BLM

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

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# Environmental Assessment

## Jackson Mountains Wild Horse Gather

## JUNE 2012

**Jackson Mountains Herd Management Area Wild Horses 2011**

## PREPARING OFFICE

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# Environmental Assessment: Jackson Mountains Wild Horse Gather

**JUNE 2012**

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# Chapter 1. Introduction

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# 1.1. Identifying Information:

## 1.1.1. Title, EA number, and type of project:

Jackson Mountains Herd Management Area Wild Horse Gather Plan

DOI-BLM-NV-W030–2012–0005–EA

## 1.1.2. Location of Proposed Action:

Jackson Mountains Herd Management Area (HMA) and outlying areas where wild horses have moved to find adequate space, habitat, water, and forage.

## 1.1.3. Name and Location of Preparing Office:

Lead Office - Black Rock Field Office (BRFO) and number W030

## 1.1.4. Identify the subject function code, lease, serial, or case file number:

Case file number NV-208

## 1.1.5. Applicant Name:

Bureau of Land Management

# 1.2. Introduction:

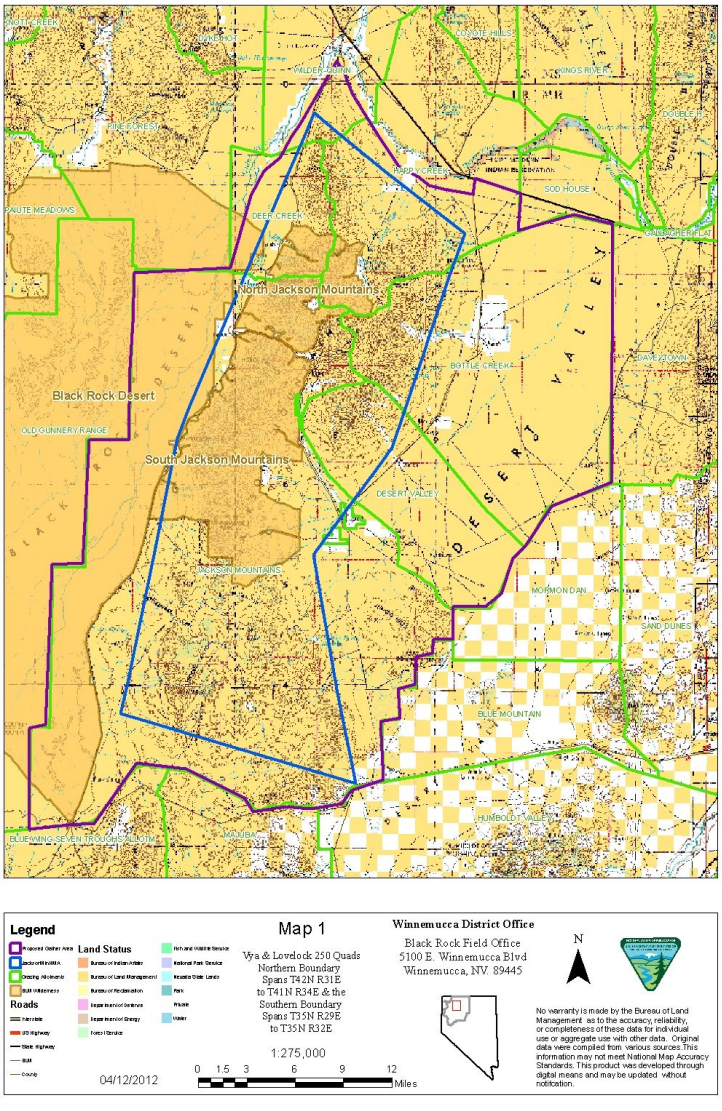
This Environmental Assessment (EA) has been prepared to analyze the Bureau of Land Management's (BLM) Winnemucca District, Black Rock Field Office (BRFO) proposal to gather and remove excess wild horses from within and outside the Jackson Mountains Herd Management Area (HMA). Based on current conditions and monitoring data, the Jackson Mountains have been identified as experiencing an escalating situation due to unforeseen drought conditions. Since the release of the preliminary EA, this situation has continued prompting the need for an emergency gather, one that would occur prior to July 1, would be necessary.

This EA is a site-specific analysis of the potential impacts that could result from implementation of the Proposed Action or Alternatives to the Proposed Action. The Proposed Action has been modified since the release of the preliminary EA. The modification includes an initial gather date before July 1 and removal of the gelding component. The EA assists the BLM BRFO in project planning, ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the Modified Proposed Action or Modified Action Alternatives. An EA provides analysis for determining whether to prepare an Environmental Impact Statement or a statement of Finding of No Significant Impact (FONSI).

The HMA consists of approximately 286,000 acres (public and private), but the gather area consists of approximately 775,000 acres, which encompasses additional lands where wild horses are residing outside of the designated HMA. The gather area is located north and west of Winnemucca, Nevada within Humboldt and Pershing counties. The entire gather area spans a distance of approximately 60 miles long and 35 miles wide. The gather involves areas beyond the HMA boundaries as displayed in Map 1 because wild horses have moved outside of the HMA in search of forage, water, and space due to the current over-population of wild horses in this area.

The Jackson Mountains Wild Horse gather is planned to occur in the summer of 2012 and is expected to take approximately 20 days. In the event that weather or other factors prevent a gather at this time, the operation would be conducted as soon as scheduling permits.

Jackson Mountains HMA and Gather Area




**Map 1.1. Jackson Mountains HMA and Gather Area**

# 1.3. Background:

The HMA in the Winnemucca District planning area was designated as suitable for the long-term maintenance of wild horses in the approved Paradise-Denio Management Framework Plan (PD MFP) (1982). (HMA terminology did not exist at the time the MFP was developed. The MFP referred to HMAs as Herd Use Areas.) The PD MFP Record of Decision (1982) established the multiple use balance between livestock, wild horses, and wildlife based on the analysis of alternative allocations between these uses, and set initial forage allocations for wild horses.

The Appropriate Management Level (AML) for the Jackson Mountains HMA was established as 217 wild horses in the 1982 PD MFP. In the mid to late 1990s, AML for this HMA was further evaluated relative to these initial allocations based on available monitoring data to ensure a thriving natural ecological balance. The AML for this HMA was revised in Final Multiple Use Decisions (FMUDs) completed in 1994, 1997, 1998, 1999, and 2000, based on allotment evaluations that analyzed resource monitoring data and allowed for public involvement and input into the decision-making process.

Table 1- AML Decision Documents lists the NEPA documents which supported the initial AMLs and established or re-affirmed AMLs on the basis of available monitoring data. The AML has been updated to a range of 130 (Low AML) to 217 (High AML) wild horses through the FMUD process.

**Table 1.1. Jackson Mountains HMA — AML Decision Documents**

| PLANNING DOCUMENTS | | |
|---|---|---|
| **Name** | **Decision** | **AML (wild horses)** |
| Paradise-Denio Management Framework Plan and Grazing EIS | Record of Decision (1982) | 217 |
| Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area, Associated Wilderness and Other Contiguous Lands Resource Management Plan | Record of Decision (2004) | 136–217[a] |
| **FMUDs** | | |
| **Grazing Allotment** | **Number/Decision** | **AML** |
| Desert Valley | PD MFP | 0 |
| Jackson Mountain | FMUD - 5/27/94 | 70-117 |
| Happy Creek | FMUD – 2/14/97 | 36-60 |
| Deer Creek | FMUD – 10/16/98 | 6-10 |
| Wilder-Quinn | FMUD – 11/19/98 | 6-10 |
| Bottle Creek | FMUD – 09/14/00 | 12-20 |
| Total | | 130-217 |
| **GATHER PLAN DECISIONS** | | |
| Horse Gather N. Jackson Mountains | EA-97-16<br><br>Decision Record 1997 | 36-10 (Happy Creek Allotment)<br><br>10 (Deer Creek Allotment) |

| | | |
|---|---|---|
| Jackson Mountains Gather Plan | EA-02-31<br><br>Decision Record 2002 | 130-217 |
| Jackson Mountains HMA Wild Horse Gather Plan | NV-020-07-EA-10<br><br>Decision Record 2007 | 130-217 |

[a]Typographical error in the BR/HR/NCA RMP, low AML is 130 wild horses. The BR/HR/NCA RMP specifically states "AMLs must be established or adjusted based upon site-specific monitoring information and are therefore not being changes [sic] in the RMP."

The AML is defined as the number of wild horses that can be sustained within a designated HMA which achieves and maintains a TNEB[1] in keeping with the multiple-use management concept for the area. Changes to the AML are appropriate only if multiple use allocations are being adjusted through the land-use planning process, or if monitoring data demonstrates that the AML is either set too high or too low within the existing multiple use allocations and after BLM conducts the appropriate environmental analyses and provides opportunities for public input through a public decision-making process. BLM manages wild horses at the established AMLs and removes animals in excess of the established AML range. Establishing AML as a population range allows for the periodic removal of excess animals to the low range of AML and allows for subsequent population growth up to the high range of AML between removals (gathers).

The AML for the Jackson Mountains HMA was established as a population range of 130-217 wild horses (Table 1- AML Decision Documents). The current population of wild horses within the HMA is approximately 740 adult wild horses and approximately 96 foals based on surveys conducted in early April 2012. This does not include the additional estimated foal crop for 2012 which would increase the total population to an estimated 930. The current wild horse population is estimated to exceed the low AML by 800 wild horses and is about 7 times the low AML (130 animals) or about 4 times the high AML of 217 animals. Refer to Section 3.3.9, "Wild Horses" for more information regarding population counts and growth rates.

The last gather within the Jackson Mountains HMA occurred in the summer of 2007 when 990 excess wild horses were removed from the range. During this gather a total of 1,064 wild horses were captured, 36 mares were treated with a 2 year PZP fertility control agent and returned to the HMA, 36 stallions were released and 2 horses were euthanized. The removal was needed because of excess animals and severe shortages of water and forage. Many wild horses in the southern portion of the HMA rely on springs that are not capable of producing sufficient amounts of water for excess wild horses. Wild horses inhabiting these areas often times will not leave these water sources for more productive areas even when water and forage are unavailable. Due to this many wild horses that were gathered at the time were in poor health.

In October of 2011, it was observed that forage resources in the higher elevations were significantly depleted and the lower lying areas were mostly comprised of invasive cheat-grass and pepper weed. In January of 2012 wild horses were documented in areas outside of the HMA in the Northern portion where they are not routinely observed. In the Southern areas of the HMA and outside the HMA boundaries wild horses were observed congregating in valleys. Monitoring

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

has shown decreased spring flows, moderate to severe forage utilization up to 2.5 miles from water sources, no new vegetation growth in the southern valleys and declining body condition of wild horses. The WD has been hauling water since April to ensure wild horses at the Trail Springs location have access to adequate water (DOI-BLM-NV-W030–2012–0008–CX). However, the escalating situation has evolved into an emergency due to the lack of forage within the area wild horses are currently utilizing. This is reflected in degraded range conditions and declining wild horse body condition. Based on the current situation, prompt removal of excess wild horses from the most severely impacted areas would be necessary to ensure their health and welfare.

BLM has determined that 800 excess wild horses (adults and foals of the year) are currently present within the Jackson Mountains gather area and need to be removed in order to be in compliance with the Wild Free Roaming Horses and Burros Act of 1971 (WFRHBA) by achieving the established AMLs, restoring a thriving natural ecological balance, and preventing degradation of rangeland resources resulting from an overpopulation of wild horses. This assessment is based on factors including, but not limited to, the following rationale and that emergency conditions have emerged in the south west portion of the gather area that necessitates prompt removal of excess wild horses to prevent death of individual wild horses:

- The population survey conducted in early April 2012 revealed approximately 740 adult wild horses and approximately 96 foals in the Jackson Mountains HMA gather area; with the expected 2012 foal crop this equates to approximately 930 wild horses, which is 800 wild horses in excess of the low AML or 713 wild horses in excess of the high AML;

- Once wild horse populations are at low AML and are being managed within the AML range, BLM will be able to collect the resource monitoring data necessary to determine if wild horses are causing impacts that lead to non-attainment of Resource Advisory Committee (RAC) Standards for Rangeland Health in the allotments within the HMA, requiring downward adjustments to the AML or whether an upward adjustment to AML can be made while still maintaining rangeland health;

- In addition to degradation within the HMA, wild horses have moved outside of the Jackson Mountains HMA onto private and public lands that fall outside of designated HMA boundaries as the overpopulation of wild horses within the HMA results in wild horse movement beyond the HMA boundaries in their search of forage, water, and space. Under regulations at 43 CFR § 4710.4, BLM is required to manage wild horses within their HMAs and to remove wild horses that take up residence outside of HMA boundaries.

- Water is a very limited resource within the HMA therefore water becomes a limiting factor when wild horse populations exceed high AML. There are several springs and seeps in the HMA, but available water is unreliable and often unavailable as springs/seeps recharge from past years of drought. Range improvements are present in the HMA but many are insufficient for numbers of wild horses exceeding the high AML.

- Currently weather patterns, range conditions, and wild horse behavior are following similar trends as were seen before the gather in 2007. Vegetation is being heavily impacted by wild horse use with very little spring growth due to dry conditions and important spring sources are showing slowed production. Wild horse body condition and overall health is being negatively impacted by the current range conditions as is illustrated by monitoring data. Within the Southern portion of the HMA drought conditions have slowed spring flows, there has been virtually no new vegetation growth and wild horse health is declining. The BLM has been hauling water; however, this is not sufficient to maintain overall health. The lack of forage is

impacting wild horse health as can be observed by the loss of weight and notable competition between wild horses. In March of 2012 most wild horses were noted to be 3 to 4 on the Henneke Body Condition Score (BCS). As of May 21, 2012 most wild horses are in the range of 3 with some being as low as a 2. The Henneke Body Condition Score rates condition on a scale of 1 to 9, with 1 being Poor (extremely emaciated) and 9 being Extremely Fat.

- Livestock utilization within the HMA has been declining, as seen in Table 3.5, in part due to declining range conditions and water availability. Utlization has been reduced in the southern portion of the gather area, and in some areas livestock has been removed.

Since the passage of the WFRHBA, knowledge regarding management of wild horse population levels has increased. For example, population data shows that wild horses are capable of increasing their numbers by 18% to 25% annually (Wolfe 1980, Garrott and Taylor 1990, Eberhardt et al 1982), resulting in the doubling of wild horse populations about every 4 years. This has resulted in the BLM shifting program emphasis beyond just establishing AML and conducting wild horse gathers to include a variety of management actions that further facilitate the achievement and maintenance of stable wild horse populations and a thriving natural ecological balance. Management actions resulting from this shifting program emphasis include: increasing fertility control, adjusting sex ratio, and collecting genetic baseline data to support genetic health assessments.

## 1.4. Purpose and Need for Action:

The purpose of the Modified Proposed Action is to conduct an emergency gather to remove excess wild horses in the south west portion of the gather area that are at immediate risk of mortality due to insufficient water, to remove excess wild horses from within and outside the HMA, to manage wild horses at the established AML ranges for the HMA, to reduce the wild horse population growth rate in order to prevent undue or unnecessary degradation of the public lands by protecting rangeland resources from deterioration associated with excess population of wild horses within and outside the HMA boundaries, and to restore a thriving natural ecological balance and multiple use relationship on the public lands.

The need for the Modified Proposed Action is based on BLM's obligations established by the provisions of Section 1333 (a) of the Wild Free-Roaming Horses and Burros Act of 1971 which mandates management of wild horses in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands and to prevent the unnecessary death of wild horses resulting from emergency conditions due to drought.

## 1.5. Decision to be Made:

The authorized officer will make the determination of whether or not to implement the emergency gather along with a broader gather of excess wild horses andpopulation control measures.

