remove all horses or burros from an HMA, the BMD conducted gathers in the mid-1990s to completely remove wild horses and burros from HMAs within Esmeralda County of the Tonopah planning area. Though complete removal was the objective, in some cases, wild horses and burros escaped capture and subsequently repopulated the HMAs.

The decision to remove all animals would be made after analysis of the environmental and animal data, and only done in order to prevent suffering of animals due to the absence of forage and/or water and reduce negative impacts to rangeland resources. It is possible that a small portion of the animals could be held in a contract facility until conditions recover and then be returned to the range. It may also be possible to gather animals and release them into another HMA that has adequate resources to support additional animals. The consequences of such a removal could be the need to revert the HMA back to a Herd Area. If it is determined that

resources are adequate, the HMA could be repopulated in future years with horses or burros transplanted from another HMA.

In the extreme case of a complete removal of animals from an HMA, impacts to the genetic health of the wild horses or burros would be expected. The exact impacts cannot be quantified, as each wild horse or burro herd has specific genetics and the herds are comprised of animals of diverse characteristics and genetic backgrounds. If animals were held in a contract facility and later returned to the HMA, it is expected that the genetic variability may be affected by substantial impacts would not be likely. Experience in the BMD has shown that drought gathers which reduced the populations to low numbers did not result in degraded genetic health. Future genetic sampling showed healthy herds with little or no concerns for inbreeding.

### ***Population Growth Controls (Fertility Control treatments and sex ratio adjustments)***

Fertility control or sex ratio adjustments could be applied if conditions warrant the complete removal of all animals within an HMA and those animals are to be returned to the range after drought recovery has occurred. Population controls would not be administered to burros. The following discussion analyzes the impacts of population control methods on wild horses:

#### **Fertility Control**

Fertility control would include the application of fertility control drugs to all mares released back to the range. All mares selected for release would be treated with a two-year Porcine Zona Pellucida (PZP) or similar vaccine/fertility control and released back to the range. Immuno-contraceptive (fertility control) treatments would be conducted in accordance with the approved standard operating procedures (SOPs, outlined in Appendix A of Attachment 2).

Each released mare would receive a single dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies; 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 be easily administered in the field. In addition, among mares, PZP contraception appears to be completely reversible. The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner et. al, 1997). 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 HMAs for the BLM 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).

The highest success obtained for fertility control has been achieved when applied during the timeframe of November through February. The efficacy for the application of the two-year PZP vaccine based on summer application (August through October) is as follows:

Table 8: Fertility Control Efficacy (Effectiveness)

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

The PZP treatments would be controlled, handled, and administered by a trained BLM employee. Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the HMA, and none are expected to have long term impact from the fertility control injections. Injuries through fighting and other behaviors may occur within the holding pens prior to release, but rarely result in death.

As the sole approach, contraception would not allow the BLM to maintain populations at AML; 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 management.

Contraception may be a cost effective and humane treatment to employ in horses to prevent increases in populations, or with other techniques, to reduce horse populations (Bartholow 2004). In general, contraception would not remove horses from an HMA's population which would result in some continuing environmental effects by those individuals. Horses are long-lived reaching 20 years of age in the wild and those horses returned to the HMA could 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 would limit increases in environmental damage from higher densities of wild horses. It could 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 wild 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 HMA may reduce risks associated with horses that are difficult to adopt or handle in captivity.

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 after

receiving contraceptives (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 would 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.)

Population-wide indirect impacts are more difficult to quantify and would occur over time. A large percentage of inoculated mares would experience reductions in fertility. Recruitment of foals into the population would be reduced over a two-year period. Any multi-year reprieve from foaling would increase overall health and fitness of the mares, as well as the health of the foals born after fertility returns, particularly during times of drought or other environmental stress.

Following resumption of fertility, the proportion of mares that conceive and foal could be increased (rebound effect) due to the increased fitness. Application of fertility control (and/or adjustment of sex ratios to favor stallions) could increase the intervals between future gathers, and reduce disturbance to individual animals as well as to the herd social structure over the foreseeable future when compared to a gather without implementation of either population growth control method. The BLM could return to these areas every 2-3 years (dependent on vaccine formulation used) to re-apply fertility control in order to maintain its effectiveness in controlling population growth rates. By completing follow-up gathers on a regular basis (every 2-3 years) in future years, it is possible that the population control measures may be adequate to maintain the population within the existing AMLs if implemented successfully, with the need to remove few if any wild horses from the range. As a result, few horses would need to be removed that might ultimately be held in long term pastures or entered into the sale program as the adoption demand comes into line with the number of excess wild horses removed from the range.

PZP can safely be repeated in 2 years or as necessary to control the population growth rate. The probability of long-term infertility using PZP is very low, and many mares retreated even after 3 years will return to normal fertility after the second treatment wears off.

Fertility control application would allow the average population size to be maintained at a level consistent with the AML. 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 and contribute to the achievement and maintenance of a TNEB. This would also improve the recovery of the range from the effects of drought as the population grows more

slowly and has fewer impacts on the vegetation, waters and other resources, than would occur without the application of population controls.

### **Sex Ratio Adjustment**

Should population controls be applied to animals released to the range, sex ratio adjustments could be included as a management option in wild horse herds, but not burro herds. Wild horses would be released to increase the post-gather sex ratio to favor stallions in the remaining herds. Stallions would be selected to maintain a diverse age structure, herd characteristics and body type (conformation). Adjustment of sex ratios to favor stallions would be expected to have relatively minor impacts to overall population dynamics. 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 population ratios of 60% stallions to 40% mares are not considered extreme departures from natural sex ratios. Ratios above 60% would be expected to increase fighting among studs, which would be a consequence of removing additional mares in order to prevent widespread death and suffering. 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.

Modification of sex ratios 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 number of horses gathered and removed in future gathers.

It is well accepted that wild stallions maintain body condition and muscling better than wild mares when resources are limiting. This is most often observed during gathers where the population is very high in comparison to the AML and forage or water are lacking. In these cases, mares with dependent foals or young mares 3-4 years of age are often very thin with Henneke Body Condition Scores of 2 or 3. In such cases, it may be possible to release additional stallions (rather than thinner mares) that otherwise would have needed to be held in Long Term Pastures, thus leaving a larger population on the range, albeit at a higher proportion of studs. Release of studs could occur at the time of the gather if it is determined that due to limited resources, the more vulnerable mares and foals should be removed from the range, but that resources are adequate to ensure the health of the studs.

Though this could result in sex ratios with higher than 60% studs, the populations would not be so large that competition and fighting among studs would be much higher than normal levels. The sex ratio would eventually even-out over the course of time and could be further corrected in the next gather cycle if necessary. The release of a level of studs above 60% would only occur in extreme cases when it is determined that additional horses (studs) could be left on the range rather than be removed.

### ***Temporary Holding Facilities During Helicopter Gathers***

Wild horses or burros gathered would be transported from the gather corrals (a.k.a. trap sites) to a temporary holding corral within the HMAs primarily in goose-neck trailers; however, straight deck semi-trailers could be used. At the temporary holding corrals, animals would be aged and sorted into different pens based on sex, then provided quality hay and water while in the holding facility (refer to previous discussion about care of drought stressed animals). Mares or jennies and their un-weaned foals (if encountered) would be kept in pens together.

At the temporary holding facility, recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured animals would be provided by a veterinarian. 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).

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

Wild horses or burros removed from the range would be transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s) in straight deck semi-trailers or goose-neck stock trailers.

Vehicles would be inspected by the BLM Contracting Officer's Representative or Project Inspector prior to use to ensure animal safety. Animals would be segregated by age and sex and loaded into separate compartments. A small number of mares or jennies could be shipped with foals. Transportation of recently captured animals is limited to a maximum of 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 or burros 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 and burros would be off-loaded by compartment and placed in holding pens where they are provided quality hay and water. If necessary, specific hay or supplement would be prescribed to help animals recover from drought stress. Most animals begin to eat and drink immediately and adjust rapidly to their new situation. At the short-term holding facility, a veterinarian would examine each load of horses or burros and provide recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured animals. 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 or burros in very thin condition or animals with injuries would be sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to feed. Some of these animals may be in such poor condition that it is unlikely they would have survived if left on the range. Some mares or jennies may lose their

pregnancies. Every effort would be taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

At short-term corral facilities, once the horses and burros have adjusted 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 (Coggins test), vaccination against common equine diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses and burros 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, 2008, 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 horses over 18 months of age, and 5 feet tall for burros. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse or burro for one year and the animals 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 §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 all buyers are not to re-sell the animal to slaughter buyers or anyone who would sell the animal to a commercial processing plant. Sales of wild horses are conducted in accordance with BLM policy.

Potential impacts to wild horses from transport to adoption, sale LTPs (horses only) are similar to those previously described. One difference is that when shipping animals 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 25 pounds of good quality hay per horse with adequate feed bunk space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested. The rest period may be waived in situations where the travel time exceeds the 24-hour limit by just a few hours and the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel. Wild

horses generally five years of age and older (those for which there is less adoption or sale demand) are transported to LTPs. Establishment of each LTP is subject to a separate environmental analysis and decision making process. Wild horses in LTPs remain available for adoption or sale (11 years of age and older) to individuals interested in acquiring a larger number of animals and who can provide the animals with a good home. The BLM has maintained LTPs in the Midwest for over 20 years.

The LTPs are designed to provide excess wild horses with humane, and in some cases life-long care in a natural setting off the public rangelands. There, wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 28,600 wild horses that are in excess of the current adoption or sale demand (due to age or other factors such as economic recession) are currently located on private land pastures in Oklahoma, Kansas, Iowa, and South Dakota. Located in mid or tall grass prairie regions of the United States, these LTPs are highly productive grasslands compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 10-11 acres per animal). Of the animals currently located in LTP, less than one percent is age 0-4 years, 49 percent are age 5-10 years, and about 51 percent are age 11+ years.

Mares and castrated stallions (geldings) are segregated into separate pastures except one facility where geldings and mares coexist. No reproduction occurs in the LTPs, 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 the LTPs 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 could 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 with maintaining the 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 for this purpose between 1987 and 2004 and again in 2010-12.

## **2. Environmental Consequences of the Grazing Closure Alternative**

Similar to the Proposed Action, the Grazing Closure Alternative would have indirect impacts to wild horses or burros that would consist of reduced numbers of grazing animals on the range through the drought period and drought recovery. The impacts would be a degree of increased availability and quality of forage and water dependent upon the specific vegetation and water

present throughout the HMA(s) and the inherent overlap of livestock and wild horses or burros of that particular HMA. In any case, the absence of all livestock within drought affected areas would ensure maximum recovery of vegetation and riparian areas especially in HMAs that are at or below the established AML or where wild horse and burro distribution is good as a result of adequate and dispersed available water. In areas where wild horse or burro populations exceed AML or are concentrated, the beneficial impacts to the range from grazing animals would be lessened, yet drought recovery would be enhanced.

Direct impacts to wild horses and burros would be the same as those described for the proposed action due to the fact that DRAs for wild horses and burros would be implemented as identified in the Proposed Action.

### **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to drought.

Implementation of livestock and wild horse and burro drought management actions would be delayed which could result in deterioration of animal health and body condition and degradation of rangeland health as water and/or vegetation resources dwindle under continued use by livestock and wild horses or burros.

Wild horse and burro habitat could be affected by concentrated use by livestock and wild horses or burros. Drought affected forage and riparian resources would be more likely to be degraded by overuse or improper timing of use. Trailing, trampling, and erosion of soils and bare ground would increase, as would degradation to riparian areas and utilization of rangeland plants. Excessive utilization of plants and pawing them from the ground would cause plant death, preventing recovery of plant health once drought ceases. Irreparable damage may occur.

Competition for the available water and forage between wild horses, and native wildlife would continue and further increase. Wild horses and burros are a long-lived species with documented survival rates exceeding 92%, and little impact from predation and disease occurs. Experience has shown that once the vegetation and water resources are at critically low levels, deterioration of animal health can happen very quickly, with young foals and mares or jennies affected most severely. Without implementation of drought management actions, it is likely that many of these animals would die from starvation and/or dehydration. The resultant population could be heavily skewed towards the stronger stallions which could lead to social disruption in the HMAs. Recovery from drought could be delayed, and could require many years before pre-drought production is achieved. In the short and long-term, wild horses and burros would have reduced quality and quantity of habitat, which could affect distribution of use within the HMAs, concentration of use and have impacts to animal health as resources are less plentiful.

By managing the public lands in this way, the vegetation and water resources would be severely impacted with little to no potential for recovery. This degree of rangeland degradation could lead to management of wild horses or burros at greatly reduced levels in the future. As a result,

the No Action Alternative would adversely impact the health and wellbeing of wild horses or burros in drought afflicted HMAs and would inhibit the recovery of drought stressed habitat important to the future management of these herds. A TNEB would not be maintained or restored under the No Action Alternative.

As populations increase beyond the capacity of the habitat, bands of horses or burros could leave the boundaries of the HMAs in search of forage and water, thereby increasing impacts to rangeland resources outside the HMA boundaries as well (i.e., in areas not designated for their use).

An indirect impact of the No Action Alternative would include animal and/or human deaths due to the increased vehicle collisions as wild horses and/or burros cross roadways in specific areas searching for food and water.

The BLM realizes that some members of the public advocate “letting nature take its course”, however, allowing horses to die of dehydration and starvation would be inhumane treatment and clearly indicates that an overpopulation of horses exists in the HMA, and is not consistent with the WFRHBA. Additionally, promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state “*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*” (emphasis added).

## **O. Wilderness**

### **Affected Environment**

The BMD administers 15 Wilderness Study Areas (WSAs); three WSAs totaling 108,460 acres located within the MLFO (Simpson Park, Roberts Mountain and Antelope Range) and 12 WSAs totaling 613,415 acres located within the TFO (Fandango, Morey Peak, Blue Eagle, Rawhide Mountain, Palisade Mesa, The Wall, South Reveille, Kawich, Silver Peak Range, Pigeon Spring, Queer Mountain and Grapevine Mountains). Additionally, two Instant Study Areas (ISA) totaling 582 acres have been designated within the BMD, Pinyon Joshua in Esmeralda County and Mountain Meadow in Nye County. ISAs are identical to WSAs in terms of management and policy. Portions of 4 WSAs over-lapping the BMD boundary (Augusta Mountains, Desatoya Mountains, Park Range and Riordan’s Well) are administered by other BLM-Nevada Districts through Inter-District agreements. These agreements are subject to revision transferring management responsibility back to the BMD.

WSAs are designated by the BLM as having wilderness characteristics worthy of consideration by Congress for permanent Wilderness designation. While Congress considers whether to designate a WSA as permanent Wilderness, the BLM manages the area to prevent impairment of its suitability for Wilderness designation. All noxious weeds and invasive, non-native species treatments within WSAs must be compliant with BLM Handbook H-8550-1, *Interim Management Policy (IMP) and Guidelines for Lands under Wilderness Review*. This handbook provides specific policy and procedure for managing public lands under wilderness review. Any treatment proposed within a WSA would include a “minimum tool analysis”, which determines if the methods and equipment proposed for use have the minimum impact on the quality of a wilderness experience, as well as the physical, biological and cultural resources within the WSA.

## **1. Environmental Consequences of the Proposed Action**

Under the Proposed Action, rangeland and riparian resources within the WSAs would improve due to the installation of temporary water sources (e.g., temporary water hauls, and water pipelines). Livestock, wild horses, and burros would be provided with an alternative water source to utilize outside of WSAs. This would minimize the negative impacts that could occur within WSAs. These impacts could include, but are not limited to, vegetation trampling, soil compaction, erosion, and water contamination that could occur when livestock, wild horses, and burros utilize rangeland and riparian resources for forage and water.

Changes in livestock management practices (e.g., change in season of use, reduced grazing duration, partial reduction in AUMs, partial or complete closure of an allotment(s), targeted grazing of invasive annual communities, and temporary change in kind or class of livestock) under the Proposed Action would have a beneficial impact on WSAs. These actions would allow the rangeland and riparian resources to temporarily recover from the negative impacts of livestock grazing in WSAs. These impacts could include, but are not limited to, vegetation trampling, soil compaction, erosion, and water contamination. These impacts could impair the wilderness characteristics within WSAs.

Wild horse and burro removal under the Proposed Action would have a beneficial impact on the rangeland and riparian resources within WSAs. Wild horses and burros utilize rangeland and riparian resources within WSAs for forage and water. If unmanaged under drought conditions, this usage can cause negative impacts. Negative impacts could include, but are not limited to, vegetation trampling, soil compaction, erosion, and water contamination. These impacts can impair the wilderness characteristics within WSAs.

Relocating wild horses and/or burros within HMAs would have similar impacts to the impacts for hauling water and conducting drought gathers, and would be congruent with the numbers of animals moved. The receiving portion of the HMA would experience an increase in the population, some impacts to vegetation, soils riparian areas and water could be expected due to the additional travel, trampling, trailing or utilization that could occur. The portion of the HMA where animals were moved from would endure benefits similar to those that would be expected following a drought gather to remove all or some of the wild horses and/or burros.

## **2. Environmental Consequences of the Grazing Closure Alternative**

The grazing closure alternative would positively impact WSAs within the BMD. Rangeland and riparian resources within WSAs would be allowed to temporarily recover from livestock grazing. This recovery would last for the duration of the drought and one additional growing season following the cessation of the drought. During this period, rangeland and riparian resources within WSAs would not be receiving the negative impacts of livestock grazing (e.g., Vegetation trampling, soil compaction, erosion, and water contamination).

### **3. Environmental Consequences of the No Action Alternative**

The No Action Alternative would negatively impact the wilderness characteristics of the WSAs within the BMD. WSAs must meet certain criteria in order to be studied further for a determination of suitability as wilderness. Criteria include an area which generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; has outstanding opportunities for solitude or a primitive and unconfined type of recreation; has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (Section 2(c) of the Wilderness Act of 1964). The No Action Alternative would not allow for changes in livestock grazing management to adjust to drought conditions. Over time, this could impair the same qualities that the WSAs originally met in order to receive further study regarding their suitability as wilderness. During drought conditions, livestock, wild horses, and burros would congregate in areas that receive a higher abundance of moisture, especially riparian areas. Riparian areas that are within WSAs could be degraded. This degradation could include, but is not limited to, vegetation trampling, soil compaction, erosion, and water contamination.

### **IV. CUMULATIVE EFFECTS**

The Council on Environmental Quality (CEQ) regulations implementing NEPA defines cumulative impacts as: "The impact on the environment which results from incremental impact of the action when added to other past, present or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7). For the purposes of this EA, cumulative impacts are the sum of all past and present actions, the Proposed Action and reasonably foreseeable future actions (RFFAs) resulting from public land uses. The purpose of the cumulative analysis in this EA is to evaluate the significance of the Proposed Action's contributions to cumulative impacts.

As required under NEPA and the regulations implementing NEPA, cumulative impacts have been addressed for each resource brought forward for analysis. The extent of impacts to each resource would vary based on geographical and biological limits of that resource. Additionally, the length of time for cumulative effects analysis would vary according to the duration of impacts from the Proposed Action on the particular resource. The Cumulative Effects Study Area (CESA) for the Proposed Action is the entire BMD and administered allotments.

#### ***4.0 Past, Present and Reasonably Foreseeable Future Actions***

The Past, Present and Reasonably Foreseeable Future Actions applicable to the assessment area are identified as the following:

Table 9: Past, Present and Reasonably Foreseeable Future Actions

Project Name or Description	Status (X)		
	Past	Present	Future
Issuance of multiple use decisions and permits through the allotment evaluation process	X	X	X
Wild horse and burro gathers	X	X	X
Fence construction for resource protection and management	X	X	X
Mining exploration, extraction and reclamation	X	X	X
Geothermal exploration and development		X	X
OHV use and trail system			X
Woodcutting and pine nut and Christmas tree harvesting	X	X	X
Habitat and vegetation improvement treatments and projects	X		X
Wildfire suppression and rehabilitation	X	X	X
Invasive and noxious weed treatments	X	X	X

Any future proposed projects within the assessment area would be analyzed in an appropriate environmental document following site-specific planning. Future project planning would also include public involvement.

#### *4.1 Effect of Past, Present and Reasonably Foreseeable Future Actions*

##### **A. Air Quality**

##### **Cumulative Effects of the Proposed Action**

Past, present and RFFAs cumulatively affecting air quality on the BMD have been identified as smoke, ash and debris from wildland fires/prescribed burns, fugitive dust from mining activities and (OHV) use of unimproved roads, combustion engine emissions, wind erosion of disturbed areas and herbicide applications.

Under the Proposed Action, DRAs would be implemented to maintain vegetation within the BMD to minimize the potential for accelerated erosion events. DRAs such as temporary water hauls could result in the short-term increase of wind born particulate matter and vehicle emissions during the hauling of water. Any airborne particulate matter caused by the implementation of DRAs coupled with past, present and RFFAs would be negligible and are not expected to cumulatively impact air quality.

The DRAs described in the Proposed Action are designed to protect vegetation and stabilize soils and would decrease wind born particulate matter in the long-term. Therefore, it is expected that the cumulative effects of the Proposed Action, would be beneficial and not significant in regards to air quality.

##### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative are similar to those of the Proposed Action.

## **Cumulative Effects of the No Action Alternative**

Marshal (1973) found that wind velocity, and its potential to detach and transport dry soil, exponentially increases near the ground as vegetation's sheltering effect is reduced. The Society for Range Management Task Group in Concepts and Terminology (1995) concluded that erosion was a function of protective attributes of vegetation (e.g., cover, biomass, density of plants). The No Action Alternative would increase response time and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management would continue with no modifications. This would lead to an overall decline in rangeland health associated with a reduction in plant cover and increased soil erosion. Accelerated soil erosion rates would increase the amount of airborne particulate matter, which could reduce air quality causing public safety issues such as poor visibility or respiratory problems. This coupled with past, present and RFFAs such as smoke, ash and debris from wildland fires/prescribed burns and fugitive dust from mining activities and (OHV) use of unimproved roads would have adverse cumulative impacts on air quality.

## **B. Wildlife**

### **Cumulative Effects of the Proposed Action**

In the short-term, the Proposed Action could positively impact a wide variety of wildlife species mainly as a result of increased water and forage availability. In the long-term, wildlife would also benefit from improved rangeland health conditions.

The Proposed Action does not induce substantial growth or concentration of wildlife populations, displace or redistribute wildlife populations, cause a substantial reduction in wildlife population growth, reduce reproduction or survival, cause a substantial net increase in physiological expenditures, or create a substantial demand for forage or water. It is expected that the cumulative and incremental effects of the Proposed Action on wildlife would be beneficial.

### **Cumulative Effects of the Grazing Closure Alternative**

In the short-term, the Grazing Closure Alternative could positively impact a wide variety of wildlife species mainly as a result of increased water and forage availability. In the long-term, wildlife would also benefit from improved rangeland health conditions.

The Grazing Closure Alternative does not induce substantial growth or concentration of wildlife populations; displace or redistribute wildlife populations; cause a substantial reduction in wildlife population growth; reduce reproduction or survival; cause a substantial net increase in physiological expenditures; or create a substantial demand for forage or water. It is expected that the cumulative and incremental effects of the Grazing Closure Alternative on wildlife would be beneficial.

## **Cumulative Effects of the No Action Alternative**

Under the No Action Alternative, current livestock and wild horses and burros management would continue during drought and would likely lead to the degradation of upland and riparian health. Over the short-term, negative impacts to wildlife include declines in physiological condition leading to depressed reproductive output and increased mortality. If drought conditions persist for prolonged periods, cumulative degradation of rangeland health could lead to significant declines in wildlife populations, local extinctions and reduced connectivity between extant populations. Impacts would likely be considerable for species that depend on surface water and/or riparian areas for portions of their life history.

## **C. Cultural/Historical**

### **Cumulative Effects of the Proposed Action**

Past, present and RFFAs cumulatively affecting cultural resources on the BMD have been identified as wildland and prescribed fires, recreation/OHV use, general ground disturbing activities and the illegal desecration of evaluated and unevaluated sites. When compared with the previously identified cumulative impacts, the Proposed Action is not expected to contribute to cumulative loss of cultural resources. This is because the DRAs identified in the proposed action are intended to maintain vegetation health and limiting soil erosion. Furthermore, any of the DRAs that have the potential to be ground disturbing (e.g., temporary water hauls, electric fences and above ground pipelines) would be surveyed for cultural resources prior to implementation. It is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in respect to cultural and historical resources.

### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative reflect those of the Proposed Action.

### **Cumulative Effects of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and result in a continuation of current management practices, which are often poorly suited to drought. Drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use. This may lead to a further reduction in plant cover and increased soil erosion. An increase in soil erosion would provide the potential for the degradation of important cultural resources. Therefore, the No Action Alternative coupled with past, present and RFFAs known to affect cultural resources would have adverse cumulative impacts on cultural and historical resources.

## **D. Native American Religious Concerns**

### **Cumulative Effects of the Proposed Action**

Past, present and RFFAs cumulatively affecting cultural resources on the BMD have been identified as wildland and prescribed fires, recreation/OHV use, general ground disturbing activities and the illegal desecration of evaluated and unevaluated sites. When compared with the previously identified cumulative impacts, the Proposed Action is not expected to contribute to cumulative loss of cultural resources. This because the DRAs identified in the proposed action are intended to maintain vegetation health and limiting soil erosion. Furthermore, any of the DRAs that have the potential to be ground disturbing (e.g., temporary water hauls, electric fences and above ground pipelines) would be surveyed for cultural resources prior to implementation. The placements of such temporary projects are flexible and would avoid any known cultural resources. Any temporary electric fences constructed would be designed in a manner that allows access at all current access points (e.g., trails, roads, etc.). The cumulative loss of cultural resources would be minimized since the BLM would take into account any potential effects prior to the installation of temporary range improvements.

It is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in respect to Native American Religious Concerns.

### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative reflect those of the Proposed Action.

### **Cumulative Effects of the No Action Alternative**

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and result in a continuation of current management practices, which are often poorly suited to drought. Drought reduces the health and production of vegetation. Without the prompt implementation of management strategies, the effects of drought can be compounded by improper livestock and wild horse and burro use. This may lead to a further reduction in plant cover and increased soil erosion. An increase in soil erosion would provide the potential for the degradation of important cultural resources. Edible and medicinal plants may be reduced or eliminated from traditional cultural sites if overgrazing occurs during drought. Riparian areas may experience heavy use by livestock and/or wild horses and burros as upland vegetation dries out and becomes less palatable and water resources become scarce. The delayed implementation of DRAs under the No Action Alternative coupled with past, present and RFFAs known to affect cultural resources would have adverse cumulative impacts on Native American religious concerns.

## **E. Noxious Weeds/Invasive Non-native Species**

### **Cumulative Effects of the Proposed Action**

Noxious weeds and/or invasive non-native species are spread by wind, water, animals and people. The potential for these species to invade an area and become established increases with ground disturbance and reduced vigor of native plants. In the short-term, the Proposed Action would provide for targeted grazing of non-native species. In the long-term the Proposed Action would limit adverse impacts to native vegetation and reduce the potential for soil erosion, thus limiting the opportunity for noxious weeds and/or invasive non-native species to become established. It is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in regards to noxious weeds and invasive non-native species.

### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative reflect those of the Proposed Action. However, the Grazing Closure Alternative does not provide an opportunity for targeted grazing of non-native species.

### **Cumulative Effects of the No Action Alternative**

Under the No Action Alternative, current livestock and wild horse and burro management would continue during drought and would likely lead to the degradation of upland and riparian health. Reduced plant vigor, soil cover and increased erosion are linked to reduced upland and riparian health. This would increase the potential for invasion by noxious weeds and non-native species and lead to a long-term increase in noxious weeds and non-native species.

## **F. Riparian/Wetlands**

### **Cumulative Effects of the Proposed Action**

The direct impact of the Proposed Action would be to reduce the impact of grazing on riparian vegetation. The reduction in the loss of riparian vegetation as a result of the proposed action would increase bank stability, reduce erosion, sedimentation, and changes in channel morphology, and increase groundwater recharge.

Other factors that could adversely impact riparian vegetation such as diversion of stream flow and groundwater pumping for agriculture and mining are not altered by the proposed action. The reduction in in-stream flows as a result of diversion for irrigation and/or mining during periods of drought may still lead to a reduction in riparian vegetation. Groundwater pumping for irrigation and mining with a reduction in groundwater recharge for periods of sustained drought may result in a lowering of the water table in some areas adversely impacting riparian vegetation.

The increase in mining, geothermal and solar development in the BMD might continue into the foreseeable future resulting in the potential loss of some riparian habitat.

## **Cumulative Effects of the Grazing Closure Alternative**

The direct impact of the proposed Action would close drought affected areas to grazing during the period of the drought and provide for one additional growing season for riparian vegetation to recover. Researchers in Oregon conducted a study of a stream segment that had been removed from grazing impacts for four years (Dobkin *et al.*, 1998). They observed that during the four year period the water table rose, expanding the hyporheic zone laterally from the channel. They also observed an increase in quantity and duration of base flows.

Most climate models predict the severity and frequency of droughts in the southwestern United States is expected to increase, increasing the need for a drought management program. The Grazing Closure Alternative would allow the restoration of riparian vegetation in a climate with longer, hotter growing seasons, and increased intensity of droughts.

## **Cumulative Effects of the No Action Alternative**

Under the No Action Alternative there could be a significant loss of riparian vegetation. The loss of riparian vegetation would result in increased erosion and sedimentation.

The reduction in riparian vegetation as a result of grazing would increase the impacts of storm run-off from development. Channels could become entrenched, and flood plains become hydrologically disconnected from channel stream flow resulting in the loss of riparian vegetation and the formation of dry terraces.

Based on climate models, the severity and frequency of droughts in the southwestern United States is expected to increase. Predicted climate change may result in the acceleration of the degradation of the riparian ecosystem.

## **G. Water Quality**

### **Cumulative Effects of the Proposed Action**

The direct impact of the Proposed Action would be to reduce the impact of grazing on riparian vegetation. This would reduce the rate of loss of riparian vegetation and minimize increases in water temperature, erosion and sedimentation.

Agriculture and mining are not altered by the proposed action. During drought periods, pumping for agriculture and mining could further reduce ground water resources and lower the water table. Agriculture could supplement a reduction in surface water with groundwater. The use of additional amounts of groundwater high in total dissolved solids would increase the deposition of salts in the upper soil zone.

### **Cumulative Effects of the Grazing Closure Alternative**

The Grazing Closure Alternative would allow for the restoration of riparian vegetation reducing erosion, sedimentation and water temperature. Reestablishment of riparian vegetation would

help mitigate the adverse impacts of agriculture and mining related run-off. Riparian vegetation acts as a filter and reduces sediment and contaminate loading to streams.

### **Cumulative Effects of the No Action Alternative**

The No Action Alternative would result in a significant decrease in water quality. Sedimentation and water temperatures would increase. The reduction or removal of riparian vegetation would exacerbate the impacts to water quality from agriculture and mining run-off.

## **H. Grazing Management**

### **Cumulative Effects of the Proposed Action**

Past, present, and RFFAs have the potential to impact livestock grazing activities, at least temporarily. It is expected that the Proposed Action could contribute to the cumulative impacts of past actions that have resulted in improved rangeland health conditions such as; rangeland health evaluations, wildland fires, habitat treatment activities, and past weed treatments. Temporary displacement of livestock as a result of actions that could occur under the Proposed Action along with past, present and RFFAs also contributes to the direct cumulative impacts to grazing management. The Proposed Action would require an increase in grazing management practices on allotments occurring within drought-afflicted areas of the BMD. Depending on the DRAs selected, grazing management would be modified. This would lead to increased inputs from permittees. The cumulative effects of these inputs have been analyzed within the Socio-Economic Values section of this document.

The degree to which drought impairs the range's potential for future forage production depends on the intensity, frequency and timing of grazing (Howery 1999). Lagged responses toward drought pose a threat to sustainable management of rangelands (Thurow and Taylor 1999). The proposed action would provide for the maintenance of vegetation and continuation of opportunities for grazing when past, present and RFFAs could provide additional disturbances (e.g., mineral exploration/extraction, disturbance from wildland and prescribed fire, road maintenance, etc.) across the public lands. These actions result in an increase in disturbed lands, increasing the risk of degradation of vegetative resources. Cumulatively, the indirect impact of the Proposed Action when coupled with these particular past, present and RFFAs would improve resources available for livestock grazing management due to a reduction in the net-loss of vegetative resources.

### **Cumulative Effects of the Grazing Closure Alternative**

In the short-term, the Grazing Closure Alternative would remove livestock from public lands and eliminate grazing management. The cumulative effects of the reduced opportunity for grazing have been analyzed within the Socio-Economic Values section of this document.

In the long-term, the Grazing Closure Alternative would have similar impacts as the Proposed Action. The removal of grazing would maintain vegetative cover and reduce the potential for soil erosion and noxious weed invasion. This would provide for the sustainable management of the rangelands and provide future opportunities for grazing.

## **Cumulative Effects of the No Action Alternative**

The No Action Alternative would increase response time and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management would continue with no modifications. This would lead to an overall decline in rangeland health associated with a reduction in plant cover and increased susceptibility to soil erosion. The No Action Alternative would directly impact rangeland health, indirectly impacting grazing management practices and levels of livestock production over the long term.

## **H. Land Use Authorization**

### **Cumulative Effects of the Proposed Action**

The Proposed Action would provide for the maintenance of rangeland health and reduce soil erosion and the potential for noxious weed invasion. This would beneficially impact land use authorizations by reducing the maintenance cost of right-of-ways as well as protect access to sites or the sites themselves. It is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in regards to Land Use Authorization.

### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative reflect those of the Proposed Action.

### **Cumulative Effects of the No Action Alternative**

The No Action Alternative would increase response time and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management would continue with no modifications. This would lead to an overall decline in rangeland health associated with a reduction in plant cover and increased susceptibility to soil erosion. Noxious weeds and non-native invasive species are more likely to invade areas that are in poor condition. Noxious weeds increase the costs for maintenance and soil erosion could damage access to sites or the sites themselves. Increased erosion and density of noxious weeds associated with the prolonged degradation of rangeland health that would occur with the No Action Alternative would have a negative effect on Land Use Authorizations.