The decision to be made would not set or adjust AMLs, which were set by previous planning-level decisions as identified in Table 1- AML Decision Documents. Future decisions regarding long-term management within the HMA would continue to be accomplished through a Herd Management Area Plan or other activity level management plans specific to the HMA. Additionally, the decision would not adjust livestock use, which has been established through

prior planning-level decisions which have complied with NEPA requirements and provided opportunity for public review and input identified in Table 1- AML Decision Documents.

The No Action Alternative would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with the other modified action alternatives, and to assess the effects of not conducting a gather at this time. A decision to select the No Action Alternative for implementation would be contrary to the requirement under the WFHBA that the Secretary remove excess wild horses from the range, and would also not be in conformance with regulatory provisions for management of wild horses as set forth at 43 CFR § 4700.

## 1.6. Scoping, Public Involvement and Issues:

Internal scoping was conducted by an interdisciplinary team on February 22, 2012 that identified the following potential issues if the Proposed Action or action Alternatives where to be implemented:

- How would water quality be affected?
- How would a reduction in wild horse numbers impact riparian habitats?
- Would Wilderness be affected?
- How would fisheries habitat be affected?
- Would recreationists be affected?
- What would be the effect to the vegetation community in the gather area?

A Notice of Proposed Action (NOPA) was sent to the Wilderness Interested Publics mailing list when BLM sent the preliminary EA for this wild horse gather plan out for review on April 16, 2012.

# Chapter 2. Modified Proposed Action and Alternatives

This section of the EA describes the Modified Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Since the release of the preliminary EA, range and drought conditions have reached a point that an emergency gather needs to be considered. As such, the Proposed Action was modified to include an initial gather to commence in early June and this initial start date would apply to Alternatives B and C, as the initial gather date was a component of the Actions Common to Alternatives A-C (see Section 2.1.1), which now has an optional component of delaying the gather until at least July 1. The Proposed Action was also modified to remove the gelding component due to the recent decision in the Pancake litigation. Alternatives analyzed in detail include the following:

**Modified Alternative A.** Modified Proposed Action – Emergency Gather, Phased-in Gathers, and Population Growth Control using fertility control treatments (PZP-22 or most current formulations), and sex ratio adjustments. Option 1 would be to delay gather.

**Modified Alternative B.** Emergency Gather and Selective Removal of Excess Animals to Low Range AML and Sixty Percent Male Sex Ratio. Option 1 would be to delay gather.

**Modified Alternative C.**Emergency Gather and Remove Excess Animals to Low Range AML without Fertility Control or Sex Ratio Adjustment. Option 1 would be to delay gather.

**Alternative D.** No Action Alternative.

The Modified Proposed Action and Modified Action Alternatives B and C were developed to achieve the established AML so as to ensure a thriving natural ecological balance, remove excess wild horses from the range, prevent further deterioration to the range, and ensure the long-term health of wild horses within the HMA. Based on the escalating conditions that have led to an emergency situation, the emergency gather component of gathering in June was added to each alternative, with an option under each alternative to delay gather until at least July 1. Fertility control treatments and adjustments to the sex ratios when releasing non-excess animals would slow population growth and increase the time period before another gather is required. The No Action Alternative would not achieve the identified Purpose and Need; however, it is analyzed in this EA to provide a basis for comparison with the other modified action alternatives, and to assess the effects of not conducting a gather at this time.

# 2.1. Description of the Proposed Action:

# 2.1.1. Modified Actions Common to Alternatives A-C

- Helicopter gathers are not generally conducted before July 1 unless necessary due to emergency conditions. Since the preliminary EA was released to the public for review and comment, conditions within the gather area have continued to decline at a faster rate than originally anticipated. Due to escalating conditions of drought and lack of forage, particularly in the southern portion of the gather area, resulting in continuing declining wild horse health, an emergency gather, occurring prior to July 1, 2012, would be necessary. Although the southern portion of the gather area is considered to be a critical focus area, the entire gather area would be included in the emergency gather efforts, due to migration of wild horses from one area to another, in order to minimize stress to the wild horses from multiple helicopter gather attempts. In addition, an earlier gather would aid in the prevention of rapidly declining conditions in the remaining gather area resulting from over-utilization by wild horses.

Removals during an emergency gather would be monitored to ensure a minimum of 130 adult wild horses remain on the range. The projected population of wild horses remaining on the range would be approximately 235 adult wild horses and 65 foals.

- A sufficient number of wild horses would be gathered primarily from heavily concentrated areas within the gather area to reduce resource impacts in the most impacted areas.
- All wild horses residing in areas adjacent to the HMA (outside established boundaries) would be gathered and removed during each phase of the gather.
- The primary gather technique would be the helicopter-drive trapping method. The use of roping from horseback could also be used when necessary. Contractor would be required to conduct all helicopter operations in a safe manner and in compliance with FAA regulations (FAR) 91.119 (14 CFR § 91.119) and BLM IM No. 2010-164.
- Multiple gather sites (trap sites) of .5 acres or less would be used to gather wild horses both from within and outside the HMA. The BLM would make every effort to place gather sites in previously disturbed areas and in areas that have had an inventory for cultural resources with negative results. If a new site would need to be used, a cultural inventory would be completed prior to using the new gather site. If cultural resources were to be encountered, the location would not be utilized unless the trap or holding site configuration could be repositioned to avoid impacts to cultural resources. No trap or holding sites would be set up near greater sage-grouse leks, known populations of sensitive species, or in riparian areas, around springs, cultural resource sites, or within congressionally designated Wildernes. The BLM would make every effort to place gather sites outside of areas known to contain noxious or non-native species. All gather and handling activities (including trap site selections) would be conducted in accordance with Standard Operating Procedures (SOPs) in Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers*.
- If gather efficiencies utilizing helicopter drive-trapping do not achieve the desired goals of the alternative selected, or if a helicopter gather cannot be scheduled, water/bait trapping may be utilized during the time period analyzed in this EA to remove sufficient numbers of wild horses to achieve the management targets, to relieve resource concerns, and/or concentrated groups of wild horses both inside and adjacent to the gather area. Any water/bait trapping activities would be scheduled during time periods that would be most effective to gather sufficient numbers of animals to achieve management targets. Existing watering sites would be preferred. In rare instances troughs may be used, which would be subject to the Standards and Guidelines for Nevada's Sierra Front-Great Basin Area (eg installation of bird ladders). Locations of water/bait trap sites are subject to the same criteria discussed above for gather (trap) sites.
- Gathered wild horses would 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.
- Public observation of the gather activities on public lands would be allowed, but would be subject to observation protocols intended to minimize potential for harm to members of the public, to government and contractor staff, and to the wild horses being gathered, and would be consistent with BLM IM No. 2010-164 and in compliance with Jackson Mountains Wild Horse Observation Protocol found in Appendix B, *Jackson Mountains Wild Horse Observation Protocol*. Public observation sites would be established in locations that reduce

safety risks to the public (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered wild horses), to the wild horses (e.g., by ensuring observers would not be in the line of vision of wild horses being moved to the gather site), and to contractors and BLM employees who must remain focused on the gather operations and the health and well-being of the wild horses.

- The Jackson Mountains Wild Horse Gather Observation Protocol found in Appendix B, *Jackson Mountains Wild Horse Observation Protocol* provides the public with the opportunity to safely observe the gather operations. Every attempt would be made to identify one or more observation sites at the gather location that offer good viewing opportunities, although there may be circumstances (flat terrain, limited vegetative cover, private lands, etc.) that require viewing locations to be at greater distances from the gather site due to public visitor access or to ensure safe gather operations.

- The Ruby Pipeline Project is a forty-two inch buried natural gas transmission pipeline licensed by the Federal Energy Regulatory Commission that crosses the northern end of the gather area, generally running east to west. Although the Ruby Pipeline Project has been completed and no work is planned, there may be the need to conduct maintenance on the pipeline during the term of this EA. In the event that there is open trench associated with the Ruby Pipeline Project (repairs or maintenance), there would be no herding of wild horses during gather operations within 1 mile of open trench.

- Gather activities would be scheduled to avoid high visitor use periods whenever possible in accordance with WHB-5 BR/HR/NCA RMP (refer to Section 2.3, "Conformance".

- No motorized vehicles (other than helicopters) would be used in Wilderness in association with gather operations unless such use is consistent with the minimum requirements for management of Wilderness and is pre-approved by the authorized officer in accordance with WHB-6 BR/HR/NCA RMP (refer to Section 2.3, "Conformance").

- Herd health and characteristics data would be collected as part of continued monitoring of the wild horse herds. Other data, including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded for all gathered wild horses.

- Hair samples would be collected during the proposed gather and sent to Dr. E. Gus Cothran at Texas A&M University for genetics analysis to determine current genetic health of the population. Following analysis of samples collected in 2012, if necessary, the Winnemucca District would work with Dr. Gus Cothran's recommendations to develop plans to maintain and further improve genetic health.

- A BLM contract veterinarian, Animal and Plant Health Inspection Service (APHIS) veterinarian, or other licensed veterinarian would be on site during the gather to examine animals and make recommendations to BLM for care and treatment of wild horses, and to ensure humane treatment. BLM staff would also be present on the gather at all times to observe animal condition and ensure humane treatment. Additionally, animals transported to BLM holding facilities are inspected by facility staff and on-site contract veterinarians to observe health and ensure the animals are being cared for humanely.

- Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Conditions

requiring humane euthanasia occur infrequently and are described in more detail in Section 3.3.9, "Wild Horses". Current policy reference: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html.

- Current water resources concerns that are being monitored would continue to be monitored until the gather to address any potential concerns before and after the proposed gather operation.
- Noxious weed monitoring at trap sites and temporary holding facilities would be conducted in the spring and summer of 2013 by BLM. Treatment would be provided, if necessary, following guidance from the Noxious Weed Control EA# NV-020-02-19, Decision August 27, 2002. In order to minimize noxious weed spread, on-road use would be promoted and off-road travel would be limited.
- Monitoring of forage condition and utilization, water availability, aerial population inventories and animal health would continue.
- A comprehensive post-gather aerial population survey would occur within 12 months following completion of the gather operations.

## 2.1.2. Modified Action Common to Alternatives A — C Option 1

Under this option the initial gather would be delayed until July 1. The BLM would continue to haul water to the Trail Springs location. Additional locations would likely need to be augmented with water supplies due to reduced spring flows and natural water sources throughout the gather area before July 1. Because the need and locations for additional water sources is unknown at this time, any additional watering locations would undergo a separate NEPA analysis.

## 2.1.3. Alternative A. Modified Proposed Action – Phased-in Gather and Population Growth Control Alternative.

The initial Proposed Action released to the public in the preliminary EA was to conduct an initial gather in the summer of 2012. The action also contained a gelding component. Due to escalating conditions leading to an emergency situation since the release of the preliminary EA, the Proposed Action has been modified to conduct an emergency gather in early June, with an option to delay the initial gather to the original start date. The proposed action was also modified by removing the gelding component.

After the initial gather, whether in June or on or after July 1, the Modified Proposed Action (Alternative A) would implement a long term management strategy designed to address large scale wild horse gathers while still achieving BLM's management goals of attaining AML, reducing population growth rates, and obtaining a thriving natural ecological balance on the range as identified within the WFRHBA and the Director's Strategy.

Under the Modified Proposed Action, the BLM would gather and remove approximately 75% of the existing wild horses (approximately 630 excess animals) in the initial 2012 gather. Since the first phase of the Modified Proposed Action would only allow for the removal of approximately 630 excess wild horses and would not achieve the desired low AML, two to three follow-up gathers over a period of ten years is proposed. After the first gather, the target removal number would be adjusted accordingly utilizing data from population inventories for the HMA. The

principal management goal for the HMA would be to retain a breeding population of 130 wild horses (low AML) and implement population suppression techniques. The subsequent follow-up phases of the gather activities would be conducted during the period of November through February, which is identified as the period of maximum effectiveness of fertility control application, and in a manner consistent with those described under the original, non-emergency, Proposed Actions Common to Alternatives A — C.

By completing the gather in the proposed fashion, the BLM would be able to decrease the population and with each successive gather treat an increased number of mares with fertility control (PZP-22 or most current formulation). It is unlikely that the initial gather in 2012 would facilitate a high enough gather efficiency to achieve the lower limit of the AML range and allow for any type of fertility control treatment or sex ratio adjustment. Application of population control measures would be applied to wild horses during subsequent gathers over the ten year period. To help reduce population growth rates, selected stallions would be released to adjust the sex ratio of the population to a 60% male sex ratio to help reduce the number of breeding mares in the population. All mares released back to the HMA would be treated with fertility control (PZP-22 or most current formulation). The combination of these actions should lower the population growth rate within the HMA. The procedures to be followed for application of PZP-22 or most current formulation are detailed in Appendix C, *Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments*.

All wild horses identified to remain in the HMA population would be selected to maintain a diverse age structure, herd characteristics, and body type (conformation).

Population inventories and routine resource/habitat monitoring would be completed between gather cycles to document current population levels, growth rates, and areas of continued resource concern (wild horse concentrations, riparian impacts, over-utilization, etc.) prior to any follow-up gather. Funding limitations and competing priorities may require delaying the follow-up gathers and population control components of the Modified Proposed Action.

## 2.1.4. Modified Alternative B. Selective Removal of Excess Animals to Low Range AML and Sixty Percent Male Sex Ratio.

Under the Modified Alternative B, the initial gather would be an emergency gather in early June, with an option to delay gathering until the originally proposed start date. BLM would gather and remove approximately 800 excess wild horses (approximately 86% of projected population) within the proposed gather area to return the population levels to the lower limit of the AML range. Under this alternative, the BLM would also attempt to gather a sufficient number of wild horses in addition to the excess wild horses to be removed, to allow adjusting the sex ratio of animals on the range following the gather to favor males (60% stallions). The sex ratio of potential released animals would be dependent on the sex ratio of gathered wild horses. Approximately 65% or more of all released wild horses would likely be stallions to achieve a 60% male sex ratio on the range (including animals not gathered).

Due to the mountainous terrain and vegetative cover, gather efficiency may be less than optimal. Population gather projections show that greater than 86% gather efficiency is necessary to achieve the management goals for this alternative. If gather efficiency is less than 86%, an insufficient number of wild horses would be gathered to allow for adjusting the sex ratio, or to achieve the low AML. If gather efficiencies do not allow for the attainment of the management goals at the initial

gather, this alternative would include returning to the HMA in 2014 or 2015 to gather a sufficient number of wild horses to achieve the low range of AML as well as to allow the BLM to implement the population control component of the alternative. Any follow-up gather activities during the subsequent phase for this alternative would be conducted in a manner consistent with those described under the original, non-emergency, Proposed Actions Common to Alternatives A — C.

Population inventories and routine resource/habitat monitoring would be completed between gather cycles to document current population levels, growth rates, and areas of continued resource concern (wild horse concentrations, riparian impacts, over-utilization, etc.) prior to any follow-up gather. Funding limitations and competing priorities might also require delaying the follow-up gather and sex ratio adjustment component of the alternative for at least two to three fiscal years. All wild horses identified to remain in the HMA population would be selected to maintain a diverse age structure, herd characteristics, and body type (conformation).

### 2.1.5. Modified Alternative C. Remove Excess Animals to Low Range AML without Fertility Control or Sex Ratio Adjustment

Alternative C would be similar to Alternative B. However, once a sufficient number of excess wild horses to achieve low AML (approximately 800 wild horses) are gathered and removed, the gather would conclude. No wild horses would be released to adjust sex ratios to slow the rate of wild horse population growth. If projected numbers of wild horses are not gathered at the initial gather, the BLM proposes to return to the area after two years from this gather to remove the remaining excess wild horses. Subsequent phase for this alternative would be conducted in a manner consistent with those described under the original, non-emergency, Proposed Actions Common to Alternatives A — C.

### 2.1.6. Alternative D. No Action Alternative

Under the No Action Alternative, a gather to remove excess wild horses would not occur in 2012. There would be no active management to control the size or growth of the wild horse population or to bring the wild horse population to AML at this time. The current wild horse population would continue to increase at a rate of 20-27% (historic data) per year and continue to impact the natural resources on the Public lands. Within two years, the wild horse population would exceed 1,500 head (approximately 6 times the high AML). Wild horses residing outside the HMAs would remain in areas not designated for management of wild horses and their numbers would continue to increase and impact those areas.

## 2.2. Alternatives Considered but not Analyzed in Detail

## Use of Bait and/or Water Trapping

An alternative considered but eliminated from detailed analysis was use of bait and/or water trapping as the primary or sole gathering method. The use of bait and water trapping, though effective in specific areas and circumstances, would not be timely, cost-effective or practical as the primary gather method for this HMA. However, water or bait trapping may be used as a supplementary approach to achieve the desired goals of Alternatives A-C if gather efficiencies are too low using a helicopter or a helicopter gather cannot be scheduled. This alternative was

dismissed from detailed study as a primary or sole gather method for the following reasons: (1) the project area is too large to effectively use this gather method as the primary or sole method; (2) road access for vehicles to potential trapping locations necessary to get equipment in/out as well as safely transport gathered wild horses is limited, particularly in the wilderness; (3) wild horses in the Jackson Mountains HMA are extremely sensitive to human presence and associated objects and/or materials and may be very difficult to water trap effectively; and (4) the presence of scattered water sources on both private and public lands inside and outside the HMAs would make it almost impossible to restrict wild horse access to the extent necessary to effectively gather and remove all of the excess animals through only bait and/or water trapping to achieve management goals.

## Field Darting PZP Treatment

BLM would administer PZP in the one year liquid dose inoculations by field darting the mares. This method is currently approved for use and is being utilized by BLM in other HMAs. This alternative was dismissed from detailed study for the following reasons: (1) the size of the area is too large to use this method; (2) the number and phenotypic characteristics of horses (130-217 wild horses) in the HMA makes it unrealistic to be able to clearly identify all mares targeted for treatment; (3) the area is too remote and access too limited (wilderness designation and limited roads) to implement this method successfully either by foot or vehicle ; and (4) limited ability to approach the target wild horses. The logistics of implementing this method in tandem with bait and/or water trapping is also impractical for the reasons listed above.

## Gathering the HMAs to High AML

Gathering wild horses to achieve a post-gather population size at the upper level of the AML would result in AML being exceeded with the next foaling season (spring 2013). This would be problematic for several reasons.

The upper levels of the AMLs established for the HMA represent the maximum population for which a thriving natural ecological balance can be maintained. The lower level represents the number of animals that should remain in the HMA following a wild horse gather in order to allow for a periodic gather cycle of approximately every 4 years and to prevent the population from exceeding the established AML between gathers. The need to gather below the upper range of AML has been recognized by the IBLA, which has held that AML means, “that ‘optimum’ number of wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range” (109 IBLA 119 API 1989). “Proper range management dictates removal of horses before the herd size causes damage to the range land. Thus, the optimum number of horses is somewhere below the number that would cause resource damage” (118 IBLA 75).

Additionally, gathering to the upper range of AMLs would result in the need to follow up with another gather within one year, and could result in over utilization of vegetation resources, damage to the rangeland, and increased stress to wild horses. For these reasons, this alternative did not receive further consideration in this document.

## Control of Wild Horse Numbers by Natural Means

This alternative would use natural means, such as natural predation and weather, to control the wild horse population. This alternative was eliminated from further consideration because

it would be contrary to the WFRHBA which requires the BLM to protect the range from deterioration associated with an overpopulation of wild horses. It would also be inconsistent with the July 2004 Record of Decision (ROD) for the Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area Associated Wilderness and Other Contiguous Lands Resource Management Plan (BR/HR/NCA RMP) which directs the Winnemucca District of the BLM to conduct gathers as necessary to achieve and maintain AMLs. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. Wild horse populations in the Jackson Mountains HMA are not substantially regulated by predators, as evidenced by the 20-27% annual increase in the wild horse populations within these HMAs. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95% and are not a self-regulating species. This alternative would result in a steady increase in the wild horse populations which would continue to exceed the carrying capacity of the range and would cause increasing damage to the rangelands until severe range degradation or natural conditions that occur periodically-- such as blizzards or extreme drought-- cause a catastrophic mortality of wild horses in the HMA.

## Raising the Appropriate Management Levels for Wild Horses

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

This alternative would also be inconsistent with the July 2004 ROD for the BR/HR/NCA RMP which directs the Winnemucca District to retain AMLs within the Jackson HMA and to manage wild horses consistent with plan objectives. The BR/HR/NCA RMP also contains the objective "To manage sustainable populations of wild horses in nine Herd Management Areas (HMAs) and wild burros in two HMAs consistent with the intent of the NCA Act within established AMLs to maintain a thriving ecological balance among wild horse and burro populations, wildlife, livestock, vegetation resources, and other values and uses." (BR/HR/NCA RMP Objective 2.2.10)

## Remove or Reduce Livestock within the HMA

This alternative would involve no removal of wild horses and instead address the excess wild horse numbers through the removal or reduction of livestock within the HMA. This alternative was not brought forward for analysis because it would be inconsistent with the current land use plans and FMUDs and with multiple use management. This gather document and subsequent Decision Record is not the appropriate mechanism for adjusting the authorized livestock use within the allotments associated with this HMA.

The proposal to reduce livestock would not meet the purpose and need for action identified in Section 1.4, "Purpose and Need for Action:""*to remove excess wild horses from within and outside the HMA, to manage wild horses at the established AML ranges for the HMA, to reduce the wild horse population growth rate in order to prevent undue or unnecessary degradation of the public lands by protecting rangeland resource from deterioration associated with excess population of wild horses within and outside the HMA boundaries, and to restore a thriving natural ecological balance and multiple use relationship on the public lands…The need for the Modified Proposed Action is based on BLM's obligations established by the provisions of Section*

*1333(a) of the Wild Free-Roaming Horses and Burros Act of 1971 which mandates management of wild horses in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands."*

The total authorized livestock AUMs with the upper range of AML in AUMs and the total wild horse population in AUMs for 2012 can be found in Table 3.7, "Livestock and Wild Horses Comparison in AUM Consumption within Jackson Mountains HMA".

This alternative would also be inconsistent with the WFRHBA, which directs the Secretary to immediately remove excess wild horses. Livestock grazing can only be reduced or eliminated if BLM follows regulations at 43 CFR § 4100 and must be consistent with multiple use allocations set forth in the land-use plan. Such changes to livestock grazing cannot be made through a wild horse gather decision, and are only possible if BLM first revises the land-use plans to allocate livestock forage to wild horses and to eliminate or reduce livestock grazing.

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

While the BLM is authorized to remove livestock from HMAs "*if necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury*" (43 CFR § 4710.5), this authority is usually applied in cases of emergency and not for general management of wild horses since it cannot be applied in a manner that would be consistent with the existing land-use plans.

Escalating conditions and rapid decline of wild horse health, particularly in the southwestern portion of the gather area, has prompted the consideration of an emergency removal. The BLM, Winnemucca District has been discussing these conditions with permittees in the area and livestock utilization has been reduced; therefore, action to remove livestock from the HMAs is not warranted.

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

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

An alternative to gather a significant portion of the existing population (95%) and implement fertility control treatments only regardless of currently accepted formulation used, without removal of excess wild horses was modeled using a three- year gather/treatment interval over a 20 year period. Based on this modeling, this alternative would not result in attainment of the AML range for the HMA and the wild horse population would continue to have an average population

growth rate of 0.9% to 7.1%, adding to the current wild horse overpopulation, albeit at a slower rate of growth. Over the next 21 years, on average 8,344 wild horses would need to be gathered[1] of those 3,610 wild horses[2] would have been treated, and the resulting population would be 1,428 which is still 1,082 wild horses over (and more than 5 times) high AML. This alternative would not bring the wild horse population to AML and would allow the wild horse population to continue to grow even further in excess of AML and resource concerns would escalate. Implementation of this alternative would result in increased gather and fertility control costs without achieving a thriving natural ecological balance and resource management objectives. This alternative would not meet the purpose and need and therefore was eliminated from further consideration.

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

An alternative whereby BLM would make on-the-ground and individualized excess wild horse determinations prior to removal of horses from the HMA was recommended during the public review process conducted during the development of multiple NEPA documents pertaining to gathering of wild horses across the country. Under the view set forth by some commenters during public commenting for horse gathers nationwide, a tiered or phased removal of wild horses from the range is mandated by the WFRHBA. Specifically, this alternative would involve a tiered gather approach, whereby BLM would first identify and remove old, sick or lame animals in order to euthanize those animals on the range prior to gather. Second, BLM would identify and remove horses for which adoption demand exists, e.g., younger horses or horses with unusual and interesting markings. Under the WFRHBA(1333(b)(2)(iv)(C)), BLM would then destroy any additional excess horses for which adoption demand does not exist in the most humane and cost effective manner possible, although euthanasia has been limited by Congressional appropriations.

This proposed alternative could be viable in situations where the project area is contained, the area is readily accessible and wild horses are clearly visible, and where the number of horses to be removed is so small that a targeted approach to removal can be implemented. Under the conditions present within the gather area of the Modified Proposed Action, however, this proposed alternative is impractical, if not impossible, as well as less humane for a variety of reasons. First, BLM does euthanize old, sick or lame animals on the range when such animals have been identified. This occurs on an on-going basis and is not limited to wild horse gathers. During a gather, if old, sick or lame animals are found and it is clear that an animal's condition requires the animal to be put down, that animal is separated from the rest of the group that is being herded so that it can be euthanized on the range. However, horses that meet the criteria for humane destruction because they are old, sick or lame usually cannot be identified as such until they have been gathered and examined up close, e.g., so as to determine whether the horses have lost all their teeth or are club footed. Old, sick and lame horses meeting the criteria for humane euthanasia are also only a small fraction of the total number of horses to be gathered, comprising on average about 0.5% of gathered horses. Thus, in a gather of over 1,000 horses, potentially about five of the gathered horses might meet the criteria for humane destruction over an area of over three quarters of a million acres. Due to the size of the gather area, access limitations associated with topographic and terrain features and the challenges of approaching

[1]Each time a wild horse is gathered is counted, even though the same horse may be gathered multiple times during the 21 year period.
[2]Each time a wild horse is treated with PZP-22 is counted, even though the same horse may be treated multiple times over the 21 year period.

horses close enough to make an individualized determination of whether a horse is old, sick or lame, it would be virtually impossible to conduct a phased culling of such horses on the range without actually gathering and examining the horses.

Similarly, rounding up and removing wild horses for which an adoption demand exists, before gathering any other excess wild horses, would be both impractical and much more disruptive and traumatic for the animals. Recent gathers have had success in adopting out approximately 30% of excess wild horses removed from the range on an annual basis. The size of the gather area, terrain challenges, difficulties of approaching the horses close enough to determine age and whether they have characteristics (such as color or markings) that make them more adoptable, the impracticalities inherent in attempting to separate the small number of adoptable horses from the rest of the herd, and the impacts to the horses from the closer contact necessary, makes such phased removal a much less desirable method for gathering excess wild horses. This approach would create a significantly higher level of disruption for the horses on the range and would also make it much more difficult to gather the remaining excess wild horses. Furthermore, if BLM plans to apply any population controls to gathered horses prior to release, it would be necessary to gather more than just the excess horses to be removed, making this type of phased approach completely unnecessary and counter-productive.

Making a determination of excess as to a specific horse under this alternative, and then successfully gathering that individual horse would be impractical to implement (if not impossible) due to the size of the gather area, terrain challenges and difficulties approaching the wild horses close enough to make an individualized determination. This tiered approach would also be extremely disruptive to the wild horses due to repeated culling and gather activities over a short period of time. Gathering excess wild horses under this alternative would greatly increase the potential stress placed on the animals due to repeated attempts to capture specific animals and not others in the band. This in turn would increase the potential for injury, separation of mare/foal pairs, and possible mortality. This alternative would be impractical to implement (if not impossible), would be cost-prohibitive, and would be unlikely to result in the successful removal of excess horses or application of population controls to released horses. This approach would also be less humane and more disruptive and traumatic for the horses. This alternative was therefore eliminated from any further consideration.

## Use of alternative capture techniques instead of helicopter capture of excess wild horses

An alternative using capture methods other than helicopters to gather excess wild horses has been suggested through the public review process conducted during the development of multiple NEPA documents pertaining to gathering of wild horses across the country. As no specific alternative methods were suggested, the BLM identified chemical immobilization, net gunning, and wrangler/horseback drive trapping as potential methods for gathering horses. Net gunning techniques normally used to capture big game animals also rely on helicopters. Chemical immobilization is a very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement either of these methods and it would be impractical to use given the size of the project area, access limitations, and difficulties in approachability of the horses.

Use of wrangler on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale. However, given the number of excess wild horses to be removed, the large

geographic size of the HMA, access limitations, and difficulties in approaching the horses this technique would be ineffective and impractical. Horseback drive-trapping is also very labor intensive and can be very dangerous to the domestic horses and the wranglers used to herd the wild horses. Domestic horses can easily be injured while covering rough terrain and the wrangler could be injured if he/she falls off. For these reasons, this alternative was eliminated from further consideration.

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

Designate the Jackson Mountains HMA as "Wild Horse and Burro Range" was proposed by public comments conducted during the development of multiple NEPA documents pertaining to gathering of wild horses across the country. This action under 43 CFR 4710.3-2 would require amendment of the PD MFP and BR/HR/NCA RMP which would be outside the scope of this EA. Only the BLM Director or Assistant Director (as per BLM Manual 1203: Delegation of Authority), may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process. Wild Horse and Burro Range is not an "exclusive" designation. Designation would not necessarily exclude livestock use; therefore, levels of livestock grazing permitted could remain the same.

# 2.3. Conformance

The Modified Proposed Action and Modified Action Alternatives are in conformance with the Paradise-Denio Environmental Impact Statement and the associated ROD for the PD MFP (July 9, 1982).

The wild horse and burro section of the PD MFP ROD states:

> 4. Wild horse and burro herds will be maintained in the areas described in the Livestock Reduction/Maximizing Wild Horse and Burro Alternative. However, numbers will be determined by the following criteria: Existing/current WH&B numbers (as of July 1, 1982) will be used as a starting point for monitoring purposes except where one of the following exists:
>
> a. Numbers are established by adequate and supportable resource data.
>
> b. Numbers are established through the CRMP process as documented in CRMP recommendations and agreed to by the District Manager.
>
> c. Numbers are established by formal signed agreement between affected interests.
>
> d. Numbers are established through previously developed interim capture/management plans. Plans are still supportable by parties consulted in the original plan. EA's (EAR's) were prepared and are still valid.
>
> e. Numbers are established by court order.

The following is Wild Horse and Burro Objective 1 from the PD MFP:

- **WHB-1:** Maintain wild horses and burros on public lands, where there was wild horse or burro use as of December 15, 1971, and maintain a natural ecological balance on the public lands.

The Modified Proposed Action is also in conformance with the July 2004 ROD for the BR/HR/NCA RMP.

**Objectives**:

- To manage sustainable populations of wild horses in nine HMAs and wild burros in two HMAs consistent with the intent of the NCA Act within established AMLs to maintain a thriving ecological balance among wild horse and burro populations, wildlife, livestock, vegetation resources, and other values and uses.
- To maintain free roaming behavior of wild horses.