## **I. Recreation**

### **Cumulative Effects of the Proposed Action**

In the past, recreation within the BMD has been dispersed and primitive in nature, and presently remains that way. Under the Proposed Action, reasonably foreseeable future actions include a positive impact on wild horse viewing, and riparian areas that are utilized for recreational purposes. In recent years, there has been an increased interest in wild horses and wild horse viewing within the BMD. Under the proposed action, gathers would be implemented in order to minimize the negative impacts that drought conditions would have on wild horses that are on the range. Wild horse viewers would observe horses that are in better viewing condition than if no

action is taken, due to fewer horses utilizing scarce resources under drought conditions. Due to these actions, wild horse viewers would continue to come to the BMD for their wild horse viewing needs. This would have a positive impact on communities within the BMD that rely partly on wild horse viewers as a source of income.

While limited, the BMD does contain riparian resources that are frequently used for recreational purposes. Impacts under the Proposed Action include minimizing the degradation of riparian resources used for recreational purposes. If livestock management actions and wild horse and burro gathers are implemented, riparian resources wouldn't be impacted as heavily as if no action was taken. If drought conditions persisted, this would cause livestock, wild horses, and burros to seek out any remaining water sources in order to survive. This could result in large congregations of animals in riparian areas that are utilized for recreation, causing degradation to the riparian resources. Degradation could include, but is not limited to, vegetation trampling, soil compaction, erosion, and water contamination. These negative impacts would be minimized under the proposed action. Visitors would continue to utilize riparian resources within the BMD for recreational purposes. This would have a positive economic impact on communities within the BMD that rely partly on recreational visitors as a source of income.

### **Cumulative Effects of the Grazing Closure Alternative**

Past and current actions within the BMD include allowing for livestock grazing in areas which coincide with recreation activities. Reasonably foreseeable future actions under the Grazing Closure Alternative include a temporary benefit to rangeland and riparian resources that are utilized for recreation purposes. Livestock would not cause negative impacts that could include, but are not limited to, vegetation trampling, soil compaction, erosion, and water contamination. These impacts would continue for the duration of the drought plus one growing season following the cessation of the drought. These measures would protect rangeland and riparian resources within the BMD, and allow them to remain suitable areas for recreation. This would have a positive economic impact on communities within the BMD that rely partly on recreational visitors as a source of income.

### **Cumulative Effects of the No Action Alternative**

In the past, recreation within the BMD has been dispersed and primitive in nature, and presently remains that way. Impacts under the No Action Alternative include reduced wild horse viewing, and a degradation of riparian areas used by recreationists. In recent years, there has been an increased interest in wild horses and wild horse viewing within the BMD. If no action is taken and rangeland and riparian resources deteriorate under drought conditions, this would affect the health of wild horses that are on the range. Wild horse viewers could see horses in malnourished conditions, and could view horses that are near death or have died due to these conditions. This would have a negative impact on wild horse viewing within the BMD. This impact could cause wild horse viewers to search for other wild horse viewing opportunities outside of the BMD. This would result in a negative economic impact on communities within the BMD that rely partly on wild horse viewers as a source of income.

While limited, the BMD does contain riparian resources that are frequently used for recreational purposes. Reasonably foreseeable future actions under the No Action Alternative would include a degradation of the riparian resources within the BMD. Under the No Action Alternative, changes in livestock management wouldn't be implemented and wild horse and burro gathers wouldn't take place. If drought conditions persisted, this would cause livestock, wild horses, and burros to seek out any remaining water sources in order to survive. This could result in large congregations of animals in riparian areas that are utilized for recreation, causing degradation to the riparian resource. Degradation could include, but are not limited to, vegetation trampling, soil compaction, erosion, and water contamination. These impacts could cause recreation users to search for other recreation areas outside of the BMD. This would result in a negative economic impact on communities within the BMD that rely partly on recreational visitors as a source of income.

## **J. Socio-Economic Values**

### **Cumulative Effects of the Proposed Action**

In the short-term, the Proposed Action could adversely impact ranchers who hold BLM grazing permits due to costs incurred to implement DRAs. However, in the long-term, ranchers would benefit from improved rangeland health conditions. Wildlife, wild horses and burros would also benefit from the increased production rates of forage and habitat improvement.

The Proposed Action does not induce substantial growth or concentration of population; displace a large number of people; cause a substantial reduction in employment; reduce wage and salary earnings; cause a substantial net increase in county expenditures; or create a substantial demand for public services. In the volatile economy of the foreseeable future, it is expected that the cumulative and incremental socioeconomic effects of the Proposed Action, would be beneficial and not significant.

### **Cumulative Effects of the Grazing Closure Alternative**

In the short-term, the Grazing Closure Alternative could adversely impact ranchers who hold BLM grazing permits due to costs incurred to provide alternate livestock forage. However, in the long-term, ranchers could benefit from improved rangeland health conditions. Wildlife, wild horses and burros would also benefit from the increased production rates of forage and habitat improvement.

This alternative does not induce substantial growth or concentration of population; displace a large number of people; cause a substantial reduction in employment; reduce wage and salary earnings; cause a substantial net increase in county expenditures; or create a substantial demand for public services. In the volatile economy of the foreseeable future, it is expected that the cumulative and incremental socioeconomic effects of the Grazing Closure Alternative, would be beneficial and not significant.

## **Cumulative Effects of the No Action Alternative**

Under the No Action Alternative, current livestock and wild horses and burros management would continue during drought and would likely lead to the degradation of upland and riparian health. If drought conditions persist for prolonged periods, cumulative degradation of rangeland health may result in grazing allotments failing to meet rangeland S&Gs in the future.

Consequently, BLM could cancel portions of or entire permits on allotments that fail to meet S&Gs, which may adversely impact affected permittees. Additionally, declining conditions of the rangelands may be coupled with declining conditions of livestock, wild horses and burros and wildlife. During periods of prolonged drought, profits of ranchers would decline. This may or may not lead to existing ranches becoming economically unviable. The BLM assumes that if existing ranches fail, some other corporation or individual may step in to purchase the base property and grazing privileges. It is not possible to foresee which base properties, if any, may change out of livestock production and into some other form of business. If base properties do remain active for livestock production, the industry as a whole would continue to exist but under different ownership and likely with reduced income.

## **L. Soils**

### **Cumulative Effects of the Proposed Action**

Past, present and RFFAs such as historic grazing management, range improvement construction, mining exploration/extraction, wild horse use and burro use, OHV use, and wildland and prescribed fires have impacted soils, at least temporarily, in the form of soil compaction, loss of soil-site stability and changes in physical and/or biological processes. These impacts, which may be in the form of compaction, erosion, loss of soil structure, or a combination of the three, are dependent upon the size and nature of the actions that have or may occur across the landscape. Other activities that have resulted in improved rangeland health have been implemented to improve soil site stability such as changes in grazing management, removal of excess wild horses, reclamation, rehabilitation activities and authorization of various range improvement projects.

There is broad agreement that improper grazing can negatively impact various rangeland ecosystem functions and degrade ecosystem services (Belsky et al. 1999; Briske et al. 2008; Tate et al. 2004). This is especially true during drought, when plant production and vigor is reduced and plants become increasingly vulnerable to grazing. The quality of the soil determines the nature of plant ecosystems and the capacity of land to support animal life, vegetation and society (Brady and Weil 2002). Soil erosion decreases the capacity of the soil to provide these services. The erosion hazard during drought is increased when prolonged grazing pressure further reduces plant cover (Thurow and Taylor 1999).

The livestock and wild horse and burro management strategies described in the Proposed Action would provide for the maintenance of soil cover. The Proposed Action would also limit the impact to riparian areas where improper management can lead to increased erosion in a short amount of time. It is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in respect to soils.

## **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative reflect those of the Proposed Action.

## **Cumulative Effects of the No Action Alternative**

Increases in wind and water erosion are positively correlated to reduced plant cover. Marshal (1973) found that wind velocity, and its potential to detach and transport dry soil, exponentially increases near the ground as vegetation's sheltering effect is reduced. The Society for Range Management Task Group in Concepts and Terminology (1995) concluded that erosion was a function of protective attributes of vegetation (e.g., cover, biomass, density of plants). The No Action Alternative would increase response time and reduce the effectiveness of management during a drought. In many instances, current livestock and wild horse and burro management would continue with no modifications. This would lead to an overall decline in rangeland health associated with a reduction in plant cover and increased susceptibility to soil erosion. Therefore, it is expected that the No Action Alternative would have a negative effect on soils within the BMD.

## **M. Vegetation (Including SSS)**

### **Cumulative Effects of the Proposed Action**

Past, present and RFFAs brought forward in Table 8 have resulted in potential direct and indirect impacts to vegetative resources. Most actions that occur have resulted in the improvement of vegetative communities as a whole. Activities such as rehabilitation/restoration projects, noxious/invasive weed treatments, changes in grazing management, and removal of wild horses have direct impacts to vegetative communities by improving vegetative health (vigor, density, and production). Activities such as the implementation of range improvement projects are designed to improve vegetative conditions by modifying livestock distribution patterns within an area. Improved livestock distribution patterns limit grazing pressures on vegetative resources within a given area therefore allowing for an increased vigor, density, and productive response. Where impacts have resulted in a loss of vegetation (e.g., mining, wildland and prescribed fires, geothermal exploration, OHV use) mitigation efforts are typically incorporated in order to limit a net loss across the landscape.

During drought, it is imperative that proper grazing management occurs. The Proposed Action is designed to reduce the impacts of livestock and wild horse and burro use on vegetation during drought.

To survive, perennial plants must accumulate both above ground (shoot growth) and below ground (root growth) biomass through the process of photosynthesis, transpiration, and respiration (Howery 1999). Excessive removal of above ground biomass during the growing season reduces root growth. A healthy root system is paramount in the growth of any range plant, especially during dry years when competition for water and nutrients is most severe (Bedell and Ganskopp 1980). Proper use of range forage allows plants to survive dry periods, recover quickly, and provide cover to protect the soil and promote water infiltration (Hanselka

and White 1986). The DRAs described in the Proposed Action are intended to ensure adequate residual plant material is left to protect the soil and provide for sustainable plant production. Maintenance of native plants is important for the continuation of healthy and diverse plant communities, therefore, it is expected that the cumulative and incremental effects of the Proposed Action would be beneficial and not significant in respect to vegetation.

### **Cumulative Effects of the Grazing Closure Alternative**

The cumulative effects of the Grazing Closure Alternative are similar to those of the Proposed Action. However, the Grazing Closure Alternative does not provide an opportunity for targeted grazing of non-native species, which could be used to enhance the production of perennial grasses by reducing plant competition and minimizing soil moisture depletion.

### **Cumulative Effects of the No Action Alternative**

The degree to which drought impairs the range's potential for future plant production depends on the intensity, frequency, and timing of grazing (Howery 1999). Thurow and Taylor (1999) found that unsustainable range use leads to erosion, crusting and degraded vegetation. This causes an increase in the frequency and consequences of drought. Excessive removal of above ground biomass during the growing season reduces root growth. A healthy root system is paramount in the growth of any range plant, especially during dry years when competition for water and nutrients is most severe (Bedell and Ganskopp 1980). As plants are overgrazed their root system is reduced which in turn limits their ability to capture and use soil moisture.

The No Action Alternative would require the preparation of separate EAs, which would delay drought response times and potentially result in a continuation of current management practices, which are often poorly suited to drought. Therefore, it is expected that the No Action Alternative would have negative cumulative impacts on vegetation. Overuse of vegetation during drought would directly impact the health of vegetation and reduce the ability of vegetative communities to use soil nutrients and water even during times of average precipitation.

## **N. Wild Horses and Burros**

### **Cumulative Effects of the Proposed Action**

Since 1975, the BMD has been conducting periodic gathers to remove excess wild horses and burros. Through this time, populations of individual HMAs have fluctuated. Emergency drought or wildfire gathers have also been conducted on several HMAs.

Past activities, which may have affected wild horses and burros within primarily, include livestock grazing through the impacts on vegetation condition and availability, as well as water quality and quantity, and drought. Wild horse and burro use/overpopulation and gathers to remove excess animals are likely to have the largest impact on the quality of habitat used by wild horses and burros and thus on the health and long term success of animals on the range. Other actions have included mining and mineral exploration, wildfire suppression and rehabilitation, range improvement projects including water developments and vegetation treatments,

geothermal development, oil and gas exploration, power line development, recreational activities and fence construction.

Currently, the population of the 28 HMAs administered by the BMD is approximately 4,200 wild horses and burros. Several HMAs maintain populations in excess of AML, and maintenance gathers are being proposed for 2013 to remove excess animals. Permitted livestock use is the primary use that occurs within the associated Allotments in addition to the use by wild horses and wildlife. Geothermal exploration and development is taking place in several HMAs, as well as ongoing mineral exploration and mining. Vegetation and fuels treatments are currently being analyzed and implemented.

Rangeland Health Evaluations (RHE) are currently being completed in several HMAs. Once data is collected and analyzed, Standards for Rangeland Health will be evaluated and if necessary, changes to livestock and wild horses or burro use would be recommended and implemented through decisions, following consultation with the interested public.

Future activities which could occur include adjustments to livestock grazing numbers or season of use, water developments, spring enclosures, solar, geothermal and mine development, and mineral or geothermal exploration activities. The future may also involve further adjustments (increases or decreases) to AMLs and development of Herd Management Area Plans (HMAPs). Other activities, such as future gathers to maintain AML, implementation of fertility control and/or modification of sex ratios within the HMAs could occur. Should future genetic analysis indicate concerns with genetic viability, specific treatment protocols would be developed to address these concerns such as potential augmentation of wild horses or burros from other similar HMAs.

The BLM would continue to conduct monitoring to assess progress towards meeting the Northeastern and Mojave-Southern Great Basin RAC Standards and Guidelines, Rangeland Health Standards and RMP objectives. Wild horses and burros would continue to be a component of the public lands, managed within a multiple use concept.

The BMDO is in the process of updating and revising the Shoshone-Eureka and Tonopah Land Use Plans. Actions in these updated plans could include changes to HMA designation or allocation, implementation of SOPs for management of these populations, and identification of tools to use for population control. The LUP Revision process includes involvement with the interested public. Information about this process can be found on the LUP Revision website at: [http://www.blm.gov/nv/st/en/fo/battle\\_mountain\\_field/blm\\_information/rmp.html](http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/rmp.html)

While there is no anticipation that amendments to the Wild Free-Roaming Horses and Burros Act would change the way wild horses would be managed 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.

As the BLM achieves AML on a Bureau wide basis, gathers should become more predictable due to facility space. This should increase stability of gather schedules, which would result in HMAs being gathered at least every four years. 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.

Cumulative beneficial effects from the Proposed Action are expected, and would include improvement of the rangeland vegetation and riparian areas, which in turn positively impact wildlife, wild horse populations, and livestock as forage and water availability and quality is protected from the effects of drought.

The combination of the past, present, and reasonably foreseeable future actions, along with the Proposed Action, should provide the best opportunity to maintain stable wild horse and burro populations, healthier rangelands and animals, and avoid future emergency situations.

The Proposed Action would contribute to isolated areas of disturbed vegetation through the gather activities. Due to the small size or short duration of the disturbance, cumulative impacts associated with the Proposed Action, when compared to the overall CESA, are expected to be negligible especially when identified mitigation measures are implemented.

The Proposed Action is expected to result in indirect impacts that would contribute to improved rangeland health. In the long term, the DRAs in addition to foreseeable actions (such as changes to livestock management systems) would lead to improved habitat for wild horse, burros and wildlife. The actions identified for Livestock and Wild Horses and Burros, whether implemented alone or in combination would promote recovery of native vegetation affected by drought as well as reduce or eliminate additional degradation to vegetation and riparian areas.

Because of the movement of wild horses between neighboring HMAs, any removal operation, as well as future gathers could affect the number of animals in these HMAs. Experience has shown that when populations are reduced in one HMA, often times there are compensatory population fluctuations as wild horses or burros migrate into an area of lower population from an area of higher population. This is likely a natural response to reduced competition for forage, water, and space. The outcome can be noticeable or involve subtle shifts in the populations between HMAs over time, and particularly in the years following a gather operation.

Due to the normal movement of wild horses and burros between HMAs and United States Forest Service WHTs, it is expected that genetic health of all populations would continue to be maintained. In the case of a complete removal the genetic health of the HMA could be impaired. If possible, an adequate number of animals would be held in a contract facility until it deemed possible to safely release the wild horses or burros and ensure their welfare.

In future years, the implementation of fertility control could reduce the overall number of wild horses needing to be removed from the range. The result could be maintaining stable populations within the established AML ranges, removal of primarily young animals, and 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, application of fertility control through the Proposed Action could increase the health of mares within the HMA with reduced biological costs due to repeated births and nursing foals. Once

normal fertility resumes, mares would reflect higher body condition which would result in larger, stronger foals more apt to reach their genetic potential and survive adverse conditions.

With implementation of the Proposed Action, excessive use by wild horses or burros would be minimized or avoided. Key forage species would improve in health, abundance and robustness, and would be more likely to set seed and reproduce, which in turn would contribute to their increase within the plant community. As future wild horse or burro decisions are implemented and future gathers conducted to remove excess animals and maintain AML, these impacts are expected to continue and result in overall improvements to the forage availability for livestock, wild horses and wildlife. Habitat would be protected from further losses of important key forage species, which would increase in frequency, vigor and production. Improved habitat condition would lead to improved equine body condition, healthier foals, and ensure herd sustainability through drought years.

No additional impacts would be expected from relocating wild horses and/or burros within HMAs beyond those identified for the other Drought Response Actions. Over the course of time, animals would be expected to re-distribute throughout the HMA, and long term distribution patterns would not be affected.

### **Cumulative Effects of the Grazing Closure Alternative**

Cumulative impacts of this alternative in combination with all other past, present and future actions would consist of enhanced rangeland health in the long term as recovery from drought ensues in the absence of livestock grazing. Effects to wild horses would be a degree of improved quality and quantity of forage and water in the short term and potentially in the long term if recovery from drought and subsequent impacts rangeland health are notable. Future impacts from overpopulation of wild horses or burros, changes to livestock management or actions that cause changes to animal distribution on the range (including future or continued drought) could negate impacts from this alternative in the long term. There are however, no adverse impacts to wild horses or burros anticipated from this alternative.

### **Cumulative Effects of the No Action Alternative**

The No Action Alternative would not result in any long-term cumulative benefits to any rangeland user. The No Action Alternative would allow continued degradation of vegetation by wild horses or burros within drought affected rangeland, which would cause continued loss of key perennial forage species replaced by less palatable and nutritious native and non-native plants.

In HMAs that support inadequate resources in relation to the population of animals, emergency conditions for wild horses and burros could result. No other past, present or reasonably foreseeable actions would offset the potentially irreparable damage to the range. Lack of appropriate management action at this time could result in future decisions to reduce AML or eliminate portions of HMAs from long term management due to lack of resources.

Without an emergency gather to remove the stressed animals, a large portion of the population could die a painfully suffering death. Animal health, particularly wild horses would be affected for many years as the range begins to recover from drought under the pressure of a population of animals that is out of balance with the resources.

Deterioration of uplands and riparian areas would not ensure healthy habitat for future generations of wild horses, burro or wildlife. Chronic and long term degradation of rangeland resources could result in irreparable damage to the arid habitat and could result in the need to permanently remove all wild horses from the range in certain HMAs, cumulatively resulting in reduced AML or discontinuing long term management of wild horses or burros due to lack of suitable habitat. In the long term, the No Action Alternative would result in reductions or elimination of livestock grazing due to degraded range conditions, and a severe reduction or extirpation of native wildlife in most seriously affected areas.

## **O. Wilderness**

### **Cumulative Effects of the Proposed Action**

Past and present actions have allowed for livestock grazing within WSAs. Grazing within WSAs must continue in a manner that doesn't cause unnecessary or undue degradation of the lands. Reasonably foreseeable future actions under the Proposed Action include maintaining this standard for livestock grazing within WSAs, and preventing the degradation of rangeland and riparian resources within WSAs.

Past and present actions have allowed for wild horses and burros to utilize WSAs as long as that use doesn't degrade wilderness values, and vegetative cover. Reasonably foreseeable future actions under the Proposed Action include maintaining this standard regarding wild horses and burros within WSAs, and preventing degradation of wilderness values and vegetative cover. During drought conditions, gathers could be implemented. This would prevent the degradation of wilderness values within WSAs, and ensure the well-being of wild horses and burros on the range. The removal of wild horses and burros that utilize WSAs would allow for the temporary recovery of rangeland and riparian resources within WSAs.

### **Cumulative Effects of the Grazing Closure Alternative**

Past and present actions have allowed for livestock grazing within WSAs. Grazing within WSAs must continue in a manner that doesn't cause unnecessary or undue degradation of the lands. Under the Grazing Closure Alternative, grazing wouldn't take place within WSAs for the duration of the drought and one additional growing season following the cessation of the drought. Reasonably foreseeable future actions include a temporary recovery of the rangeland and riparian resources within WSAs. This recovery would last for the duration of the drought, and one additional growing season following the cessation of the drought.

### **Cumulative Effects of the No Action Alternative**

Past and present actions have allowed for livestock grazing within WSAs. Grazing within WSAs must continue in a manner that doesn't cause unnecessary or undue degradation of the lands.

Reasonably foreseeable future actions under the No Action Alternative include the unnecessary and undue degradation of lands within WSAs. Under drought conditions, livestock would seek out remaining rangeland and riparian resources, including those within WSAs, in order to survive. This utilization could degrade the rangeland and riparian resources. Degradation could include, but is not limited to, vegetation trampling, soil compaction, erosion, and water contamination. This degradation could negatively affect the wilderness values contained within WSAs.

Past and present actions have allowed for wild horses and burros to utilize WSAs as long as that use doesn't degrade wilderness values, and vegetative cover. Reasonably foreseeable future actions under the No Action Alternative include a degradation of wilderness values, and vegetative cover within WSAs. Under drought conditions, wild horses and burros would seek out remaining rangeland and riparian resources, including those within WSAs, in order to survive. This utilization could degrade the rangeland and riparian resources. Degradation could include, but is not limited to, vegetation trampling, soil compaction, erosion, and water contamination. This degradation could negatively affect the wilderness values contained within WSAs.

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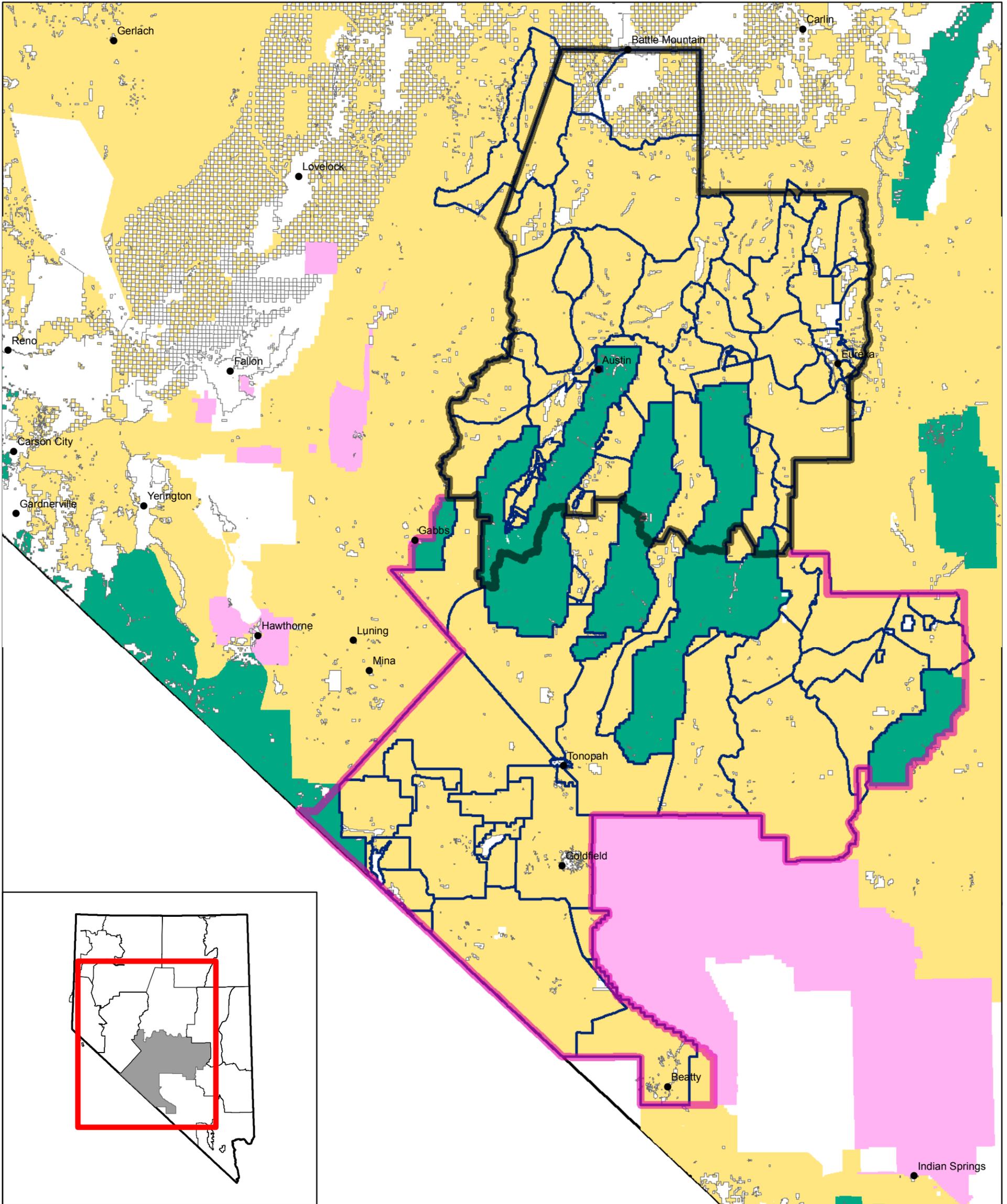
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**Maps – Battle Mountain District**

# Battle Mountain District Allotments

## Map 1



### Legend

- Field Office**
- Mount Lewis Field Office
  - Tonopah Field Office
  - Grazing Allotment Polygons
- Land Status**
- BLM
  - PVT
  - FS
  - DOD
  - State Boundary

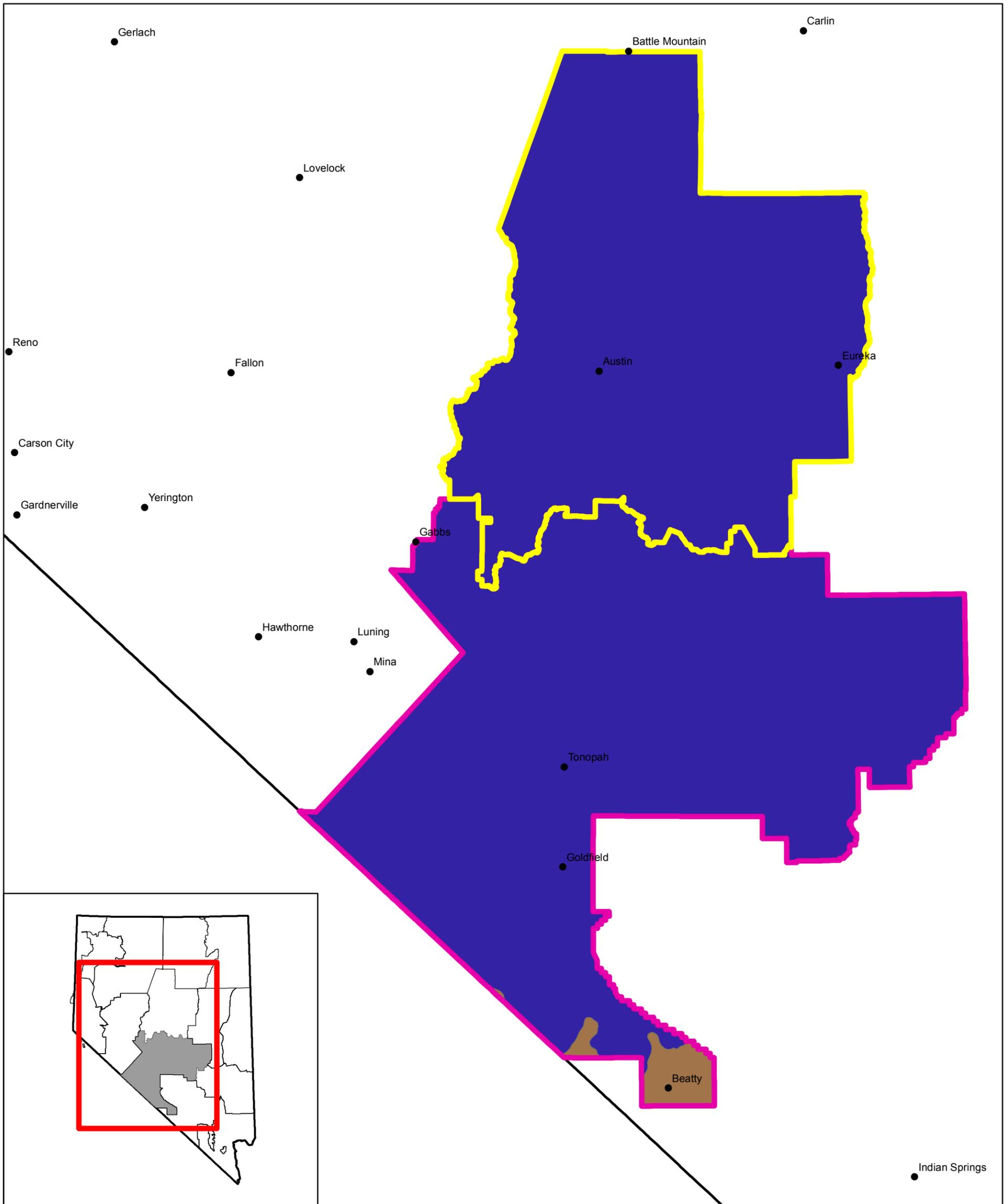


0 15 30 60 Miles

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

Battle Mountain District Office  
January 17, 2012

# Battle Mountain District Ecoregions Map 2



## Legend

### Field Office

-  Mount Lewis Field Office
-  Tonopah Field Office

### Ecoregion

-  Central Basin and Range
-  Mojave Basin and Range
-  State Boundary

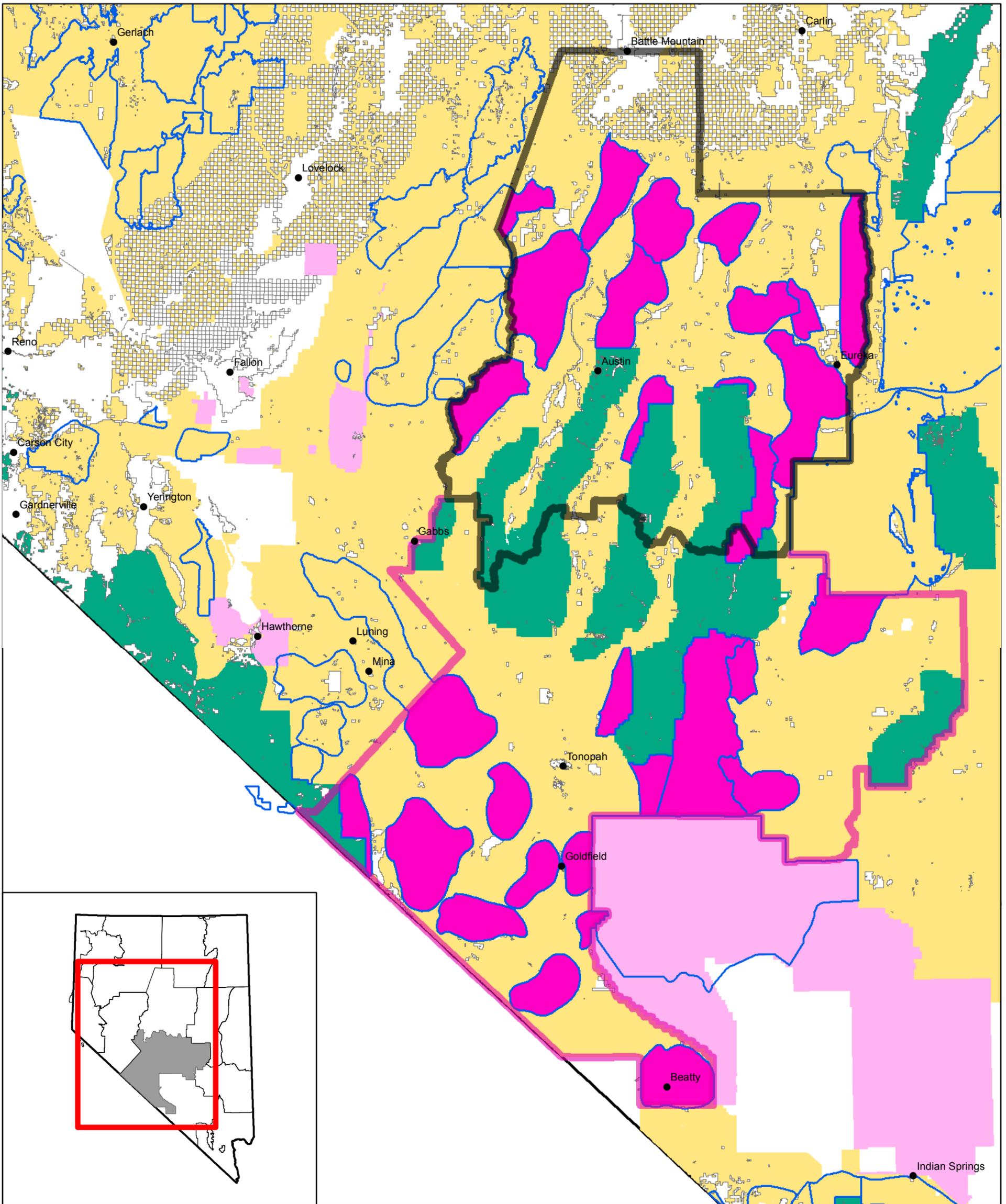


0 15 30 60 Miles

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

Battle Mountain District Office  
January 17, 2012

# Battle Mountain District Herd Management Areas Map 3



## Legend

- Field Office**
- Mount Lewis Field Office
  - Tonopah Field Office
  - Herd Management Areas (HMA)
  - Battle Mountain District HMAs
- Land Status**
- BLM
  - PVT
  - FS
  - DOD
  - State Boundary



0 15 30 60 Miles

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

Battle Mountain District Office  
January 17, 2012

**Attachment 1 – Battle Mountain District Drought Detection and Monitoring Plan**

BUREAU OF LAND MANAGEMENT#

# Battle Mountain District#

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## Drought Detection and Monitoring Plan#

6/14/2012

This monitoring plan contains a description of drought indicators and response triggers that would be used to facilitate the early detection and monitoring of drought conditions. This document also provides a description of the monitoring methods that would be used to determine if the drought response triggers have been met.