Applicable Decisions are:

- **WHB-1:** Retain referenced HMA (Jackson Mountains) and manage wild horse populations consistent with plan objectives.
- **WHB-5:** Horses will be gathered from the HMA to maintain horses within the AML as funding permits. Aircraft will continue to be used for the management and, when necessary, removal of wild horses. Gather activities will be scheduled to avoid high visitor use periods whenever possible.
- **WHB-6:** Gathers in Wilderness will continue to be conducted by herding the animals by helicopter or on horseback to temporary corrals, generally located outside of Wilderness. No landing of aircraft will occur in Wilderness Areas except for emergency purposes, and no motorized vehicles will be used in Wilderness in association with the gather operations unless such use was consistent with the minimum tool requirement for management of Wilderness.

## 2.4. Relationship to Laws, Regulations and other Plans:

## Statutes and Regulations

The Modified Proposed Action and Modified Action Alternatives are in conformance with the WFRHBA, applicable regulations at 43 CFR § 4700, and BLM policies, including the BLM Director Salazar's Caring for America's Wild Horses and Burros Fundamental Reforms – An Overview, February 2011 (Director's Strategy). Included are:

- **43 CFR § 4710.4** Constraints on Management

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

- **43 CFR § 4720.1** Removal of excess animals from public lands

  > Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.

- **43 CFR § 4740.1** Use of motor vehicles or aircraft

  (a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner.

  (b) Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

## 2.5. Conformance with Rangeland Health Standards and Guidelines:

The Sierra Front-Northwestern Great Basin Area Standards and Guidelines for Rangeland Health were approved by the Secretary of the Interior in 1997. RAC Standards and Guidelines for the Management of Wild Horses and Burros were later approved by the BLM's Nevada State Director in 2007. Modified Action Alternatives A (Modified Proposed Action), B, and C are in conformance with the Standards and Guidelines for Rangeland Health and for Management of Wild Horses and Burros.

# Chapter 3. Affected Environment:

This section of the EA briefly discusses the relevant components of the human environment which would be either affected or potentially affected by the Modified Action Alternatives or No Action Alternative (refer to Table 3.1, "Supplemental Authorities (Critical Elements of the Human Environment)"below). Direct impacts are those that result from the management actions while indirect impacts are those that exist once the management action has occurred.

# 3.1. General Description of the Affected Environment

The Jackson Mountains HMA is located approximately 60 miles west northwest of Winnemucca, Nevada. The Jackson Mountains HMA is approximately 283,000 acres in size, with 274,510 acres of public lands and 8,490 acres of private land. This is considered the primary gather area, although the total gather area is approximately 775,000 acres to encompass horses residing in non-HMA areas in their search for water, forage and space (see Map 1). The area is bordered on the west by the Black Rock Desert, on the east by Desert Valley, on the north by State Highway 140 and the Quinn River, and on the south by the Union Pacific Railroad.

Terrain varies from level valleys to steep, rugged mountains, with elevations ranging from 4,000 feet at the valley floor to 8,923 feet at King Lear Peak. Climate within the HMA is characterized by warm dry days, cool nights and low yearly precipitation that range from 4 inches at lower elevations to approximately 16 inches at higher elevations. Most precipitation occurs as winter snow.

In the Great Basin high desert of Nevada the average annual precipitation is often less than 11 inches (which defines the term desert). Drought conditions occur as frequently as 6 out of every 10 years. Drought is defined by the Society for Range Management as "…prolonged dry weather when precipitation is less than 75% of the average amount" (SRM 1989).

To date, in 2012, snow pack levels are 13% of average and the region has received only 74% of average water. This has led to a shorter period of snowmelt-fed spring flows in streams and at shallow source springs, lack of spring vegetation growth and minimal residual vegetation from previous year's forage crop.

# 3.2. Supplemental Authorities (Formerly referred to as Critical Environmental Elements of the Human Environment)

To comply with the NEPA, the following elements of the human environment are subject to requirements specified in statute, regulation, or executive order and must be considered.

**Table 3.1. Supplemental Authorities (Critical Elements of the Human Environment)**

| Supplemental Authorities | Present | Affected | Rationale |
|---|---|---|---|
| **Air Quality** | YES | NO | The proposed gather area would not be within an area of non-attainment or areas where total suspended particulates exceed Nevada air quality standards. Areas of disturbance would be small and temporary. |
| Areas of Critical Environmental Concern (ACECs) | NO | NO | Not present. |
| Cultural Resources | YES | YES | Discussed below. |
| Environmental Justice | NO | NO | Not present. |

| | | | |
|---|---|---|---|
| Floodplains | NO | NO | Not present. |
| Invasive, Nonnative Species | YES | YES | Discussed below. |
| Migratory Birds | YES | YES | Discussed below. |
| Native American Religious Concerns | YES | YES | Discussed below. |
| Prime or Unique Farmlands | NO | NO | Not present. |
| Threatened & Endangered Species | YES | YES | Discussed below. |
| Wastes, Hazardous or Solid | NO | NO | Not present. |
| Water Quality (Surface/Ground) | YES | YES | Surface water would be affected and is discussed below. Ground water would not be affected. |
| Wetlands and Riparian Zones | YES | YES | Discussed below. |
| Wild and Scenic Rivers | NO | NO | Not present. |
| Wilderness | YES | YES | Discussed below. |

Critical elements identified as present and potentially affected by the Modified Action Alternatives (Alternatives A-C) and/or the No Action Alternative include: Cultural Resources, Invasive, Nonnative Species, Migratory Birds, Native American Religious Concerns, Threatened & Endangered Species, Water Quality (surface), Wetlands and Riparian Zones, and Wilderness. Additional discussion is included in the following sections. Data derived since the release of the preliminary EA has led to additional descriptions of the affected environment in the Water Quality section.

## 3.2.1. Cultural Resources

A range of prehistoric and historic sites are located within the Jackson Mountains HMA and adjoining territory. Prehistoric sites are represented by a number of small light density to extensive high density lithic scatter sites at lower elevations. Rock shelters are also known in the Jackson Mountains HMA. While several of the lithic scatter sites were most likely seasonal camps located near water sources such as springs and hot springs, others appear to be single-event lithic reduction stations. Several sites are associated with ground stone artifacts and one has points ranging from the Paleo-Indian through to the Early and Middle Archaic Periods (approximately 10,000-1,500 B.P.). Historic sites are also common in the HMA and mostly consist of mining camps, prospects, trash scatters and historic roads largely considered non-eligible to the National Register of Historic Places. The ghost town of Red Butte, occupied between 1908-1920, still has some standing structures. It was founded to exploit local gold and copper ore.

Many of the cultural sites in the gather area were initially recorded decades ago and still others have never been formally recorded.

## 3.2.2. Invasive, Nonnative Species

Several federal laws, regulations, and policies guide BLM management activities to control noxious weeds and invasive non-native species on public lands. Laws applicable to control invasive vegetation include: the Federal Land Policy and Management Act (FLPMA) 1976; Carlson-Foley Act of 1968; Plant Protection Act of 2000; Federal Noxious Weed Act of 1974;

The Federal Insecticide, Fungicide and Rodenticide Act of 1972; and the Noxious Weed Control Act of 2004. To comply with these Laws, BLM policy directs the agency to inventory and control invasive vegetation utilizing integrated weed control management techniques.

Nevada Revised Statutes, Chapter 555.05 defines "noxious weeds" and mandates land owners and land management agencies to include control of noxious weeds on lands under their jurisdiction.

Nevada has listed 47 non-native invasive plant species that require control. Of these 47 species, 14 species have been identified in the Winnemucca District, see Appendix E, *Noxious Weed List*.

Noxious weed infestations including: Scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*), Russian knapweed (*Acroptilon repens*) and perennial pepperweed (*Lepidium latifolium)* have been observed within the Jackson Mountains HMA gather area. Saltcedar (*Tamarix spp.*) has also been observed throughout the gather area; infestations are mainly focused in and along riparian areas and have been documented around both Bull Creek and Jackson Creek.

Infestations of exotic annual forbs and grasses are present primarily in areas that have been previously overgrazed or have burned from wildfire. Forb species include clasping pepperweed (*Lepidium perfoliatum*), tumble mustard (*Sisymbrium altissimum*), halogeton (*Halogeton glomerata*) and Russian thistle (*Salsola tragus*). Cheatgrass (*Bromus tectorum*) is the dominant annual grass in the gather area; approximately eighty-five percent of the area of concern has less than twenty percent cheatgrass coverage. (Peterson 2006). However, the entire project area has not been inventoried for the presence of invasive non-native species.

## 3.2.3. Migratory Birds

Neo-tropical migrant bird species are those species that breed in the temperate portions of North America and winter in the tropics in either North or South America. They are protected by international treaty and additional emphasis on maintaining or improving their habitats is provided by Executive Order #13186. Within the Great Basin and the project area, quality riparian habitats and healthy sagebrush communities with inclusions of trees and shrubs are required for healthy neo-tropical migrants' populations. A migratory bird inventory has not been completed for the entire gather area. Several vegetative community types are within the proposed project area.

Montane riparian areas may include the following migratory bird species: MacGillivray's warbler (*Oporornis tolmiei*) , Wilson's warbler (*Wilsonia pusilla*), warbling vireo (*Vireo gilvus*), Lewis' woodpecker (*Melanerpes lewis*), red-naped sapsucker (*Sphyrapicus nuchalis*), Virginia's warbler (*Vermivora virginiae*), calliope hummingbird (*Stellula calliope*), broad-tailed hummingbird (*Selasphorus platycercus*), orange-crowned warbler (*Vermivora celata*), fox sparrow (*Passerella iliaca*), song sparrow (*Melospiza melodia*), dark-eyed junco (*Junco hyemalis*), Lincoln's sparrow (*Melospiza lincolnii*), willow flycatcher (*Empidonax traillii*), dusky flycatcher (*Empidonax oberholseri*), brown-headed cowbird (*Molothrus ater*), American robin (*Turdus migratoriu*s), house finch (*Carpodacus mexicanus*), and Cassin's finch (*Carpodacus cassinii*) (Great Basin Bird Observatory, 2003).

Lowland riparian areas may include: American robin (*Turdus migratorius*), bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), Bewick's wren (*Thryomanes bewickii*), black-chinned hummingbird (*Archilochus alexandri*), black-headed grosbeak (*Pheucticus melanocephalus*), broad-tailed hummingbird (*Selasphorus platycercus*), brown-headed cowbird (*Molothrus ater*), downy woodpecker (*Picoides pubescens*), house finch (*Carpodacus mexicanus*),

house wren (*Troglodytes aedon*), lazuli bunting (*Passerina amoena*), lesser goldfinch (*Carduelis psaltria*), northern flicker (*Colaptes auratus*), northern mockingbird (*Mimus polyglottos*), Bullock's oriole (*Icterus bullockii*), northern rough-winged swallow (*Stelgidopteryx serripennis*), song sparrow (*Melospiza melodia*), spotted sandpiper (*Actitis macularia*), tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), warbling vireo (*Vireo gilvus*), western kingbird(*Tyrannus verticalis*), western wood-pewee (*Contopus sordidulus*), willow flycatcher (*Empidonax traillii*), yellow-breasted chat (*Icteria virens*), and yellow warbler (*Dendroica petechia*) (Great Basin Bird Observatory, 2003).

Pinyon-juniper woodland areas may include: gray vireo (*Vireo vicinior*), pinyon jay (*Gymnorhinus cyanocephalus*), mountain bluebird (*Sialia currucoides*), western scrub-jay (*Aphelocoma californica*), juniper titmouse (*Baeolophus ridgwayi*), black-throated gray warbler (*Dendroica nigrescens*), Cassin's finch (*Carpodacus cassinii*), common raven (*Corvus corax*), and common nighthawk (*Chordeiles minor*) (Floyd, Ted et al. 2007).

Sagebrush and salt desert shrub areas may include: black-throated sparrow (*Amphispiza bilineata*), Brewer's blackbird (*Euphagus cyanocephalus*), Brewer's sparrow (*Spizella breweri*), canyon wren (*Catherpes mexicanus*), gray flycatcher (*Empidonax wrightii*), green-tailed towhee (*Pipilo chlorurus*), loggerhead shrike (*Lanius ludovicianus*), rock wren (*Salpinctes obsoletus*), sage sparrow (*Amphispiza belli*), sage thrasher (*Oreoscoptes montanus*), western meadowlark (*Sturnella neglecta*), and vesper sparrow (*Pooecetes gramineus*) (Great Basin Bird Observatory, 2003).

Several species of raptors may also utilize the project area including golden eagle (*Aquila chrysaetos*), burrowing owl *(Athene cunicularia*), peregrine falcon (*Falco peregrinus*), northern goshawk (*Accipiter gentilis*), prairie falcon *(Falco mexicanus),* red-tailed hawk **(***Buteo jamaicensis*), and Cooper's hawk *(Accipiter cooperii).*

The burrowing owl, golden eagle, northern goshawk, pinyon jay, peregrine falcon, Brewer's sparrow, loggerhead shrike, and sage thrasher are BLM designated sensitive species and are discussed in Section 3.3.7, "Special Status Species".

## 3.2.4. Native American Religious Concerns

Numerous laws and regulations require consideration of Native American concerns. These include the National Historic Preservation Act of 1966 as Amended (NHPA), the American Indian Religious Freedom Act of 1978 (AIRFA) as amended, Executive Order 13007 (Indian Sacred Sites), Executive Order 13175 (Consultation and Coordination with Tribal Governments), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), the Archaeological Resources Protection Act of 1979 (ARPA) as well as NEPA and FLPMA.

The Modified Proposed Action is within the traditional territory of the Atsakudöka tuviwarai ("red butte dwellers"), Madökadö ("wild onion eaters"), and the Sawa'waktödö-tuviwarai ("sage-brush mountain dwellers") bands of Northern Paiute peoples (Stewart 1941). These bands are identified with modern groups that include the Summit Lake Paiute Tribe, the Fort McDermitt Paiute and Shoshone Tribe, the Pyramid Lake Paiute Tribe, and Winnemucca Indian Colony.

Horses are believed to have been introduced into the Paiute and Shoshone societies from trade with the Comanche and other Plains groups (Shimkin 1986). By the mid-19th century, the horse had a substantial impact on the political organization of the Paiute and Shoshone, plus their

subsistence and trade. The ethnographic literature presents no clear cut trend on whether horses were used as food by the Northern Paiutes and Shoshone. Some Native Americans argue though that the horse has always been in Nevada since time immemorial.

Native Americans utilize a variety of plants for medicinal and other uses. They also consider all water to be sacred. There are multiple springs located within the gather area. Both of these resources can be adversely affected by domestic and wild horses. There are no known traditional cultural properties or sacred sites in the identified trap site/holding areas.

Letters requesting consultation meetings on the Proposed Action were sent out on March 6-7, 2012 to the following tribes: Summit Lake Paiute Tribe, Pyramid Lake Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, and Winnemucca Indian Colony.

The preliminary EA was sent to the above listed tribes on April 18, 2012. A consultation meeting was held with the Summit Lake Paiute Tribe on April 21, 2012.

## 3.2.5. Threatened and Endangered Species

A list of federally listed, proposed or candidate species was requested from the U.S. Fish and Wildlife Service (USFWS) for the proposed gather area (2012). The Fish and Wildlife Service responded that the following species may be found within the proposed project area: 1) Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi)* (LCT) as a threatened species, and 2) Greater sage-grouse (*Centrocercus urophasianus*) as a candidate species can be found within the gather area.

Lahontan cutthroat trout

LCT is a federally listed Threatened species since 1975 (Federal Register Vol. 40, p. 29864). The project area within the Jackson Mountains contains five streams that were identified in the 1995 USFWS LCT Recovery plan or in the 1999 Nevada Department of Wildlife (NDOW) Species Management Plan for LCT as priority streams for LCT recovery. The five streams are Jackson Creek, Happy Creek, Mary Sloan Creek, Bottle Creek, and Big Creek.

In 1986, 24 Alvord cutthroat hybrids were stocked into Jackson Creek, and in 1999, 50 LCT from Washburn Creek were introduced into Jackson Creek. Between 1999 and 2010, surveys resulted in no fish being located, indicating the reintroduction was unsuccessful. However, in 2011, NDOW surveyed Jackson Creek and found some cutthroat trout. Genetic samples from the cutthroat trout were collected and sent to Mary Peacock at University of Nevada, Reno. Current results have indicated that the fish do not contain rainbow trout genes, which leads to belief that these fish are LCT (USFWS, Starostka 2012). Therefore, Jackson Creek is the only stream within the gather area that currently supports an existing population of LCT.

Greater sage-grouse

The Greater sage-grouse is currently listed as a candidate species by the USFWS. The Jackson Population Management Unit (PMU) is within the gather area and contains approximately 82,700 acres of summer habitat, 60,500 acres of nesting habitat and 65,000 acres of winter habitat. Approximately 7,400 acres of particularly important habitat for sage-grouse, known as Preliminary Priority Habitat (PPH), has been identified within the PMU. There are seven known leks within or near the PMU. None of the leks were active when last surveyed in 2007. Leks are communal breeding ground for sage-grouse and are commonly considered to be the center of

nesting activity. Sage-grouse require large expanses of sagebrush with good under stories of forbs and grasses. Sagebrush provides nesting and hiding cover and forage for much of the year. Forbs provide spring nutrition and grasses provide visual screening for nests. Additionally wet meadows are needed to provide green forbs when other sites dry out, and to provide water and insects for the chicks during the hot summer months.

## 3.2.6. Water Quality (Surface)

The Jackson Mountains HMA falls within an area of northern Nevada which has received much less precipitation (as either rain or snow) during the current water year than average. Snow packs in the region are far below average and will likely support a shorter period of snowmelt-fed springs flows in streams and at shallow source springs during the 2012 calendar year than normal. To date, snow pack levels within the lower Humboldt River Basin are at 13% of average and only 74% of average water (NRCS 2012).

A survey completed by the BLM in the early 1980s indicates that there are roughly 870 surface water sources (springs, seeps and wells) within the Jackson Mountains HMA. Many of the springs and seeps are likely seasonal, intermittent or ephemeral in nature. In addition to these point sources for water, there are roughly 630 miles of mapped perennial, intermittent, and ephemeral streams within the HMA. According to surface water quality inventories completed between 2000 and 2004, lotic (flowing) waters within the allotment are generally of good quality. One creek within the HMA, Bottle Creek, has been designated as a classified water by the state of Nevada. Bottle Creek is a Class A water which means the water should remain suitable for drinking, culinary or food processing purposes, primary and secondary contact recreation, fishing, and for wildlife propagation and survival. This is indicated by relatively low turbidity (high clarity), low temperatures (less than 20°C during August), and relatively low electrical conductivities (averaging 370 µS/cm). Coliform bacteria appear to be the greatest concern with values being very high or beyond measurement in some cases, especially during warmer months when discharges were lower and temperatures were higher. Data for water quality in lentic (non-flowing) water sources are not available. Persistence of surface water is highly variable annually depending on climatic variations.

## 3.2.7. Wetlands and Riparian Zones

Few riparian systems exist throughout the West and they are important centers for biodiversity where they survive. They often provide the only available source of water for many miles, and are used by wild horses, livestock, birds, and many types of wildlife. Although the Taylor Grazing Act of 1934 (TGA) established some control over grazing practices for domestic livestock, wild horses are not regulated under this legislation and continue destructive grazing habits in riparian areas where access is granted, in ways similar to unmanaged livestock.

Using 2010 NAIP color infrared imagery, it was determined that riparian habitat managed by the BLM within the Jackson Mountains HMA represents roughly 1,400 acres, or 0.5%, of the 283,775 total acres in the HMA. This value includes lentic and lotic riparian systems. Proper functioning condition (PFC) assessments have been made on various streams and meadows within the HMA and the results of those assessments are shown below:

| Riparian Type | PFC | FAR+ | FAR= | FAR- | NON |
|---|---|---|---|---|---|
| Lotic (by miles)* | 56.0% | 0.4% | 32.9% | 10.6% | 0.0% |

| | | | | | |
|---|---|---|---|---|---|
| Lentic (by acres)* | 25.9% | 0.0% | 48.5% | 25.6% | 0.0% |
| *PFC has been assessed for approximately 10% of lotic habitat within the HMA and approximately 8% of the lentic riparian habitat. | | | | | |

While these data are qualitative and do not indicate cause, they suggest that there is greater degradation of lentic riparian habitats than lotic habitats. In general, degradation at lentic riparian areas within the Winnemucca District is caused by over utilization of vegetation and excessive trampling of wetland soils by cattle and/or wild horses. Visual inspections and photo-monitoring have been completed by BLM staff during March of 2012. These inspections indicate that a mild 2011-2012 winter has allowed for continued utilization of high elevation riparian areas and reduced spring flow and water availability. The following photographs depict utilization and alteration at some of these locations.


**Figure 3.1. Indian Springs (aka Navajo)**


**Figure 3.2. Navajo Peak Creek**


**Figure 3.3. Bush Basin Spring**

These photos demonstrate soil alteration and vegetation utilization. Cattle and wild horses both use these areas. Cattle use occurs generally between the summer to fall months and have not used this area since October of 2011. These photos were taken in March of 2012. Horses have

been observed during the winter months and during the aerial population surveys conducted in early April 2012.

BLM specialists have also observed that wild horses are moving to lower elevation and more southern areas than where they are usually concentrated. Horse movement is due to a lack of forage in the higher elevations and available forage in the southern portion of the HMA.

Riparian areas within the HMA may no longer be considered healthy because of their reduced vegetation and high degree of disturbance (Belsky et al 1999). Loss of vegetation and compaction of soils in these areas has led to flashy runoff (higher peak flows over shorter periods of time). This flashiness increases soil erosion and decrease groundwater recharge. Pereniality of many streams and springs in the HMA are dependent on annual groundwater recharge. Loss of this recharge results in less water availability throughout the summer and fall.

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

### 3.2.8. Wilderness

The project area includes 77,975 acres within the North Jackson Mountains and South Jackson Mountains Wilderness. The proposed gather area also overlaps a small portion of the Black Rock Desert Wilderness; however, horses are unlikely to be found on the unvegetated playa. These wilderness areas were designated by the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Act of 2000 (NCA Act) (Refer to Map 1). The Wilderness Act of 1964 mandates that wilderness areas be managed in such a manner as to maintain or enhance the values of naturalness, opportunities for solitude, opportunities for primitive or unconfined recreation, and any special features found in the areas. Several special features were specifically mentioned for the affected Wilderness Areas in the NCA Act. They include historic inscriptions, prehistoric and historic Native American sites, threatened fish and sensitive plants, and a largely untouched emigrant trail viewshed.

## 3.3. Additional Affected Resources

In addition to the supplemental authorities above, the following resources may be affected by the Action Alternatives (Alternatives A, B and C) and/or the No Action Alternative:

**Table 3.2. Additional Affected Resources**

| RESOURCE | PRESENT | AFFECTED |
|---|---|---|
| Fisheries | YES | YES |
| Paleontology | YES | NO |
| Public Health & Safety | YES | YES |
| Rangeland Management | YES | YES |
| Recreation | YES | YES |
| Soils | YES | YES |
| Special Status Species | YES | YES |
| Vegetation | YES | YES |
| Wild Horses | YES | YES |
| Wildlife | YES | YES |

Data derived since the release of the preliminary EA has led to additional descriptions of the affected environment in the Rangeland Management and Wild Horses sections.

## 3.3.1. Fisheries

Several of the streams in the Jackson Mountains range currently contain salmonid species. The streams with salmonids are Bottle Creek, Happy Creek, and Mary Sloan Creek. These streams include a variety of salmonids, including: rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), tiger trout (*Salmo truttax Salvelinus fontinalis*), and hybrid trout. Other streams within the Jackson Mountains range that are presently without fisheries are Big Creek, Deer Creek, and Trout Creek.

## 3.3.2. Paleontology

Several paleontological sites are recorded within, or in close proximity to, the Jackson Mountains HMA. Most notable are the late Pleistocene megafauna sites (*camelops* spp., mammoth, etc.) that are intermingled on the surface with Paleo-Indian/Early Archaic points (Large-stemmed square-based points, such as those described as Lind Coulee or Parman; see Justice 2002) dating as early as 10,000 B.P. Pleistocene megafauna were extinct in the Great Basin by approximately 10,000 B.P. Since the Paleo-Indian/Early Archaic points and late Pleistocene mammals are argued not to overlap in time, this spatial association leads to interesting research possibilities. However, to date, no research has been done that would adequately resolve the question of the potential contemporaneity of the projectile points and fossil Pleistocene megafauna vertebrates.

Past actions have been known to damage or destroy paleontological resources. Previous mining and recreational fossil collection have caused these types of impacts. Illegal vertebrate fossil collecting is suspected to have occurred within the Jackson Mountains HMA. The collection of vertebrate fossils is now managed under recent laws and regulations such as the FLPMA (P.L. 94-579), the National Environmental Policy Act of 1969 (P.L. 91-190), Title 43 CFR, the Paleontological resources Preservation Act of 2009 and Secretarial Order 3104 which grants to the BLM the authority to issue paleontological resource use permits for lands under its jurisdiction. These laws and regulations in conjunction with law enforcement patrols, as well as cooperation between local mining operations, ranchers and federal agencies have reduced the frequency of destructive impact occurrences.

## 3.3.3. Public Health and Safety

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

The helicopter work is done at various heights above the ground, from as little as 10-15 feet (when herding the animals the last short distance to the gather corral) to several hundred feet (when doing a recon of the area). While helicopters are highly maneuverable and the pilots are very skilled in their operation, unknown and unexpected obstacles in their path can impact their

ability to react in time to avoid members of the public in their path. These same unknown and unexpected obstacles can impact the wild horses being herded by the helicopter in that they may not be able to react and can be potentially harmed or caused to flee which can lead to injury and additional stress. When the helicopter is working close to the ground, the rotor wash of the helicopter is a safety concern by potentially causing loose vegetation, dirt, and other objects to fly through the air which can strike or land on anyone in close proximity as well as cause decreased vision. Though rare, helicopter crashes and hard landings can and have occurred (approximately 10) over the last 30+ years while conducting wild horse gathers which necessitates the need to follow gather operations and visitor protocols at every wild horse gather to assure safety of all people and animals involved. Flying debris caused by a helicopter incident poses a safety concern to BLM and contractor staff, visitors, and the wild horses.

During the herding process, wild horses will try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing horses can go through wire fences, traverse unstable terrain, and go through areas that they normally would not travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal's path.

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

The BLM is committed to allowing access by interested members of the public to the fullest possible degree without compromising safety or the success of operations. To minimize risks to the public from helicopter operations, a gather Contractor is required to conduct all helicopter operations in a safe manner, and to comply with FAA regulations (FAR) 91.119 (14 CFR § 91.119)[1]and BLM IM No. 2010-164. The Jackson Mountains Wild Horse Gather Observation Protocol found in Appendix B, *Jackson Mountains Wild Horse Observation Protocol* provides the public with the opportunity to safely observe the gather operations.

## 3.3.4. Rangeland Management

Based on escalating drought conditions, all permittee's in the Winnemucca District have been notified this is a drought year and they should prepare for temporary changes to their grazing use. Permittee's have been asked to continue to observe conditions and speak with their Range Management Specialist on a regular bases to help mitigate the effects of drought. Many of the permittee's that have allotments within the Jackson Mountains HMA are aware of the current situation and have voluntarily reduced livestock numbers or moved livestock away from areas critical areas of concern (Trail Springs) where wild horses have congregated.

The Bottle Creek, Deer Creek, Desert Valley, Happy Creek, Jackson Mountains and Wilder-Quinn Allotments are managed for livestock grazing but portions of these allotments also overlap with HMA boundaries and those overlapping areas are consequently managed concurrently for wild horses (with the exception of the Desert Valley Allotment). Table 3.3, "Jackson Mountains HMA Acres within Allotments"identifies the amount of overlap between grazing allotments and the Jackson Mountains HMA.

[1]At recent gathers, public observers have ranged in number from only a handful of individuals to a maximum of between 15-25 members of the public. At these numbers, BLM has determined that the current level of public visitation to gather operations falls below the threshold of an "open air assembly" under the FAR regulations. 14 CFR § 91.119.

**Table 3.3. Jackson Mountains HMA Acres within Allotments**

| Allotment | Allotment Acres | HMA Acres | HMA Percentage* |
|---|---|---|---|
| **Bottle Creek** | 139,390 | 18,928 | 14% |
| **Deer Creek** | 30,852 | 18,477 | 60% |
| **Desert Valley** | 58,274 | 18,815 | 32% |
| **Happy Creek** | 99,180 | 36,931 | 37% |
| **Jackson Mountain** | 375,804 | 189,125 | 50% |
| **Wilder-Quinn** | 210,048 | 1,616 | >1% |
| **Total:** | **913,548** | **283,892** | **31%** |
| * HMA Percentage shows the amount of the allotment that is contained within the HMA boundary. The combined total of allotment acres is larger than the gather area because the allotments exceed the gather area boundaries. | | | |

As shown in Table 3.3, "Jackson Mountains HMA Acres within Allotments", allotments acreages do not correspond with HMA acreages, as these areas do not share identical boundaries. The HMA acreage comprises 31% of the total allotment acres.

There are a total of nine livestock operators (permittees) currently authorized to graze livestock in these allotments annually. The total permitted use for these permittees is a combined total of 32,744 Animal Unit Months (AUMs) yearly in the six allotments (including on non-HMA lands). An AUM is the amount of forage needed to sustain one cow or its equivalent for one month. All of these allotments consist of various pastures that are grazed seasonally following established grazing systems; however, the season of use may vary (by one to two weeks) annually based upon forage availability, drought conditions and other management criteria.

BLM issued FMUDs for five of these allotments in 1994, 1997, 1998, 1999 and 2000 following the analysis of monitoring data and a decision-making process that included public involvement and input (Table 1- AML Decision Documents). These FMUDs primarily modified livestock grazing systems, further defined AMLs for wild horses and identified allotment specific objectives and Standards for Rangeland Health. Livestock grazing systems have been further modified in some of these allotments subsequent to these FMUDs.

The PD MFP identified the level of livestock grazing authorized for the allotments within the gather area. Since that time there have been several management decisions that have guided the multiple use management of the allotments in the gather area. The allotment specific FMUDs issued in the mid-nineties established the AML for wild horses in the allotments in the gather area.

Table 3.4, "Livestock AUMs" illustrates the livestock AUMs authorized by the PD MFP in 1982 compared to the current authorized grazing use.

**Table 3.4. Livestock AUMs**

| Allotment | 1982 AUMs | 2011 Authorized AUMs |
|---|---|---|
| Bottle Creek | N/A* | 3,434 |
| Deer Creek | 754 | 754 |
| Desert Valley | 1,596 | 1,596 |
| Happy Creek | 3,724 | 3,724 |
| Jackson Mountain | 12,266 | 8,857 |
| Wilder-Quinn | 17,409 | 14,379 |
| **Totals** | | **32,744** |
| * No data available for Allotment | | |

## Bottle Creek Allotment

The Jackson Mountains HMA lies within the Bottle Creek Allotment. The September 2000 FMUD allocated 3,434 AUMs to livestock and 144-240 AUMs to wild horses.

Deer Creek

Portions of the Jackson Mountains HMA lie within the Deer Creek Allotment. The October 1998 FMUD allocated 754 AUMs to livestock and 0 AUMs to wild horses; however, the FMUD does state under long term objectives: "Manage, maintain, and improve public rangeland conditions to provide forage for a viable population of horses." The actual number of livestock was decreased and the season of use and time frames were adjusted to achieve short and long term objectives on the allotment.