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# **Battle Mountain District Drought Detection and Monitoring Plan**

## **I. Introduction**

Drought, a normal part of the climate for virtually all regions of the United States, is of particular concern in the West, where an interruption of the region's already limited water supplies for extended periods of time can produce devastating impacts (Wilhite 1997). The Battle Mountain District (BMD) is located within the Central Basin and Range and Mojave Basin and Range ecoregions defined by the Western Ecology Division of the United States Environmental Protection Agency. Drought is considered to be a recurring event within both ecoregions. The early detection and prompt response to drought is needed to prevent further degradation to affected resources within the BMD. The purpose of this monitoring plan is to describe the drought indicators and response triggers that will be used facilitate the early detection and monitoring of drought conditions, and determine if the activation of drought response actions (refer to the Battle Mountain District Drought Management EA) is needed. This document also provides a description of the monitoring methods that will be used to determine if the drought response triggers have been met.

## **II. Goals**

The early detection of drought is necessary for effective management during drought. The following list outlines the goals of the Battle Mountain District Drought Detection and Monitoring Plan:

- Goal 1: Provide for the early detection of drought conditions.
- Goal 2: Promptly identify and prevent further degradation to affected resources on lands affected by drought within the BMD.
- Goal 3: Clearly define Drought Response Triggers that would be used to distinguish site specific drought level and activate drought response actions (refer to the Drought Management Plan).
- Goal 4: Monitor the condition of forage and water resources.
- Goal 5: Monitor weather, forage and water conditions and identify when drought conditions have ceased.

## **III. Drought Indicators**

Drought indicators are observations signaling the start or continuation of a drought. The following discussion identifies the indicators that the BMD would use to determine the onset and/or continuation of a drought.

A two-part drought definition was provided within the purpose and need for the Proposed Action section of this document (page 1). The first part of the definition describes drought as, “a prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall.” Tracking weather conditions provides an early indication of drought. The U.S. Drought Monitor (<http://droughtmonitor.unl.edu/>) would be consulted to determine if weather conditions indicate drought and to identify affected areas. Site visits to allotments and Herd Management Areas (HMAs) within drought-afflicted areas would be used to evaluate the current condition of water resources and determine if water shortages exist.

Part two of the drought definition describes drought as, “A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water”. The U.S. Drought Monitor and the Vegetation Drought Response Index (VegDRI) (<http://veg dri.unl.edu/>) would be consulted to determine drought afflicted areas and vegetation condition as it pertains to drought stress. Site visits to allotments and HMAs within drought-afflicted areas would be used to evaluate the current condition and production of key forage species as described in the associated Ecological Site Descriptions (ESDs) for the area. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or past monitoring data. Evaluations would be used to determine if plants are exhibiting signs of drought stress and if forage shortages exist. Signs of drought stress include reduced shoot and leaf growth, reduction in seed head development, induced senescence (i.e., premature aging) and plant death.

The U.S. Drought Monitor can be accessed at <http://droughtmonitor.unl.edu/>. The Vegetation Drought Response Index can be accessed at <http://veg dri.unl.edu/Home.aspx>.

## **IV. Drought Monitoring**

### **4.0. Drought Response Triggers**

Drought monitoring would be completed for both upland and riparian areas within the BMD. Monitoring will be conducted within areas of allotments and Herd Management Areas (HMAs) that are determined to be afflicted by drought. When it is determined that drought conditions exist, site visits to allotments and or HMAs within drought-afflicted areas will occur. Drought triggers will be used to determine site specific drought affects and activate drought response actions. Drought Response Triggers (Triggers) are thresholds associated with forage and water resources that indicate the need for site-specific drought response. Triggers would be used separately or in combination to activate Drought Response Actions. These triggers have been placed into two categories, water and forage. The following is a list of the triggers for both categories:

#### **A. Water**

This Trigger is based on the presence or absence of available water. Field visits would be conducted in drought-afflicted areas to determine if there are adequate water sources (natural and/or developed) to provide for the management and/or distribution of wildlife, wild horses and

burros and livestock while maintaining riparian area functionality or the health of upland areas surrounding developed water sources (e.g., wells, pipelines, guzzlers, etc.).

Water would be classified as “available” or “unavailable” within areas affected by drought. “Available” is defined as an amount of water sufficient to provide a safe and reliable source of drinking water for wildlife, wild horses and burros and livestock while maintaining resource values associated with the riparian areas and/or areas surrounding the water source. Resource values associated with riparian areas include riparian vegetation, bank stability, wildlife habitat and water quality. Resource values associated with upland areas surrounding water sources (e.g., wells, pipelines, etc.) include vegetation, nutrient cycling, soil site stability, hydrologic function and wildlife habitat.

“Unavailable” is defined as an absence of water or an amount of water that is insufficient to provide a safe and reliable source of drinking water for wildlife, wild horses and burros and livestock while maintaining resource values.

Field observations and professional judgment would be used to determine availability. Criteria such as reduced quantity, noticeable accumulation of animal waste, and unsafe conditions due to mud or severely eroded banks would be used.

## **B. Forage**

To survive, perennial plants must accumulate both above ground (shoot growth) and below ground (root growth) biomass through the process of photosynthesis, transpiration, and respiration (Howery 1999). A lack of available soil moisture usually reduces the length of the growing season. A shorter growing season directly impacts above and below ground production and ultimately forage quantity. The degree to which drought impairs the range’s potential for future forage production depends on the intensity, frequency, and timing of grazing (Howery 1999). Drought afflicted rangelands are unable to support pre-drought stocking levels. Overutilization during drought can negatively impact plant health and impair the ability (in the future) to meet, or make significant progress towards fulfillment of, the standards and guidelines of rangeland health.

The following drought response triggers associated with forage are intended to ensuring proper utilization levels of upland and riparian key species, as described in the ESD associated with the site. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or past monitoring data). Appropriate utilization levels provide adequate residual matter for the maintenance of plant health especially during a drought. The triggers have been organized into three categories; utilization and stubble height triggers by vegetation community, livestock distribution, and plant production/drought stress.

### **1. Utilization and Stubble Height**

Utilization triggers were developed using the utilization guidelines proved by Holechek et al. (1988). The guidelines provide a range of use associated with rangeland condition. For the purpose of grazing management during times of drought, the BLM has chosen to limit utilization

of key species to the lower utilization level. The lower utilization levels are consistent with those suggested for ranges in poor condition. These were chosen due to the reduced vigor and production of range forage plants resulting from drought. The following utilization levels would function as drought response triggers within each respective vegetation community and would trigger the implementation of DRAs. Stubble height triggers were developed to ensure adequate residual matter remains to maintain riparian plant communities. Generally, stubble heights of 4 to 6 inches provide effective stream bank protection, prevent sedimentation, and maintain or improve plant communities (USDI 1999-2001). Key species would be identified using the ESD for a specific area. In instances where key species referenced in the ESD are absent key species would be identified using site-specific and/or past monitoring data.

- **Salt Desert Shrub**
  - o 25 % utilization of key species.
- **Sagebrush Grassland**
  - o 30% utilization of key species.
- **Pinyon-Juniper Woodland**
  - o 30% utilization of key species.
- **Mountain Shrub**
  - o 30% Utilization of key species.
- **Riparian Zones**
  - o Four inch stubble height of key riparian species.

## **2. Livestock\ Wild Horse and Burro Distribution**

A pattern of use or distribution of livestock and/or wild horses and burros resulting in a concentration of animals, which contributes to grazing in excess of the aforementioned utilization levels and/or stubble heights, would trigger Drought Response Actions to improve animal distribution and prevent further rangeland degradation.

## **3. Plant Production/Drought Stress**

The following plant production and/or drought stress indicators would trigger Drought Response Actions:

- Drought induced senescence or reduced production of key upland and/or riparian species which results in an insufficient quantity of forage for wildlife, wild horses and burros, and livestock;
- Drought induced senescence of key riparian herbaceous species which results in insufficient plant growth/height to provide for stubble heights equal to or greater than four inches within riparian areas; and
- Noticeable signs of drought stress which impede the ability of key species to complete their life cycle (e.g., drought induced senescence, reduced seed head development, etc.).

## **4.1 Monitoring Methods**

The sections below provide the following summaries of (1) the protocol for each variable to be monitored, including general techniques and key information to be collected and (2) the authors and organizations that developed the protocol. All monitoring data will be recorded on the appropriate monitoring forms and summarized on the Drought Monitoring Summary form (Appendix A).

### **A. Water**

A BLM monitoring protocol does not currently exist to quantify the availability of water for wildlife, wild horses and burros and livestock. Therefore field observations and professional judgment will be used to determine if an adequate amount of water is available. Water will be rated using the criteria described in section 4.0 (A) of this document.

### **B. Utilization and Stubble Height**

The key species method will be used to determine utilization levels. This method is adapted to areas where perennial grasses, forbs and/or browse plants are the key species. This method is rapid. A key species is determined for the monitoring location based on the vegetation community defined in the Ecological Site Description correlated to the location. In instances where key species referenced in the ESD are absent key species will be identified using site specific and/or past monitoring data.

A transect bearing and distance between observation points is selected. Utilization levels are based on an ocular estimate of the amount of forage removed by weight on individual key species and observations are recorded in one of seven utilization classes rather than as a precise amount. Different examiners are more likely to estimate utilization in the same classes than to estimate the same utilization percentages (USDA and USDI 1996). Utilization estimations are improved through a calibration process prior to the collection of utilization data. Sampling techniques include; walking the pre-determined transect, stopping at the pre-determined interval and estimating and recording the percent utilization of the key species nearest the toe.

The stubble height method will be used to determine stubble heights within riparian areas and areas identified for targeted grazing. Stubble height standards and measurements have been used primarily in riparian areas; however, this method may also be used for upland sites. The concept of this method is to measure stubble height, or height (in centimeters or inches) of herbage left un-grazed at any given time. This method, because of its simple application, is becoming a well-accepted method for expressing rangeland use (USDA and USDI 1996). A key species is determined for the monitoring location based on the vegetation community defined in the Ecological Site Description correlated to the location. A transect bearing and distance between observation points is selected. Sampling techniques include; walking the pre-determined transect, stopping at the pre-determined interval and measuring and recording the stubble height of the key species nearest to the toe.

A complete description of these methods, as well as a copy of the appropriate monitoring forms can be found in the Utilization Studies and Residual Measurements Interagency Technical Reference 1996.

**C. Livestock\Wild Horse and Burro Distribution**

The Landscape Appearance Method will be used to determine the distribution of livestock across allotments determined to be affected by drought. This method is adapted to areas where perennial grasses, forbs, and/or browse plants are present and to situations where utilization data must be obtained over large areas using only a few examiners. The method uses an ocular estimate of forage utilization based on the general appearance of the rangeland (USDA and USDI 1996). Utilization levels are determined by comparing observations with written descriptions of each class. A transect bearing and distance between observation points is selected. Sampling techniques include; moving along the pre-determined transect, stopping at the pre-determined interval and estimating and recording the utilization class at each observation point.

A complete description of this method, as well as a copy of the appropriate monitoring form can be found in the Utilization Studies and Residual Measurements Interagency Technical Reference 1996.

Wild horse and burro distribution will be evaluated using inventory flights and on the ground observations including trailing, horse and burro scat (droppings) and horse and burro location observations. Location observations will include numbers, behavior, body condition and sighted location.

**D. Plant Production and Drought Stress**

Visual appraisal of production will be used to determine the amount of forage currently available for wildlife, wild horses and burros and livestock. Visual appraisal of production is an efficient means to check whether forage supply and demand are in balance (Allison 2001). Areas determined to be affected by drought will be visited and a visual appraisal of production will be completed. Areas visited will receive one of the following production scores as defined in Allison (2001):

<b>Production Scores</b>		
1.	Extreme Drought	No growth occurred this year.
2.	Below-Average Production	Production appears less than most years.
3.	Average Production	Production is comparable to most years.
4.	Above-Average Production	Production is greater than most years.
5.	Extremely Wet Year	Excellent growing season. Range production is at maximum potential.

Current year’s production will be compared to production data collected in past years. When production data is not available “average production” will be determined for the monitoring location through professional judgment, consultation with local permittees, and based on the normal production as defined in the Ecological Site Description correlated to the location.

A complete description of this method can be found in the Level II monitoring section of Allison, C.D., Baker, T.T., Boren, J.C., Wright, B.D., and Fernald, A. 2001. Monitoring Rangelands in New Mexico: Range, Riparian, Erosion, Water Quality and Wildlife. Range Improvement Task Force, Agricultural Experimental Station, Cooperative Extension Service, New Mexico State University, College of Agricultural Experiment Station, Cooperative Extension Service, New Mexico State University, College of Agricultural and Home Economics, Report 53. 60 pp. Also as referenced in the short term monitoring section of Volume 1 of the Monitoring Manual for Grassland, Shrubland and Savannah Ecosystems by Herrick et al. (2005). Drought stress will be monitored using VegDRI with site visits occurring to ground truth VegDRI reports. VegDRI is a hybrid drought monitoring and mapping tool that integrates satellite observations of vegetation status and climate data with information on land cover, soil characteristics, and other environmental factors. VegDRI reveals vegetation conditions as plants respond to solar energy, soil moisture, and other limiting factors (USGS 2010). Site visits will be used to inspect plants for signs of drought stress. Signs of drought stress include reduced shoot and leaf growth, reduction in seed head development, induced senescence and plant death. A BLM monitoring protocol does not currently exist to quantify signs of drought stress. Therefore field observations and professional judgment will be used to determine and record signs of drought stress on the Drought Monitoring Summary form.

## **V. Data Management**

Field worksheets, maps and drought monitoring summaries will be stored in the short term/ long term monitoring files for the respective allotment and/or HMA. GPS points of monitoring locations will be uploaded into GIS. All GIS information will be kept to Battle Mountain District and Nevada State Office standards and will be incorporated into the Battle Mountain Districts GIS data base.

## **VI. Management Actions as a Result of Drought Detection and Monitoring**

Triggers will, either separate or in combination, activate drought response actions as described in the Battle Mountain District Drought Management Environmental Assessment and the Battle Mountain District Drought Management Plan. All actions would be implemented through the issuance of full force and affect decisions pursuant to 43 CFR §4110.3-3(b), and would be implemented within all appropriate laws, regulations and policies.

Full force and effect decision would be supported by site specific monitoring data collected as outlined within this DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for Wild Horse and/or Burro Drought Gathers would be thoroughly documented within a site specific Drought Gather Plan (see Attachment 3 of the EA for a Drought Gather Plan Outline).

## Literature Cited

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## **Appendix A – Drought Monitoring Summary Form**

# DOUGHT MONITORING SUMMARY

Allotment/HMA  Use Area  UTMS N: \_\_\_\_\_ E: \_\_\_\_\_

Vegetation Community:  Salt Desert Shrub  Mountain Shrub  Riparian Zone  Monotypic Invasive Annual  
 Sagebrush Grassland  Pinyon-Juniper Woodland  Mojave Desert Ecological Site \_\_\_\_\_

Examiner(s): \_\_\_\_\_ Date: \_\_\_\_\_

Drought Indicators: U.S. Drought Monitor Report:  Moderate  Severe  Extreme  Exceptional Release Date: \_\_\_\_\_

VegDRI Report:  Normal  Pre-Drought  Moderate  Severe  Extreme Release Date: \_\_\_\_\_

Drought Indicators verified:  Yes  No Rationale: \_\_\_\_\_

## Drought Response Triggers:

### Forage

Average Stubble height <sup>1</sup> (inches)	Average Utilization <sup>2</sup>	Normal Production Expected for Site <sup>3</sup>	Production Score <sup>4</sup>	Remarks/Rationale (Include any other observations such as: erosion, animal stress, hazardous fuels etc.)

**Water**  Available  Unavailable Rationale: \_\_\_\_\_

**Signs of Drought Stress**  Present \*  Not Present \* If present, check what signs of drought stress were observed

Reduced shoot & leaf growth  Reduced seed head development  Induced senescence  Plant death

Rationale: \_\_\_\_\_

### Livestock/Wild Horse and Burro Distribution

Describe the current utilization pattern across the allotment/HMA including the average utilization recorded on the associated Landscape Appearance data forms and any livestock and/or wild horse and burro observations:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Drought Response Action Recommendations: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

<sup>1</sup>Average stubble height. Use the stubble height method and form as outlined in Utilization Studies and Residual Measurements. BLM Technical Reference (1996). Stubble height will only be recorded in areas outlined in the Battle Mountain District Drought Monitoring Plan.

<sup>2</sup>Average utilization. Use the key species method and form as outlined in Utilization Studies and Residual Measurements. BLM Technical Reference (1996).

<sup>3</sup>Normal production expected for site. Use previously collected quantitative production data for the allotment/HMA. When production data is not available "normal production" will be determined through professional judgment, consultation with local permittees, and referencing the Ecological Site Description correlated to the location.

<sup>4</sup>Production score. 1. Extreme Drought (no growth this year) 2. Below Average Production 3. Average Production 4. Above-Average Production 5. Exteremely Wet Year (production is at maximum potential)

**Attachment 2 – Battle Mountain District Drought Management Plan**

# Battle Mountain District

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## Drought Management Plan

6/14/2012

This management plan contains a description of drought response actions that would be used to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought conditions. The drought response actions would be implemented either separate or in combination upon reaching the criteria described under the Proposed Action of the Battle Mountain District Drought Management EA. A more in depth discussion of these criteria can be found in the Drought Monitoring and Detection Plan

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# **Battle Mountain District Drought Management Plan**

## **I. Introduction**

Drought, a normal part of the climate for virtually all regions of the United States, is of particular concern in the West, where an interruption of the region's already limited water supplies for extended periods of time can produce devastating impacts (Wilhite 1997). The Battle Mountain District (BMD) is located within the Central Basin and Range and Mojave Basin and Range ecoregions defined by the Western Ecology Division of the United States Environmental Protection Agency. Drought is considered to be a recurring event within both ecoregions. The early detection and prompt response to drought is needed to prevent further degradation to affected resources within the BMD. The purpose of this management plan is to describe the drought response actions that would be implemented either separate or in combination upon reaching the criteria described within the Proposed Action of the Battle Mountain District Drought Management EA and further defined in the Battle Mountain District Drought Detection and Monitoring Plan. Drought response actions are designed to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought conditions. They have been placed into two categories, livestock and Wild Horses and Burros. These have been separated due to the differing nature and capabilities for management of Wild Horses and Burros and Livestock.

## **II. Goals**

The early response to drought conditions is necessary for effective management during drought. Lagged responses toward drought pose a threat to sustainable management of rangelands (Thurow and Taylor 1999). The following list outlines the goals of the Battle Mountain District Drought Management Plan:

Goal 1: Provide for the prompt response to drought conditions.

Goal 2: Prevent further degradation to affected resources on lands affected by drought within the BMD.

Goal 3: Clearly define Drought Response Actions that would be used to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.

Goal 4: Prevent the suffering and death of Wild Horses and Burros as a result of reduced forage and water resources due to drought conditions.

### **III. Drought Response Actions**

The following drought response actions would be implemented either separately or in combination upon reaching the criteria described under the Drought Response Triggers section. DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area. Decisions would be implemented within all appropriate laws, regulations and policies. Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for wild horse and/or burro drought gathers would be thoroughly documented within a site-specific drought gather plan (see Attachment 3 for a Drought Gather Plan Outline). If it is determined that wild horse and/or burro removal from a Herd Management Area(s) (HMA) is warranted, pursuant to 43 CFR §4710.5, areas of allotment(s) that overlap with the HMA(s) would be temporarily closed to livestock grazing.

DRAs have been placed in two categories: livestock and wild horses and burros. These have been separated due to the differing nature and capabilities for management of livestock and wild horses and burros. Drought response actions would be selected based on site-specific information. In areas where livestock and wild horse and burro use overlaps, both livestock and wild horse and burro DRAs would be implemented concurrently.

#### **3.1 Livestock**

*Step 1: Conduct field visits to “drought-afflicted” areas to assess drought response triggers.* Field visits would assess water and forage availability at predetermined sites using the monitoring methods as outlined in the DDMP. All data would be recorded on the Drought Monitoring Summary Form (Appendix A of the DDMP).

*Step 2: Pursuant to 43 CFR §4110.3-3(b), consult with, or make a reasonable attempt to consult with, affected permittees or lessees to determine appropriate DRA(s) to alleviate drought impacts.* DRAs would be selected using site-specific monitoring data and chosen on case-by-case basis suited to site-specific conditions. More than one DRA could be selected depending on conditions. Efforts should be made to select DRAs that could be implemented in a subsequent fashion to respond to changes in drought conditions.

*Step 3: Implement DRAs in selected order.* Order would be determined based on site-specific monitoring data.

*Step 4: Resort to full closure of allotment.* The BMD would resort to full closure of an allotment if: 1) a permittee or lessee fails to cooperate regarding drought measures after “a reasonable attempt” (43 CFR 4.110.3-3(b)) has been made to consult with that permittee or lessee, 2) all feasible livestock DRAs have been exhausted and immediate protection of resources on the allotment is required, or 3) the allotment(s) or portions of allotment(s) overlap with an HMA(s) in which it has been determined that wild horse and/or burro removal is warranted.

The following is a list of DRAs that would be used either separately or in combination to reduce the impacts of authorized livestock grazing on natural resources during drought.

#### **A. Temporary Partial Closure of an Allotment(s)**

During drought, the forage resources and overall condition of affected allotments would be assessed. Portions of an allotment(s) that lack forage and/or water, are in poor condition, or are identified as critical areas to provide forage and/or water for wildlife and/or wild horses and burros could be closed to livestock grazing for the duration of the drought (43 CFR §4710.5). Partial closures would be accomplished by employing a combination of the other DRAs such as temporary fencing, temporary water hauls, active livestock herding, strategic supplementation etc. Closures would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery. The U.S. Drought Monitor and Vegetation Drought Response Index would be consulted to determine the cessation of the drought. Written notice signed by the authorized officer would be used to reopen areas to grazing.

#### **B. Temporary Complete Closure of an Allotment(s)**

If it is determined that drought conditions (lack of forage and/or water, poor condition, and/or critical areas that provide forage and/or water for wildlife and/or wild horses and burros) exist over the entire allotment and all other livestock DRA options have been exhausted or deemed impractical, complete closure could occur (43 CFR §4710.5). Closure would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery. The U.S. Drought Monitor and Vegetation Drought Response Index would be consulted to determine the cessation of the drought. Written notice signed by the authorized officer would be used to reopen areas to livestock grazing.

#### **C. Temporary Partial Reduction in Animal Unit Months (AUMs)**

During drought, a reduction in livestock numbers could be necessary to ensure that adequate forage is available to meet wild horses and burros and livestock requirements. Reduced livestock grazing would prevent overutilization of key forage species and prevent further adverse impacts to rangeland resources that are already affected by drought.

#### **D. Temporary Change in Season of Use**

A change in the season of use could reduce livestock grazing related impacts during drought. The following modifications could be used either separately or in combination:  
Changing the season of use to a time following the critical growth period (actual dates would vary with vegetation community type) of key forage species (ESDs correlated to specific

locations would be consulted to determine key species. In instances where key species referenced in the ESD are absent, key species would be identified using site-specific and/or past monitoring data).

- This would allow plants to utilize available soil moisture and any additional moisture received during the critical growth period. Plants would be able to complete their life cycle thus allowing for seed dissemination and root growth and replacement. Plants could then be grazed after sufficient growth or dormancy occurs. Repeated grazing during the critical growth period does not allow plants to regrow before soil moisture is depleted; therefore, plants may not have adequate resource reserves to survive winter dormancy.
- Defer livestock grazing in riparian areas during the hot season (approximately July 1 through September 30) to avoid the degradation of riparian areas during drought.

### **E. Temporary Reduced Grazing Duration**

Moving livestock across an allotment or pasture more quickly would increase the amount of rest individual plants are given. Reducing grazing duration would increase a plant's ability to utilize available resources to regrow foliage, store carbohydrates reserves, and maintain vigor. Plants are unable to regrow if grazed repeatedly especially during times of limited soil moisture. Periods of deferment should be varied according to the rate of growth. Range plants initiate growth from meristems (i.e., growing points), once meristems are removed, plants must grow from basal buds which requires much more of the plants energy than regrowth from meristems. Plants that are continually forced to regrow from buds may reduce or even eliminate the production of new buds, which may reduce production in subsequent years (Howery 1999). During stress periods such as drought, growth slows and plants should be rested longer (Hanselka and White 1986). Reducing the duration of grazing would provide plants more time to recover after grazing pressure is removed.

### **F. Temporary Change in Livestock Management Practices**

The concentrated use of preferred areas in the landscape results in uneven distribution of animal impact, and periods of below average precipitation compound the effects of herbivory, providing periods of accelerated deterioration (Teague et al. 2004). Modification of grazing practices would improve livestock distribution. The following methods/tools could be used either separately or in combination to improve livestock distribution:

- Strategic placement of salt and/or mineral supplements away from water and in areas that were un-grazed or lightly grazed in previous years.
- Increased herding of livestock to previously un-grazed or lightly grazed areas.
- Concentrating livestock into a single herd in order to increase control and encourage uniform grazing. This would force livestock to utilize more of the less-preferred plants while limiting repetitive or selective grazing of preferred forage species. Herd sizes

would be dependent on water availability; therefore, adequate water sources must be present to provide water to wildlife, wild horses and burros and livestock while maintaining riparian functionality. Use would not exceed utilization and stubble heights identified in the Drought Response Triggers section of this document.

### **G. Temporary fencing of critical areas**

During drought, temporary electric fencing could be used to exclude livestock from critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat etc. Temporary electric fences may also be used to confine livestock to areas dominated by invasive annual species. Temporary electric fences would be constructed using 3/8 inch diameter fiberglass fence posts and two strands of electric fence polywire. Posts would be spaced 16 feet apart. The height of the fence would be 30 inches (Hot wire) with the bottom wire being 20 inches (ground wire) above the ground. Signs warning of electric fence would be firmly attached to the fence at common crossing points and at ¼ mile intervals along the fence. All temporary fences must be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

### **H. Temporary Targeted Grazing of Invasive Annual Dominated Communities**

Targeted grazing of monotypic invasive annual communities (e.g., cheatgrass) could be used to alleviate grazing pressure on other areas that are dominated by native species. On these sites, prescribed livestock grazing could be applied to achieve maximum damage to annual grasses with little concern for non-target plants (Peischel and Henry 2006). Grazing would be focused during the spring and/or fall months to take advantage of early spring and fall growth of the annuals. Livestock would be removed upon reaching a two-inch average stubble height in order to provide some protection from wind and water erosion. Animals would be confined to these areas using temporary electric fence or herding. If an existing water source is not available, the use of temporary water hauls or temporary above ground pipelines may be used.

### **I. Temporary change in kind or class of livestock**

According to Volesky et al. (1980), yearling cattle utilize pastures more uniformly over variable terrain than cows with calves or mixed classes. Cows and calves utilize forages nearest the water much more heavily than do yearlings. Therefore, selecting yearlings would improve grazing distribution and limit impacts to riparian areas.

Choosing a different kind of livestock could also affect how a range can be utilized. With their large mouths, cattle and horses may not select annual grasses as readily as sheep or goats because livestock prefer plants they can eat quickly and efficiently. Sheep or goats can get a full bite of annual grasses more easily than cattle or horses, especially when annual grass plants are

small (Peischel and Henry 2006). Additionally, sheep and goats can be herded more effectively which allows for greater control and provides an opportunity to limit impacts to critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat, etc. Temporary changes from cattle to sheep would not be authorized in areas of known bighorn sheep habitat or areas within nine miles of known bighorn sheep habitat.

#### **J. Temporary water hauls**

Temporary water hauls could be used in circumstances where: 1) adequate forage exists to support wild horses and burros and the existing permitted number of livestock, but water resources are insufficient due to drought or 2) to improve livestock distribution in areas located long distances from existing water sources, which have received limited use by livestock in previous years or 3) to reduce or eliminate impacts to riparian and wetland areas. Additionally, the BLM could authorize the use of temporary water hauls to augment existing water sources. Whenever possible, water haul sites would be located in areas dominated by invasive annual species in order to provide for targeted grazing of those species while providing rest of native perennial vegetation. Water haul sites would consist of livestock water troughs of various size and material, placed on public lands and filled as needed with portable water tenders or water trucks. Previously disturbed sites would be selected when available. All areas would be surveyed for cultural resources prior to implementation and bird ramps would be installed in water troughs to protect avian species. All temporary water hauls would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

#### **K. Temporary above ground pipelines**

Temporary above ground pipelines could be implemented in circumstances where: 1) adequate forage exists to support wild horses and burros and the existing permitted number of livestock, but water resources are insufficient due to drought or 2) to improve livestock distribution in areas located long distances from existing water sources, which have received limited use by livestock in previous years or 3) to reduce or eliminate impacts to riparian and wetland areas. Whenever possible, temporary pipelines would be located in areas dominated by invasive annual species in order to provide for targeted grazing of those species while providing rest of native perennial vegetation. Temporary pipelines would consist of an above ground pipeline, which would transport water from the end point of an existing pipeline to livestock water troughs of various size and material, placed on public lands and fitted with a float valve to prevent overflow and saturated soil conditions around the trough(s). Saturated soils are at a greater risk for compaction or erosion. Any temporary above ground pipelines would require approval from the Nevada Division of Water Resources. Previously disturbed sites would be selected when available. All areas would be surveyed for cultural resources prior to implementation and no new ground disturbance associated with the installation of a temporary pipeline(s) would be authorized. Bird ramps would be installed in water troughs to protect avian species. All temporary above ground

pipelines would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer.

### **3.2 Wild Horses and Burros**

The following is a list of DRAs that would be used either separately or in combination to ensure the welfare of wild horses and burros on public lands administered by the BLM. Wild horses and burros could be at risk of dehydration or starvation due to drought conditions, special considerations are needed for the management of wild horses and burros during drought. These DRAs would help reduce the impacts of wild horses and burros on natural resources adversely affected by drought while ensuring their welfare. DRAs would be selected on a case-by-case basis using site-specific monitoring data collected as outlined in the DDMP. The following process would be used for DRA selection:

*Step 1: Conduct field visits to “drought-afflicted” areas to assess drought response triggers.* Field visits would assess water and forage availability at predetermined sites using the monitoring methods as outlined in the DDMP. All data would be recorded on the Drought Monitoring Summary Form (Appendix A of the DDMP).

*Step 2: DRAs would be selected based on the evaluation of site-specific monitoring data, best available HMA specific population data and known animal behavior and distribution patterns.* DRAs would be chosen on case-by-case basis suited to site-specific conditions. More than one DRA could be selected depending on conditions. Efforts should be made to select DRAs that could be implemented in a subsequent fashion to respond to changes in drought conditions (e.g., temporary water haul followed by water trapping, if needed).

*Step 3: Implement DRA(s) in selected order.* If a drought gather is included as a DRA, interested public would be notified with drought gather being implemented through a full force and effect decision with an attached site-specific gather plan. Site-specific data related to the drought gather would be provided in the Decision and Drought Gather Plan documents.

#### **A. Temporary Water Hauls**

In circumstances where it is determined that adequate forage exists to maintain the existing population of wild horses and/or burros, but water resources are deficient due to drought conditions, the BLM could employ temporary water hauls to augment existing water sources. Water haul sites would consist of livestock water troughs of various size and material, placed on public lands and filled as needed with portable water tenders or water trucks. Water haul locations would be determined based on animal population density and distribution, and placed in previously disturbed areas such as gravel pits or roadsides. Troughs could be placed at the existing water sources that are either dry or inadequate to maintain healthy animals. The use of water hauls would continue until the existing waters are able to support the population or a drought gather occurs. All areas would be surveyed for cultural resources prior to implementation and bird ramps would be installed in water troughs to protect avian species.

## **B. Within HMA Wild Horse and Burro Relocation**

If monitoring data indicates that another area within an HMA has adequate forage and water resources capable of supporting the existing population of wild horses and/or burros, those animals could be relocated to the selected area. Relocation could be accomplished by moving animals from one part of the HMA to another with a helicopter, using helicopter capture to trap animals and then transport them to the selected area within the HMA for release, or bait/water trapping and subsequent transportation and release. If appropriate, animals could be “lured” from one area to another using temporary water hauls or bait. Justification for wild horse and/or burro within HMA relocations would be thoroughly documented within a site-specific Decision and gather plan. Luring animals using bait or water would not require a gather plan.

When trapping and subsequent release is needed to relocate the animals, bait and/or water trapping would be the preferred capture method in accordance with the criteria outlined in Section 2.0(c)(2). If the trapping and release method is used, animals would be released at water sources, with subsequent monitoring to ensure they acclimate to, and remain in the area. Animals would be painted with temporary livestock marking paint for future identification. This DRA would be limited to moving wild horses and burros within HMAs and would not involve moving wild horses and burros from one HMA to another.

## **C. Wild horse and burro removal**

A drought gather would be employed as a last result and would only occur if the following conditions apply:

- 1) It is determined that drought conditions have resulted in insufficient amounts of forage and/or water to support the existing population of wild horses and/or burros within a herd management area (HMA).
- 2) All other feasible DRAs have been exhausted and removal is needed for immediate protection of wild horses and burros and rangeland resources

Pursuant to 43 CFR §4710.5 areas of allotment(s) that overlap with the HMA(s) would be temporarily closed to livestock grazing if necessary to protect the health of wild horses and burros or their habitat. The livestock grazing closure would be in effect for the duration of the drought plus one growing season following the cessation of the drought. If a livestock grazing closure is implemented, wild horses and burros would be removed from the range at varying levels (see “removal numbers” below) in order to prevent suffering and death due to drought conditions on the range and prevent further degradation of resources affected by drought. Gathers would be completed by removing varying numbers and using the following methods, either separate or in combination (refer to attachment 2 for a more detailed discussion):

## **1. Bait or water trapping**

When feasible and appropriate, bait and/or water trapping would be the primary gather technique used to capture wild horses or burros that need to be removed from the range in response to drought. Bait or water trapping would be selected unless the following circumstances apply:

- the number of water sources results in horses/burros being too dispersed;
- The location of water sources are too remote and restrict access for trap set up and animal removal;
- The urgency of animal removal requires immediate action and utilization of alternate removal methods; or
- The number of animals needing to be removed is in excess of bait or water trapping capabilities. Water or bait trapping capabilities would vary depending on site-specific conditions.

Bait and water trapping involves the construction of small pens, and baiting animals into the pens with the use of hay, water or other supplements. Specialized one-way gates are often used to prevent the animals from leaving the trap once inside. Bait and water trapping methods are usually only effective in areas where water or forage is absent, resulting in high motivation for animals to enter the trap to access them. These situations may occur during drought emergencies or severe winters. Typically, small groups of animals enter the traps at a time. This requires many days too many weeks to remove a substantial number of animals from an area. This option could be employed where small numbers of animals need to be removed, where it is deemed that the geography and resources of the HMA would ensure success, or in combination with helicopter gathers.

## **2. Helicopter capture**

The helicopter-drive trapping method would be employed when bait or water trapping is not effective, feasible or appropriate. The use of roping from horseback could also be used when necessary. Multiple gather sites (traps) could be used to gather wild horses and/or burros from within and/or outside the HMA boundaries.

## **3. Removal numbers**

Removal numbers would be based on the assessment of forage, climate, water, rangeland health and the use of the range by wild horses or burros. Removal numbers would be identified to ensure that healthy animals remain on the range and have adequate resources for survival, and that rangeland degradation is minimized in order to allow for post drought recovery. The long term health and welfare of the wild horses and burros would be the overarching goal of a drought gather. The removal numbers would be determined on an HMA by HMA basis. A summary of the data, and rationale for the removal numbers would be documented in the Decision issued prior to a gather commencing.

**a. Removal of sufficient animals to achieve the high AML**

This situation would apply when the population is in excess of the high AML, and assessment of existing forage and water resources warrants limited removal of wild horses and/or burros to the high AML. This would also be implemented to restrict the number of animals removed due to constraints on holding space and long term holding costs. This option could be implemented in combination with temporary water hauls.

**b. Removal of sufficient numbers of animals to achieve the low range of AML**

Where the assessment of forage and water indicates that some relief is needed through removal of excess wild horses and/or burros, a gather could be conducted to achieve the established low range of AML. This would occur where the current population exceeds the low AML, and adequate resources do not exist to maintain healthy wild horses or burros at the current population level. This option could be implemented in combination with temporary water hauls.

**c. Removal of animals to a point below the low AML**

During a prolonged drought, forage and water resources could become severely limited to a point that wild horses and/or burros must be removed below the low range of AML in order to prevent widespread suffering and death. The post gather population target would be determined based on the existence and reliability of remaining resources. This option would be implemented in order to prevent subsequent emergency conditions due to ongoing or worsening drought conditions. This option could be implemented in combination with temporary water hauls.

**d. Complete removal of all animals in an HMA**

In extreme situations, the complete lack of forage and/or water in certain locations could warrant the removal of all locatable wild horses and burros to prevent their death. This situation would only apply as a last resort, and could involve holding wild horses or burros in contract facilities with release back to the range when adequate resources exist. Subsequent release of horses and/or burros would be subject to Nevada and Washington BLM office approval and could occur several months after the gather. If complete removal and subsequent release is chosen, population control methods could be implemented prior to wild horses being released back to the HMA. Population controls would not be implemented in burro populations.

Population controls applied to wild horses released back to the range could be used in order to slow population growth rates, lengthen the time before another gather is necessary and enhance post drought resource recovery. Population controls include the application of fertility control vaccine to mares, and sex ratio modification to favor studs. Fertility control would be applied to all mares released to the range. Sex ratio adjustment could be applied alone or in combination with fertility control. Sex ratio adjustment would involve the release of studs and mares in a 60:40 ratio.

It is possible that a situation may warrant the removal of only mares and foals due to the fact that 1) they are typically the most affected by the limited resources and 2) it is determined that sufficient resources exist to support a larger number of studs. In this case, mares and foals would

be gathered and removed from the drought affected area and studs would be released back to the range. This scenario could result in sex ratios in the remaining population exceeding 60% studs.

#### **4. Type of removals**

Under normal gather operations, all located wild horses are captured. The desired number of horses for release and removal are then identified through a “selective removal” process. For drought related gathers gate cut removals would be implemented. Gate cut removals would be used to limit any additional stress on the wild horses and burros within a defined gather area. In this situation, wild horses or burros would be gathered and removed regardless of age to reach the post gather target. No animals would be returned to the range and no population controls would be implemented. The post gather target number of animals would remain undisturbed on the range. Gathers would be designed to remove animals from the areas most affected by drought and resource deficits. Gathers of burros are typically Gate Cut gathers.

#### **5. General gather info**

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. 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 congressionally designated Wilderness Areas. All gather sites, holding facilities, and camping areas on public lands would be recorded with Global Positioning System equipment, given to the Battle Mountain District Invasive, Non-native Weed Coordinators, and then assigned for monitoring during the next several years following gather for invasive, non-native weeds. All gather and handling activities (including gather site selections) would be conducted in accordance with SOPs in Appendix A.

Gathered wild horses or burros would be sorted by age and sex and be transported to BLM 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. During gathers conducted during summer months, foals are often too young to wean. This is especially true during periods of stress when, due to the poor resources on the range, the mare’s milk production is limited and foals are small or weak. In any case, the foals would be re-united with the mares (or jennies) as soon as sorted at the holding corrals. Efforts would be taken to identify foals and mares for pairing and carefully observe their behavior. Should foals be orphaned, foster homes would be found immediately that could provide supportive care.

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. Genetic baseline data could be collected to monitor the genetic health of the wild horses within the combined project area.

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

treatment of wild horses. All excess wild horses removed from within and outside the HMAs would be available for adoption or sale to qualified individuals.

Any old, sick or lame horses or burros 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, 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](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html)

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## **APPENDIX A**

### ***Wild Horse Gather Standard Operating Procedures***

#### **I. Introduction**

The purpose of the Standard Operating Procedures is to outline the methods and procedures for conducting drought gather(s) to remove drought affected wild horses and/or burros from public lands administered by the BMDO. Gather specific details would be discussed in a Decision issued prior to gather commencement.

#### ***A. Gather Area***

The Gather Area could include any of the 28 wild horse or burro HMAs administered by the BMDO, including areas outside of HMA boundaries and Herd Areas. Refer to Map 3, which display the HMAs administered by the BMDO.

#### ***B. Administration of the Contract /Gather Operations***

The National Wild Horse and Burro Gather Contract would be used to conduct drought gathers. BLM personnel would be responsible for overseeing the contract for the capture, care, aging, and temporary holding of wild horses from the capture area. BLM WH&B Specialists would be present during all aspects of the gather activities. BLM personnel may conduct small scale helicopter or bait/water trapping gathers.

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.

Gather “trap” corrals and 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.

An APHIS or private veterinarian would be on-call or on-site for the duration of the gather to provide recommendations to WH&B Specialists for care and treatment of sick or injured wild horses or burros. Consultation with the veterinarian may take place prior to the euthanasia of wild horses in accordance with Washington Office Instruction Memorandum (IM 2009-041). Refer to Part H for more information about the euthanasia policy.

Precautions would be taken to ensure that young or weak 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 and Burro 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 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/jennies and foals from stallions/jacks to prevent fighting and injury. The pen arrangement allows the contractor to off-load animals from stock trailers into the pens, and facilitates the loading of the animals to be transported to facilities onto large straight deck trucks.

At various locations throughout the HMA, 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 or burros into the corrals as they are captured. Once captured, they are loaded into stock trailers and transported to the central Holding Corrals for sorting. Horses and burros 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 animals 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 and burros settle down once gathered and do not appear to be more than slightly annoyed by the helicopter.

The pilot locates groups of wild horses and burros within the HMA and guides them towards the gather corrals. In most cases, animals 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 and burros often follow their own trails. The pilot and the BLM staff monitor the condition of the animals 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 and burros to them. Generally, wild horses and burros are very fit, and recover quickly from being captured. Distances that the animals travel are modified to account for summer temperatures, snow depth, animals in weakened condition, young foals, or older/lame animals. Under ideal conditions, some animals could be herded 10 miles or more at the discretion of the COR/WH&B 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 and burros closer, the Prada horse is released, who then runs into the gather corrals, leading all of the wild horses and burros with him. Crewmembers rush in to secure gates once the animals are within the corrals. Wild burros are less encouraged to enter the trap corrals and oftentimes riders on horseback come in behind them to push them the rest of the way. Burros are known to stop in the wings and refuse to enter the trap. They are also more difficult to work through the alleyway and pens.

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 being injured 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 for difficult to gather areas) helicopter-assisted roping is implemented, in which the pilot moves a small group of animals to the gather area, which the crewmembers rope by horseback. This method often prevents overstressing the horses or burros from repeated attempts to move them into the gather corrals. The roped animals 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 or burros are loaded and transported to the Holding Corrals, they are sorted by the contractor’s staff and BLM employees. The contractor looks at the animals’ teeth to estimate age while held in the chute, and the BLM staff documents age, color, body condition and lactation status of the horse or burro. Aging wild horses, and especially burros is a process of estimation due to the type of wear that can occur to the teeth of a wild horse or burro on the range.

Injuries are noted and treated if needed. Once sorted, the animals are normally given hay and unlimited water, if no health concerns exist. 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 horses or burros 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/jennies, stallions/jacks and foals can be transported separately. It may require 3-8+ hours for the wild horses or burros to arrive at the adoption preparation facility. The BMDO typically ships horses to National Wild Horse and Burro Center at Palomino Valley near Sparks, Nevada; or may ship horses to the facility at Ridgecrest, California Arizona, Gunnison Correctional Facility in Gunnison, UT, or Indian Lakes Facility in Fallon, NV 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. Typically, wild burros are not released to the range. 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 stallions are each loaded into separate stock trailers and transported back inside the HMA near water sources, if possible. 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.

Before the wild horses or burros are transported to adoption facilities or released, hair is sampled for genetic testing. Data collected during the gather in conjunction with genetic analysis report would be incorporated into a Herd Management Area Plan (HMAP) in the future.

#### **D. *Wild Horse and Burro Gather Mitigation Measures***

This EA has analyzed the potential impacts that could occur with completion of a gather to remove wild horses and/or burros from drought affected rangeland. 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 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 or burros. 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 and burros captured during gathers, and ensuring their health, safety and well-being 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 may 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 (if applicable) would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (Fertility Control SOPs, Appendix B). 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 and burros 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 animals until just the right time when entering the wings of the gather trap, when it is important to move the horses and burros 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 animals from horseback which could expose the wild horses or burros 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 horses and burros into the large holding pens where they can settle in with hay and water. When releasing

animals back to the range (if applicable), 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 well being of the animals is continually monitored in order 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.

If dust becomes an issue, BLM ensures that contractors reduce speeds on dusty roads and water down corrals and alleyways.

#### ***E. Data Collection***

WH&B Specialists would be 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 could be collected and analyzed to establish genetic baseline data of wild horses and burros (genetic diversity, historical origins, unique markers, and norms for the population).

WHB Specialists could collect a minimum sample size of 25 hair samples from both females and males in a ratio similar to the sex ratio released. Age would not be a defining factor in determining which animals to sample. Samples would be sent to 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 from each animal captured. An estimate of the number of animals evading capture would also be recorded.

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

### 3) 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.

### 4) 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.

### *F. 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. Current BLM SOP is to have a Veterinarian from APHIS on site throughout the gather to observe animal health and condition and provide input to BLM staff regarding the potential need to euthanize wild horses or burros on gathers. Euthanasia shall be done by the most humane method available. Authority for humane euthanasia of wild horses or burros 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 will euthanize or authorize the euthanasia of a wild horse or burro when any of the following conditions exist:*

- (1) Displays a hopeless prognosis for life;*
- (2) Is affected by a chronic or incurable disease, injury, lameness or serious physical defect (includes severe tooth loss or wear, club foot, and other severe acquired or congenital abnormalities);*
- (3) Would require continuous treatment for the relief of pain and suffering in a domestic setting;*
- (4) Is incapable of maintaining a Henneke body condition score (see Attachment 1) greater than or equal to 3, in its present environment;*
- (5) Has an acute or chronic illness, injury, physical condition or lameness that would not allow the animal to live and interact with other horses, keep up with its peers or maintain an acceptable quality of life constantly or for the foreseeable future;*
- (6) Where a State or Federal animal health official orders the humane destruction of the animal(s) as a disease control measure;*
- (7) Exhibits dangerous characteristics beyond those inherently associated with the wild characteristics of wild horses and burros.*

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

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

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

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

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

**G. 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 clearance 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 unless they could be modified to avoid impacts. 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 WH&B personnel to inventory proposed locations as they are identified, and complete required documentation.

- 6) Wilderness Study Areas: When gathering wild horses from within Wilderness Study Areas (WSAs), applicable policy will be strictly adhered to. Only approved roads will be traveled on. A Wilderness Specialist or designee would be present to ensure that only inventoried ways or cherry stemmed roads are traveled on by vehicles within the WSA.
- 7) 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 Burro Gathers**

Gathers would be conducted by utilizing contractors from the National Wild Horse and Burro Gather Contract, or BLM personnel. The following procedures for gathering and handling wild horses or burros 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 H-4740-1* (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 Trapping. This capture method involves utilizing a helicopter to direct wild horses or burros into a temporary corral.
2. Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.
3. Bait Trapping. This capture method involves utilizing bait (e.g., water or feed) to lure wild horses 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 and burros in accordance with the provisions of 43 CFR 4700.

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

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

All 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 horses, 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"x4".
  - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for horses, 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/horse 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 within 24 hours 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.

***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 horse (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 horse foal (.50 linear feet in an 8 foot wide trailer).

7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor 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 clearances (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 clearance shall be arranged for by the COR, PI, or other BLM employees.

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

### ***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 or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at any time or for any reason during BLM operations (refer to Appendix C, D, and E).

### ***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. Wild Horse and Burros Specialists would serve as the primary COR. Alternate COR and PI(s) would be selected prior to the start of the gather. Marc Pointel, Supervisory Natural Resources and Thomas Seley, Field Manager, TFO will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the 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 and Battle Mountain District Office Public Affairs Officer. 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.

## **APPENDIX B**

### ***Standard Operating Procedures for Fertility Control Treatment***

#### **22-month time-release pelleted vaccine:**

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

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.
2. 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 Freund's Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
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.

## APPENDIX C

### *Daily Visitation Protocol and Ground Rules*



### **Daily Visitation Protocol and Ground Rules Gathers**



BLM recognizes and respects the right of interested members of the public and the press to observe a wild horse gather. At the same time, BLM must ensure the health and safety of the public, BLM's employees and contractors, and America's wild horses. Accordingly, BLM developed these rules to maximize the opportunity for reasonable public access to the gather while ensuring that BLM's health and safety responsibilities are fulfilled. Failure to maintain safe distances from operations at the gather and temporary holding sites could result in members of the public inadvertently getting in the path of the wild horses or gather personnel, thereby placing themselves and others at risk, or causing stress and potential injury to the wild horses and burros.

The BLM and the contractor's helicopter pilot must comply with 14 CFR Part 91 of the Federal Aviation Regulations, which determines the minimum safe altitudes and distance people must be from the aircraft. To be in compliance with these regulations, the viewing location at the gather site and holding corrals must be approximately 500 feet from the operating location of the helicopter at all times. The viewing locations may vary depending on topography, terrain and other factors.

#### General Daily Protocol

- A Wild Horse Gather Info Phone Line will be set up prior to the gather so the public can call for daily updates on gather information and statistics. Visitors are strongly encouraged to check the phone line the evening before they plan to attend the gather to confirm the gather and their tour of it is indeed taking place the next day as scheduled (weather, mechanical issues or other things may affect this) and to confirm the meeting location.
- Visitors must direct their questions/comments to either their designated BLM representative or the BLM spokesperson on site, and not engage other BLM/contractor staff and disrupt their gather duties/responsibilities - professional and respectful behavior is expected of all. BLM may make the BLM staff available during down times for a Q&A session. However, the contractor and its staff will not be available to answer questions or interact with visitors.
- Observers must provide their own 4-wheel drive high clearance vehicle, appropriate shoes, winter clothing, food and water. Observers are prohibited from riding in government and contractor vehicles and equipment.
- Gather operations may be suspended if bad weather conditions create unsafe flying conditions.
- BLM will establish one or more observation areas, in the immediate area of the gather and holding sites, to which individuals will be directed. These areas will be placed so as to maximize the opportunity for public observation while

providing for a safe and effective horse gather. The utilization of such observation areas is necessary due to the use and presence of heavy equipment and aircraft in the gather operation and the critical need to allow BLM personnel and contractors to fully focus on attending to the needs of the wild horses and burros while maintaining a safe environment for all involved. In addition, observation areas will be sited so as to protect the wild horses from being spooked, startled or impacted in a manner that results in increased stress.

- BLM will delineate observation areas with yellow caution tape (or a similar type of tape or ribbon).
- Visitors will be assigned to a specific BLM representative and must stay with that person at all times.
- Visitors are NOT permitted to walk around the gather site or temporary holding facility unaccompanied by their BLM representative.
- Observers are prohibited from climbing/trespassing onto or in the trucks, equipment or corrals, which is the private property of the contractor.
- When BLM is using a helicopter or other heavy equipment in close proximity to a designated observation area, members of the public may be asked to stay by their vehicle for some time before being directed to an observation area once the use of the helicopter or the heavy machinery is complete.
- When given the signal that the helicopter is close to the gather site bringing horses in, visitors must sit down in areas specified by BLM representatives and must not move or talk as the horses are guided into the corral.
- Individuals attempting to move outside a designated observation area will be requested to move back to the designated area or to leave the site. Failure to do so may result in citation or arrest. It is important to stay within the designated observation area to safely observe the wild horse gather.
- Observers will be polite, professional and respectful to BLM managers and staff and the contractor/employees. Visitors who do not cooperate and follow the rules will be escorted off the gather site by BLM law enforcement personnel, and will be prohibited from participating in any subsequent observation days.
- BLM reserves the right to alter these rules based on changes in circumstances that may pose a risk to health, public safety or the safety of wild horses (such as weather, lightening, wildfire, etc.).

#### Public Outreach and Education Day-Specific Protocol

A public outreach and education day provides a more structured mechanism for interested members of the public to see the wild horse gather activities at a given site. On this day, BLM attempts to allow the public to get an overall sense of the gather process and has available staff who can answer questions that the public may have. The public rendezvous at a designated place and are escorted by BLM representatives to and from the gather site.

## APPENDIX D

### *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 Gatherers

**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 E**

### ***Federal Aviation Administration General Operating and Flight Rules Sec. 91.119***

#### **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

## **APPENDIX F**

### ***Sample Drought Gather Plan***

The following is a sample of a Draft Drought Gather Plan to outline the components that would be included should a drought gather of wild horses or burros be necessary in accordance with the Drought Management Plan.

#### **Name of HMA or Complex**

##### **1. Introduction**

This section would provide an introduction as to how the need for a drought gather had become necessary. An overview of climate/precipitation/animal health concerns/forage or water limitations would be provided. An overview of the planned wild horse or burro removal would also be introduced.

##### **2. Background**

This section would include the recent history of the area, summary of monitoring activities, wild horse or burro population levels and AML, and gather history. A table of the HMA(s) involved, AML, and the current population would be presented. Any past wild horse or gather EAs which are relevant would be listed/referenced.

##### **3. Drought Wild Horse or Burro Gather Rationale**

This section would provide detailed information that led to the determination that a drought gather was necessary. The HMA specific information would be provided including but not limited to:

###### **3.1. Climate**

A summary of the specific drought conditions of the area, precipitation, Drought Response Index etc.

###### **3.2. Drought Response Triggers and Monitoring results**

As detailed in the Drought Detection and Monitoring Plan, Drought Response Triggers and the results of monitoring would be summarized. Available and unavailable water, forage condition and availability, assessment by Key Area or summary with detailed information attached, riparian condition and any resource impacts by wild horses or burros, utilization levels, actual use, and animal distribution.

###### **3.3. Animal Health and Characteristics**

Summary of specific genetic information (if available), wild horse or burro characteristics, inventory and population data. Current observations of animal health and expected results of a gather delay.

###### **3.4 Status of Livestock**

Overview of actual use, status of livestock, modifications to livestock, removal of livestock, or closure to livestock as a result of drought.

### **3.5. Drought Response Actions To Date**

Summary of activities undertaken such as water hauling or other efforts to avoid the need to gather.

### **3.6. Other information pertinent to the need for a gather**

### **3.7. Summary: Determination of Excess and Rationale for Drought Gather**

This section would summarize the rationale for a wild horse or burro drought gather and the determination of excess based upon the data and information presented in Sections 3.1-3.6.

### **4.0. Drought Gather Plan**

This section would detail the plan for the gather

- Planned gather method – bait/water trap, helicopter or both
- Timeframe for gather
- Locations of gather. If water/bait trapping, where would the trap(s) be set up
- Safety precautions and mitigation measures to ensure mare and foal health
- Nevada Safe Gather Intent Criteria
- If water/bait trapping, logistics for transportation, feed, water,
- Veterinarian
- Gather objectives: number of animals to be captured, removed, released
- Locations where animal removal would be targeted
- Number of animals to remain in the HMA after the gather
- Monitoring follow up -- range and animal health
- In the case of a complete removal, plans to return animals and triggers for when that would occur

### **5.0. Attachments**

The following is a list of attachments that would be included in a site-specific gather plan:

- Map
- Animal Condition, Water and Upland Monitoring detail and photos
- Drought Response Index and Precipitation Summary
- Public Observation Plan
- Bait/Water Trap Diagram

## **Attachment 3 – Battle Mountain District Sample Drought Gather Plan**

### **Sample Drought Gather Plan**

The following is a sample of a Draft Drought Gather Plan to outline the components that would be included should a drought gather of wild horses or burros be necessary in accordance with the Drought Management Plan.

#### **Name of HMA or Complex**

##### **1. Introduction**

This section would provide an introduction as to how the need for a drought gather had become necessary. An overview of climate/precipitation/animal health concerns/forage or water limitations would be provided. An overview of the planned wild horse or burro removal would also be introduced.

##### **2. Background**

This section would include the recent history of the area, summary of monitoring activities, wild horse or burro population levels and AML, and gather history. A table of the HMA(s) involved, AML, and the current population would be presented. Any past wild horse or gather EAs which are relevant would be listed/referenced.

##### **3. Drought Wild Horse or Burro Gather Rationale**

This section would provide detailed information that led to the determination that a drought gather was necessary. The HMA specific information would be provided including but not limited to:

###### **3.1. Climate**

A summary of the specific drought conditions of the area, precipitation, Drought Response Index etc.

###### **3.2. Drought Response Triggers and Monitoring results**

As detailed in the Drought Detection and Monitoring Plan, Drought Response Triggers and the results of monitoring would be summarized. Available and unavailable water, forage condition and availability, assessment by Key Area or summary with detailed information attached, riparian condition and any resource impacts by wild horses or burros, utilization levels, actual use, and animal distribution.

###### **3.3. Animal Health and Characteristics**

Summary of specific genetic information (if available), wild horse or burro characteristics, inventory and population data. Current observations of animal health and expected results of a gather delay.

###### **3.4 Status of Livestock**

Overview of actual use, status of livestock, modifications to livestock, removal of livestock, or closure to livestock as a result of drought.

### **3.5. Drought Response Actions To Date**

Summary of activities undertaken such as water hauling or other efforts to avoid the need to gather.

### **3.6. Other information pertinent to the need for a gather**

### **3.7. Summary: Determination of Excess and Rationale for Drought Gather**

This section would summarize the rationale for a wild horse or burro drought gather and the determination of excess based upon the data and information presented in Sections 3.1-3.6.

### **4.0. Drought Gather Plan**

This section would detail the plan for the gather

- Planned gather method – bait/water trap, helicopter or both
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- Nevada Safe Gather Intent Criteria
- If water/bait trapping, logistics for transportation, feed, water,
- Veterinarian
- Gather objectives: number of animals to be captured, removed, released
- Locations where animal removal would be targeted
- Number of animals to remain in the HMA after the gather
- Monitoring follow up -- range and animal health
- In the case of a complete removal, plans to return animals and triggers for when that would occur

### **5.0. Attachments**

The following is a list of attachments that would be included in a site-specific gather plan:

- Map
- Animal Condition, Water and Upland Monitoring detail and photos
- Drought Response Index and Precipitation Summary
- Public Observation Plan
- Bait/Water Trap Diagram

## **Attachment 4 – Response to Comments**

No.	Commenter	Comment	BLM Response
1	Eureka County Board of Commissioners	The EA has many instances with language stating how this programmatic EA is needed because "...management responses to drought would require the preparation of individual, situation specific EAs..." We question the need for the BLM Battle Mountain District to prepare and publish the EA and ask for clarification on this matter.	The National Environmental Policy Act (NEPA) requires the Bureau of Land Management (BLM) to analyze and disclose environmental impacts associated with implementation of federal actions on public lands. Preparation of separate NEPA documents to implement Drought Response Actions (DRAs) normally take eight to ten months (or longer) to prepare. To ensure that decisions can be made in the appropriate timeframe to protect resources during drought, the BLM has prepared this Environmental Assessment (EA) which specifically analyzes the impacts of each DRA.
2	Eureka County Board of Commissioners	As we are all aware, some anti-multiple-use activist groups are successful in their challenges of BLM management decisions based on NEPA process alone, not the merits of the management. Our concern is that now, Battle Mountain BLM has created another potentially unnecessary NEPA process in which decisions will be based on and therefore challenged by these groups. Instead of relying on current provisions in place through Resource Advisory Council Standards and Guidelines and regulations for both Rangeland Health and wild horse and burro management that already allow for quick actions in emergency situations, another layer of process driven red-tape has been added.	Please refer to response to comment 1. While the BLM is required to comply with Resource Advisory Council Standards and Guidelines, this does not exempt the BLM from the requirements under NEPA to analyze and disclose environmental impacts associated with implementation of DRAs. This EA meets NEPA requirements and is consistent with 43 CFR §§4000 and 4700.
3	Eureka County Board of Commissioners	<p>The need to implement drought response actions (DRA) of a Rangeland Improvement Project (RIP) manner underscores the lack of proactive land management to benefit a range of multiple uses during all conditions.</p> <p>As on all semi-arid rangelands, and especially in Nevada as the driest state in the Nation, land managers and users of these rangelands must understand that "average" and "normal" years of precipitation are the exception rather than the rule. "Normal" exists only as a numeric value made up of years of wet and dry conditions flattened out in an average when taken together. If BLM were to approach multiple use land management in a proactive way that allowed for active maintenance and installation of RIPs, primarily water development, then during drought conditions, many issues that could occur as asserted in the EA would already be mitigated and require few, if any, "emergency" actions.</p> <p>We believe that the DRAs of a RIP manner outlined in the EA should be a part of proactive and sustainable rangeland management for all conditions, regardless of drought. We ask BLM to work with us, livestock permittees, and other interest groups to proactively pursue more rangeland improvements to provide balanced benefit to sustainable multiple uses and better distribute livestock, wild horses, and wildlife during all conditions.</p>	<p>As part of BLM's BMD proactive management of public lands, the BLM will continue to identify the need for livestock and wild horse and burro management through the Standards and Guidelines (S&amp;Gs) evaluation process. Through S&amp;G evaluations, allotments would be adjudicated to an appropriate level of use (i.e., permitted animal unit months [AUMs]) with consideration given to annual forage production during years of drought. Proper adjudication would minimize the need for future drought actions. This will continue to be a priority for the BMD</p> <p>Following the completion of S&amp;G evaluations and implementation of appropriate grazing management, future NEPA may be conducted to analyze direct, indirect and cumulative impacts of potential range improvement projects.</p>
4	Eureka County Board of Commissioners	Federal agencies have long used a qualitative methodology called Proper Functioning Condition (PFC) to evaluate the condition of riparian systems on federal land. Traditionally PFC has been applied to perennial streams	The EA does not propose to use PFC as a drought monitoring method. Please refer to pages 4 through 6 of the EA for a description of Drought Response Triggers and pages 5 through 7 of the Drought Detection and

No.	Commenter	Comment	BLM Response
		and water bodies for which qualitative PFC evaluations can be bolstered by quantitative channel depth/width ratios, sinuosity, and other measurements. It appears that the EA proposes PFC as the method to determine some DRAs but falls short in describing the follow-up quantitative measures that would go into implementing these actions. The EA should reference the sources and protocols for data collection, reporting, and analysis. Is PFC an appropriate measure of the health of isolated seeps and springs? Should the PFC methodology be used for ephemeral streams and seeps? If so, the EA should report data sources and reference BLM protocols used to do so.	Monitoring Plan (DDMP) (Attachment 1) for a description of monitoring methods that would be used to determine if Drought Response Triggers have been met.
5	Eureka County Board of Commissioners	Development of water for wild horses should be analyzed to consider impacts of such developments on wildlife and livestock.	The EA does not propose to develop permanent water sources for wild horses and burros. Please refer to page 11 of revised EA, which proposes the use of temporary water hauls as appropriate. The impacts of temporary waters hauls have been analyzed in Chapter III of the EA.
6	Eureka County Board of Commissioners	The EA establishes a framework to allow BLM to greatly impact livestock operations through AUM reductions, season-of-use changes, or other prohibitive actions based on a misinterpretation of the definition of drought. The EA properly defines drought using the SRM definition on page 1 of “A prolonged chronic shortage of water...” (emphasis added). However, in other places in the EA, the drought response triggers and drought response actions can take place with an extended period of dry weather that is neither prolonged nor chronic. Please clarify and better describe when BLM will consider rangelands to be in drought. A good example of this is the past two years. The water year of 2010-2011 was a record year with some areas around 200% of normal precipitation and the current water year has some areas at 50% or less of normal precipitation. These two water years taken together do not meet the definition of drought. However, given the triggers and actions in the EA, BLM has the latitude to take a few days or weeks of dry weather, not truly drought, and make very restrictive decisions that are undue or unjustified.	<p>Please refer to part 2 of the Society for Range Management’s (SRM’s) drought definition provided on page 1 of the revised EA. The definition states, “A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water...” The two-part definition takes into account conditions that exist due to a lack of available water to provide for plant growth, production and health.</p> <p>Making drought management decisions based solely on meteorological conditions may be erroneous. For example, precipitation from a previous year may not be accessible for the current year’s plant growth if conditions have resulted in the loss of soil moisture. In instances such as these, part 2 of the drought definition would apply.</p> <p>The U.S. Drought Monitor will be used to monitor meteorological conditions (part 1 of the drought definition) with the Vegetation Drought Response Index being used to monitor vegetation drought stress (part 2 of the drought definition). Once drought conditions have been identified Drought Response Triggers will be used to verify site-specific drought conditions.</p> <p>Please refer to pages 3 and 4 of the revised EA for a discussion of drought indicators that will be used to identify the onset and/or continuation of a drought.</p>
7	Eureka County Board of Commissioners	Our belief that the socioeconomic analysis in the EA is very inadequate is summed up by the statement on page 44, “Because BLM cannot conduct a thorough and accurate analysis of how permitted AUMs may affect individual ranchers economically, it is also not possible to predict accurately the consequences to ranches under AUM reductions.” This statement is very disingenuous given the large amounts of scientifically	<p>As stated on page 45 of the revised EA, the BLM does not have access to individual permittee financial records and does not intend to request financial records from permittees for socioeconomic analysis purposes.</p> <p>In conducting the socioeconomic analysis for this EA, BLM referred to BLM Washington Office Instruction Memorandum (IM) No. 2012-070</p>

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		<p>sound and respected research that has taken place in Nevada regarding AUM reduction economic effects. It is not that BLM “cannot” conduct the analysis (that is not impossible as asserted); it is that BLM did not conduct the analysis.</p> <p>Livestock grazing on federal administered land is vital to Eureka County and its residents. Nearly all of the cattle and sheep commodity sales in the county are made possible by grazing permits on federal administered land. Of all the agricultural commodity sales in Eureka County, cattle/calves and sheep/lambs historically average 40% of the sales with most of the remainder made up of export hay. According to the 2007 Census of Agriculture, there was a livestock inventory in Eureka County of nearly 25,000 head and \$25,015,000 worth of agriculture commodity sales. Since livestock accounts for 40 percent of agriculture commodity sales, livestock production is responsible for generating \$10,000,000 worth of product sales in Eureka County in 2007. The direct and induced benefits of the livestock industry in Eureka County can be determined based upon information contained in the University of Nevada Report: Reno Technical Report UCED 2005/06- 14 Updated Economic Linkages in the Economy of Eureka County. The livestock sector in Eureka County has a final demand multiplier of 2.0283. In short this means that for every \$1 generated by the sector Eureka County’s economy will benefit \$2.02 of total revenue. The high final demand multiplier suggests strong economic linkages of the livestock sector to other sectors of the county’s economy. Income and employment multipliers are also of importance. The livestock sector has an income multiplier of 1.6812 and an employment multiplier of 1.4439. Thus, for every \$1 generated by livestock production, total county household income increases by \$1.68 and for every job added by the livestock sector, total employment in Eureka County increases by 1.44 employees. Therefore, it is concluded that in 2007 the \$10,000,000 of livestock product sales in Eureka County resulted in \$20,283,000 in total revenue to Eureka County and \$16,812,000 in household income increases to Eureka County residents. Further, there are at least 28 different ranching families/grazing permittees utilizing at least 42 allotments in the County. A very conservative estimate is that each ranch directly employs at least 4 individuals. This would result in 112 direct jobs and 162 total jobs related to federal administered land grazing within the County. For context, it is important to keep in mind that the total population of Eureka County in 2007 was estimated to be approximately 1,600. Since 2007, agricultural commodities in Eureka County have greatly increased. Beef and lamb prices are at record levels. Although likely the best available information, the estimates from 2007 are extremely conservative. In 1999 funds were appropriated through the Nevada Legislature to create a Nevada Public Land Grazing Database and Economic Analysis. In 2000, the Nevada State</p>	<p>which identifies the estimated cost to Nevada permittees for alternative forage in Nevada (average private land grazing lease rate). The University of Nevada Report: Reno Technical Report UCED 2005/06-14 Updated Economic Linkages in the Economy of Eureka County is outdated. The BLM is required to rely on best available information while conducting impact analysis. As IM No. 2012-070 was issued in 2012, BLM relied on it as the best available information to conduct the socioeconomic analysis for this EA.</p> <p>Additionally, the intent of implementing DRAs is to protect rangeland health to ensure the sustainability of livestock grazing on public lands managed by the Battle Mountain District (BMD). Though DRAs may have short-term impacts to livestock operators, long-term economic benefits are expected as a result of reduced impacts to range resources during drought thus reducing potential for future AUM reductions due to rangeland degradation if identified through S&amp;G evaluations.</p> <p>DRAs are intended to be applied on a case-by-case basis using site-specific information. If implemented, the DRAs would remain in effect during the duration of the drought or until site-specific conditions are improved as identified through written notice signed by the authorized officer. Implementation of DRAs will not modify the Terms and Conditions of livestock grazing permits.</p>