Desert Valley

The Desert Valley Allotment AUMs were established by the 1982 PD MFP, allocating 1,560 AUMs to livestock and 0 AUMs to wild horses.

Happy Creek

The January 1994 FMUD reduced authorized livestock grazing, allocating 1,291 AUMs to livestock and 1,512 AUMs to wild horses. According to the 1994 FMUD the decision was made to reduce total AUMs on this allotment after the evaluation of monitoring data. This stocking rate was based upon monitoring and actual use data and the PD MFP. A decision was issued that closed the upper Happy Creek pasture to livestock grazing until PFC is met. PFC is not being attained currently due to unauthorized livestock grazing and wild horse use.

Jackson Mountain

Prior to the May 1994 FMUD the active preference AUMs for livestock on the Jackson Mountain Allotment was 8,857. In the May 1994 FMUD the active AUMs for livestock were scheduled to be reduced to 6,403 AUMs over a period of five years. Under the 1994 FMUD 1,405 AUMs were allocated to wild horses. This decision was based on monitoring data that indicated that the allotment was failing to meet objectives. According to the 1994 FMUD if analysis of monitoring data were to show that the carrying capacity of the Allotment differs from the carrying capacity listed in the Decision, the available forage would be apportioned in the same proportions used in the decision (18% of available forage to wild horses, and 82% to livestock).

Wilder Quinn

The November 1998 FMUD authorized livestock grazing on the Wilder-Quinn Allotment for livestock (sheep and cattle), allocating 14,379 AUMs to livestock and 120 AUMs to wild horses.

**Table 3.5. Grazing Use (AUMs) by Year**

| Allotment | Actual Use 2009 | Actual Use 2010 | Actual Use 2011 | Planned Use 2012 |
|---|---|---|---|---|
| Bottle Creek | 2,045 | 3,208 | 2,593 | 2,013 |
| Deer Creek | 677 | 785 | 476 | 754 |
| Desert Valley | 1,034 | 1,411 | 1,111 | 1,171 |
| Happy Creek | 2,964 | 2,964 | 2,964 | 3,724 |
| Jackson Mountain | 7,896 | 7,985 | 8,164 | 8,857 |
| Wilder-Quinn* | 11,904 | 12,372 | 9,505 | 4,515 |
| Total | 26,520 | 28,725 | 24,813 | 21,034 |
| *Based on paid bills for each year. | | | | |

Table 3.6, "AUMs Allocated to Livestock and Wild Horses for the Jackson Mountains HMA" shows the approximate AUMs allocated to livestock for each allotment and wild horses for the Jackson Mountains HMA. This table also shows AUMs allocated to livestock outside of the HMA. Wild horse AMLs were converted to AUMs to make the AUMs more comparable within the HMA and allotment.

**Table 3.6. AUMs Allocated to Livestock and Wild Horses for the Jackson Mountains HMA**

| Grazing Allotment | Percent of Allotment within the HMA | Active Livestock AUMs | Wild Horse AML Range in Expressed in AUMs | Wild Horse AML Range | Estimated (adult) Wild Horse Population | Estimated Wild Horse use Expressed in AUMs |
|---|---|---|---|---|---|---|
| **Bottle Creek** | 14% | 3,434 | 144-240 | 12-20 | 83 | 996 |
| **Deer Creek** | 60% | 754 | 72-120 | 6-10 | 36 | 432 |
| **Desert Valley** | 32% | 1,596 | 0 | 0 | 14 | 168 |
| **Happy Creek** | 37% | 3,724 | 432-720 | 36-60 | 172 | 2,100 |
| **Jackson Mountains** | 50% | 8,857 | 840-1,404 | 70-117 | 435 | 5,220 |
| **Wilder – Quinn** | >1% | 14,379 | 72-120 | 6-10 | 0 | 0 |
| **Total:** | | **32,744** | **1,560-2,604** | **130-217** | **740** | **8,880** |

Table 3.7, "Livestock and Wild Horses Comparison in AUM Consumption within Jackson Mountains HMA" shows the approximate AUMs allocated to livestock and wild horses and compares that to the amount of AUMs the current wild horse population is consuming.

**Table 3.7. Livestock and Wild Horses Comparison in AUM Consumption within Jackson Mountains HMA**

| HMA | Authorized Livestock AUMs within the HMA | Wild Horse Upper Range of AML converted to AUMs | Approximate Wild Horse AUMs consumed based on 2012 Population Levels |
|---|---|---|---|
| Jackson Mountains | 10,151 | 2,604 | 8,880 |

Based on BLM population surveys, the current adult wild horse population is approximately 740 wild horses for the HMA. This equates to 8,880 AUMs, which is 6,196 AUMs higher than the HMA carrying capacity of 2,604 AUMs designated for horse use.

Livestock water developments (e.g., wells, troughs and dirt reservoirs) authorized by the BLM are maintained under a cooperative agreement with the livestock permittees. These water developments are important sources of water for wild horses and wildlife as well as livestock. However, in the past these developed water sources have also been insufficient to maintain excess numbers of wild horses.

## 3.3.5. Recreation

Recreation resources that exist in the area are mainly outdoor recreation, wildlife watching/photography, wild horse watching/photography, rock hounding, off-highway vehicle use (outside of the wilderness ), and hunting for both large and small game. The gather area encompasses the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area. The area is a preferred site by visitors who enjoy wilderness areas and historic landmarks and mining sites. Use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year.

The capture area includes two Nevada Department of Wildlife Hunt Units, (Units 034 & 035). The big game (California bighorn sheep, mule deer, and antelope) hunting seasons are scheduled to open September 1st, August 10th, and August 1st respectively. The upland game (blue and ruffed grouse, chukar, quail and Hungarian partridge) season is scheduled to begin the first week in October.

## 3.3.6. Soils

Soils on the fan piedmonts, lake plain terraces, and low mountain slopes consist primarily of Aridisols. Potential water erosion hazard for these soils is slight for fan piedmonts and lake plain terraces and high for the mountain slopes. Potential wind erosion hazard is moderate for the fan piedmonts and lake plain terraces and slight for the mountain slopes. Soils of the higher elevation mountains consist primarily of Mollisols. Potential water erosion hazard is high and potential wind erosion hazard is low.

Trailing and hoof action by wild horses has the potential of accelerating erosion following intense storms or snow melt in areas of increased activities due to the higher numbers of wild horses. Current monitoring indicates heavy and increasing trailing by wild horses between limited water

sources and foraging areas. Examples of increased soil erosion is most apparent in the vicinity of small spring meadows currently experiencing high levels of disturbance and bare ground from the current excess wild horses. Excessive wild horse utilization and trailing is occurring in the HMA and is reducing vegetative cover and vigor, in particular, those in areas immediately adjacent to water sources. The reduction of vegetative cover and increased trampling has led to increased soil compaction leading to accelerated run off and subsequent soil erosion.

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

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


**Figure 3.4. Jackson HMA**

See also Figure 3.1, "Indian Springs (aka Navajo)"

## 3.3.7. Special Status Species

Both Threatened and Endangered Species (addressed in Section 3.2.5, "Threatened and Endangered Species") and Sensitive Species (addressed below) are considered Special Status Species. The Nevada Natural Heritage Program (NNHP) database (May 2011) and the NDOW Diversity database (May 2011) were consulted for the possible presence of endangered, threatened, candidate and/or sensitive plants or animal species. NDOW data show observations of northern goshawk, golden eagle, peregrine falcon, Townsend's big-eared bat (*Corynorhinus townsendii*), loggerhead shrike, and Lewis's woodpecker within the proposed gather area. The NNHP data show observations of cordelia beardtongue (*Penstemon floribundus*), windloving

buckwheat (*Eriogonum anemophilum*) and Lahontan cutthroat trout (discussed in Section 3.2.5, "Threatened and Endangered Species").

The following designated BLM sensitive animal or plant species are described, as they have either been seen in the gather area or the area contains habitat characteristics conducive to these species.

Townsend's big-eared bat (and other bat species)

Several species of bats may occur in this area. Most bats in Nevada are year-round residents. In general terms, bats eat insects and arthropods during the warmer seasons and hibernate in underground structures during the cooler seasons. Bats commonly roost in caves, mines, outcrops, buildings, trees and under bridges. Bats may eat flies, moths, beetles, ants, scorpions, centipedes, grasshoppers, and crickets. Bats thrive where the plant communities are healthy enough to support a large population of prey (Bradley et al 2006). Healthy riparian communities with high water tables and tall vegetation leading to high flying insect populations creates favorable foraging habitat for bats.

Burrowing Owl

Burrowing owls prefer open, arid, treeless landscapes with low vegetation. They are dependent upon burrowing mammal populations for maintenance of nest habitat and choose nesting areas based on burrow availability (Floyd et al 2007). These birds are highly adaptable and readily nest in open disturbed areas such as golf courses, runways, and industrial areas that border suitable habitat (Neel, 1999). Dense stands of grasses and forbs within owl home ranges support populations of rodent and insect prey. Urbanization is the biggest threat to this species as suitable habitat is converted to non-habitat for human use (Floyd et al 2007).

Pygmy Rabbit

In the Great Basin, the pygmy rabbit is typically restricted to sagebrush-grass communities located on deep loamy soils, however, they may also occur in areas of large dense rabbitbrush and greasewood. Preferred locations for burrows include broad valley floors, drainage bottoms, alluvial fans, and other areas with friable soils. A dietary study of pygmy rabbits showed dependence on sagebrush year round. Sagebrush made up about 51% of the diet in summer and 99% in the winter. Grasses and forbs were also consumed in the summer (Green and Flinders, 1980).

Raptors

Golden eagle, peregrine falcon, and northern goshawk have been observed in the gather area.

Golden eagles are primarily cliff nesters and would utilize the area to nest and forage for prey species such as jackrabbits and other small mammals. Golden eagles are protected under the Bald and Golden Eagle Protection Act. Nevada's Golden eagle population is thought to be stable to increasing. They are widespread and frequently encountered (Floyd et al 2007).

The peregrine falcon may be found in various open situations from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers. Nests typically are situated on ledges of vertical rocky cliffs, commonly with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites include tall buildings, bridges, rock quarries, and raised platforms. (NatureServe 2012)

The Northern goshawk is an opportunistic hunter, preying on a wide variety of vertebrates and, occasionally, insects. Prey is taken on the ground, in vegetation, or in the air. It forages in both heavily forested and relatively open habitats. In Nevada, it forages in open sagebrush (*Artemisia spp*.) adjacent to riparian aspen stands. It nests in a wide variety of forest types including deciduous, coniferous, and mixed forests. Western birds also nest in deciduous forests dominated by aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), or willow. (NatureServe 2012)

Brewer's Sparrow

The Brewer's sparrow may be found in this area since it typically inhabits sagebrush communities. The Brewer's sparrows tend to favor areas dominated by shrubs rather than grass. They thrive where extensive areas of sagebrush habitat are maintained with shrubs occurring in tall, clumped, and vigorous stands. They place their nests low in sagebrush (preferred), other shrubs, or cactus, from a few centimeters to about 1 meter from ground. They will also place nests higher in taller sagebrush (Rich 1980). The Brewer's sparrow mainly forages for insects on the ground.

Loggerhead Shrike

Loggerhead shrikes may be found in sagebrush/bunchgrass and salt desert scrub vegetative communities, so it is possible that they occur on these allotments. Loggerhead shrikes tend to favor arid, open country with just a few perches or lookouts. They nest in isolated trees and large shrubs and feed mainly on small vertebrates and insects. The species is relatively common and well distributed across the state (Neel, 1999). These birds benefit from habitat with a diverse structure and species composition. Healthy sagebrush communities provide these habitat characteristics. According to Paige and Ritter (1999), "Long-term heavy grazing may ultimately reduce prey habitat and degrade the vegetation structure for nesting and roosting. Light to moderate grazing may provide open foraging habitat".

Sage Thrasher

Sage thrashers may be found in the project area as they thrive where sagebrush habitat is maintained, with shrubs occurring in tall, clumped, and vigorous stands. They tend to prefer tall shrubs for nesting or song perches. Primarily a ground forager, foraging success may be reduced by continuous cover of crested wheatgrass, cheatgrass or other non-native grasses (Paige and Ritter 1998).

Cordelia beardtongue (*Penstemon floribundus*)

This species is endemic to northwestern Nevada, known only from the west side of the Jackson Mountains. The plant is found in scattered occurrences, never abundant at any one site.It is a perennial herb, 1.2-2.3 dm tall, with tubular blue-violet flowers blooming on the top half of the stems, flowering May-June. Habitat consists of steep mountain slopes and associated alluvial fans in a limestone rock desert (NatureServe, 2012).

Windloving buckwheat (*Eriogonum anemophilum*)

This species is a low perennial herb with leafless flower stalks rising about 6.5 cm above clumps of white-hairy leaves. The stalks bear a terminal, globular cluster of white flowers blooming in late June and July. The habitat consists of bleak, windswept summits, ridges, and exposed slopes on loose limestone gravels and volcanic outcrops at 2130-2750 m elevation (NatureServe, 2012).

Bighorn Sheep (*Ovis Canadensis*)

Approximately 85,000 acres of occupied bighorn habitat is within the gather area, on the Jackson Mountains. Bighorn sheep occur in mesic to xeric, alpine to desert grasslands or shrub-steppe in mountains, foothills, or river canyons. Access to mineral lick may be important for Rocky Mountain and desert bighorns, especially in spring. Suitable escape terrain (cliffs, talus slopes, etc.) is an important feature of the habitat. Bighorns are primarily grazers of grass and forbs, but diet can also include significant amounts of shrubs (NatureServe, 2012).

## 3.3.8. Vegetation

The vegetation of the Jackson Mountains range varies from salt desert shrub communities at lower elevations, to low and big sagebrush/grass communities at higher elevations. The lower elevations are comprised of salt tolerant plants such as bud sagebrush (*Picrothamnus desertorum*), shadscale (*Atriplex confertifolia*) and, Baileys and black greasewood (*Sarcobatus spp.*). Mid-elevations and alluvial fans consist of Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) or low sagebrush (*Artemisia arbuscula*), with an understory of Sandberg's bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), and Thurber's needlegrass (*Achnatherum thurberianum*). Within the mid and higher elevations, there is an occurrence of Utah juniper (*Juniperus osteosperma*). The higher elevation sites are comprised of mountain big sagebrush (*Artemisia tridentata vaseyana*), bluebunch wheatgrass (*Pseudoroegneria spicata* ), Idaho fescue *(Festuca idahoensis),* and also support mountain browse species that include serviceberry *(Amelanchier spp.)*, snowberry (*Symphoriocarpos spp.*), and currant *(Ribes spp.)*. Riparian areas at mid to higher elevations support quaking aspen (*Populus tremuloides*), cottonwood (*Populus sp.*), and willows (*Salix spp)*. Disturbed areas within and around the Jackson Mountains HMA support primarily cheat grass, a non-native invasive plant.

Fire activity has been limited in the recent past within the Jackson Mountains HMA, primarily in the southeast end.

There is very little new growth of grasses (native or annual species) in the Jackson Mountains HMA, especially in the Southern portion, due to drought. Most of the available vegetation is from last years growth.

Increasing wild horse utilization and trailing due to accelerating numbers is occurring in the HMA and is reducing vegetative cover and vigor, particularly, in those areas immediately adjacent to water sources. The reduction of vegetative cover and increased trampling resulting from higher wild horse numbers has led to increased soil compaction and surface disturbance leading to potential accelerated run off and subsequent soil erosion.