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		<p>Department of Agriculture asked the Nevada Association of Counties to assist in fulfilling this mandate. Resource Concepts, Inc. was contracted to help complete the database and analysis. The product of this effort is the report, Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada (Resource Concepts, Inc. March 26, 2001). Table 3 of the Report (p. 48) summarizes the economic impacts of 1 AUM of grazing in Nevada as follows: Basically, for every AUM lost (or gained), the overall impact to the livestock producer himself in one year equals \$29.40. The total economic impacts, which include the industry impacts and value added impacts, totaled to \$53.40 per AUM (\$29.40 direct and \$24.00 in indirect and induced impacts). The figures above do not take into account inflationary changes since 1999. Based on data reported from the Bureau of Labor Statistics for each year since 1999 through 2010, the average rate over the past 12 years is approximately 2.5% per year (actually 2.46%). For a more robust estimate, removing the volatile years with the highest rate (2008 at 3.85%) and the lowest rate (2009 with -0.34%) gives an adjusted average inflation rate of 2.6% which is more in line with the average over the past 20 years. Therefore applying a rate of 2.6% each year since 1999 gives a current value of one AUM to the producer at \$39.24 and the entire economy at \$71.28. However, at least one source (Range Magazine) has recently estimated that today's value of 1 AUM to the livestock producer alone is around \$75.00/AUM. To understand the economic impact of AUM loss into the future, the average yearly inflation rate over the past 25 years was applied. The average yearly inflation rate for the past 25 years (1986 through 2010) reported by the Bureau of Labor Statistics is approximately 2.9% (actually 2.88%). Therefore, the value of 1 AUM was different in 1999 compared to say, 2012. Applying an annual inflation rate of 2.9% returns a current AUM value of \$75.47. Please revise the EA with proper socioeconomic analysis that would include the information above and have discussion regarding the social part of socioeconomics. Ranching in Eureka County serves as social glue that holds together our rural communities in many cases.</p>	
8	Eureka County Board of Commissioners	<p>The drought response trigger for water appears as an attempt to provide water to uses in which there is no water right. Having the trigger based on the presence of absence of available water may result in takings of property (water rights and appurtenant forage) to provide for other use in which no excess water above the adjudicated or permitted water right exists which is our definition of available water.</p> <p>Please revise trigger to make it clear that water is only available when the needs of the permitted or adjudicated water right are first satisfied. If BLM wishes to provide available water for needs in addition to underlying water rights for stock water, BLM should pursue ways to acquire water rights</p>	<p>Temporary water hauls used to provide water for wildlife and/or wild horses and burros during drought would only utilize water sources for which the BLM holds shared water rights. The Drought Response Triggers identified in the EA are intended to prevent resource degradation not facilitate a means by which the BLM would violate existing water rights.</p> <p>By implementing Drought Response Triggers for water, the BLM can identify if water quantities are insufficient to meet water demands for livestock, wildlife and wild horses and burros. A lack of available water often leads to the concentrated use of preferred areas, which may result in</p>

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		according to state water law rather than seek backdoor approaches to obtain water through administrative decisions that are counter to law.	the uneven distribution of animal impacts (i.e., utilization). According to Teague et al. (2004), drought compounds the effects of herbivory, thereby, providing periods of accelerated deterioration. Implementing DRAs based on Drought Response Triggers will help ensure proper distribution and avoid resource degradation.
9	Eureka County Board of Commissioners	As an example, the EA suggests BLM is considering creating temporary water developments for wild horse herds. Please disclose how development of water for wild horses meets state water laws.	The EA does not include temporary water developments for wild horses and burros in the Proposed Action. The Proposed Action includes only the use of temporary water hauls for wild horses and burros within the range of DRAs analyzed (pg. 11 of the revised EA). Temporary water hauls do not constitute temporary water developments and do not infringe on state water laws (see response to comment 8 above).
10	Eureka County Board of Commissioners	In many circumstances the EA speaks of “a shorter growing season directly impacts...rangeland health.” Rangeland health is the long-term ecological functioning of rangelands and cannot be determined on a year to year basis. It cannot be determined based on short periods of dry (or wet) conditions. It can only be determined through multiple years of quantitative data collection and analysis. Using the term “rangeland health” as a corollary to yearly conditions is incorrect.	The EA has been revised to address this comment. The term “Rangeland Health” has been replaced with a discussion regarding growing season, plant production and long-term impacts on the ability of rangelands in the future to “meet or make significant progress towards meeting the standards and guidelines of rangeland health” (pg. 5).
11	Eureka County Board of Commissioners	We ask BLM to take a hard look at the realities of implementing some of the DRAs outlined in the EA. Many of the DRAs will prove difficult, if not impossible, to implement such as changing kind or class of livestock. Given the huge reductions in sheep numbers in Nevada over the past decades and the difficulties of mobilizing relatively large numbers of animals to new areas, the reality of this action is that it is likely only possible on paper.	Some permittees within the BMD may have the capability to change the kind or class of livestock if authorized during a drought. The EA analyzes a range of DRAs to ensure that suitable management options are available for a number of site-specific conditions and capabilities. We encourage permittees to apply to BLM for voluntary reductions or temporary changes in use within their existing permits. This may reduce the possibility that BLM would take a DRA through a decision.
12	Eureka County Board of Commissioners	Also, please remove the use of “monotypic invasive annual communities” and replace with “near monocultures” or “invasive annual dominated communities” If this change does not take place, it could be argued that targeted livestock grazing would not be allowed in any area where even one desirable or non-invasive plant is present. Also, please cite and use the local research on the Gund Ranch regarding grazing of cheatgrass which has concluded that fall grazing coupled with spring grazing is necessary to see results in reduction of cheatgrass.	<p>The DRA has been revised to state, “Targeted grazing of invasive, annual-dominated communities.” The purpose of targeted grazing within invasive annual communities is to reduce grazing pressure on native, perennial species. Targeted grazing would only be authorized in areas in dominated by invasive annuals (e.g., cheatgrass). The BLM recognizes that this DRA will not be appropriate for all areas within the BMD.</p> <p>The use of targeted grazing in mixed stands can lead to damage of perennial grasses. For example, Peischel and Henry (2006) state that cheatgrass often grows adjacent to perennial grasses such as Sandberg bluegrass and bottlebrush squirreltail. Both of these perennial species can initiate spring growth and become green and accessible to grazing animals before cheatgrass does. Livestock allowed to access these sites too early may graze almost exclusively on the perennials instead of the cheatgrass. In order to avoid any additional damage, only those communities identified as being dominated by invasive annuals will be subject to targeted grazing. Invasive annual dominated communities would be identified through site-specific monitoring and brought forward</p>

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13	Eureka County Board of Commissioners	Some DRAs revert to hard and fast stocking levels and seasons-of-use based solely on annual utilization monitoring. Without establishing what the issue(s) are and employing regular ecologically-based monitoring information there is no way to know whether the management prescriptions set forth in the [EA] will be successful or what the problem is to be managed.	in full force and effect decisions. The DRAs, specifically, Partial Reductions in AUMs and Change in Season of Use, do not establish “hard and fast” stocking levels or seasons of use. The DRAs are designed to reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought. The DRAs selected will depend on site-specific drought monitoring data (refer to the DDMP), situations and capabilities. Research has shown that drought reduces plant health and productivity. Howery (1999) found that the degree to which drought impairs the range’s potential for future forage production depends on the intensity, frequency and timing of grazing. Hanselka and White (1986) state that the proper use of range forage allows plants to survive dry periods, recover quickly, and provide cover to protect the soil and promote water infiltration. Annual utilization monitoring and the other methods proposed in the EA are intended to ensure that forage utilization is suited to drought conditions and does not impair future opportunities/abilities to meet or make significant progress towards meeting the standards for rangeland health.
14	Eureka County Board of Commissioners	Further, the EA infers that riparian functionality is rated lower if the riparian vegetation has been grazed without regard to the effects on health and vigor of the plants due to the season of grazing. Short (grazed) plants often have fully developed root systems that fully occupy and stabilize the soils. Vigorous, healthy plants that are grazed would be seen in a negative light given the focus on utilization and stubble height which in turn allows for oversight of other causal factors to at-risk riparian functionality. Most of the seasons of use imply that elimination of hot season grazing will result in improved riparian habitat. This statement is suspect in that it can only be justifiably made with monitoring and actions that allow for critical evaluation of all factors including grazing. As currently written, the EA does not allow for evaluation of any factors other than grazing and also provides limited flexibility to adjust management as issues arise and are defined.	Drought Response Triggers are not intended to identify the health and or functionality of riparian areas. The DRAs, which are implemented based on the Drought Response Triggers, are designed to reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought. Drought stricken rangelands are unable to support pre-drought stocking levels. Overutilization during drought can impair plant health and reduce the future ability of rangelands to meet or make significant progress towards meeting the S&Gs of rangeland health. DRAs associated with forage are intended to ensure proper utilization levels of upland and riparian key species. Research has shown that residual stubble heights are needed for plant health and vigor, sediment catchment and stream bank stability. Please refer to page 34 of the EA for stubble height discussion and research citations.
15	Eureka County Board of Commissioners	Another point that we wish to convey is the bias that the EA carries that has been institutionalized based on various stubble height and utilization theories at the expense of scientific understanding of hydrology and plant physiology. Scientific studies in Idaho (University of Idaho Stubble Height Study Team 2004) and Arizona (Smith et al. 2005) have helped in clarifying the danger in using stubble height and utilization in an unjustified manner. Both studies offered similar conclusions and are summarized best by Smith et al. (2005) as follows: 1. “Utilization is a useful tool in range management decision making, but utilization guidelines should not be used as management objectives.	The EA does not introduce stubble height or utilization triggers as management objectives. The Drought Response Triggers brought forward and analyzed in the EA are intended to be used as management tools, not objectives. Howery (1999) found that the degree to which drought impairs the range depends on the intensity, frequency and timing of grazing. Soil moisture needed for plant growth and maintenance is often limited during drought. In order to reduce impacts to vegetation, utilization and stubble height triggers would be used to activate DRAs. The use of such triggers is supported by literature. Please refer to sections III (3.3) (F) and (M) of the EA for a discussion of supporting literature.

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		<p>2. Utilization, as defined by SRM and others, is not the same thing as “seasonal utilization” measured before the end of the growing season. Utilization guidelines cannot be used for seasonal utilization.</p> <p>3. Utilization of key forage species, unlike overall utilization levels in a pasture or allotment, is an indication only of livestock grazing pressure, and is not necessarily related to any other resource uses or values.</p> <p>4. Key areas for livestock grazing are areas selected to indicate the general level of livestock use over a management area. Utilization in key areas does not necessarily indicate impacts on other resource values or uses.</p> <p>5. Setting a different proper use level for different range condition classes is not supported by research, at least within the bounds of conservative stocking levels currently recommended on public lands. There is no known basis for establishing different utilization guidelines for different classes of “range condition.”</p> <p>6. Utilization guidelines and estimation procedures applicable to grass ranges may be inapplicable or difficult to employ on ranges where much of the forage supply comes from shrubs and/or annuals.</p> <p>7. Use of utilization to adjust stocking rates should be based on measurement of utilization made in the fall on ranges grazed during the growing season, and in the spring on winter or year-round ranges. Excess utilization over a considerable portion of the range over a period of several years may indicate a need to reduce stocking or make other management changes. Likewise, low levels of utilization over large areas and several years may indicate an opportunity to increase stocking.</p> <p>8. Seasonal utilization should not be used as a rigid standard to trigger livestock moves or removal from grazing permits. Such actions should consider the operation of the entire management unit, including all land ownerships, for the balance of the grazing year. Coordination across land ownerships can enhance management of the landscape as a whole.</p> <p>9. Some adjustment to livestock numbers and duration of use, based on seasonal utilization may be necessary, for stewardship of the resources when evaluated in conjunction with other factors.</p> <p>10. Mapping of use zones and estimates of utilization to provide collateral information for long-term trend monitoring both provide information that is very useful in rangeland management planning.”</p> <p>Given these points, the approach set forth in the EA hand conflict with BLM’s efforts for ecologically based management decisions. We ask that they be addressed before any final decision based on the EA.</p>	
16	Eureka County Board of Commissioners	Basing decisions according to Ecological Site Descriptions (ESD) is misused in the EA because there is no discussion on determining what state any given ecological sites is in before a DRA is implemented. ESDs are	The EA does not propose to base management decisions on Ecological Site Descriptions. The EA only proposes to use ESDs to determine key species for monitoring locations. The EA has also been revised to state,

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		<p>only useful when there is an understanding of what state the site is in and how, or if, it can be managed for stability in its current state or management to a more desired state. Using the State and Transition Models is necessary to improve the underlying understanding and explanation of the drought impacted areas as described in the scoping summary.</p> <p>The linear concept of plant succession has been well documented to inadequately describe plant community processes (Love 1961, Jameson 1970, Smith 1978, Westoby 1980, Smith et al. 1995 and others). Successional theory is an inappropriate model of vegetation change on rangelands (Smith et al., 1995). It will be absolutely necessary to analyze management with the understanding of current and sound rangeland science. For instance, the Desired Plant Community (DPC) concept will only work when incorporated with a grasp of current site potential, thresholds, and transitions associated with the ESDs. DPC would be more valuable if described in terms of species life forms or functional groups rather than individual species. There may be multiple DPCs for each ecological site depending on which community currently occupies a site and which thresholds have been crossed.</p> <p>Focusing on Potential Natural (or Native) Community (PNC) limits managers ability to manage for objectives. The State and Transition Model shows that there are many dynamically stable communities on a given ecological site. Once a community crosses a threshold between states, returning to the original state will require a substantial input of energy. Crossing that threshold means that managers cannot create a return to a higher community simply by removing the disturbance that created the lower community. In order to “recover” the site, outside energy will need to be introduced to the system.</p> <p>Some thresholds are considered to be terminal: returning to a previous state is not possible with current knowledge. It may be that a lower level community may be the new potential community. Cheatgrass monocultures demonstrate this concept, the site will not return to a sagebrush-bunchgrass community through grazing management, grazing restriction, or grazing deferment.</p> <p>There may be multiple DPCs for each ecological site depending on which community currently occupies a site and which thresholds have been crossed.</p> <p>Current models show that some vegetative communities are in a state not considered DPC or PNC (lack of perennial herbaceous species) and these</p>	<p>“In instances where key species referenced in the ESD are absent, key species will be identified using site-specific and past monitoring data.”</p> <p>The EA is not intended to implement management actions intended to returning communities to their original state. The purpose of the EA is to analyze alternatives that would allow for the rapid response to drought in order to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.</p> <p>Grazing during drought can, in fact, impair future health of a site. The following are some findings in regard to this matter: Drought or water stress affects virtually every physiological and biochemical process in plants (Hanselka and White 1986). Grazing management practices before, during and following a drought would influence the ability of native rangeland vegetation to recover (Encinias and Smallidge 2009). Lagged responses toward drought Pose a threat to sustainable management of rangelands (Thurow and Taylor 1999).</p>

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		<p>communities are a predictable result of long-term lack of fire or other disturbance regardless of other management on the site. While in some circumstances this may be accelerated by grazing during drought conditions, the progression to this state (community) will not be reversed by a change in livestock management during drought conditions. The end result, livestock grazing or not, in many of these areas is the same, just over a differing temporal period.</p>	
17	Eureka County Board of Commissioners	<p>There is a general lack of resource monitoring and inventory in the EA targeted towards resource objectives of DRAs. The EA must be revised to clearly specify how and when progress toward long-term objectives or desired plant communities will be monitored. Without regular ecologically-based monitoring information and without flexibility in management, there is no way to know whether the management prescriptions set forth will be successful. Furthermore, there must be a monitoring based feedback mechanism to adapt management as DRAs are implemented. The EA should disclose and analyze mechanisms for BLM and affected interests to determine if primary resource values (i.e., high elevation riparian areas) remain at risk during or after DRA implementation. The EA should also report and analyze timelines and mechanisms to make changes to management schemes if data indicate the DRA is not creating the desired result. Robust monitoring will be necessary for BLM and stakeholders to successfully meet the goals and objectives. Monitoring should be quantitative, objective, and include both site-specific and landscape level data correlated to management objectives and desired outcomes.</p> <p>Quantitative objective setting and monitoring will be important to setting time tables for opening areas to grazing following DRA implementation.</p>	<p>The goals of the EA are to:</p> <ol style="list-style-type: none"> <li>1. Provide for the early detection of and response to drought conditions.</li> <li>2. Promptly identify and prevent further degradation of affected resources on lands afflicted by drought within the BMD.</li> <li>3. Provide for the rapid implementation of DRAs in order to alleviate the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.</li> </ol> <p>The purpose of drought management is to maintain current health of plants and rangelands and avoid degradation of resources. The focus of the EA is not long-term but is short-term in nature to adjust management on a temporary basis during drought.</p> <p>The monitoring methods chosen are BLM approved methods. These methods were chosen due to the fact that they are quickly conducted. If and/or when a drought occurs, resources (including staff) will be limited. Robust monitoring is not realistic.</p> <p>Site-specific data will be collected. DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), and would be implemented within all appropriate laws, regulations and policies. Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for wild horse and/or burro drought gathers would be thoroughly documented within a site-specific drought gather plan (see Attachment 3 of the revised EA for a Drought Gather Plan Outline).</p>
18	Eureka County Board of Commissioners	<p>We argue that BLM cannot state that the EA is in conformance with other land use plans (page 2, Section 1.2) until every practicable effort has been taken to achieve consistency with State and local plans and policies. This is mandated through NEPA and FLPMA themselves and the CEQ and BLM implementing regulations, respectively. We specifically request that BLM follow these requirements and add a section to the EA outlining how the EA is in conformance with the Eureka County Master Plan and the Nevada State Drought Plan to the maximum extent possible. Also, we ask that</p>	<p>FLPMA's consistency requirement (43 USC 1712(c) (9)) and its counterpart regulations (43 CFR §1610.3-1, 3-2) apply only to the Resource Management Plan (RMP) revision process. The CEQ regulations (40 CFR §§1502.16(c) and 1506.2(d) extend beyond the RMP revision process but only apply to Environmental Impact Statements.</p> <p>However, BLM has reviewed the Eureka County Master Plan and the</p>

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		<p>BLM include in the Environmental Consequences section of the EA, as required, descriptions of where the management provisions of the EA are inconsistent with State and local plans and describe what would be done to reconcile these inconsistencies.</p>	<p>State Of Nevada Drought Response Plan (revised and signed April 2012) and find the BMD Drought Management EA to be consistent in the following ways:</p> <p><b>EUREKA COUNTY MASTER PLAN</b></p> <ul style="list-style-type: none"> <li>• DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with , or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area.</li> <li>• Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for wild horse and/or burro drought gathers would be thoroughly documented within a site-specific drought gather plan (see Attachment 3 of the revised EA for a Drought Gather Plan Outline).</li> </ul> <p><b>STATE OF NEVADA DROUGHT RESPONSE PLAN</b></p> <ul style="list-style-type: none"> <li>• Both the State of Nevada Drought Response Plan and the BMD Drought Management EA, site the use of the U.S. Drought Monitor to indicate the onset of a drought and monitoring of drought conditions. (Please refer to page 4 of the Nevada Drought Response Plan and page 3 of the BMD Drought Management EA).</li> <li>• Both documents describe a phased approach to drought management.</li> </ul>
19	Eureka County Board of Commissioners	<p>Our reading of the EA reveals a paradigm in the BLM that is more ideological than ecological with regards to livestock grazing impacts on rangeland resources. The tone of the EA is that livestock grazing is only detrimental. There is no reference to rangeland research that has shown the benefit of properly managed livestock grazing to synergize proper nutrient cycling, reduce fine fuel loads and invasive species, and help reach certain objectives such as riparian habitat enhancement and wildlife habitat improvement.</p>	<p>The EA does not purport that livestock grazing is only detrimental. The premise of the EA is that drought years are not as productive as years of normal or above normal precipitation. As such, rangelands afflicted by drought are often unable to support pre-drought livestock and wild horse and burro numbers or grazing in a manner in that is suited for years of normal or above normal precipitation. It is well supported in the literature that drought impairs the productivity of the range. Management must be adapted to conditions especially during drought to ensure resource damage does not occur.</p> <p>The EA analyzes a range of DRAs. This range provides opportunities to continue grazing livestock during drought. Please refer to pages 33 and 59 for discussions regarding the targeted grazing of cheatgrass and the reduction of undesirable species and hazardous fine fuels.</p>

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			Livestock can be beneficial, however during a drought grazing management should be designed for plant health maintenance as opportunities for habitat improvement and enhancement is likely to be limited during drought.
20	Eureka County Board of Commissioners	<p>We subscribe to the ideal of Aldo Leopold as he wrote in the Sand County Almanac, “There is only one soil, one flora, one fauna, and one people, and hence only on conservation problem. Economic and esthetic land uses can and must be integrated...on the same acre.” Leopold cautioned against “fixing the pump without fixing the well.” We believe the same. For any natural resource issue to be solved, it must have economic solutions. Land “healing” or “restoration” must be attached to land “profitability” in order to work.</p> <p>We are concerned that many of the provisions and DRAs outlined in the EA are in spite of economic profitability. We strongly request that BLM take every effort to incorporate actions to bring most benefit to ranching families and local economies first before implementing any prohibitive or restrictive management action.</p>	<p>The BLM is required by the Federal Land Policy and Management Act (FLPMA) of 1976 to provide for multiple-use. Multiple Use is defined as “...management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people...”</p> <p>The act goes on to state...“and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources <u>and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output (emphasis added)</u>”.</p> <p>Responsible management during drought is needed to provide for the health and sustainability of the resources. Sustainable management of range resources will in-turn provide for the continuation of grazing opportunities on public lands in which many ranching families rely.</p>
21	Eureka County Board of Commissioners	<p>This can be achieved by BLM reaching consistency with Eureka County’s plans, policies, and codes as required by NEPA, FLPMA and the respective implementing regulations. Specifically, the Eureka County Code and the Eureka County Master Plan states the following regarding any grazing restrictions on federally administered lands in Eureka County:</p> <ol style="list-style-type: none"> <li>1. Federal agencies in coordination with grazing permittees must ensure that management decisions are based upon the best rangeland science, that flexibility is built into grazing permits to allow for adaptive management as issues and concerns arise, and that that quality and quantity of data collected can support all decisions made;</li> <li>2. Before imposing grazing restrictions or seeking changes in livestock stocking rates or seasons of permitted use, federal agencies in coordination with grazing permittees must identify and implement all economically and technically feasible livestock distribution, forage production enhancement, weed control programs, prescribed grazing systems, off-site water development by the water rights holder, shrub and pinyon/juniper control, livestock salting/supplementing plans, and establishment of riparian pastures and herding;</li> <li>3. Federal agencies in coordination with grazing permittees must assure that all grazing management actions and strategies fully consider impact on property rights of inholders and adjacent private land owners and consider the potential impacts of such actions on grazing animal health and</li> </ol>	Please refer to response to comment 18.

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		<p>productivity; and</p> <p>4. Eureka County demands, pursuant to adopted federal statutes, regulations, and policies in addition to the Eureka County Code and Eureka County Master Plan, full and complete notice and opportunity for coordinated involvement in the decision making processes of the federal entity that are being taken or are being proposed to be taken, including livestock grazing decisions, on federally administered lands and resources located within Eureka County.</p>	
22	Eureka County Board of Commissioners	We would also like to note that wild horse gathers should be a priority before livestock grazing restrictions.	CFR 4710.5 provides for the ability to close certain areas of public lands to livestock in order to protect wild horses or burros. Through the monitoring of Drought Response Triggers, availability of water and forage within herd management areas (HMAs) would be documented and appropriate DRAs implemented to ensure the welfare of wild horses and prevent degradation of resources. Gathers to remove wild horses would be conducted as a last resort <u>only</u> after consideration of other DRAs.
23	Nye County Board of County Commissioners	Implementation plans and supporting field evidence should be discussed and coordinated with County representatives and affected ranchers prior to any implementation efforts.	<p>DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area.</p> <p>Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form. Justification for Wild Horse and/or burro drought gathers would be thoroughly documented within a site-specific drought gather plan (see Attachment 3 for a Drought Gather Plan Outline).</p> <p>Requests for voluntary adjustments of grazing were made in the annual grazing letter dated January 10, 2012 that was mailed to all permittees and interested public. Opportunities for voluntary adjustments are still available and encouraged by the BMD.</p>
24	Nye County Board of County Commissioners	Transferring herds off low yield grazing areas should always take priority over the closing or elimination of grazing allotments. Most ranchers would implement this measure voluntarily without BLM direction in order to preserve and maintain the health of their herd and grazing allotment.	<p>Requests for voluntary adjustments of grazing were made in the annual grazing letter dated January 10, 2012, that was mailed to all permittees and interested public. Opportunities for voluntary adjustments are still available and encouraged by the BMD.</p> <p>The EA analyzes a range of DRAs. Site-specific monitoring data would be used to determine appropriate DRAs. The BMD will resort to full closure of an allotment if: 1) a permittee or lessee fails to cooperate regarding drought measures after “a reasonable attempt” (43 CFR 4.110.3-3(b)) has been made to consult with that permittee or lessee, 2) all feasible livestock DRAs have been exhausted and immediate</p>

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			protection of resources on the allotment is required or 3) the allotment(s) or portions of allotment(s) that overlap with an HMA(s) in which it has been determined that wild horse and/or burro removal is warranted.
25	Nye County Board of County Commissioners	Finally, Nye County does not support the Grazing Closure Alternative. Nye County agrees the short-term effect of allotment closure would have a negative socio-economic effect on the ranching community; however, if ranchers are forced to leave the area due to lack of access to grazing allotments, it would result in a long-term severely negative cumulative impact on ranchers and supporting communities. If drought conditions persist, grazing closure will occur naturally due to environmental and associated economic conditions, so BLM action in this regard should not be required.	The BLM is required by the NEPA to analyze a full range of alternatives. The Grazing Closure Alternative was not selected as the Proposed Action. Please refer to section III (Affected Environment/environmental Consequences) for the analyses and rational on the selection of the Proposed Action.
26	Nevada Farm Bureau Federation	First, we wish to express our strongest objections to the concept of developing a programmatic approach for responding to drought conditions, outside normal land management process, such as those which would be included in an area's land use management plan. In moving forward with this approach, which we urge the District not to do, will take away the flexibility to deal with site-specific circumstances and conditions which are not envisioned in the responses you have attempted to address with this Environmental Assessment (EA).	Please refer to response to comments 17 and 23. The proposed action provides a suite of options and gives the authorized officer the flexibility to quickly respond to emergency drought situations.
27	Nevada Farm Bureau Federation	It appears the primary purpose for this drought management approach is to single out livestock grazing, in a punitive fashion, to carry full brunt of drought conditions (real and imagined).	Please refer to response to comment 19. Livestock grazing during periods of extreme drought has the potential of causing significant and long lasting resource damage.
28	Nevada Farm Bureau Federation	<p>On page 6 of the plan, within the section pertaining to the Proposed Action for Livestock and relating to the "Partial or complete closure of an allotment(s), we read:</p> <p><i>"Portions of an allotment(s) that lack forage and/or water, are in poor condition, or <b>are identified as critical areas to provide forage and/or water for wildlife and or wild horses and burros</b> could be closed to livestock grazing for the duration of the drought"</i></p> <p>On page 10 of the plan, within the section pertaining to the Proposed Action for Wild Horses and Burros and relating to "Wild horse and burro removal", we read:</p> <p><i>"When it is determined that drought conditions have resulted in insufficient amounts of forage and/or water <b>to support the existing population of wild horses and/or burros within a herd management area (HMA)</b> a drought gather would be conducted."</i></p> <p>In other words, the plan is to use identified critical areas which provide forage/and or water <b>to support existing populations</b> of wild horses and/or</p>	<p>Refer to Table 7, which displays the HMAs administered by the BMD, existing estimated populations and the established appropriate management levels (AMLs).</p> <p>Refer to responses 123, 126 and 134. Due to National budget and space limitations it is currently not possible for the BLM to manage all HMAs within the established AMLs. Priority gathers are identified after consideration of many factors including but not limited to population size, years since last gather, critical wildlife habitat such as preliminary priority habitat (PPH) for sage-grouse, animal health and resource concerns. These priority gathers are submitted to the Nevada State Office, which evaluates the needs of other Districts, available funding, space and other factors. The approved gathers identified on the National Gather Schedule also include removals from nine other western states besides Nevada, and only a certain number of wild horses or burros are allowed to be removed annually.</p> <p>When analyzing available data for consideration of wild horse or burro drought gathers, PPH would identified and this information provided in the documentation issued to the interested public.</p>

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		<p>burros, regardless whether or not the District has met the management obligation of being at or below Appropriate Management Levels (AML) for wild horses and/or burros, within Herd Management Areas.</p> <p>We insist that there be a response to our comments which identifies each of the Herd Management Areas, within the Battle Mountain BLM District, and offers the specific numbers for the determined Appropriate Management Level (AML) and the actual “existing” population. Given the national Greater Sage-grouse Interim Sage-grouse Interim Management guidelines for resource management (Instructional Memorandum No. 2012-043), we would further seek a documented response to the District’s intentions of not complying with the directive to <b>“Manage wild horse and burro population levels within established Appropriate Management Levels”</b>. It would be appropriate to identify in the response of Appropriate Management Levels and the actual “existing” populations referred to in this plan, that those horse and burro areas which are classified as fitting into <b>Preliminary Priority Habitat</b> and <b>Preliminary General Habitat</b> also be highlighted.</p>	
29	Nevada Farm Bureau Federation	<p>From our review of the EA, we also find a lack of responsible attention given to circumstances where the drought criteria that the District wishes to lock in fits with fuel loads which could be subject to massive wild fire outbreaks. In spite of the need to address management of fine fuels that might be excessive dry conditions, the plan you’ve offered lacks the responsiveness to consider and resolve these situations.</p> <p>It appears that the potential for landscape-wide wild fire (absent fuel load management) is preferred in comparison with the bias which the District has documented in this <a href="#">plan against livestock grazing</a>.</p>	Please refer to response to comment 19. A detailed analysis of fire management during drought is outside the scope of this EA.
30	Nevada Farm Bureau Federation	In addressing resource management where dry conditions and fuel load build-up exist, we strongly recommend adding provisions to the plan, using livestock grazing as a tool for fuels reduction.	Please refer to response to comment 29.
31	Nevada Cattlemen’s Association	The Association understands the importance of preparing for various management objectives in response to drought conditions. Furthermore, the Association supports the reviewing of drought indicators and responding accordingly to sustain a healthy rangeland.	Comment noted.
32	Nevada Cattlemen’s Association	As ranchers and managers, we use grazing systems to manage our livestock. We take care and pride in the health of the land and our cattle. With systems such as rest rotation, deferred grazing, dormant season use, and herding, we achieve land health goals. With utilization records and proper management the health of the land is positively impacted.	Comment noted. Please refer to pages 5-10 of the EA for a discussion of similar livestock management practices.
33	Nevada	There are standards and guidelines that we work under so that utilization on	Comment noted.

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	Cattlemen's Association	the range is at an acceptable level where wildlife and other users have forage and esthetic value on the public lands.	
34	Nevada Cattlemen's Association	As stewards of the land, we understand the importance of proper management and utilization records. While we support varied grazing systems as Drought Response Actions, we ask that "Partial Reduction of Animal Unit Months" be further verified before this action is used.	<p>DRAs are intended to be applied on a case-by-case basis using site-specific information.</p> <p>DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area.</p> <p>Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP and recorded on the attached Drought Monitoring Summary Form.</p>
35	Western Watersheds Project	It is critical that BLM fully take into account the current degree and severity of desertification that has occurred across the Battle Mountain lands. Desertified lands may face even greater stress from grazing during drought conditions. The extensive soil and microbiotic crust disturbance, and other adverse impacts of grazing under dry conditions, can pave the way for harmful cheatgrass and other weed expansion in subsequent years.	Comment noted. Site-specific monitoring data as outlined in the EA and the DDMP (Attachment 1) would be used for the selection of appropriate DRAs. DRA would be implemented through full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area.
36	Western Watersheds Project	Native plants in grazing-stressed desertified landscapes may be killed or greatly weakened by grazing during drought periods. Many native bunchgrasses are very long-lived, and their loss is long-term in sagebrush and other arid ecosystems. See Anderson BLM Technical Bulletin (2001). Anderson describes the adverse impacts of even one time use at levels of 40%. BLM routinely allows grazing to occur on lands where use at this level is applied. Even worse, since utilization is averaged over grass plants, many plants receive much greater than the damaging 40% utilization. Plus this level of use is not adequate to provide for sage-grouse nesting cover during any period.	Comment noted. Please refer to pages 5-6 of the EA for a discussion on Drought Response Triggers. Specifically, those relating to utilization. Utilization triggers would require the activation of DRAs. The utilization triggers range from 25% to 30% depending on vegetation community.
37	Western Watersheds Project	During drought, native bunchgrass and other forb height will be less, and the relative impacts of livestock use in stripping essential cover, including residual cover for next year, will be greater.	Comment noted. The EA addresses the shorter growing season and reduced health and productivity of vegetation as a result of drought conditions. The Drought Response Triggers and DRAs are designed to reduce the impacts of authorized uses and activities on natural resources that are at risk of being adversely affected by drought.
38	Western Watersheds Project	Battle Mountain lands and waters are already greatly stressed, and now drought adds to these stresses. Landscape-level desertification has occurred and continues in many areas due to significant livestock grazing and trampling disturbance effects.	Please refer to response to comment 37.
39	Western Watersheds Project	Plus gold and other mine aquifer drawdown further reduces water flows and disrupts watershed processes, as does some recent geothermal and other development.	Mine and geothermal development impacts are addressed in the cumulative effects section of the EA. However, the detailed analysis of mine and geothermal development impacts are outside the scope of this

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			EA.
40	Western Watersheds Project	In all livestock grazing actions, BLM must base long-term stocking on levels that can be supported under drought conditions, fully taking into account added stresses of climate change effects.	Please refer to response to comment 3.
41	Western Watersheds Project	We are very opposed to new temporary or other fencing, as is proposed in the cover Letter. All that will do is shift and intensify livestock impacts into other areas, where severe impacts will occur.	Temporary electric fences as well as other DRAs would be selected using site-specific information. The placement of temporary electric fences and other DRAs would only be authorized where appropriate. If electric fences are used, livestock utilization would be monitored and livestock would be required to be removed once forage is grazed to the stubble heights described in the Drought Response Triggers as discussed and analyzed in the EA.
42	Western Watersheds Project	<p>The EA proposes:</p> <ul style="list-style-type: none"> <li>- Salt Desert Shrub <ul style="list-style-type: none"> <li>o 25 % utilization of key species.</li> </ul> </li> <li>- Sagebrush Grassland <ul style="list-style-type: none"> <li>o 30% utilization of key species.</li> </ul> </li> <li>- Pinyon-Juniper Woodland <ul style="list-style-type: none"> <li>o 30% utilization of key species.</li> </ul> </li> <li>- Mountain Shrub <ul style="list-style-type: none"> <li>o 30% Utilization of key species.</li> </ul> </li> <li>- Riparian Zones <ul style="list-style-type: none"> <li>o Four inch stubble height of key riparian species.</li> </ul> </li> </ul> <p>These levels are much too high for drought periods in damaged lands. They must (at a minimum) be cut in half. Plus trampling standards must be applied to all riparian areas. We recommend less than 10% bank and meadow trampling as a trigger for livestock removal. This will help to protect springs, streams, meadows and springbrooks, and prevent irreparable damage. Riparian stubble height must be 6 inches.</p> <p>All of these must be accompanied by significant reductions in livestock use.</p>	<p>The utilization and stubble height triggers are supported by research. Please refer to section III (Affected environment/Environmental Consequences) of the EA for analysis of the triggers and discussion of supporting research and literature.</p> <p>DRAs, including reductions in AUMs, would be based on site-specific data and implemented where appropriate.</p>
43	Western Watersheds Project	The EA Proposes changes such as grazing after Sept 30 in riparian areas. But in areas where there is limited water (as is the case in nearly all the BM lands), if large herds are unleashed on these fragile sites, impacts will still be severe.	Please refer to response to comment 42.
44	Western Watersheds Project	We strongly oppose changes from cattle to sheep – as this is very likely to jeopardize bighorn herds. It will also alter any TNEB in wild horse herd areas, and will have different, and never-analyzed impacts as sheep use some areas differently than cattle.	Temporary changes in kind or class of livestock will be based on site-specific data. The EA has been updated to reduce potential intermingling of domestic sheep and bighorn sheep. Please refer to page 10 of the revised EA which now states that “Temporary changes from cattle to sheep would not be authorized in areas of known bighorn sheep habitat or areas within nine miles of know bighorn sheep habitat.”

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			The BLM is unaware of any findings that sheep use negatively impacts wild horses and burro habitat. A temporary change in kind or class of livestock is intended to improve management during drought, thus reducing the impacts of authorized uses during drought.
45	Western Watersheds Project	<p>The EA states: During drought, temporary electric fencing could be used to exclude livestock from critical areas such as riparian areas, meadows, aspen stands, critical wildlife habitat etc.</p> <p>This must not occur. It will only impair OTHER fragile resources, shift and intensify impacts into sage-grouse and pygmy rabbit habitats, etc. One-time placement of electric fencing results in severe trailing impacts that can cause new gullies, large-scale degradation of uplands including destruction of mature and old growth sagebrush and other shrub patches.</p>	Please refer to response to comment 41.
46	Western Watersheds Project	An EIS must be prepared to analyze such effects. There is already far too much harmful fencing across the BLM landscape.	The impacts have been analyzed in EA and were not determined to be significant; therefore, preparation of an EIS is not necessary. Please refer to sections III and IV of the EA.
47	Western Watersheds Project	<p><b>Targeted grazing of monotypic invasive annual communities</b> <i>Targeted grazing of monotypic invasive annual communities (e.g., cheatgrass) could be used to alleviate grazing pressure on other areas that are dominated by native species. On these sites, prescribed livestock grazing could be applied to achieve maximum damage to annual grasses with little concern for non-target plants (Peischel and Henry 2006). Grazing would be focused during the spring and/or fall months to take advantage of early spring and fall growth of the annuals. Livestock would be removed upon reaching a two-inch average stubble height in order to provide some protection from wind and water erosion. Animals would be confined to these areas using temporary electric fence or herding. If an existing water source is not available, the use of temporary water hauls or temporary above ground pipelines may be used.</i></p> <p>This will just turn these areas into extraordinarily degraded dustbowls, and promote even worse weed problems in subsequent years. We strongly disagree with the conclusions of Peischel and Henry. This will result in livestock eating anything that is NOT an annual –such as remnant shrubs that may provide important habitat connectivity. Plus, many of these areas are supposed to be managed for post-fire or other recovery, instead of as sacrifice zones to the very livestock herds that have so greatly degraded them in the first place.</p>	Please refer to response comment 12.
48	Western Watersheds Project	BLM cannot use “temporary” water haul or pipelines for livestock. The impacts will be even worse than those of temporary fences. This will also significantly increase livestock competition with wildlife, rare plants, and many other values of the public lands. Aren’t permittees supposed to have	Please refer to response to comment 41.

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		sufficient base property to support livestock??? It will promote weeds, road blading and upgrades, road-killed wildlife, disturbance to wildlife during sensitive periods, and general disturbance and devastation.	
49	Western Watersheds Project	We are strongly opposed to BLM shifting any use to spring. It is time to end spring use in sage-grouse, pygmy rabbit, migratory bird, and other habitats as well as native vegetation communities.	Please refer to section II C of the EA for a discussion on DRAs. The DRA associated with a change in season of use proposes shifting the season of use to a time following the critical growth period and/or outside of the hot season. Spring and fall use was brought forward in the EA for monotypic invasive annual communities to target spring and fall growth of cheatgrass. This was analyzed to provide an opportunity to alleviate grazing pressure on other areas dominated by native species such as those that provide high habitat values as referenced in your comment.
50	Western Watersheds Project	No TNR of any kind can be allowed	No Temporary Non-renewable Grazing (TNR) has been proposed or analyzed as an option within the EA.
51	Western Watersheds Project	BLM must fully examine actual use of livestock, and develop a series of alternatives that remove or reduce livestock to levels one half or less of actual use as the highest number that can be grazed.	Partial reduction in AUMs as well as partial and complete closures of allotments have been analyzed in the EA. Specific reductions and closures will vary depending on site-specific conditions. DRAs would be implemented through the issuance of full force and effect decisions pursuant to 43 CFR §4110.3-3(b), after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the state having lands or responsible for managing resources within the area. Full force and effect decisions would be supported by site-specific monitoring data collected as outlined in the DDMP.
52	Western Watersheds Project	Some sage-grouse still collide with fences – no matter how many markers or glittery objects BLM put on fences. Fence posts provide perches for brown-headed cowbirds. Beat-out areas that quickly develop in association with fences or water sites promote mesopredators, weeds, soil erosion, etc.	The EA analyzed the use of temporary electric fences constructed of 3/8 inch diameter fiberglass fence posts and two strands of electric fence polywire. Posts would be spaced 16 feet apart. The height of the fence would be 30 inches (hot wire) with the bottom wire being 20 inches (ground wire) above the ground. Signs warning of electric fence would be firmly attached to the fence at common crossing points and at ¼ mile intervals along the fence. All temporary fences would be authorized in writing and would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer. The fence design and materials are considered to be wildlife friendly. The posts and wire are highly visible and is considered to reduce the occurrence of collision. The combination of the wide post spacing (16 ft.) and pliable polywire minimize risks of injury resulting from collisions. The fence will give when impacted with the risk of injury being very low. The 3/8 inch diameter fiberglass posts have a small surface area and are not considered to provide suitable perching locations.
53	Western	BLM must apply significant consequences for any exceedences of use – for	Comment noted.

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	Watersheds Project	example, mandatory reduction in AUMs for the next five years.	
54	Western Watersheds Project	Battle Mountain District allotments are facing significant drought effects. Drought-stressed plants are susceptible to weakening and damage by livestock grazing use. Further reduction of perennial grasses or forbs may have occurred due to drought, and the interaction of livestock grazing disturbance/stress with drought. Impacts of drought are cumulative and persist for long periods.	Please refer to response to comment 37.
55	Western Watersheds Project	Very significant adverse effects can occur to riparian areas from grazing in drought periods. Streams and springbrooks become increasingly intermittent. This means that large herds of livestock converge on remaining wetted areas with severe adverse impacts. This all destroys sage-grouse brood rearing habitat, and promotes permanent loss of riparian potential through head cutting in trampled disturbed areas. And of course the adverse impacts to watersheds, recreational uses and aquatic biota are tremendous – as livestock foul remaining waters, trample banks choking streams with sediment, and otherwise cause significant and often irreversible harms to habitats.	Please refer to response to comment 37.
56	Western Watersheds Project	We are very concerned that the measures will not be sufficient to protect watersheds, wildlife like sage-grouse, and aquatic species. How will BLM ensure that it makes sufficient cuts in livestock numbers?	Please refer to response to comment 51.
57	Western Watersheds Project	Many areas must not have livestock turned out on them at all in 2012. Please do not turn out livestock in sage-grouse nesting habitats, brood rearing areas, sensitive watersheds, areas with limited water, areas where springs and streams are vulnerable, and other fragile sites.	Comment noted.
58	Western Watersheds Project	In any areas where livestock are allowed on public lands, much lower use levels must be applied. All riparian areas must retain 6 inches stubble height and suffer less than 10% bank area trampling. Uplands must have 15% or less use on all species. These levels must serve as triggers for removal of livestock from the affected public lands.	Please refer to response to comment 42.
59	Western Watersheds Project	Levels of ACTUAL USE must serve as the basis for reductions – not the "paper cow" permitted or active use numbers. Otherwise, damage will be extreme.	Comment noted.
60	Western Watersheds Project	No water hauling can be allowed, This just intensifies use and causes more irreparable harm and destruction of microbiotic crusts and vegetation communities which form the cornerstone of essential habitats and watershed function.	Please refer to response to comment 41.
61	Western Watersheds Project	There is evidence from the Snake River Birds of Prey Area of adverse impacts of drought even in annual grass areas on small mammals like ground squirrels that serve as prey for numerous sensitive species	Comment noted.
62	Badger Ranch, Diamond Cattle Co., Flying T	The EA's Proposed Action sets forth a list of drought indicators and drought response triggers which must be met to activate Drought Response Actions (DRAs) (pp. 3-6). The EA should specify which and how many of	The EA contains two drought indicators and four DRAs. A two-part drought definition was provided on page 1 of the EA. Both indicators would need to be satisfied to signal the onset of drought (i.e., U.S.

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	Ranch, Paris Ranch	the indicators and response triggers must be met for DRAs to be activated. If certain indicators and response triggers take precedence over others, these should be identified also. The EA should further specify when and how the indicators and response triggers will be used to determine that an area is no longer “drought-afflicted.”	Drought Monitor and VegDRI resources indicate drought in a particular area). Upon notification of the aforementioned indicators being realized, site visits would occur to determine if any of the four drought triggers have been reached. No priority is given to any one drought response trigger as site-specific conditions would vary across the district. DRA selections would be made on case-by-case bases and suited to the situation at hand. For example, if site visits identify an area that has water shortages but still maintains an adequate amount of forage, water hauls could be selected as a DRA. Conversely, site visits could identify forage shortages (drought induced senescence of key species resulting in reduced production) in which case a partial reduction in AUMs could be warranted.
63	Badger Ranch, Flying T Ranch	DRAs provide a multiple option solution to drought conditions. The EA would be strengthened by clarifying how DRAs will be selected, monitored, and rated as sufficient (final action) or insufficient (further action needed) for drought management.	Please refer to response to comment 62.
64	Badger Ranch	<p>The EA should identify the steps to implement the DRAs.</p> <p>Step 1: Designation of an area as “drought-afflicted.”</p> <p>At the outset, the EA is flawed in stating that “Drought indicators” could be “any single observation”. Any one-point-in-time look at any indicator dooms any meaningful consideration of trend over-time to or away from, in this case, a moisture status. The EA should identify objective “drought” standard from which rational decision-making can occur to determine whether an area in question is experiencing drought conditions.</p> <p>While the U.S. Drought Monitor and the Vegetation Drought Response Index should be consulted for drought information, site-specific weather/moisture information applicable to the area in question should control as to any determination of drought conditions. Documentation from each source will be garnered for the extent of the moisture conditions to retain its designation as a drought-afflicted area.</p> <p>Step 2: Conduct field visits to “drought-afflicted” areas to assess drought response triggers. Field visits will assess water and forage availability at predetermined sites in accordance with applicable rangeland studies.</p> <p>Step 3: Consult with affected permittee or lessee to determine preferred DRAs to alleviate drought impacts.</p> <p>If field visits confirm an area is drought-afflicted and in need of DRAs, permittees or lessees will be consulted and a documented agreement or decision approved in accordance with 43 CFR 4110.3-3(b). The cooperative agreement will include a ranked list of DRAs to be implemented in order of documented preference.</p>	<p>Please refer to section II (2.0)(A) of the revised EA for a revised discussion of drought indicators.</p> <p>Please refer to section II (2.0)(C) of the revised EA for a discussion of the DRA selection process.</p>

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		<p>Step 4: Implement DRAs in order of selected preference.</p> <p>After Steps 1-3 have been successfully completed, DRAs will be enacted as agreed to in the cooperative meeting between the BMD and permittee or lessee. If the order of implementation is to be altered for any reason, the change must first be agreed upon and approved by cooperative agreement between the two parties.</p> <p>Step 5: Resort to full closure of allotment. The BMD will resort to full closure of an allotment only if: 1) a permittee or lessee fails to consult or cooperate regarding drought measures after “a reasonable attempt” (CFR 43, 4.110.3-3(b)) has been made to coordinate with that permittee or lessee or 2) all feasible DRAs have been exhausted and immediate protection of resources on the allotment is required.</p>	
65	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>The “Partial or complete closure of an allotment” DRA provides for two drastically different options: partial closure or complete closure. The EA states:</p> <p><i>During drought, the forage resources and overall condition of affected allotments would be assessed. Portions of an allotment(s) that lack forage and/or water, are in poor condition, or are identified as critical areas to provide forage and/or water for wildlife and/or wild horses and burros could be closed to livestock grazing for the duration of the drought. Partial closures would be accomplished by employing a combination of the other DRAs such as temporary fencing, temporary water hauls, active livestock herding, strategic supplementation etc. If it is determined that aforementioned conditions exist over the entire allotment(s), complete closure would occur. Closures would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery.</i></p> <p>The “Partial or complete closure of an allotment” DRA should be divided into two separate options. Separating the partial and complete closure DRAs will allow DRAs to be ranked by appropriateness to each allotment. Complete closure of an allotment should be held as an action of last resort, to be used only when all other methods of alleviation prove insufficient. The following wording is suggested for the two new DRAs:</p> <p><b>Partial closure of an allotment</b> During drought, the forage resources and overall condition of affected allotments would be assessed. Portions of an allotment(s) that lack forage and/or water, are in poor condition, or are identified as critical areas to provide forage and/or water for wildlife and/or wild horses and burros could be closed to livestock grazing for the duration of the drought. Partial</p>	Comment noted. Please refer to page 7 of the revised EA for changes in response to your comment.

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		<p>closures would be accomplished by employing a combination of the other DRAs, such as temporary fencing, temporary water hauls, active livestock herding, strategic supplementation, or similar management actions.</p> <p><b>Complete closure of an allotment</b></p> <p>If it is determined that drought conditions (lack of forage and/or water, poor condition, and/or critical areas that provide forage and/or water for wildlife and/or wild horses and burros) exist over the entire allotment and all other DRA options have been exhausted or deemed impractical, complete closure could occur. Closure would be in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery.</p>	
66	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>The “Partial Reduction in Animal Unit Months (AUMs)” option identifies the possibility that a reduction in livestock numbers may be necessary during drought to meet the desired utilization levels. (Badger Ranch, Diamond Cattle Co., Flying T Ranch Paris Ranch) understands the need for drought management and has demonstrated the ability to manage for long-term rangeland health over the past several decades, including many droughts.</p> <p>Livestock numbers are managed at a rate which compensates for seasonal and annual fluctuations in forage and water availability. Utilization studies are conducted annually to ascertain if stocking rates are appropriately adjusted to the available forage.</p> <p>Future reductions in AUMs in response to drought should be based on data and used only when other DRAs prove insufficient for drought management. Past utilization studies reveal that utilization on our allotments is low in wet years and well suited for drought conditions. Utilization studies are generally well below the suggested utilization level. Drinking water is a limiting factor in Cottonwood allotment and prevents full use of forage in normal precipitation and drought years.</p>	Comment noted. Site-specific data would be used when selecting DRAs.
67	Paris Ranch, Flying T Ranch	<p>Season of use change is an important option for grazing management practices. To be effective, livestock operators must be able to change season of use in response to immediate concerns and needs. Without the flexibility to perform season of use changes as necessary, the practicality of the option is lost. Requiring grazing permit changes for temporary season of use alterations prevents timely enactment of the practice.</p> <p>The EA should assess employing season of use changes as a viable management option for permittees and/or lessees. The assessment should include the option of allowing permittees and/or lessees to temporarily adjust season of without permanent changes to the grazing permit. Preparation for drought conditions is as important as reaction to drought</p>	<p>The EA does not proposed to permanently change the season of use or any other Terms and Conditions of grazing permits. Any changes to grazing permits must be completed through the Rangeland Health Evaluation Process. All livestock-related DRAs analyzed in the EA would be temporary in nature and would remain in effect until the drought is over or sooner as indicated by written notice signed by the authorized officer. Allotment closures would remain in effect for the duration of the drought plus one growing season following the cessation of the drought to allow for recovery.</p> <p>Please refer to section II (2.0)(B) of the revised EA for updated DRA titles. The word “Temporary” has been added to all livestock related</p>

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		conditions. Season of use changes should be available both as DRAs and as preemptive options in preparation for drought.	DRAs.
68	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>Reduced grazing duration is a beneficial alternative to complete allotment closure in response to drought. The EA should analyze use of the same number of AUMs over a shorter time period if suitable for the number of pounds of forage available.</p> <p>The EA should analyze the option of reducing grazing duration in order to implement the alternative in a timely manner. Reduced grazing duration should be available without required changes to the grazing permit.</p>	Comment noted. Please refer to response to comment 67.
69	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>Changes in livestock management practices are easy-to-implement alternatives for drought management. If enacted in a timely manner, these practices can serve as a preliminary action to prevent concentrated use of preferred areas during drought conditions.</p> <p>The EA should analyze changes in livestock management practices to make these alternatives available for timely implementation.</p>	Comment noted. Changes in livestock management practices have been analyzed in the EA.
70	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>Temporary fencing is an important alternative in drought management plans. Such fencing serves to prevent overuse of riparian and other critical areas. Delayed implementation of fencing causes unnecessary harm to critical areas.</p> <p>The EA should analyze the use of temporary fencing as a drought response action to allow this alternative to be enacted in a timely manner. The EA should also analyze the use of nonelectric temporary fence. Electric fence may not be practical for use in all areas of concern. It is important to have a practical alternative to electric fence to keep the DRA a viable option.</p>	Temporary electric fencing was analyzed due to the fact that it is wildlife friendly. Please refer to response to comment 52 in regards to the wildlife friendly nature of electric fencing. Temporary electric fence with the use of solar charges can be used in a variety of areas. Due to the fact that fiber glass posts and polywire are light and easily transported, this style of fence can be regarded as more versatile (in regards to practicality for use in rugged and remote areas) than nonelectric temporary fence.
71	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>Monotypic invasive annual communities are not negatively impacted by increased grazing stress during drought. Forcing livestock concentration on monotypic invasive annual communities relieves stress on native plant communities. Identification of potential areas for targeted grazing should be identified in advance to allow for timely implementation of this DRA in drought.</p> <p>The EA should analyze use of targeted grazing of monotypic invasive annual communities and require that areas for targeted grazing be predetermined in preparation for drought. A full analysis in the EA will allow for timely implementation of this DRA.</p>	It is not practical to include the location of all invasive annual dominated communities within the BMD in this EA. However, invasive annual dominated communities would be identified through site-specific monitoring and brought forward in full force and effect decisions.
72	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	As explained in the EA, temporary changes in the kind and class of livestock can alleviate specific stressors to drought-affected areas. However, such changes must be implemented in a timely manner and be a practical option for the livestock owner.	DRAs would not result in changes to the terms and conditions of grazing permits. DRAs would be temporary in nature and authorized through full force and effect decisions. The EA analyzes a range of DRAs, which is needed to ensure management options are available that can be suited to site-specific conditions and capabilities. Some permittees within the

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		<p>Management options that allow forage demand to match forage resources are both favorable and preferential. Because periods of drought are often repeated and prolonged in Nevada, it is recommended that temporary permit changes regarding kind and class of livestock be available at all times to meet the demands and opportunities provided by the land on an annual basis.</p> <p>The EA should analyze the option of temporary changes in kind or class of livestock to provide the option for drought management practices. The analysis must recognize cost of management and cost of implementation to the permittee and lessee. Due to the potential inhibitions of changing livestock operations to accommodate changes in kind or class of livestock, the option should be available for permittees and/or lessees, but not required.</p>	<p>BMD may have the capability to change the kind or class of livestock if authorized during a drought. However, the selection of the Temporary Change in Kind or Class of Livestock DRA would only be selected when it is determined the selection is appropriate for site-specific conditions and the capabilities of the permittee/lessee would facilitate such a change.</p>
73	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>Temporary water hauls are relatively simple solutions to situations in which water, not forage, is the limiting factor. Drought often limits drinking water without limiting forage availability. This DRA provides the opportunity to utilize generally under-utilized forage resources and forage in areas limited by distance to permanent water sources. Use of such areas relieves grazing stress on forage concentrated around reliable permanent drinking water.</p> <p>Droughts occur frequently in the high desert, necessitating the establishment of reliable locations for water supplementation in concurrent drought cycles. Established long-term locations for water supplementation can be identified in advance, allowing for rapid implementation of the DRA.</p> <p>The EA should assess the option of predetermining locations for temporary water hauls in addition to providing water at these locations during drought.</p>	<p>DRA's including temporary water hauls would be selected based on site-specific information. All temporary water hauls must be authorized in writing and would be required to be removed once the drought is over or sooner as indicated by written notice signed by the authorized officer. Permanent water haul locations would need to be authorized as range improvements and would require separate analysis.</p>
74	Badger Ranch, Diamond Cattle Co., Flying T Ranch, Paris Ranch	<p>The discussion and recommendations relevant to temporary water hauls also apply to the "temporary above ground pipelines" DRA.</p>	<p>Please refer to response to comment 73.</p>
75	Joe Saval Company, LLC	<p>Regarding the grazing plan, we will implement authorized techniques to utilize underutilized areas of the allotment, particularly areas where fires have happened the past few years. The indication is that the fires are partly caused on the range, by a buildup of fuel mass on the range, and this shift should begin to address this.</p>	<p>Comment noted.</p>
76	Joe Saval	<p>Our third point is that, laying pipe on the ground for the duration of the</p>	<p>Comment noted.</p>

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	Company, LLC	grazing period in some specific areas would be particularly helpful to this strategy. Some of our waters rely on coops that depend on neighbors, and the rangeland health could be improved by bypassing our reliance on participation by others.	
77	Ellison Ranching Co.	With regard to the EA, we have a number of concerns about the proposed action. With few exceptions, no reasonable analysis is made on the financial implications of implementing a reduced grazing scenario of grazing closure due to drought. A throwaway reference is made to “costs incurred to provide alternate livestock forage” and a statement was made that further analysis was not completed because the BLM does not have access to individual ranch financials. This failure to analyze the full implications of the economic effects of implementing the various alternatives is not acceptable. The economic analysis also needs to include the costs of finding and leasing additional pasture, shipping livestock, managing livestock in a remote location, and potential infrastructure expenses to manage cattle in new pastures. The economic analysis also needs to include the increased staffing for the additional monitoring requirements and temporary fence/water as proposed in the EA.	Please refer to response to comment 6.
78	Ellison Ranching Co.	The use of Ecological Site Descriptions to determine key species for each area is inappropriate without site-specific information. There may be many reasons that species that could be included in an ESD may not be present on a site. This is not accounted for in the EA. Baseline data should be collected with the permittee at each monitoring site to determine Key species.	Comment noted. Please refer to pages 4, 5 and 8 for an updated discussion of key species. The following language has been added, “In instances where key species referenced in the ESD are absent, key species will be identified using site-specific and/or past monitoring data.”
79	Ellison Ranching Co.	Stubble height should be tied to available species, reasonable growth curves, and site-specific baseline data on plant height.	Please refer to response to comments 15 and 42.
80	Ellison Ranching Co.	The monitoring methods proposed for use in the EA are not consistent with trends in research around rangeland monitoring. Significant research is ongoing at Jornada Experiment Station and other locations to look at the implications of drought on range condition and livestock management. These studies should be reviewed and incorporated into management proposals.	A literature review was completed and incorporated into the development of monitoring methods. BLM staff communicated directly with researches at the Jornada Experimental Range (personal communication 6/15/2012) who confirmed that methodologies proposed are consistent with best available science.
81	AWHPC <sup>1</sup> , TCF <sup>2</sup> Individuals	<p>The EA is overly broad and fails to provide site-specific information which would be necessary to determine a drought emergency exists, and if so, whether your agency would propose removing wild horses from their HMAs in such a case. The EA cannot be used as a blanket approval for the removal of wild horses and burros.</p> <p>The document as prepared seems to be a broad ambiguous plan aimed at</p>	Refer to responses 17 and 23. A full range of possible management alternatives and the potential impacts were analyzed in the EA. The EA analyzed alternatives and actions that could be taken during drought. The EA did not analyze wild horse and burro removal for non-drought conditions. As such, the DRAs analyzed in this EA would be applied only when drought conditions exist as identified by site-specific monitoring data. The reader is referred to Sections 2.0 A. Drought

<sup>1</sup> American Wild Horse Preservation Campaign

<sup>2</sup> The Cloud Foundation

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		the removal of large areas that have been allowed to rise above low AML.	Indicators, B., Drought Response Triggers, and the DDMP which detail the data that would be collected to determine the appropriate DRA, including wild horse or burro gathers. Section N. Wild Horses also states that if it is determined that a drought gather is necessary that HMA-specific gather and removal objectives would be developed based on detailed environmental and animal conditions. This information would be provided in a site-specific Decision and Gather Plan. These documents would be made available to the interested public issued prior to the gather commencing. In response to this comment, additional clarification has been added to Section II. 2.0 of the Final EA. DRAs that were not specifically analyzed in the EA would not be implemented without subsequent NEPA review.
82	AWHPC Individuals	<p>The EA must be amended to disclose site-specific information including description and analysis of <i>specific</i> range data, water availability, range usage, and the agency's intended actions in specific areas and allow the public ample future opportunity to review the data and comment on site-specific actions tiered to this programmatic document, as required by NEPA.</p> <p>AWHPC would like to review such site-specific data, consult with range experts and provide comment on such possible future proposed actions. By failing to provide site-specific information in the EA, the BLM is denying our organization and other members of the public the opportunity to provide input on the plan.</p>	Refer to comment 17, 23 and 81 above.
83	AWHPC	<p>The BLM must also disclose the following for any proposed actions:</p> <p>All data on site-specific livestock usage within site-specific HMAs, including months of use; number of cattle in specific areas; if and when cattle were moved or removed due to drought.</p> <p>A detailed description of any and all fencing that may prohibit the wild horses having full, year-round access to site-specific HMAs.</p> <p>A detailed listing, for each site-specific proposed action of all water sources for livestock wild horses and other wildlife species throughout specific HMAs.</p> <p>Full disclosure of any other site-specific pertinent information/data that is considered by the agency in determining the "emergency" or "escalating-situation that would necessitate the removal of horses prior to the scheduled July roundup.</p>	<p>Refer to comments 17, 23 and 81.</p> <p>Though efforts have been made to limit fences in HMAs, they do exist and often are in place due to the presence of private land, the need for livestock management or for fire or resource rehabilitation. There are no fences known to restrict wild horse or burro access to HMAs. Should information regarding fences be pertinent to the determination of DRAs, that information would be included in the documents identified above.</p> <p>Information pertaining to available water sources would presented in the documents identified above.</p> <p>The BMD currently does not have any wild horse or burro gathers scheduled for July. Any gathers that were completed during Summer 2012, would be in accordance with the EA and would only be a last resort after consideration of other DRAs in order to prevent substantial range degradation and emergency conditions for wild horses and/or burros in specific areas affected by severe drought.</p>
84	AWHPC	The EA states, "In extreme cases, where it is determined that fewer mares	The sex ratios of wild horse populations vary depending on specific

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		<p>should be released to provide for animal welfare and the health of mares, fewer mares could be released resulting in sex ratios of 70:30. This alternative action is highly controversial management approach, if implemented would be precedent setting and cannot be implemented without a full Environmental Impact Statement (EIS) review which would allow the agency and public to review scientific justification for such action, review of research, data and short- and long-term impacts to individual wild horses and herds as a whole.</p> <p>The alternative action if implement <i>may establish a precedent for future actions with significant effects</i>, since it would be a first-of-its kind action implementing a proposed broad strategy for population management set forth in the Interior Secretary's Strategy for the Future Of the Wild Horse and Burro Program.</p> <p>The BLM lacks any studies, papers or concrete data relating to the impact to individual horses bands and/or herds. Without the completion of significant scientific studies which outline and understand the implications of sex ratio skewing on the range, this alternative management method must be eliminated.</p> <p>There is no empirical data which sets natural sex ratios at 50/50 therefore the negative impact of sex ratio skewing remains unknown.</p> <p>The BLM acknowledges the negative impacts on artificial skewing of the sex ratio by stating in the Burns District Office Environmental Assessment (DOI BLM OR B060-2010-0005-EA) page 32.</p>	<p>environment or genetic parameters and usually range from those favoring studs (60:40) over mares to those favoring mares (40:60) over studs.</p> <p>As the EA states in Section II.B.2, the description of the Proposed Action for Wild Horses and Burros, this potential management action would be implemented only in extreme cases, and would be done in order to reduce the number of animals that would be removed, while considering the welfare of mares which typically do not fare as well in serious drought conditions due to the additional energy demands of lactation.</p> <p>The expected potential environmental impacts of this management action are presented in Section III.N.A.2, Environmental Consequences of the Wild Horse and burro DRAs, under the heading Sex Ratio Adjustment.</p>
85	J. Lynch	<p>The EA, because it is so broadly worded, could be misused as a pretext for removing wild horses from the HMAs under your jurisdiction without demonstrable environmental cause.</p>	<p>Refer to Responses 81, 82, and 83 above. Detailed documentation of field observation pertaining to forage and water availability and the specific circumstances for situations requiring DRAs would be compiled and made available to the interested public prior to commencement of a drought gather. The BLM has no desire to remove wild horses or burros from the range in areas where it is not truly necessary. Wild horse and burro welfare and health were of primary concern in developing the DRAs. The DRAs in the EA would allow the BLM to respond rapidly to severe drought conditions which could threaten the health of wild horses or burros and their habitat.</p>
86	J. Lynch	<p>Wild horses and burros in the 28 HMAs under your jurisdiction have a right to be there; those HMAs were designated by the Congress for the wild horses and burros therein, and this is their primary purpose.</p>	<p>These HMAs were designated within the Shoshone Eureka and Tonopah Resource Management Plans which also outline allocation of other uses throughout the public lands administered by the BMD. Neglecting to manage HMAs as multiple use area would not be in conformance with the existing land use plan and is contrary to the BLM's multiple-use mission as outlined in the 1976 Federal Land Policy and Management</p>

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			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. DRAs were developed in order to protect wild horse and burro welfare and the long-term health of the habitat they rely on.
87	J. Lynch AWHPC	Although your agency may authorize livestock grazing in those areas, it is not required to do so, whereas you are required to maintain the HMAs for their primary purpose- as habitat for wild horses and burros. Public land grazing is a privilege and not a right and the BLM is mandated by law to protect wild horses and burros.	<p>Refer to comment 86 above. Refer also to DRAs for Livestock in Section II.2.C.1. 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. Congress affirmed its intent in passing the 1976 Federal Land Policy and Management Act (FLPMA) by requiring BLM to manage the public lands for a wide variety of uses (including livestock grazing) under the principles of multiple-use and sustained yield. Managing use by livestock, together with and wild horses and burros, native wildlife, recreation, wilderness, and a host of other uses is a key part of BLMs multiple use management mission under FLPMA.</p> <p>Livestock grazing on public lands is also provided for in the Taylor Grazing Act of 1934. The Public Rangelands Improvement Act (PRIA) of 1978 (Pub. L. 95-514, Sec. 4, Oct. 25, 1978, 92 Stat. 1805.) reaffirms livestock grazing as a multiple use.</p>
88	AWHPC	The BLM's adaptive management approach provides the discretion necessary to re-evaluate population levels - such as AMLs.	The WFRHBA requires that the BLM remove excess wild horses immediately; thus, adaptive management is not appropriate. If the BLM were to delay of a gather until that time is not consistent with the WFRHBA, PRIA or FLPMA, severe range degradation would occur and large numbers of wild horses or burros could suffer deterioration of body condition and/or die. The BMD will not be evaluating HMAs for adjustment of AML at this time. Adjustment of AML would be done following the evaluation of long-term monitoring data in a Rangeland Health Evaluation which would also involve the interested public.
89	AWHPC	Prioritize range management tools in HMAs, including the proactive repair and enhancement of water resources, removal of fencing to prevent escalating conditions which may lead the agency in direction of wild horse and/or burro removals. When in fact these animals could have been managed on the land with proper proactive actions.	Refer to Response to comment 3. The BMD is undergoing monitoring of existing waters, both natural and developed within HMAs to assess the availability of water for wild horses and burros (as well as forage). Drought conditions affect water sources throughout various HMAs very differently. Additionally, the abundance of natural and developed waters varies from HMA to HMA. In many cases, there are simply very few waters available, and if they go dry due to drought, action may be necessary. If water hauling alone is not sufficient to maintain the animals through the 2012 summer and 2013 winter due to drought coupled with over population of wild horses or burros above the AML, then drought gathers could become necessary.