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

Wild horses are uneven grazers, meaning that they do not always graze an area in its entirety before moving on to another. Areas where they do graze have been noted to have a lower abundance of cover grasses, lower shrub cover, lower total vegetative cover, lower species richness, and less continuous shrub canopy (Beever and Herrick 2006).


**Figure 3.5. Damage to Sage brush**

See also Figure 3.3, "Bush Basin Spring"

## 3.3.9. Wild Horses

The Jackson Mountains HMA was designated within the ROD for the PD MFP (1982) for the long-term management of wild horses. The HMA is identical in size and shape to the original Herd Area (HA) representing where wild horses were located in 1971. In other words, the entire HA (100%) was designated as a herd management area and the area has not been designated a "Wild Horse Range" as defined at 43 CFR 4710.3-2[2].

Current Herd Health

Monitoring shows current wild horse conditions are declining. The competition for resources is reflected in declining body condition and wounds from increased fighting. Pregnant and lactating mares and foals are showing the most severe decline in body condition. Most mares are in the range of 2 to 3 BCS and foals appear thin as well. Although water hauling is being conducted, the lack of available forage within the distance horses will travel away from water is taking a serious toll on the wild horse health. Wild horses are currently browsing on shrubs in the area rather than consuming grasses due to their absence. Digesting shrubs takes more energy than would digesting grasses and this too is leading to declining health. In an effort to gain more detailed body condition wildlife cameras were installed and the photos taken with these camera's have shown steadily declining health conditions. As there has been no new vegetation growth this spring and the current drought situation is expected to continue, there is no expectation that range conditions or wild horse health will improve in the foreseeable future.

AML Establishment

[2]There are currently only four designated Wild Horse and Burro Ranges in the Western United States that are managed principally for wild horses and burros consistent with 43 CFR 4170.3-2. These are the Pryor Mountain Wild Horse Range in Montana; the Little Book Cliffs Wild Horse Range in Colorado; the Nevada Wild Horse Range and the Marietta Wild Burro Range in Nevada. Only the BLM Director or Assistant Director may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process

The AML for the Jackson Mountains HMA was established as 217 horses in the 1982 PD MFP. The AML has been updated to a range of 130 to 217 horses in the FMUD's for the Bottle Creek, Deer Creek, Happy Creek, Jackson Mountains, and Wilder-Quinn Allotment and affirmed in subsequent EAs Table 1- AML Decision Documents. These decisions were based on Allotment Evaluations that analyzed resource monitoring data and allowed for public involvement and input into the decision-making process. Establishing AML as a population range allows for the periodic removal of excess animals (to the low range) and subsequent population growth (to the high range) between removals (gathers).

AMLs were established in order to ensure a thriving natural ecological balance and multiple-use relationship within the HMA. BLM manages wild horses at the established AMLs and removes animals in excess of the established AML range. Changes to the AML are appropriate only if multiple use allocations are being adjusted through the land-use planning process, or if monitoring data demonstrates that the AML is either set too high or too low within the existing multiple use allocations and after BLM conducts the appropriate environmental analyses and provides opportunities for public input through a public decision-making process. Available data does not presently indicate that the AML could be increased and still maintain rangeland and wild horse health.

Current Population

The estimated population of wild horses within the HMA is approximately 930 wild horses based on recent inventories, historic recruitment and ground observations.

The expected foal crop was added to the wild horse populations because the gather is scheduled starting in July 2012 after the peak foaling season. Typically foals are not counted in the total population until January 1, when they become yearlings. Since the gather and removal numbers would include the foals it is more representative to include them in the current population estimates. Since conditions have continued decline, an emergency gather occurring prior to July 1 would be necessary and would be conducted in early June. Since this is near the end of foaling season, the expected foal crop is considered in the population estimates.

The expected wild horse population exceeds the low range AML by 800 wild horses and is about 6 times the low AML (130 animals) or about 3.7 times high AML (217 animals). This equates to 9,600 AUMs, which is 6,996 AUMs higher than the HMA carrying capacity of 2,604 AUMs designated for horse use, see Table 3.7, "Livestock and Wild Horses Comparison in AUM Consumption within Jackson Mountains HMA".

Gather History

Gathers were conducted in the Jackson Mountains HMA in 1989, 1994, 1997, 2003 and 2007. Table 12 below shows the numbers of animals gathered and removed from each gather. Genetic data was collected during the 1994 and 1997 gathers.

This area has a history of drought coupled with excessive wild horse numbers which has in the past proven to be extremely detrimental to animal health. In 2007 a gather was planned and conducted. Unfortunately, the number of wild horses thought to be present in the area was significantly under estimated and the gather conducted in August was too late for many of the excess wild horses removed from the range. The poor health conditions resulted in the death of approximately 180 horses. Similar drought conditions and excess wild horse populations have emerged once again in

this area. In an effort to avoid compromising wild horse health, intensive monitoring has been implemented to assess forage and water availability and the most current horse conditions.

**Table 3.8. Jackson Mountains HMA Gather History**

| Year | Captured | Removed | Released | Died/Euthanized |
|---|---|---|---|---|
| 1994 | 447 | 310 | 134 | 3 |
| 1989 | 225 | 223 | * | 2 |
| 1997 | 671 | 511 | 160 | 0 |
| 2003 | 715 | 660 | 54 | 1 |
| 2007 | 1,064 | 990 | 67 | 7 |
| **Total** | **3,122** | **2,694** | **415** | **13** |
| * No data available for Allotment | | | | |

Population Dynamics and Demography

Wild horses usually produce one offspring per year, with an observed or projected annual herd rate of increase between 18 and 25% (Wolfe 1980, L. Eberhardt et al 1982, Eberhardt 1985, Wolfe et al 1989, Garrott and Taylor 1990, R. Garrott et al 1991). A herd with a 20% rate of annual increase will more than double in four years.

Herd rate of increase is influenced by adult survival rate, foaling rate, and foal mortality. Adult horse survival is usually very high, estimated between and 80 and 97%, and may be the key determinant of wild horse population increases (Wolfe 1980, L. Eberhardt et al 1982, Garrott and Taylor 1990). Most foals are born between April and June. Foal mortality is highest within the first year and has been recorded as between 2 and 10% (McCort 1984). Causes of foal mortality include weaknesses at birth, severe winter/spring weather, rejection by the mare or inattentiveness of the mare, and separation from mares.

Foaling rates vary by year and differ between herds as well as being dependent on weather, available resources, and herd size. Peak foaling rates in mares occur between ages 8 and 20, after which reproduction is possible but much less likely. Some mares may be able to foal at age 2, but most females begin reproducing at age 3 (L. Eberhardt et al 1982, and Garrott and Taylor 1990).

Sex ratios of adult wild horse herds are nearly always skewed toward females. Experts cite three main reasons for this: differential survival of adult males and females, removal of a disproportionate number of males, and skewed foal sex ratios (Garrot and Taylor 1990). Higher mortality in male horses may be due to injuries acquired during fights for mates or under conditions of food shortage and being unable to obtain sufficient nutrients since male horses naturally need more nutrients than females (D. Siniff, J.Tester, and G. McMahon 1986).

Social Interactions

It is widely agreed that wild horses have three major types of social groups: harem groups, multiple male and female groups, and bachelor male groups. A harem group consists of one adult male and several adult females and their offspring, ranging from 2 total individuals to more than 20 (McCort 1984). Harems are stable groups, and are the type of wild horse group most often described by authors. Harem females mate almost exclusively with the harem male. Many young horses leave their natal group at sexual maturity, so there is movement of horses between harems or groups, making inbreeding rare in wild horse populations.

Multiple male and female groups generally have more than one adult male and several adult females and their offspring. These group compositions are not stable, and differ from harems

in mating behavior and dominance structure. In such groups, one male is most likely dominant over the others. This male prevents subordinate males from interacting with the adult females in the group and plays the dominant role during interactions with other groups (Salter and Hudson 1982). The most common male horse interactions include olfactory investigation and fecal marking. Fecal marking of the same location repeatedly by various males is common and can become very large. These stud piles are used throughout the year, commonly for 1-3 years, and are often located in highly visible areas such as the edges of trails or roads or beneath lone trees in a grassy area (Salter and Hudson 1982, McCort 1984). Occasionally, more than one in the same general location is noted.

Bachelor male groups are composed entirely of male wild horses and are generally unstable in composition. These groups are formed by young males forced out of their family groups or older horses who have lost membership in a harem or multiple male and female groups. Group sizes have been observed as ranging from a single lone stallion to 16 horses.

Aerial Population Counts and Growth Rates

Rates of wild horse population increase are compiled to take into account both mortality and foaling and are estimates used to project population growth during years when an aerial population count is not completed. The rate of increase for the Jackson Mountains HMA is approximately 20-27% per annum. This figure was derived through analysis of the numbers of foals captured during previous gathers in relation to the number of adults, as well as number of foals observed during aerial population counts. Wild horses are not a self-regulating species, they have few predators within the Jackson Mountains HMA which is evidenced by their current population numbers and if excess horses are not removed, would continue to reproduce until their habitat could no longer support them. Severe habitat damage and declining animal health generally precede abrupt and substantial death losses in wild horse populations.

A population survey flight was completed in early April 2012 to confirm the approximate numbers of wild horses within the gather area and to confirm the extent to which wild horses have moved outside of the HMA boundaries to find forage, water and space. This flight utilized the best management practices recommended in IM No. 2010-057. A post-gather survey would also be coordinated and conducted to reaffirm the number of wild horses remaining in the HMA after the initial proposed gather.

Genetic Analysis and Herd History

Wild horses are primarily descendants of ranch horses and cavalry remounts. Most wild horse herds sampled have high genetic heterozygosity, genetic resources are lost slowly over periods of many generations, and wild horses are long-lived with long generation intervals (Singer, 2000). Based on past gather and field observations, there are no signs of inbreeding which suggests that the Jackson Mountains horses are genetically diverse. The AML within the Jackson Mountains HMA (130-217) is at a level that supports genetic diversity. The wild horse population size at AML should promote adequate conditions for genetic health even after excess wild horses are removed.

Diet/Dietary Overlap with Other Species

Numerous studies identify dietary overlap of preferred forage species and habitat preference between horses, cattle, and wildlife species in the Great Basin ecosystems for all seasons (Ganskopp 1983; Ganskopp et al 1986, 1987; McInnis 1984; McInnis et al 1987; Smith et al

1982; Vavra et al 1978). A strong potential exists for exploitative competition between horses and cattle under conditions of limited forage (water and space) availability (McInnis et al 1987).

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

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

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

Water

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

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

Home Range/Habitat

Wild horses generally move widely both daily, usually between water sources, as well as seasonally, seeking higher elevations during summer months and at times when it is necessary to minimize threats to their safety by enhancing their view of the surrounding area (Ganskopp and Vavra 1986, Beever and Herrick 2006).

## 3.3.10. Wildlife

Terrestrial wildlife resources in the HMA are typical of the Northern Great Basin. A wide variety of wildlife species common to the Great Basin ecosystem and several types of vegetative communities can be found here (See Section 3.3.8, "Vegetation"). Common wildlife species include coyote, black-tail jackrabbit, desert cottontail, bobcat, and numerous raptors, reptiles, and other small mammal species. Mule deer and pronghorn antelope are common big game species in the area.

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

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

Mule Deer

The gather area contains approximately 60,000 acres of mule deer habitat. Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet. The diet of mule deer is quite varied; however, the importance of various classes of forage plants varies by season. In winter, especially when grasses and forbs are covered with snow, their entire diet may consist of shrubby species.

Wild horses have little dietary overlap with mule deer. Wild horses almost exclusively graze while mule deer mostly browse; however, forage competition can occur when desirable grass forage for wild horses becomes limited due to degraded range conditions, drought, or overuse and they must subsist on a diet of forbs and shrubs. Competition between wild horses and mule deer exists primarily at water sources.

Pronghorn Antelope

The gather area contains approximately 475,000 acres of pronghorn antelope habitat. Pronghorn use open country with few trees and short shrubs. Antelope diets consist of forbs and grasses during the spring and early summer and shrub browse the remainder of the year. Wet meadows

associated with spring meadows provide succulent green forage during hot dry summer months. These are the habitats that wild horses also prefer during this period of the year. Heavy wild horse utilization of spring meadows removes the succulent forage that antelope depend on during the hot summer months as well as causing degradation of these important habitats.

# Chapter 4. Environmental Effects:

Due to the modification in the Proposed Action, the following resources contain additional analysis pertaining to the emergency gather component: Migratory Birds, Threatened & Endangered Species, Wetlands and Riparian Zones, Rangeland Management, Special Status Species, Vegetation, Wild Horses, and Wildlife. No impacts are expected based on the timing of the gather, whether it be in June or July, to Cultural Resources, Invasive, Nonnative Species, Native American Religious Concerns, Water Quality (surface), Wilderness, Fisheries, Paleontological Resources, Public Health and Safety, Recreation or Soils.

# 4.1. Cultural Resources

## 4.1.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

The following common actions would have little to no impact to cultural resources: the emergency gather in early June, helicopter activity, roping from horseback, transportation of gathered horses, observers and observation sites during gathering operations, and post gather treatments for invasive, non-native species. Trap sites, including bait/water trapping sites if needed, and holding areas are the locations that could potentially impact cultural resources. Direct impacts to cultural resources would not be anticipated because gather sites, temporary holding facilities, or bait/water traps would be placed in previously disturbed areas, previously inventoried areas with negative results for cultural resources, or would be inventoried for cultural resources prior to construction. If cultural resources were to be encountered, these locations would not be utilized unless they trap or holding site configuration would be repositioned to avoid impacts to cultural resources.

## 4.1.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

There would be no direct impact from gathering operations apart from those described above pertaining to trap sites and holding corrals. Areas in the vicinity of permanent and intermittent water sources (i.e., riparian areas) have the highest potential for cultural resource sites. Since wild horses concentrate in these areas, soils are most likely to be compacted, increasing runoff and subsequently increasing erosion. Under the Alternative A, the removal of excess wild horses would lead to incremental improvements to such areas as permanent and intermittent water sources. Each successive gather would adjust the population until it was at the mid-point AML. This would incrementally reduce indirect impacts to cultural resources and slowly alleviate potential damage in riparian zones where concentrations of horses can lead to damage and displacement of artifacts and features as well as erosion of surface cultural deposits containing valuable information. Initially, this reduction of indirect impacts would be less than under Alternative B due to the initial lower number of wild horses proposed to be gathered. However, over time the population growth rate under Alternative A would be the slowest compared to Alternatives B, C, or D, thus the return of impacts to cultural resources based on concentrations of horses would take the longest under this alternative. The proposed population control measures should allow for longer intervals between gathers as the results are realized in the field setting.

## 4.1.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

This alternative would bring the wild horse population to low AML during the initial gather and should slightly reduce the reproductive rate (if the proposed gather efficiencies could be met). This would lead to an immediate reduction of indirect impacts to cultural resources in riparian zones. This alternative should also reduce the time before the population would increase to levels above AML. When the population reaches high AML, and exceeds high AML, indirect impacts to cultural resources would increase.

## 4.1.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Impacts to cultural resources from gather operations under Alternative C would be the same as those described under Alternative B. However, there would be no attempt made to slow population growth which would result in normal reproduction rates and a quicker achievement of high AML. This alternative would lead to further indirect impacts to cultural resources

## 4.1.5. Impacts from Alternative D: No Action — Defer Gather and Removal

There would be no direct impacts under this alternative. Indirect impacts to cultural resources resulting from wild horses trampling as described above may increase as wild horse populations continue to increase and concentrate at riparian areas. These impacts would be realized sooner than under Alternatives A-C.

## 4.2. Invasvie, Nonnative Species

## 4.2.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

Areas most vulnerable to establishment of invasive vegetation are heavily disturbed areas, such as trap sites and temporary holding facilities. These areas would be prioritized for follow up inventory and treatment reducing the potential for establishment and spread. Setting trap sites and holding facilities outside of areas known to contain noxious or non-native species would limit the potential to spread invasive vegetation.