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90	AWHPC	Disclose in future NEPA documents relating to specific Drought Management proposed actions, all commercial utilization in the specific areas for the proposed action. Geothermal fluid mineral development and other commercial uses consume large quantities of water. All commercial uses permitted by the BLM should clearly outline the aquifers, springs, seeps and other water sources utilized and the impact these water sources have on the overall availability of water in the area. In addition, quantities of water usage should be disclosed for each instance of water usage on BLM lands.	Please refer to Response 39.
91	AWHPC Individuals	The BLM must consider removal of livestock under 43 CFR 4710.5 as an alternative and remove wild horses or burros as a last resort.	This action was identified in the EA under DRAs for Livestock. Partial or complete closures to livestock would be considered and changes to livestock management made within HMAs prior to consideration of drought gathers. Additional wording has been added to Section II. 2. C.1 to provide additional information. When it is determined that livestock closures are warranted wild horses and burros may also be removed at varying numbers as deemed appropriate based on site-specific data.
92	J. Lynch AWHPC, Individuals	Privately owned livestock must be removed from drought areas as a matter of first priority in order to improve conditions and forage availability for wild horses and burros.  Wild horses or burros should not be removed from HMAs until all privately owned livestock are removed from the area in question for a minimum of two years in the case of a documented drought emergency.	Refer to Response 91 above. The BMD would evaluate site-specific environmental, animal and resource conditions and make appropriate adjustments to livestock in HMAs in order to protect wild horses and burros from drought impacts. Additional wording has been added to clarify this in Section II.2.0.
93	S. Welsh	Remove cattle instead of horses. No wild horses should be removed at all. Wild horses are native and should be allowed to flourish unabated on the public lands.	Refer to Responses 91, and 92 above. Additional wording has been added to the Proposed Action and Drought Management Plan to clarify that wild horse or burro drought gathers would only be conducted as a last resort, after consideration of all other DRA, and in order to protect animal health and wellbeing and rangeland health from severe degradation.
94	Individuals AWHPC, TCF	If, after removing privately owned livestock in designated HMAs, a drought emergency situation is found to persist and BLM deems it necessary to remove wild horses, helicopter should not be used to gather wild horses.  The BLM should prioritize water/bait trapping operations over helicopter.	The EA has been updated to reflect the emphasis on Bait Trapping over Helicopter gathering with additional information provided in Section II.2.0. The use of helicopter was identified and analyzed in the EA as well as the use of bait or water trapping where appropriate. As discussed in Section III.N of the EA under Environmental Consequences for Wild Horses and Burros, the use of helicopter for gathers has been implemented since the late 1970's. Several reviews by equine professionals including the American Association of Equine Practitioners have affirmed that BLMs handling of the animals during gathers is safe and humane. Every effort is made to reduce the risk of injury or death during gathers. As stated in the EA, injuries could occur during the course of bait trapping as well. The WFRHBA specifically authorizes the use of helicopter in Section 9 of the Act. <i>"In administering this Act, the Secretary may use or contract for the use of helicopters or, for the</i>

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			<i>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” [emphasis added].</i>
95	Individuals AWHPC	<p>Do not implement population growth suppression such as permanent sterilization of wild horses (surgical or chemical castration of stallions and spaying of mares) or sex ratio skewing. These methods are dangerous, inhumane, and experimental in nature for wild animals, and they have extremely deleterious impacts on natural horse behavior and herd dynamics. They are also unnecessarily costly, and they have no place in humane wildlife management.</p> <p>No permanent sterilization should occur (gelding, vasectomy, spay) until effects on the population structure are fully understood and to suggest such measures in a drought stressed population does not appear to have this document crafted with the “best care” of animals at its core</p>	<p>The Proposed DRAs do not include castration, sterilization or spaying. Fertility control vaccine (PZP-22) and sex ratio adjustment are the only population control methods analyzed. The WFRHBA provides that determinations will be made “...whether appropriate management levels should be achieved by the removal or destruction of excess animals, <b>or other options (such as sterilization, or natural controls on population levels)...</b>” [emphasis added].</p> <p>The Food and Drug Administration (FDA), The Humane Society of the United States (HSUS), and animal care committees all carefully review protocols for PZP use, and more than 20 years of data, carried out under these set of rules, clearly show that wild horses are neither injured by this drug, nor do aberrational behaviors occur as a consequence of its application. Oversight by HSUS assures that the vaccine is used only to slow reproduction and may not be used for the extermination of entire herds. PZP is designed to bring about short-term infertility and is reversible, reduces the need for gathers and preserves the original gene pool in each herd (Kirkpatrick et al. 2010). The HSUS strongly supports an increase in the use of fertility control – specifically the Porcine Zona Pellucida (PZP) immunocontraception vaccine . . . . to slow population growth (HSUS, 2010).</p>
96	AWHPC, Individuals, K. Wattle	<p>Unlike fires, droughts do not emerge overnight. Drought conditions develop over time, and since the BLM has had ample warning, the situation cannot be considered an emergency under this definition. The BLM must take proactive actions to prevent the implementation of any wild horse and burro removals and to prevent any situations from escalating.</p> <p>The agency has had knowledge of a developing situation with regard to water and forage availability, yet the EA fails to outline any current management actions being taken to mitigate the need for wild horse and burro removals.</p> <p>The BLM should have been proactively working to resolve any impending drought issues by installing water stations, reviving those destroyed by cattle grazing those lands, etc.</p>	<p>The completion of the EA is intended to be a proactive, responsible measure in anticipation of severe drought conditions during the summer of 2012. As stated under Section 1.1, the DDMP would allow for the early detection of and response to drought, prompt identification and prevention of degradation and rapid implementation of DRAs. The EA includes a comprehensive collection of potential actions that could be implemented alone or in combination in order to protect rangeland health and prevent widespread suffering or death of wild horses or burros, including water hauling, livestock removal or reduction and as a last resort, removal of wild horses or burros from the range. The goal is to implement an action before the range is severely degraded or animal body condition deteriorates.</p> <p>Monitoring is ongoing to evaluate current conditions and identify potential areas of concern. The BMD has received additional funding for 2012 to inventory water sources within HMAs. These inventories are ongoing. To date, water shortages have been identified within Fish Creek HMA . Thusly, the BLM has been working to repair existing water</p>

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			<p>improvements within the Fish Creek HMA. Where practicable the BLM will work to repair water sources across the district; however, implementation of new water developments are subject to analysis under NEPA and other applicable state and federal regulations.</p> <p>Drought also affects the production of forage for wild horses in already arid and unproductive rangelands. Many areas across the District do not support abundant waters. Artificially developing water sources which require ongoing maintenance across the BMD is not consistent with the WFRBA or the CFEs at 4700.06 (a) <i>Wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.</i></p>
97	D. Coffey, Individuals, TCF, A. Novak	<p>Since the BLM has a mandate to protect the wild horses, the BLM should haul water out and provide forage before an emergency, and avoid rounding up the horses and foals born out of season (due to PZP), so they don't drop dead running in the heat.</p> <p>If you anticipate a drought, make plans to haul water out to the wild horses and livestock.</p> <p>If all livestock have been removed and water shortages still exist, then water hauling may be necessary to ensure the health of wild horses and burros as well as other wildlife. Hauling water is less costly than implementing a roundup and if necessary should continue until such time when water sources refill, springs are improved and/or water guzzlers are constructed.</p> <p>We oppose roundups that waste taxpayer dollars and ask you to step up and manage the situation without removing the equids by bringing in food if needed.</p>	<p>The EA and Drought Management Plan describe water hauling as a DRA. The 2012 drought is also resulting in substantially reduced production of forage to support wild horses and burros not only through summer, but winter as well. In cases where insufficient forage is available to support the existing population of animals, water hauling would not be enough to protect animal health. Removal of animals from the most severely affected areas would be necessary. This is discussed in the EA. Supplemental feeding of wild horses, burros or livestock was addressed in the EA at Section 2.3. It would not be feasible, environmentally sound or cost effective to provide supplemental feed until forage grows back next spring. The return of precipitation is not guaranteed and may not provide additional forage growth. Wild horses and burros need to have adequate forage to last through the winter and until spring 2013 when new forage may be produced. Long-term feeding of wild horses or burros on the range would have many additional impacts through disturbance of large areas of native rangeland, potential spread of invasive plants or noxious weeds, and the animals becoming reliant upon a forage source which is not natural to them. This also could have undesirable consequences, and is not consistent with provisions of the WFRHBA (refer to response 96).</p>
98	D. Coffey	<p>Your office can respond rapidly right now by curtailing man-made causes of drought. Don't write a FONSI for uses of public lands that use massive quantities of water from aquifers, risk contaminating water, cause disturbance of thousands of acres and loss of native soil profiles, and will take 25 years for reclamation.</p>	<p>Refer to response 39 and 90 above. Analyzing anthropomorphic impacts that may exacerbate the effects of drought (e.g., ground water use associated with mining, agriculture, geothermal development etc.) are outside the scope of this EA</p>
99	C. Downer, TCF, B. Kohleriter	<p>The EA fails to analyze the impacts that oil, gas, mining, etc. have on the current range within the BMD which potentially have the most impact on the water resources. Where is the analysis of these users in the drought management plan EA? We recommend the BLM take a hard look at the extractive users within the BMD and evaluate these energy and mining development projects to see if the rangeland can really sustain these water-</p>	<p>Refer to response 98.</p>

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		<p>hogging activities.</p> <p>The EA is ignoring one of the major drains on regional water. The mining industry uses many millions of gallons annually and causes the contamination of many millions more. \</p> <p>Needed to address is not only the livestock and horses/burros water use or lack, but also the energy and mining uses which do have an effect on surface water availability. How is it you intend to limit their use during drought periods?</p> <p>As in Tonopah needed to address is not only livestock and horses/burros water use, but also energy and mining uses. How is it you intend to limit their use during drought periods for the benefit of the multiple users? What about Hope, Cortez Hills, Newmont, Ormat , Hycroft , Ruby Hills, Round Mountain, and more...the molybdenum, geothermal, copper, oil and fracking...projects using millions of gallons of water affecting the surface waters?</p>	
100	C. Downer	<p>Wild horses are being scapegoated while ignoring livestock. Livestock outnumber wild horses and despoil riparian habitats. Wild horses move off and disperse their grazing pressures over a greater area.</p>	<p>The impact of livestock grazing is outside of the scope of this analysis. The BLM is not required to separate out the impacts of wild horses from those of livestock in order to determine the need to remove excess wild horses from the range. The BLM is not required by the WFRHBA to manage for wild horses or burros in equal numbers to livestock.</p> <p>The DRAs identified under the Proposed Action and in the Drought Management Plan also include livestock. Monitoring methods for upland and riparian areas are also described in the DDMP.</p>
101	D. Coffey	<p>This EA uses the Society of Range Management's limited definition of drought. It omits man-made causes of drought. There are also supply and demand issues to consider. Wild horses &amp; burros and livestock have been singled out for removal, rather than curtailing water use by big water users during periods of drought. BLM has been trying to trim permit time for mines The BLM is in violation of FLPMA by favoring and fast-tracking uses that make more money.</p>	<p>Refer to response 98.</p>
102	D. Coffey	<p>Prepare a Drought Management Plan that accounts for these Drought Response Triggers:</p> <p>The Mt. Hope Mine – will use about 7,000 gallons of water per minute, for the life of the mine (40-50 years). The BLM instructed the mining company to only prepare 10' and 20' water drawdown maps, but not 1' or 5' water drawdown maps. The BLM minimized the impact of this use.</p> <p>(There is also the pending Liberty Project molybdenum mine in the</p>	<p>Refer to responses 98.</p>

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		<p>Tonopah Field office area.)</p> <p>Newmont’s Phoenix Copper Leach Project – will use about 600-1,000 gallons of water per minute (23,000 acre feet of water from the aquifer).</p> <p>Cortez Hills Expansion Project – will use about 1,900 gallons of water per minute, with possibly as much as 34,500 gallons per minute annually for all dewatering.</p> <p>Ruby Hill Mine Expansion – will use about 500-1,000 gallons of water per minute for about 7 years.</p> <p>Round Mountain Expansion – will use about 7,175 gallons of water per minute, and there is a 10’-20’ drawdown of the aquifer expected at the end of mining.</p> <p>Did the BLM require 1’ or 5’ water drawdown maps for the EAs of all of the mines in your district?</p> <p>Does the BLM consider CUMULATIVE effects of all of the uses of water? Quickly adding up just the few uses above, just these few mines use about 18,000 gallons of water per minute (and possible over 50,000 gallons of water per minute with dewatering).</p> <p>BLM has sold hundreds of acres of public lands in Railroad Valley for oil and gas lease sales. Drilling removes enormous amounts of water, frequently pumping thousands of gallons of water per well. Will the BLM identify all of the fluids/chemicals being injected into the oil shale and risking contamination of groundwater and the aquifers?</p> <p>Geothermal also uses fracking, so same question: Will the BLM identify all of the fluids/chemicals being injected and risking contamination of groundwater and the aquifers?</p> <p>Solar projects are being fast-tracked, and they can use massive amounts of water.</p>	
103	D. Coffey	<p>But the BLM frets over the 15 gallons of water a day that a wild horse drinks and claims wild horses are “degrading the range?”</p>	<p>Drought conditions often result in water sources drying up. Monitoring indicates that this is occurring throughout the BMD at this time. As wild horses and burros congregate on the few remaining waters, degradation occurs through trampling and utilization of riparian vegetation. This is especially true when the populations exceed the established AML.</p>
104	D. Coffey	<p>On page 59 of this EA (N. Wild Horses and Burros Affected Environment)</p>	<p>Genetic samples have been collected for the following HMAs</p>

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		<p>it states:</p> <p><i>“The BMD has been collecting samples for genetic analysis since 2001. To date, most HMAs exhibit high genetic variability with no concerns for inbreeding.”</i></p> <p>Many Battle Mountain District HMAs do <b>NOT</b> have high genetic variability, and there seems to have been no genetic tests done in many of the HMAs (I filed a Freedom of Information Act request for all of E. Gus Cothran’s reports and recommendations, but I did not receive any of Gus Cothran’s reports for: South Diamond Hills, North Monitor, Hickison, Pilot Mountain, Fish Lake Valley, Silver Peak, Palmetto, Gold Mountain, Stonewall, Bullfrog, Sand Springs West or Whistler Mountain.</p>	<p>administered by the BMD:</p> <ul style="list-style-type: none"> <li>▪ Fish Creek</li> <li>▪ Seven mile</li> <li>▪ Callaghan</li> <li>▪ Diamond</li> <li>▪ Little Fish Lake</li> <li>▪ Stone Cabin</li> <li>▪ Saulsbury</li> <li>▪ Reveille</li> <li>▪ Montezuma</li> <li>▪ Paymaster</li> <li>▪ Bald Mountain</li> <li>▪ Roberts Mountain</li> <li>▪ New Pass/Ravenswood</li> <li>▪ Rocky Hills</li> <li>▪ South Shoshone</li> <li>▪ Silver Peak</li> </ul> <p>These comprise over half of the HMAs administered by the BMD. At least five HMAs have been sampled more than once. Palmetto does not have any animals in it, and has not for many years. Pilot Mountain is administered by Carson City District. South Diamond Hills is administered by the Ely District. Whistler Mountain is managed as a complex with Roberts Mountain. Sand Springs West is managed as a complex with Monte Cristo and Sand Springs East. Hickison and Gold Mountain have never been gathered. Samples have not been collected from Fish Lake Valley or North Monitor.</p>
105	D. Coffey	On what are you basing your determination of genetic viability of herds in these HMAs? If there are no information/reports for 12 HMAs, and concerns on at least 5 HMAs, how can this EA claim that “most HMAs exhibit high genetic variability?”	Of the HMAs that have been sampled, the results for most indicate “high” genetic variability. Only a few herds had results that indicated low genetic variability. The analysis for these areas was completed with blood samples and small sample size. In future gathers, hair samples will be taken representing a much larger sample size in order to get a more comprehensive idea of the genetic situation. In many cases the reports generated by Gus Cothran do not include other pertinent information such as herd interactions or movement.
106	D. Coffey	Also, many of Gus Cothran’s recommendations mention crossing the herd with other herds, and that mixing with nearby herds is needed for genetic variability.	Most of the HMAs sampled do not indicate that any action is needed at this time. The BMD continues to re-sample herds to monitor the genetic variability. Refer to response 104 and 105.
107	D. Coffey	Does your office have Gus Cothran’s genetic test reports and recommendations for all of the BMD HMA’s? If so, please attach them to your Record of Decision.	Refer to response 105. These reports are available upon request.
108	D. Coffey	Of the E. Gus Cothran reports and recommendations I did receive, he stated this:	The report does not reflect the movement of wild horses into Seven mile, Butler Basin WHT and Stone Cabin. The population size is also not low

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		<p>Little Fish Lake – May 20, 2008 - Genetic variability within the Little Fish Lake herd is low most likely due to low population size. The herd appears to be of mixed origins mainly from Quarter Horse and possibly other North American breeds. RECOMMENDATIONS:</p> <p>This herd has very low genetic variability should be monitored closely. The AML is low and at that level, genetic variation is likely to decline rapidly. The option of importation of horses from another herd area within this complex should be considered.</p>	<p>as indicated in the report. For these reasons, the HMA will be sampled again in a future gather, with larger sample size taken to further analyze the genetic situation with this herd. The original sampling in 2005 was with blood and only 40 samples were taken. The BLM is concerned about the genetic health of all herds and will take appropriate measures in the future to ensure the best possible outcomes and genetic health to the extent possible.</p>
109	D. Coffey	<p>Montezuma – April 21, 2011 - Genetic viability of this herd is basically right at the average for a feral herd. Current variability levels are high enough that no action is needed at this point. As with any herd with diversity near the average, maintaining population size is the key to maintenance of variability</p>	<p>As stated in the Environmental Consequences Section for wild horses and burros, the immediate welfare of the wild horses, burros and the habitat take precedence over the long-term genetic variability. The Montezuma HMA has a small AML because of the inherent low productivity and lack of waters in the Mojave Desert environment. This was discussed in detail in the most recent gather EA issued in 2010 DOI-BLM-NV-B020-2010-0113-EA available on the BMD website.</p>
110	D. Coffey	<p>Paymaster – December 10, 2010</p> <p>Genetic variability of this herd is slightly below average. The 2010 results are very similar to those for the 2006 sample. Ho has declined but this could just be sample error as most other measures are quite close and patterns of variability are the same. There does appear to be evidence of a recent population bottleneck (within the past 5-10 generations) based upon the difference in Ho and He. Genetic similarity results suggest a herd with mixed ancestry that may well have a strong Spanish component.</p> <p>RECOMMENDATIONS: Current variability levels are near average so no action is needed at this point but the herd should be watched as the levels are such that a decline could occur within two generations if population size is less than 100 individuals during this period. The low AML makes this a clear possibility.</p> <p>(note from Debbie Coffey: it seems there are only 18 wild horses left on this HMA)</p>	<p>Refer to response 109 . The AML for this HMA is 38, and the estimated 2012 population is 30. The wild horses interchange with those residing in Montezuma and share water available outside of the HMA.</p>
111	D. Coffey	<p>Reveille - Dec. 19, 2010 Genetic variability of this herd in general is on the high side but there is a high percentage of variation that is at risk. There is a possibility that this herd has seen a recent loss of population size which would increase the risk to genetic diversity. RECOMMENDATIONS:</p> <p>Current variability levels are high enough that no action is needed at this point but the herd should be monitored closely due to the high proportion of rare alleles. This is especially true if it is known that the herd size has seen a recent decline.</p>	<p>The report does not reference the movement that can occur between Stone Cabin, Reveille and the Nevada Wild Horse Range. The BMD continues to re-sample herds to monitor the genetic variability. The BLM is concerned about the genetic health of all herds and will take appropriate measures in the future to ensure the best possible outcomes and ensure genetic health to the extent possible.</p>
112	D. Coffey	<p>Seven Mile – June 3, 2008 Genetic variability within the Seven Mile herd is low most likely due to low population size. The herd appears to be of mixed origins. RECOMMENDATIONS: This herd has very low genetic</p>	<p>Refer to Response 109 . The Seven mile samples consisted of blood samples and the sample size was small. This HMA will be resampled in future gathers to obtain a larger sample size. The report does not reflect</p>

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		variability should be monitored closely. The AML is low and at that level, genetic variation is likely to decline rapidly. The option of importation of horses from another herd area within this complex should be considered	the movement that occurs between this HMA, Butler Basin WHT, Fish Creek HMA, Little Fish Lake HMA, and potentially Sand Springs East HMA.
113	D. Coffey	Much of this EA focuses on roundups of the wild horses & burros and the use of fertility control and the removal of grazing for livestock. This plan to solve a "drought" problem in essence punishes the "victims" (those effected by uses that are dropping the water tables), while the BLM bends over backwards for big money garnering water users that are allowed to have "the sky is the limit" use of water from aquifers.	Refer to responses 39, 98, 99, 101 and 102. The BMD has put together a comprehensive Drought Management Plan that will prevent, to the extent possible, widespread range degradation and animal suffering due to severe drought.
114	D. Coffey	How many wild horses are on each HMA? This EA claims that in the Battle Mountain District there are 3,800 wild horses and 360 burros. However, independent research by Bonnie Kohleriter (Feb. 2012 & prior to this year's foaling season) shows about: 8 horses on Gold Mountain HMA 18 horses on Paymaster HMA 19 horses on Fish Lake Valley HMA 36 horses on North Monitor HMA 40 horses on Saulsbury HMA 45 horses on Sand Springs West HMA 49 horses on Montezuma HMA 52 horses on Whistler Mountain HMA 81 horses on Reveille HMA	In response to this comment, BLM has included a table of the 2012 estimated populations following spring foaling, inventory flights in December 2011, and the winter gathers of Stone Cabin, Saulsbury, and Bullfrog. The figures referenced in the comment appear to be from 2011. Many of these HMAs are part of larger complexes that support a larger metapopulation. Refer to Map 3 in the EA
115	D. Coffey	Has your office taken any photographs or video on pre-inventory flights to prove there is an <i>excess</i> of wild horses? There is legitimate concern that BLM will use the excuse of a drought to zero out HMAs with emergency roundups.	The determination of excess has not yet been made. Section II.2.A Drought Indicators, B. Drought Response Triggers and the DDMP describe the field monitoring that would be completed. Field monitoring of water and forage in HMAs is ongoing. Refer to response 85. HMAs would not be "zeroed out" through drought gathers and any removals would be as a last resort after considering other DRAs.
116	Individuals AWHPC	This EA fails to adequately analyze the socio-economic impacts of the various proposed actions. While the EA outlines the possible costs to local communities of reducing or eliminating livestock grazing, it fails to evaluate the ongoing cost to American taxpayers of livestock grazing on public lands, including the costs to those farmers and ranchers who are not the beneficiaries of such generous government subsidies in the form of dirt-cheap grazing on the public dime, and who must nonetheless compete with these subsidized welfare ranchers.  Nor does the EA attempt to address the cost of removing and warehousing wild horses and burros from this area. It fails to address the economic value of wild horses and burros left on the range, which could become an important source of tourism. The EA is therefore completely inadequate from an economic point of view. To remedy this deficiency, an economic analysis of any proposed wild horse/burro removal plan must disclose all	Refer to Responses Response 20. The BLM has brought the most viable options for managing drought situations, and the most responsible way to ensure the welfare of the wild horses, burros and protection of the habitat. The WFRHBA does not authorize a cost-based decision-making process if excess horses are present. " <i>Proper range management dictates removal of horses before the herd size causes damage to the range land.</i> " (118 IBLA 75). Refer also to Response 20.  Refer to response 20. Removal of wild horses or burros due to drought conditions would be implemented as a last resort after consideration of other DRAs including removal of livestock.

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		<p>costs associated with the capture operation itself, as well as the costs for short- and long-term holding and adoption preparation for the horses removed from the range.</p> <p>A cost comparison must be done that outlines the cost of removal and housing a wild horse for its lifetime against other options. Domestic livestock removal would create a cost savings to the tax-payer when compared to a removal/storage operation if the conditions escalate to an event beyond symptomatic treatment.</p>	
117	J. Lynch	The BMD Drought Management EA is a fundamentally flawed document, is completely inadequate as a planning tool. It cannot and be used to justify the removal of wild horses and burros for alleged, but unspecified, drought conditions.	Refer to Response 81.
118	J. Lynch	Fundamentally rework this document, add site-specific information, data and criteria, as well as provisions for removal of livestock from wild horse and burro herd management areas before removing the wild horses and burros Congress intended them for.	Refer to Response 81, 91, 92 and 93.
119	AWHPC, Individuals	Annually, the Battle Mountain' District authorizes approximately 362.869 AUMs. (NOTE: This is the annual equivalent of 30,239 cows.) Compare this to the current estimated population of just 4,160 Wild horses and burros.	Analyzing impacts of livestock grazing is outside of the scope of the analysis. Refer to response 100. The BLM is mandated to restrict wild horses and burros to Herd Areas where the animals were located when the WFRHBA passed. In the BMD, HMAs include most of the areas originally identified as Herd Areas and span 3.6 million acres (roughly the size of the state of Connecticut). The WFRHBA does not require equal numbers of wild horses to be managed on the public lands. AMLs are established and adjusted based on monitoring data which takes into account the availability of natural waters, perennial forage, and other factors which affect Thriving Natural Ecological Balance.
120	AWHPC, Individuals	<p>The Battle Mountain District must ensure transparency of the management of wild horses and burros in all of the agency's actions and proposed actions under Drought Management.</p> <ul style="list-style-type: none"> <li>• provide meaningful public observation opportunities during any roundup or trapping operations.</li> <li>• outlined public observation throughout each day of the operation in future Drought Management related EAs.</li> <li>• Identify alternative trap or holding sites on public land it private land locations are considered.</li> <li>• The public should be allowed to observe all horses brought into the trap, all horses at holding facilities and the release of all horses.</li> <li>• The public must be allowed to arrive at the trap prior to the first horses brought into the trap and remain until after the last horses are brought in that day. Consider establishing an observation pool by which a small number of individuals are allowed within close proximity to the trap to observe and document the animals and operation, alternating with</li> </ul>	The visitation protocol is included with the EA. Should any drought gathers be necessary, a public visitation plan would be developed prior to commencement which would include logistical and management activities to ensure the safety of the animals, the public, BLM staff and the contractors. The BMD would make every attempt to provide meaningful viewing opportunities to the public while ensuring safety, and following existing law and policy. EAs are intended to evaluate environmental impacts of proposed actions, and not to outline public observation.

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		<p>other public observers. The Battle Mountain District must ensure that transparency is a cornerstone of all of its management and operations.</p> <p>No removals should take place until a reasonable observation policy is in place for handling the public and the media.</p>	
121	AWHPC	<p>Future Drought Management proposed actions must include:</p> <ul style="list-style-type: none"> <li>• Specific data on range conditions</li> <li>• Impacts of livestock grazing on the range</li> <li>• Clear delineation on maps and in the analysis of the impacts on wild horses and/or burros caused by all commercial uses allowed within the HMAs.</li> <li>• Water usage should be clearly defined and allocated - and fair distribution of this valuable resource must be a cornerstone of any future Drought Management related EAs.</li> </ul>	Refer to responses 81, 82 and 83.
122	S. Welsh S. Oster	<p>The EA speaks to wild horse and burro removals and does not focus enough on livestock, and the impacts caused by livestock as it relates to consumption of water and the spread of noxious weeds.</p> <p>Wild Horses and Burros should not be singled out for removal.</p>	Refer to Response 100. The EA includes a comprehensive collection of potential DRAs including those involving livestock. The purpose of the EA is to analyze potential environmental impacts of the proposed actions and alternatives, not to analyze the impacts of livestock within HMAs. Those impacts would be analyzed through Rangeland Health Evaluations following the collection of long-term and short-term monitoring data.
123	Nye County	Reduction of grazing impacts should include cutbacks on horses and burros as well as cattle, not just one or the other.	The Proposed Action details the DRAs that could be employed. Wild horse or burro drought gathers would only be implemented if absolutely necessary (as a last resort) to provide for animal welfare and prevent widespread range degradation after consideration of other DRAs. National budget and holding space restrictions do not allow adding unplanned gathers to the existing 2012 schedule at this time.
124	Nye County	Population increases in wild horse herds should be managed to zero during periods of even mild drought, and not be allowed to continue at the current level of 10-22% annual increase, as stated on page 59 of the EA.	This action would not be practical to implement and would require gathering animals from all HMAs to hold the population static. The BLM has implemented fertility control in several HMAs in recent years which will help to reduce population growth rates.
125	Nye County	Potential reduction of the Low AMLs for wild horse and burro populations within the HMAs should be considered in severely drought stricken areas, as well as possibly extending the three year recovery guideline to restore AML.	The AMLs would not be adjusted through the EA. Through future Rangeland Health Evaluations, all data (including that collected during drought) would be evaluated to determine if adjustments are necessary, especially in particularly drought prone areas.
126	Nye County	Removal of sufficient animals to achieve the high AML (for populations above the established high AML) should be conducted wherever possible prior to the evaluation and implementation of removal of animals to achieve the low AML, even in mildly affected drought areas. This should encourage a natural movement of herds from low yield drought stricken areas to less severely impacted areas.	National budget and holding space preclude the BMD conducting any non-emergency related gathers that are not currently on the National gather schedule. The BMD submits requests for priority gathers annually, which are then evaluated among other State and National priorities.
127	Nye County	If water augmentation (water hauls and pipelines) is installed as semi-permanent structures and/or sites during extended periods of drought, livestock, wild horses, burros, and other mobile species will become	Refer to the discussion in the EA under the Proposed Action, DRAs, Wild Horses and Burros Temporary Water Hauls. Water hauls would consist of livestock water troughs placed on public lands in approved

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		dependent on "temporary" water hauls and pipelines, negatively impacting populations if the augmentation is removed resulting in "temporary" installations becoming permanent installations.	locations which would be removed once they were no longer needed as a DRA.
128	J. Saval	We strongly encourage the BLM to authorize emergency horse gathers ASAP to reduce the potential for increased damage to water and vegetation resources particularly vulnerable during a drought. This would be particularly important outside of HMA's, and in areas where horse populations exceed AML.	Through evaluation of the Drought Response Triggers and collection of monitoring data the BLM would identify appropriate DRAs on a site-specific basis. Drought gathers would be identified as a last resort after consideration of other DRAs and where needed to protect animal welfare and prevent widespread range degradation.
129	Eureka County Board of Commissioners	Unless horses are managed within AML, all other management actions within HMAs are at high risk of failure. Wild horse management needs to be prioritized to reflect this.	Refer to responses 124 and 127. It would be highly desirable to manage all HMAs within their designated AML range; however, it is not possible at this time due to budget and space limitations.
130	Eureka County Board of Commissioners	Wild horse gathers should be a priority before livestock grazing restrictions.	Refer to Response 91. CFR 4710.5 provides for the ability to close certain areas of public lands to livestock in order to protect wild horses and burros. Through the monitoring of Drought Response Triggers, availability of water and forage within HMAs will be documented and appropriate DRAs implemented to ensure the welfare of wild horses and prevent degradation of resources.
131	Yomba Shoshone Tribe	BLM has asked ranchers that the cattle in these areas be removed by April 30 <sup>th</sup> 2012, as they are detrimental to the vegetation during a drought season. But our question is what about the Elk and the Antelope that have populated to numbers larger than the herds of cattle that graze the Ione Valley area? As little as 5 -7 years ago, when driving through the area you would hardly ever see 1 antelope in that area now there are herds of 20+ in different areas of that valley. Same with the Elk, now residents have counted up to 60 Elk at one time. Knowing that Elk are much larger than cows, why were they brought into this area that BLM manages, knowing the vegetation could not sustain cattle let alone larger Elk, and Antelope herds? Elk are not native to this area, and are consuming up much of the grazing areas that ranchers rely on for their herd development. What will be done to these herds of Elk and Antelope that are multiplying in numbers, possibly wiping out vegetation, not only for ranchers herds, but other species that rely on the vegetation for survival? It was said, "It is the responsibility of the BLM to manage the land, and make sure appropriate measures are taken to protect its natural resources." What are you (BLM) going to do about the Elk population consuming large amounts of vegetation and water supply? How could you not know of these Elk populations on lands that you manage?	Analyzing elk and antelope management is outside the scope of this EA. Management of Nevada's wildlife is the responsibility of the Nevada Department Of Wildlife.
132	Paris Ranch, Flying T Ranch, Diamond Cattle Co.	The EA discusses livestock separately from wild horses and burros. Under the current wording of the EA, drought impacts from livestock will be determined separate of drought impacts from wild horses and burros. The utilization and stubble height methods for determining livestock use are discussed in the EA, but methods of determining when "drought conditions have resulted in insufficient amounts of forage and/or water to support the	The Drought Response Triggers identified in the EA and detailed in the DDMP apply to both livestock and wild horses and burros. There is no intent to conduct monitoring of livestock or wild horse use separately. The same methods apply to both.  The DDMP also discuss the methods to assess plant production "to check

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		<p>existing population of wild horses and/or burros” are not explained.</p> <p>Livestock and wild horse and burro use are interrelated on allotments with Herd Management Areas (HMAs). To determine utilization and stubble height for livestock, wild horse and burro use must also be considered. The EA should recognize that livestock and wild horses and burros share resources and must be managed cooperatively.</p> <p>The EA should identify what method will be used to determine wild horse and burro utilization on an allotment. The EA should specify that removal of livestock from an allotment in response to drought will occur after removal of excess wild horses and burros and after removal of horses outside HMA boundaries.</p>	<p>whether forage supply and demand are in balance.” This data would be considered in combination with other factors such as wild horse or burro population, water limitations, current utilization levels etc. to determine the adequacy of resources to support the existing population. Refer also to response 91 and 130.</p>
133	Paris Ranch, Flying T Ranch, Diamond Cattle Co.	<p>The EA provides the opportunity for the BLM to supplement water sources for wild horses and burros. According to the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA), wild horses and burros are to be managed at the “minimal feasible level.” To quote the act:</p> <p><i>The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology, some of whom shall be independent of both Federal and State agencies and may include members of the Advisory Board established in section 1337 of this Act. All management activities shall be at the minimal feasible level and shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration the needs of other wildlife species which inhabit such lands.</i></p> <p>Supplying water during drought artificially alters the “natural ecological balance” of wild horse and burro numbers on BLM lands. This option is a breach of the WFRHBA and should be removed from the EA.</p>	<p>Supplying temporary water sources to augment existing supplies during drought is a common practice and is not prohibited by the WFRHBA. Ideally, BLM would be able to maintain AML in all HMAs, and wild horse or burro populations would be in balance with available resources even during the worst drought years. Providing additional waters would help to alleviate impacts to natural sources and improve distribution throughout the area. Minimally feasible level” does not refer to gathers specifically, but originates from early congressional hearings in order to prevent the wild horses and burros from being managed in “zoo-like” settings. <i>“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.”</i> (92nd Congress, Senate Report 92-242, June 25, 1971).</p>
134	Paris Ranch, Flying T Ranch, Diamond Cattle Co.	<p>Under Section II C.2.c.2, the EA provides the option “Removal of sufficient animals to achieve the high AML.” In accordance with the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA), the:</p> <p><i>Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands...he shall immediately remove excess animals from the range so as to achieve appropriate management levels.</i></p>	<p>The Proposed Action and Alternatives presented in the EA are not an attempt to alter management requirements of wild horses or burros. These possible management actions were developed to represent a full range of options in response to drought, and to remove the most seriously affected wild horses or burros from HMAs that are not currently identified on the National Gather Schedule.</p> <p>As stated in responses 123 and 126, the BLM is not able to gather all</p>

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		<p>Under the BLM’s definition of Appropriate Management Level (AML), the BLM states:</p> <p><i>AML is generally expressed as a range in number (from low to high). To assure horses and burros have adequate forage and an ecological balance is maintained, BLM periodically conducts gathers to remove excess animals from the range. BLM generally removes numbers in excess of the low range of the AML – this allows the population to grow from low AML to the high AML over a 4-5 year period, without gathers to remove excess animals in the interim. This results in less disturbance to individual horses and the social structure of the herd over the long-term</i> (<a href="http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html">http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html</a>).</p> <p>This EA is an inappropriate place to alter the management requirements of wild horses and burros. The high AML reflects the maximum number of animals that can be supported in an average year in an HMA without harm to the environment. If wild horse and burro numbers exceed the high AML, numbers are in violation of the WFRHBA and should be reduced to the low AML, regardless of drought conditions.</p> <p>The EA should remove option 2 “removal of sufficient animals to achieve the high AML” from the EA. Option 1 “removal of sufficient numbers of animals to achieve the low range of AML” should be recognized as the standard wild horse and burro management practice. Option 3 “removal of animals to a point below the low AML” should be recognized as the preferred DRA.</p>	<p>wild horses or burros needed to achieve and maintain AML in all HMAs due to national funding and space limitations. Drought gathers would only take place as a last resort. In these cases, the BLM would only remove the number of wild horses or burros absolutely necessary to ensure animal health and temper resource degradation. Thus, the removal options analyzed in the EA span from removing to high AML down to complete removal. Gathers approved on the National Gather Schedule annually would continue to include removals below the high AML where appropriate.</p>
135	Nevada Farm Bureau Federation	<p>The Plan is to use identified critical areas which provide forage/and or water to support existing populations of wild horses and/or burros, regardless whether or not the District has met the management obligation of being at or below Appropriate Management Levels (AML) for wild horses and/or burros, within Herd Management Areas.</p> <p>We insist that there be a response to our comments which identifies each of the Herd Management Areas, within the Battle Mountain BLM District, and offers the specific numbers for the determined Appropriate Management Level (AML) and the actual "existing" population.</p>	<p>Refer to Table 7 located in the EA, which displays the HMAs administered by the BMD, existing estimated populations and the established AMLs.</p>
136	Nevada Farm Bureau Federation	<p>We believe it essential that attention be given to the management of wild horse and burro numbers at their Appropriate Management Levels, avoiding the curtailment of livestock grazing as the means to supply forage and/or water resources to excessive numbers of wild horses and/or burros.</p>	<p>Comment noted.</p>
137	Nevada Cattlemen’s Association	<p>The Association asks that the Bureau of Land Management manage wild horse populations at appropriate management levels (AML) before considering changes in livestock grazing management. Currently, most</p>	<p>Comment noted. Please refer to responses 28, 123, 126 and 134.</p>

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		herd management areas (HMAs) of the Battle Mountain District are not being managed at AML.	
138	S. Oster	Containment of Wild Horses and/or Burros in holding facilities should be Temporary Only and they should be returned to their respective HMAs with Family Bands together and intact at the soonest possible time.	As identified in the EA, the BLM would only consider return of wild horses or burros to an HMA following a complete removal of all or most animals from the HMA due to extreme emergency drought conditions. In all other removal scenarios, a select number of wild horses or burros would be removed from the most drought afflicted portions of the HMA. Removal numbers would be consistent with drought severity and risk to animal health and resource degradation. Due to the nature of gathers, population size and logistics in Nevada, it is unrealistic and unnecessary to make attempts to keep individual bands intact both during and after being removed from the range.
139	Individuals	It should be the requirement of the BLM to have a drought preparedness plan in place within each district.	Comment noted.
140	Individuals	The majority of animals currently reside in the Battle Mountain Field Office. These areas also have specific information that is not present in the EA. The most vulnerable populations are not identified.	Each HMA and wild horse or burro population is affected by drought conditions differently, and no one HMA is currently considered more vulnerable than another. Monitoring is ongoing to identify how drought is affecting specific HMAs and to determine the limiting factors such as low forage production, drying water sources, high or concentrated populations etc., which would be considered for initiation of DRAs.
141	Individuals	Why are strategies not prioritized in the document? Water hauling would be the least expensive operation.	The DRAs identified in II.2.C Wild Horses and Burros describe the situations that would warrant implementation of these actions. Because conditions and limiting factors vary by HMA, management actions would be tailored to that HMA based on the needs. For example, under Temporary Water Hauls, it is stated that in situations where it is determined that adequate forage exists to maintain the existing populations, but water sources are insufficient, the BLM would employ temporary water hauls. If water is severely lacking, and the population is in excess of AML, long-term water hauling may not be a reasonable solution especially if forage is limited below what is necessary to support the population.
142	Individuals	I request that until this document is specific to area and priority options with an outline of an implementation timeline, it cannot be commented on effectively.	Refer to Responses 81, 82, and 83. An implementation timeline does not exist. Monitoring data collected throughout the BMD as identified in the DDMP would be analyzed and, if Drought Response Triggers are met, a combination of DRAs would be developed to specifically mitigate the drought impacts in that area. Refer to the EA, Section II.2.0 for additional wording that has been added to clarify this.
143	Individuals	This assessment fails to distinguish the differences of the two field offices within the district. The Tonopah district currently has very few viable HMA's left, the exception being the recently gathered "Stone Cabin" areas. Those areas have very few fencelines that would inhibit travel into other areas that would temporarily reduce stress. A temporary lifting of the "off-HMA" rule would reduce a need for expensive removals and the animals	Refer to Table 7 which has been added to the document and identifies the HMAs administered by the BMD. The BMD would not initiate drought gathers solely for animals that move outside of HMA boundaries.

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		would move back as resources could sustain them.	
144	Individuals	Horses and burros can also be moved from one small effected area into an area that can sustain them by creating a disturbance. A disturbance such as a fly over often moves a population out of an area for a period of time and may also be an option to include in this document.	Comment noted. Please refer section 2.0 of the EA. A DRA was added based on public comment that involves moving wild horses and burros to other areas within an HMA that may have suitable forage and water.
145	Individuals, E. Gardner	<p>The document quotes a “foaling season” that is actually inaccurate. “Foaling season” extends into fall with peak not expiring until August 1 with an extremely vulnerable population until September 1.</p> <p>The removal of wild horses and burros is scheduled for the midst of foaling season in some of the most severe weather the state sees. The BMD's EA erroneously presumes a foaling season that is over before September, but foaling season continues strong throughout July, and you've got newborn babies with tiny, soft feet getting chased by a helicopter.</p>	<p>Unless emergency conditions exist or are imminent, the BLM does not gather wild horses during the six weeks before or after the peak of foaling (April and mid-May) which correlates to the 4 month period between March 1 and June 30 for wild horse herds in Nevada. It is not uncommon for a very small number of newborn foals to be encountered during any month of the year; however, most are born between March and June. During summer gathers and especially drought gathers, extra care is taken to protect young foals.</p> <p>Please refer to the EA for detailed discussions of the potential impacts and mitigation measures followed during summer gathers to protect the health of all horses especially foals. Additional mitigation measures have been summarized in Appendix A of Attachment 2. The BLM cares very much for the wellbeing of foals and these proactive measures identified in the EA were developed to protect the health of these animals and prevent them from suffering as waters dry up and they must travel more and more miles to water and forage, with mares milk production declining with the decline in forage and increased distances travelled. Droughts can be very hard on foals.</p> <p>Drought gathers would only be conducted as a last resort and to protect animal health, and prevent severe degradation of habitat. The BLM has conducted drought gathers successfully in the past and through implementation of extra precautions and care, ensured the wellbeing of both adult animals and foals.</p>
146	Individuals	No removals should be done until a humane care standard is in place for handling animals that includes areas of recourse should that protocol be violated.	<p>Two reports completed in 2010 document the humane handling of wild horses during gathers. The participants observed several helicopter removal operations and reported their findings. The first was initiated by the American Horse Protection Association’s (AHPA) and titled <i>The Independent Designated Observer Pilot Program</i>, with the report released in October 2010. Four independent credentialed professionals who were academia-based equine veterinarians or equine specialists reported on multiple facets of the BLM gathers including use of the helicopter which they found to be skillfully and appropriately operated and did not overly stress the wild horses. Other observations were that appropriate efforts were taken to reduce stress and ensure the care and well-being of the wild horses. This report may be accessed here: <a href="http://www.blm.gov/wo/st/en/info/newsroom/2010/december/NR_12_03">http://www.blm.gov/wo/st/en/info/newsroom/2010/december/NR_12_03</a></p>

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			<p><a href="#">2010A.html</a></p> <p>The second report pertaining to BLM wild horse gathers was released by the Department of the Interior Office of the Inspector General in December 2010. This report concluded, “Our inspection confirmed that wild horse and burro gathers are necessary because BLM lands cannot sustain the growing population of wild horses and burros. The growing population of these animals must be addressed to achieve and maintain a thriving natural ecological balance of the authorized uses of the land, thus gathers are necessary and justified actions. Further, we did not observe any inhumane treatment of wild horses and burros”.</p> <p>This report may be accessed at this location:  <a href="http://www.doioig.gov/images/stories/reports/pdf/BLM%20Wild%20Horse%20and%20Burro%20Program%20Public.pdf">http://www.doioig.gov/images/stories/reports/pdf/BLM%20Wild%20Horse%20and%20Burro%20Program%20Public.pdf</a></p> <p>In their August 2012 BLM Task Force Report, the American Association of Equine Practitioners concluded that the care, handling and management practices utilized by the BLM are appropriate for this population of horses and generally support the safety, health status and welfare of the animals. This report is available at this location:  <a href="http://www.aiep.org/images/files/AAEP%20Report%20on%20the%20BLM%20Wild%20Horse%20&amp;%20Burro%20Program%20Final.pdf">http://www.aiep.org/images/files/AAEP%20Report%20on%20the%20BLM%20Wild%20Horse%20&amp;%20Burro%20Program%20Final.pdf</a></p> <p>The EA details Standard Operating Procedures and other methods that ensure the wellbeing of animals gathered and humane treatment.</p>
147	Individuals	As we are into the month of May areas that are likely to show distress that require action would be known. They must be included, specifically, in any document that would result in any action plan.	Monitoring throughout the BMD is ongoing and will continue. Though there are areas exhibiting drought, sufficient data has not been collected to determine where or if DRAs would be necessary. Please refer to Section II.2.0 of the EA for more explanation about the process that would be followed.
148	P. O’Dowd	In the event that removing all the cattle first did not resolve the issue of drought, then providing water and Native PZP should be the next remedy outside of re-stocking Mt Lions and/or Jaguars along with water, as this would not cause a larger tax burden on the public and it does not bother the family structures of the wild horses.	Water hauling is included as a DRA for wild horses and burros. Please refer to Responses 89, 97 and 141. The implementation of fertility control (PZP-22) would do nothing to reduce existing populations. Drought removals would be identified in those areas where forage and/or water are inadequate to support the existing population and as a last resort after consideration of other DRAs. The Nevada Department of Wildlife controls wildlife in the State, not the BLM. Existing populations of mountain lion do prey on wild horses or burros but not at levels high enough to offset population growth through reproduction. Jaguars are not native or present in Nevada.
149	P. O’Dowd	A round up clearly devastates families and family structure. Native PZP is approved by the EPA and one can no longer use the excuse that it needs MORE testing. Please get that. As removals are the only alternative that	The known and anticipated impacts to wild horses or burros from water hauling, removals, sex ratio adjustment and the use of fertility control (PZP-22) were analyzed in the EA. Refer to Response 97.

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		were covered in detail, this EA must be updated with a detailed alternative for bringing the population to AML utilizing native PZP and emergency water and/or feed as needed.	
150	P. O'Dowd	The process of gaining approval for removals and transport of wild horses and burros within each HMA requires an area specific document and an approval process which includes a public hearing under the 1971 Act.	Refer to the EA, Section II.2.0 for additional information about the process for public notification and site-specific information. Public hearings for the use of motorized vehicles during wild horse and burro gathers are held annually in Nevada. Per the WFRHBA, " <i>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</i> ". The hearings are held to take public comment regarding motorized vehicles and helicopter use, not for approval of wild horse or burro gathers.
151	K. Hayden	The plans fail to evaluate wild horse herds as a special status wildlife species, as found in numerous cases, including Nevada. Instead, since they are evaluated by unapplicable livestock standards, other applicable laws i.e. NEPA, NHPA Sec 106, and ESA are circumvented.	Wild horses and burros are not considered special status wildlife species. The management of wild horses and burros fall under the WFRHBA and the Federal Code of Regulations at 4700. The management of wild horses and burros does not fall under NHPA or the ESA. The BLM is in compliance with NEPA through the completion of EAs which analyze the potential impacts associated with the Proposed Action and Alternatives. The BLM complies with Section 106 with surveys of potential traps sites and holding corral locations.
152	B. Kohleriter	I urge you to follow the No Action Alternative so that your office will do an EA on every round up.	The EA is intended to provide for prompt action in order to prevent suffering of wild horses or burros due to severe drought conditions. The time required to complete an EA for each area could mean that conditions deteriorate to serious emergencies leading to a decline of wild horse or burro health and widespread range degradation. Refer to the EA, Section II.2.0 for additional information about the public notification process, and ongoing monitoring.
153	B. Kohleriter	If an emergency occurs I support providing temporary corrals on the range where the horses will have access to forage and water until the rains return again.	Water hauling for wild horses is identified as a DRA. Refer to response 97. Removal of wild horses or burros would only be considered as a last resort where existing forage and water are inadequate to support the current population.
154	B. Kohleriter	Dr. Gus Cothran, geneticist with Texas A &M Univ. stated recently in testimony to Congress, a minimum of 100 to 130 horses should be in a herd to sustain its viability. Only the Stone Cabin HMA out of 13 HMAs in Tonopah has more than 100 horses and 7 out of the 13 have less than 50. (Fish Lake, Gold Mtn., Goldfield, Lost Creek, Little Fish Lake, Palmetto, Saulsbury, Silver Peak, Sand Spring West, Montezuma, Paymaster and Reveille)	Lost Creek is not managed by the Tonopah Field Office. Refer to Table 7 of the EA which displays the wild horse and burro populations. In some of the small HMAs, especially those located in Esmeralda County, the range cannot support larger numbers of wild horses or burros. Refer to response 109. Saulsbury HMA is associated with the Monitor Wild Horse Territory and Stone Cabin HMA. In the HMAs with low AMLs, should genetic analysis indicate that action is needed, there are several options to preserve, maintain and improve the genetic health including introduction of animals from another HMA, or specific age or sex management protocols. Genetic health of all HMAs administered by the BMD will be monitored in the future and if needed appropriate action implemented with appropriate NEPA and public coordination.

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155	B. Kohleriter	What has the BLM done with Wayne Hage's cattle who over many years have guzzled water? Why have you not included the energy and mining projects in Tonopah in your drought analysis...they draw or will draw millions of gallons of water from the surface and subsurface waters in the future...(Crescent Dunes, the CA. Heliostat projects, the gas and oil fracking projects to name a few) The public knows droughts occur and reoccur but bring on the water guzzling projects.	Refer to Responses 39, 90, 98, 99, and 102. These other projects underwent specific project level NEPA including public involvement and are outside of the scope of this analysis.
156	B. Kohleriter	Battle currently has only 2 out of 11 HMAs that don't have horses over 100 in them (North Monitor and Whistler). Battle has 7 out of 11 of its HMAs that have horses over AML and over 100 in their respective areas.	As you will note on the map included in the EA, many of these HMAs (such as Whistler Mountain) are contiguous with other HMAs and form a larger "Complex", with a larger population than what is reflected for just the HMA itself. Refer to Response 155 regarding genetic health for the Tonopah HMAs.
157	B. Kohleriter	Noticed in the gather schedule is the helicopter contractor's gathers appear limited this summer (July through September). Is this Drought EA a way to go into the 7 HMAs without an EA for each to reduce the herds to the lower AML in each? Be forthright with the Public. If this is your plan and if your plan includes catching and releasing with PZP, remember PZP is not effective if not given Dec. through Feb. to 65-85% of your population.	This EA is in no way a plan to be able to conduct gathers on HMAs outside of the National Gather Schedule. Refer to responses 85, 123 and 126. The DRAs for wild horses in the EA are detailed in Section II.2.C.2 of the EA. The application of fertility control identified under 4. Complete Removal of all animals in an HMA was identified in case it was determined that wild mares should be treated with PZP-22 before being returned to the range after drought conditions were no longer serious and adequate forage and water existed to support the wild horses targeted for release.
158	B. Kohleriter	In this drought suggested is to explore fences/gates be required to remain open remunerating cattlemen for the use of their water. This seems less costly than rounding up and corralling.	BLM Rangeland Management Specialists have been coordinating with permittees, especially those with permits in HMAs, to communicate these requests. Forage availability may also be an issue as forage productivity is reduced in many areas due to drought.
159	P. Lanigan	Nevada, in the past, has had a history of fencing off water from wildlife, specifically wild horses and burros, during drought conditions. I would prefer to see livestock removed from the area before you would implement fencing.	Comment noted. There are no proposals to fence wildlife or wild horses from water.
160	P. Lanigan	If water needs to be trucked in or wells opened in those areas, please make water available to all forms of wild life, not just domestic cattle and sheep.	Comment noted. Water sources would be available to all users in the area.
161	N. Cook	I was expecting to see a drought management plan. Where is the drought management part? How are you addressing THAT issue? Where is the step by step strategy starting with most cost effective measures? What happened to the cheaper solutions of watering animals?	Refer to responses 142. The Drought Management Plan included with the EA outlines a broad range of potential management actions that could be implemented in response to drought. Within the BMD, there are 94 grazing allotments and 28 HMAs. It is not possible to develop a "cookbook" approach to management in all of these areas as conditions and limiting factors vary tremendously across the district. As discussed in the EA and other comments, wild horse removal would be a last resort and only after consideration of other DRAs. In locations where both water and forage are limiting, water hauling alone may not be adequate to support a healthy population of wild horses and burros.
162	K. Gregg	What is the end date of this proposal or is this another open-ended "blank check syndrome" policy put together by the BLM to do whatever they	Refer to response 96.

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		want, whenever they want, toward complete removal (zeroing out) of all wild horses and burros from their legally designated land in favor of every other “multiple use”? Is this proposal setting a precedent for other BLM districts to follow? Is this proposed EA plan to be in effect until all WH&B are removed from this district?	
163	TCF	The EA lacks specifics and adaptive management strategies geared to each situation. BLM needs to evaluate drought impacts on wild horses and burros on a site-specific basis. The BMDO should allocate more funding to range monitoring so that any response, if necessary can be taken swiftly and with the least damage to wildlife including wild horses and burros.	Refer to Section II.2.0 of the EA for more detailed information about monitoring documentation, issuance of Management Decisions public notification process. Monitoring of the Drought Response Triggers identified in the EA is ongoing, following the protocol in the DDMP. The goal of this EA is to facilitate prompt and efficient action if necessary to ensure animal welfare and avoid range degradation to the greatest extent possible.
164	TCF	Conducting a gate cut removal during a roundup is an irresponsible and unsustainable management tactic that should not be employed under any circumstance. We recommend BLM do a selective removal, only removing animals that are deemed adoptable. In conjunction, BLM can dart all mares with the one-year version of PZP before release.	The reason that gate cut removal was identified is that only wild horses or burros in the drought affected areas would be removed, and the animals that do not need to be removed would not undergo the stress of a gather, especially during summer drought conditions. BLM acknowledges that gate cut removals are not ideal and result in additional older horses being removed from the range. Drought gathers would be completed only where necessary and as a last resort, and would not involve the release of wild horses back to drought affected areas once gathered.
165	K. Wattle	You are planning to ensure the very small population of wild horses on these lands shall be further decimated, further marginalized, in the big picture of BLM's apparent policy to eliminate as many wild roaming horses as possible. BLM should have made the prudent and wise actions of planning ahead.	Refer to responses 85, 123 and 126. The purpose of the Drought Management Plan was detailed in the EA as well as in the response to comments.
166	K. Wattle	If you really believe this removal is necessary, why are you not also implementing plans to round up and remove wild deer, elk, antelope and bighorn from this area?	Refer to response 131.
167	K. Wattle	Why are you also not removing all privately owned livestock that grazes this area while being subsidized to do so via ungodly low pasture rates footed by the taxpayers? Why have all the authorized grazing rights not been pulled and suspended?	Adjustments consisting of partial or complete closure, reduction in numbers and other livestock management actions are identified within the DRAs in the EA.
168	A. Novak	We want solid proof the wild horses--not the livestock--are ruining the thriving natural ecological balance (TNEB).	<p>The impact of livestock grazing is outside of the scope of this analysis. 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.</p> <p>The DRAs identified in the EA were developed in order to preserve rangeland health as well as animal health and wellbeing in light of potential drought. Drought Response Triggers and DRAs have been developed to monitor and identify appropriate actions for both livestock and wild horses and burros.</p>

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169	A. Novak	Contrary to what you state in the EA wild horses can self-regulate and do not multiply like rabbits. Less than 1% of 15,000 wild horses studied live to the age of 20. Many youngsters die before the age of 2.	This statement is incorrect. During the BLMs' forty years administrating the Wild Horse and Burro Program, experience has shown consistently that these populations do not self-regulate. As stated in the Affected Environment portion of the EA under Wild Horses and Burros, these animals typically do not begin to show signs of body condition decline until the habitat components are severely deficient and then deteriorate quickly. At this point, resources can be irreparably harmed and required decades or longer to recover. Gathers in the BMD typically result in 3-6% of the horses captured being older than the age of 20. Data provided by Stephen Jenkins in the WinEquus population modeling program for the Granite Range in research collected between 1993 and 1999 indicate survival probabilities for foals of 0.877-0.919, adults 0.903-0.990 and those animals 20 and older 0.564-0.591.
170	A. Novak	When was the last time these horses were treated with the immunocontraceptive PZP? Is it working?	The BMD administers 28 HMAs. Of those, 8 have been treated with fertility control one or more times between 1998 and 2012. Follow up flights of those areas indicate that the treatment is working to reduce foaling rates in the first few years after treatment. However, due to the inability to treat all mares in a population, percent foals observed is only about half of what would be expected in an untreated area.
171	A. Novak	Helicopter roundups are against the Free Roaming Wild Horse and Burro Act protecting these animals from harassment and harm.	<p>The WFRHBA specifically authorizes the BLM to gather excess wild horses and burros from the range: <i>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.</i> FLPMA amended the WFRHBA with <i>"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"</i>.</p> <p>The Public Rangelands Improvement Act (PRIA) of 1978 (Pub. L. 95-514, Sec. 4, Oct. 25, 1978, 92 Stat. 1805.) also addresses this issue with the direction to <i>"continue the 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"</i>.</p>
172	A. Novak	Using a helicopter causes global warming and we oppose it.	Comment noted. There are no studies to conclude that the use of helicopters during wild horse or burro gathers cause global warming.

No.	Commenter	Comment	BLM Response
173	Individuals	<ul style="list-style-type: none"> <li>• Helicopter roundups are cruel/humane. They cause injury, heat stress, spontaneous abortions, extreme stress and many deaths. Foals become orphans. Even more have to be euthanized.</li> <li>• We oppose roundups that would stress, traumatize and injure foals and lack humane care such as the roundup proposed.</li> <li>• We oppose bait and water trapping because removals are a waste of tax dollars and lack humane care this being cruel.</li> <li>• We oppose gate cut gathers/roundups because they are a waste of tax dollars, cruel and lack humane care.</li> <li>• Virtually all nationally recognized animal welfare organizations have so advised BLM.</li> <li>• I urge BMD to <b>renounce the use of helicopters, whips, and electric prods</b> in gathering and maneuvering wild horses and burros.</li> </ul>	Refer to response 146. The potential impacts of wild horse and burro gathers are analyzed in detail in the EA.
174	A. Novak,	The reports of deaths related to helicopter roundups are wrong--they are way too low. Your reports of "pre-existing conditions" meriting euthanasia are a farce and we ask for transparency.	The animal deaths and euthanasia during gathers are reported as accurately as possible. If an animal dies, is killed, has to be euthanized due to injury sustained on the gather or due to a pre-existing condition, they are reported as such. On-site APHIS Veterinarians observe and document all injuries, deaths and euthanasia.
175	A. Novak	The BLM's AML numbers are no longer based in good science and need to be revised to reflect TNEB and the fact that the livestock are ruining the range as reported in the PEER study above.	Per the outcome of Dahl v. Clark (600 F. Supp. 585 Dist. Ct. Nev. 1984), the BLM is required to base AML and removals on "analysis and studies" and per numerous Interior Board of Land Appeals rulings a monitoring program involving studies of grazing utilization, trend in range condition, actual use and climatic factors. These and other pertinent factors are reviewed and supported by an ongoing program of monitoring in determining the need to remove excess wild horses from the range. Refer to response 168.
176	A. Novak	Sex ratio adjustments are wrong and not what nature intended. The Free Roaming Wild Horse and Burro Act does not allow this.	Sex ratio adjustment is consistent with the provisions of the WFRHBA. The Act does not prohibit this method of population control.
177	A. Novak	<p>Fertility control and experimentation is wrong not what nature intended. The Free Roaming Wild Horse and Burro Act does not allow this.</p> <p>We are opposed to using PZP that causes side effects to wild equids. These side effects include but are not limited to open abscesses, lameness, sores than can become infected in the wild causing death, etc.</p> <p>We are opposed to using PZP because some animals could become sterilized.</p>	20 years of use and completed research into animal health and behavior following treatments clearly shows that wild horses are neither injured by this vaccine, nor do aberrational behaviors occur as a consequence of its application. Oversight by HSUS assures that the vaccine is used only to slow reproduction and may not be used for the elimination of entire herds. PZP is designed to bring about short-term infertility and is reversible, reduces the need for gathers and preserves the original gene pool in each herd (Kirkpatrick et al. 2010). The HSUS strongly supports an increase in the use of fertility control – specifically the Porcine Zona Pellucida (PZP) immunocontraception vaccine to slow population growth (HSUS, 2010). The potential impacts of the use of PZP-22 is discussed in detail in the EA. The use of PZP-22 is consistent with the provisions of the WFRHBA. The Act does not prohibit this method of population control.

No.	Commenter	Comment	BLM Response
178	A. Novak	We request you respond in 48 hours to inform us of the adjuvunct used in your proposed PZP treatment that we are opposing.	Refer to Appendix B of the EA for this information.
179	A. Novak	How effective is PZP if given without a booster?	Refer to the Fertility Control discussion in the Environmental Consequences Section under Wild Horse and Burro and Appendix B.
180	A. Novak	We are opposed to branding wild horses and burros as we understand the Free Roaming Wild Horse and Burro Act forbids the branding and harassing of wild equids.	The use of identification freezemarks on wild horses given fertility control is approved and is consistent with the provisions of the WFRHBA.
181	A. Novak	We are against transporting and selling wild horses.	Comment noted.
182	A. Novak	Since the BLM employees have been caught in the past adopting wild horses and selling them to slaughter we are against removals because the animals are at risk of going to slaughter.	This statement is incorrect. There is no evidence that BLM employees sell adopted wild horses or burros to slaughter.
183	A. Novak	We oppose this roundup and removal because it will cause litigation that is wasting more tax dollars. We request BLM to be fiscally responsible.	Comment noted. The issuance of the EA or implementation of any of the DRAs identified are considered proactive and responsible measures to protect the health of the rangeland, wild horses and burros and other users of the range during extreme drought conditions.
184	E. Gardner	BLM would also do well to consider the increased litigation costs involved if/when it continues to plan the use of these highly detrimental "management" protocols like gelding stallions and releasing them as nonreproducing animals. .	The EA does not include any proposals to geld stallions.
185	M. Devlin	Although I see water hauling mentioned in the EA, the emphasis appears to be on removal of the horses and burros.	No one DRAs is emphasized more than another in the EA. A lengthier description and analysis of wild horse and burro gathers is warranted as there are more scenarios to consider. The analysis contained in the EA is commiserative with other wild horse or burro gather EAs.
186	M. Devlin	I am alarmed that BMD would even consider using the helicopter-stampede roundup method during a drought. If the wild horses and burros are dehydrated, it is contraindicated to chase them. Helicopter roundups are abusive any time of year, but especially so in hot and dry conditions. Foals, recently born and still nursing, should not be pushed hard at such a tender stage in their life.	Refer to responses 145, 146 and 173. Drought gathers would only be conducted as a last resort to protect animal health, and prevent severe degradation of habitat. The BLM has conducted drought gathers successfully in the past and through implementation of extra precautions and care, ensured the wellbeing of both adult animals and foals.
187	M. Devlin	Although the EA describes bait-trapping activities it plans, the fact that BLM still has the helicopter waiting in the wings, indicates a less-than whole-hearted commitment to the new approach. Further, BLM appears to be merely adding another method -- bait-trapping -- to the standard one -- helicopter-roundup.	If the situation is appropriate for bait or water trapping, the BLM would employ those methods. The EA has been modified to clarify that bait or water trapping would be the preferred method where appropriate. Refer to Section II.2.0 of the EA for more information.
188	M. Devlin	BLM should institute the kind approach to gathering wild horses -- when a gather is truly necessary. Roundups should be done slowly, quietly, and gently. They could even be contracted through equine advocacy groups with expertise in gentle methods. The mustangs should be gathered one band at a time to preserve family structure. Small roundups should be conducted every year in late autumn instead of massive rodeos every three-to-five years. Small-scale, annual fall roundups will mean fewer horses will come up for adoption, and they will be available just in time for the holidays.	Comment noted. Refer to responses 138, 145, 146 and 173. The BLM makes every effort to gather wild horses humanely and gently, implementing additional precautions during summer gathers.

No.	Commenter	Comment	BLM Response
189	M. Devlin	<p>BMD should ...</p> <ul style="list-style-type: none"> <li>• Buy out grazing permits in allotments within or that adjoin HAs and HMAs</li> <li>• Buy "checkerboard" private lands inside or bordering HAs and HMAs</li> <li>• Buy state-owned lands inside or bordering the HAs and HMAs</li> <li>• Negotiate land swaps with the state and private property owners.</li> <li>• Many producers may be interested in selling their ranches to the BLM as a way to exit the business. BMD should secure funding in order to be ready to accommodate them, and thereby consolidate federal land holdings. Clearly, BMD can and should gradually phase out cattle grazing in the HMAs.</li> </ul>	<p>These proposals are outside of the scope of this EA and would not result in timely action needed to protect the range from damage and protect animal health. These proposals would be appropriate for consideration during the upcoming Resource Management Plan Revision.</p>
190	M. Devlin	<p>BMD needs to establish alternative water sources for the current principal consumers -- livestock -- as well as for the wild horses, burros, and other wildlife. As landlord of the multiple-use range, BLM is responsible and accountable for providing water sources and maintaining them. However, installing miles of pipelines to bring water to the livestock constitutes inappropriate subsidization of the beef sector.</p>	<p>Refer to response 96. Temporary above ground pipelines are only one of many DRAs that could be implemented and would improve water availability for all users and improve animal distribution as well.</p>
191	M. Devlin	<p>Rain and snow catchment devices, commonly referred to as "guzzlers," should be strategically installed throughout the district, especially in the HMAs.</p>	<p>Comment noted. The BLM appreciates the literature you have provided on this subject.</p>
192	M. Devlin	<p>As for wild horses' supposed competition with wildlife, the species thought to seek out similar forage is elk. However, cattle grazing and disturbance regimes (such as fire) are the more likely suspects. Cattle are four times more likely to affect deer than are horses. Contrary to popular belief, the existence of competition between wild horses and bighorn sheep has <i>not</i> been supported by a number of recent studies.</p>	<p>During drought years, especially when wild horse or burro populations are over AML, all wildlife competes for forage and at water sources. Wild horse or burro overpopulation and concentrated use causes damage to riparian resources relied upon by many species of wildlife. The BMD has documented many occasions of wild horses or burros conflict with various species of wildlife at water sources with the use of portable remote trail cameras.</p>
193	M. Devlin	<p>The HMAs should be administered principally as wild horse (or burro) management areas, as the Act intends. Mustangs should be given priority for forage, and their habitat should be free of disturbances. HMAs should be closed to mining, drilling, fracking, roads, off-highway vehicles, and all other such intrusions on the peace of their rangelands.</p> <p>I recommend that BLM deny any more mining permits and suspend all mining operations while there is the possibility of a drought. BLM would do even better to stop all mining on public lands in the state permanently.</p>	<p>Neglecting to manage HMAs as multiple use areas would not be in conformance with the existing land use plans, is contrary to the BLM's multiple-use mission as outlined in the FLPMA, and 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. Refer to responses 39, 90, 98, 99 and 102.</p>