Increases in vehicle use along roads within the assessment area by observers, transportation of horses, and transportation of support personnel could potentially introduce weed seed into the area. These areas would be prioritized for follow up inventory and treatment to reduce the potential for establishment and spread. Promoting on-road use and limiting off-road travel would also prevent the spread of non-native species into areas that were not previously infested.

In areas where perennial vegetation is sparse, helicopter use could cause the removal of vegetation around landing zones; these areas would be susceptible to erosion and invasive species establishment. Using sites with established perennial vegetation likely to withstand helicopter

pressure would limit the potential for vegetation removal and spread. Selecting landing zones outside of areas known to contain noxious or non-native species would also limit the potential to spread invasive vegetation.

Rangeland not heavily disturbed from gather operations contain native shrubs, understory grasses, and forbs that remain intact and would serve to compete with the invasive annual species. Following BLM policy, integrated weed management practices including continued treatments throughout the area, would help control the spread of invasive vegetation along roadsides and other areas used during gather operations.

## 4.2.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

Direct impacts to invasive, non-native species from gathering activities under Alternative A, as modified, would be the same as those described under Impacts from Actions Common to Alternatives A-C, including Option 1.

Indirect impacts to invasive, non-native species from gathering wild horses and implementing population control measures would, over time, reduce areas of bare ground caused from concentrated wild horse grazing and hoof action thereby decreasing the areas available for weed infestation. In the short term some of these areas may re-establish with invasive vegetation. However, as land health improves, less soil compaction and soil erosion would occur. These conditions would promote the re-establishment of native vegetation in the long term. While the removal of excess wild horses and fertility control would make areas more resilient to infestation by invasive species, other activities within the assessment areas that spread invasive species would still continue

## 4.2.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Direct and indirect impacts to invasive, non-native species from actions under Modified Alternative B would be similar to those described under Modified Alternative A except that pre-gather conditions would return sooner than under Modified Alternative A because the population growth rate would be higher.

## 4.2.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Direct impacts from gather operations under Modified Alternative C would be the same as those described under Modified Alternatives A and B. As wild horse populations increase over time without the population control efforts described in Modified Alternatives A or B, and once they exceed high AML, indirect impacts from Modified Alternative C would resemble the No Action Alternative. High AML would be reached and exceeded in a shorter period of time than under Alternatives A or B.

## 4.2.5. Impacts from Alternative D: No Action — Defer Gather and Removal

There would be no direct impacts expected under this alternative.

As a result of the increasing wild horse over-population within the gather area, wild horses would continue to trail farther out from limited waters to foraging areas, subsequently broadening the areas receiving heavy grazing or trailing use. Indirect impacts would include increased competition for forage among multiple-users of the range as wild horse populations continue to increase. Forage utilization would exceed the capacity of the range, resulting in a loss of desired forage species from plant communities as plant health and watershed conditions deteriorate. Abundance and long-term production potential of desired plant communities may be compromised and become irreversible, potentially creating areas for invasive, non-native species to establish.

# 4.3. Migratory Birds

## 4.3.1. Impacts from Modified Actions Common to Alternatives A-C

The project area contains riparian and sagebrush habitats, therefore potential impacts to neo-tropical migrants may be expected. Due to the emergency gather in early June, impacts to migratory bird nests would likely be greater since more nests would still be active in late spring (May-June) than in early summer; however, improvements to habitat conditions would occur sooner.

The 2012 gather under Alternatives A – C would occur during migratory bird nesting season which is from March 1 – August 31, yet some nesting birds may be disturbed by the low-flying helicopter and to a lesser degree, by cowboys on horseback as the wild horses are gathered. Nests may be damaged as horses pass through nesting habitat. Birds may also be disturbed during feeding activities but the disturbance would be short-term. Small areas of migratory bird habitat may be impacted by trampling at trap sites and holding facilities. This impact would be minimal (generally less than 0.5 acre/trap site), temporary, and short-term in nature.

If water/bait trapping is used, direct impacts would be expected to be minimal. Impacts to soil and vegetation would be short-term. Human presence during trapping activities may disrupt bird and wildlife activities temporarily. Birds would benefit from the removal of excess wild horses.

Indirect impacts would be related to wild horse densities and patterns of use. The reduction in the current wild horse populations would provide opportunity for upland and riparian vegetative communities to progress toward achieving a thriving natural ecological balance. The action alternatives would support a more diverse vegetative composition and structure through improvement and maintenance of healthy populations of native perennial plants. Habitat improvements would result for migratory bird species including loggerhead shrikes, Brewer's sparrows, sage thrashers, burrowing owls and migratory and resident raptor species. According to Paige and Ritter (1999), "Long–term heavy grazing may ultimately reduce prey habitat and degrade the vegetation structure for nesting and roosting. Light to moderate grazing may provide open foraging habitat."

#### 4.3.1.1. Impacts from Modified Actions Common to Alternatives A-C Option 1

If the gather were to be delayed to the original start date, the gather would occur during the latter part of migratory bird nesting season. Direct impacts to nests may be higher than under the Modified Alternative due to the earlier start date, but impacts to habitat conditions as a result of wild horses would continue until wild horses are gathered.

## 4.3.2. Impacts from Modified Alternative A: Modified Proposed Action — Phased in Gather and Population Growth Control

After the initial gather, the wild horse population would be reduced to mid- AML (approximately 174 animals). Impacts to migratory bird habitat would still occur, but to a lesser degree. With the population controls and follow-up gathers proposed by Alternative A, improved habitat conditions would be maintained for a longer period of time before horse populations, once again, increase to high AML or above.

## 4.3.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

This alternative would have similar impacts to Alternative A but the beneficial impacts would occur sooner if the horse population can be successfully reduced to low AML during the first gather attempt. The beneficial impacts would be of shorter duration than with Alternative A, since PZP would not be used and horse populations would be expected to increase at a faster rate than with PZP treatment.

## 4.3.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Impacts to feeding and nesting birds would be as described in Impacts from Actions Common to A-C but beneficial impacts from improved native perennial plants would be shorter-lived since the wild horse population would increase faster without sex ratio adjustment and the treatment of mares with PZP.

## 4.3.5. Impacts from Alternative D: No Action — Defer Gather and Removal

There would be no direct impacts from gather operations. However, the continued over-population of wild horses within the gather area would lead to indirect impacts due to the increasing inability of rangelands to support healthy populations of native perennial plants. These indirect impacts to vegetative communities would increase each year that a gather is postponed.

## 4.4. Native American Religious Concerns

With previous horse gatherers, the Fort McDermitt Paiute and Shoshone tribe, Pyramid Lake Paiutes and the Summit Lake Paiutes have been supportive; however, Fort McDermitt has expressed objections to having a gather in the summer. Their council felt horse gatherers in the summer stress the horses since there is very little water. Measures to reduce heat related impacts from gathering during summer months at are listed in Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers*.

### 4.4.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

No direct impacts to areas of Native American concern would occur because trap sites and holding areas would be placed in previously disturbed areas and/or in areas where there are no known Native American concerns.

### 4.4.2. Impacts from Modified Alternative A: Modified Proposed Action — Phased in Gather and Population Growth Control

Indirect impacts to plants in riparian zones used by Native Americans for medicinal and other purposes would be reduced under the Modified Proposed Action as the wild horse populations would be is brought back to AML over time through the use of proposed population control measures.

### 4.4.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Impacts would be similar as those described under Modified Alternative A except that the immediate reduction of impacts to plants would be greater due to the greater number of horses initially gathered. However, the population growth rate under this alternative would be higher than that proposed under Modified Alternative A and impacts to plants in riparian zones would return sooner.

### 4.4.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Immediate impacts associated with gathering activities would be the same as those described under Alternative B. As wild horse populations increase over time and if they exceed high AML, indirect impacts from Modified Alternative C would resemble those under the No Action Alternative and high AML would be reached and exceeded in a shorter period of time than under Modified Alternatives A or B.

## 4.4.5. Impacts from Alternative D: No Action — Defer Gather and Removal

There would be no new direct impacts under this alternative. Horses would continue to impact riparian areas and vegetation as described in Section 4.7, "Wetlands and Riparian Zones" and Section 4.16, "Vegetation".

# 4.5. Threatened and Endangered Species

## 4.5.1. Impacts from Modified Actions Common to Alternatives A-C

Impacts to sage grouse during nesting and early brood-rearing could occur during a early June gather. As wild horses are moved through nesting habitat, trampling of nests and young chicks could occur. Temporary disturbance could also occur from helicopter over flights and cowboys on horseback. There are currently no known active leks in the PMU but the possibility exists that there could be unknown active leks; nevertheless, based on NDOW survey information, reproduction is thought to be very limited in this PMU. Impacts would be expected to be minor (slight, but detectable). Early removal of wild horses would allow for improvements to habitat conditions to occur sooner.

During follow-up gather dates occurring November – December, sage grouse would have completed chick-rearing activities and would have moved to their wintering habitats. Temporary disturbance to sage grouse activities associated with helicopter over flights and cowboys on horseback may occur but would have no measurable impacts. Therefore, no direct impacts are anticipated.

Increased herbaceous cover would occur due to decreased harvest of forage by wild horses. Herbaceous cover is needed for screening of sage-grouse nests and to provide sage-grouse with forage plants on breeding and summer habitats. Wild horses are affecting sage-grouse habitat through heavy utilization of upland grasses and meadows used by sage-grouse for nesting and summer brood rearing. Increased herbaceous cover on spring meadows would improve summer brooding habitats by increasing the availability of high quality herbaceous vegetation and increasing the availability of insects associated with riparian meadows.

Direct impacts to LCT would be minimal, due to the short term duration of the wild horse gather and the minimal occupied and recovery habitat that could be crossed by the gathering. There could be some direct impacts to the stream banks of occupied or recovery streams if the wild horses cross streams when they are herded by helicopter to the temporary gather sites. The stream banks could receive greater impacts than under normal wild horse movement crossing a stream due to the speed at which the horses might cross the stream when being herded by the helicopter. No direct impacts would occur to LCT from trap/holding sites, observers, or increased traffic associated with gather operations.

#### 4.5.1.1. Impacts from Modified Actions Common to Alternatives A-C Option 1

If the gather were to be delayed to the original proposed start dates, sage-grouse that may nest in the PMU would have finished nesting and moved to higher elevation summer range. The capture actions would generally occur at lower elevations outside these habitats.

Temporary disturbance associated with helicopters or cowboys on horseback would be similar to those during an early June gather.

## 4.5.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

Indirect impacts with the reduction of the wild horse herd size would be reduced long-term impacts from stream bank trampling to the occupied and recovery LCT habitat. Following the initial gather with follow-up gathers, and as population control measures are applied, achievement of the established AML would be reached and this would provide the best opportunity for conservation, protection and preservation of identified species and their habitats (USFWS 1995).

Impacts to sage grouse would be the same as those discussed under Impacts from Modified Actions Common to Alternatives A-C. Beneficial impacts would be expected to last longer than the other alternatives since the horse population growth would be slowed with sex ratio adjustment and PZP treatment combined.

## 4.5.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Impacts to LCT and sage-grouse habitat would be similar to Modified Alternative A. Beneficial impacts would occur sooner under this Alternative if the horse population can be successfully reduced to low AML during the first gather attempt; however, the wild horse population would increase at a faster rate than under Modified Alternative A. This alternative would have similar impacts to Modified Alternative A but the beneficial impacts would occur sooner under this Modified Alternative if the horse population can be successfully reduced to low AML during the first gather attempt. Achievement of AML within the HMA would indirectly benefit sage-grouse, LCT and their habitat through improvements in habitat conditions.

## 4.5.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Impacts to LCT and sage-grouse would be similar to Modified Alternative B but beneficial impacts from improved native perennial plants would be shorter-lived since the wild horse population would increase faster without sex ratio adjustment and the treatment of mares with PZP.

## 4.5.5. Impacts from Alternative D: No Action — Defer Gather and Removal

With the No Action Alternative, there would be no direct impacts on LCT. Indirect impacts would be related to the wild horse population size. The population modeling showed that this alternative would produce the largest number with the wild horse population. This larger population could impact LCT through streambank trampling, increased sedimentation, reduced vegetation (herbaceous and woody) cover, and overall reduced riparian/stream habitat condition.

No direct impacts are expected under this alternative to Greater sage-grouse. Maintaining the existing wild horse over-population, which would increase with each successive foal crop, would result in continued to impacts to candidate species populations and habitats. Wild horse populations would increase (about 20-27%) each year that a gather is postponed. Upland habitats would continue to see locally heavy levels of utilization associated with wild horse use, which areas of heavy use would continue to expand as horse populations continue to grow. The associated decrease in herbaceous vegetation would reduce sage-grouse nesting quality. Continued heavy grazing would occur on spring meadow systems. Sage-grouse brooding habitats would continue to be degraded. Insect production, important for sage-grouse, would continue to be substantially less than potential.

# 4.6. Water Quality (Surface)

## 4.6.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

All action alternatives would result in identical types of direct and indirect impacts to water quality. The degree and timing of these impacts would vary under each alternative. Effects from direct impacts would likely be negligible relative to variations in the affected environment or would be of such short duration that they would not be measurable and would not remain any longer than the gather activities themselves. These effects include increased sediment loading to streams occur when wild horses cross streams or springs as they are herded to temporary gather sites. This impact would be temporary and relatively short-term in nature. Effects from indirect impacts would be related to wild horse population size. Use of riparian areas by wild horses during non-gather periods leads to increased sediment loading from hoof action and reduction of vegetation as well as the introduction of excess nutrients and bacteria from feces and urine. Loss of vegetation can also lead to increased surface water temperatures due to decreased shade. All alternatives would aim to reduce the total number of horses in the HMA which would reduce utilization pressure at all surface water sources. Reduced use is anticipated to allow regeneration of riparian vegetation which would lead to a restored hydrologic function over time. This would reduce sediment loading through reduced erosion and keep water temperatures low via increased shading.

## 4.6.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

The Modified Proposed Action would be expected to reduce the number of horses from approximately 930 to 300. This would reflect a 65% reduction of wild horse use on surface water

sources. After the first gather, wild horse populations would increase at unaltered rates (20-27%/year). After the second phase gather, 174 horses would remain and population growth rates would be slower (~11%). This would reflect a reduction in utilization of water resources and would slow the increase of use of each source and increase the time required between gathers. It is difficult to quantify the impacts to water resources from the Modified Proposed Action. However, it is assumed that a phased gather plan with more frequent population management actions would lead to a more consistent degree of impact to water resources as a whole when compared to the other Modified Alternatives including the No Action Alternative. Less dramatic population variation would allow the BLM to gain a better understanding of how water resources respond to horse numbers between high and low AML.

Effects would include reduced introduction of excess nutrients and bacteria to as well as reduced consumption of surface water sources by wild horses. The degree of the impact would be proportionate to the difference between current wild horse numbers and wild horse numbers realized under the Modified Proposed Action.

## 4.6.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Under this alternative, a population of 130 horses would remain after the initial gather, representing an 84% reduction in use of surface water sources by wild horses. The adjusted sex ratio would result in a somewhat decreased population growth rate (somewhere between the growth rates of the Modified Proposed Action and Modified Alternative C). This would result in the wild horse herd exceeding high AML within three or four years. A second gather would occur after high AML was reached and reduce the herd to 130 horses once more. It is difficult to quantify the impacts to water resources from Modified Alternative B. However, immediate reduction of the horse herd to low AML would have a greater positive impact to water resources than the Modified Proposed Action immediately after implementation. Over the period of analysis, however, impacts to water resources would be similar depending on actual gather return dates and actual herd population growth rates.

Effects would include reduced introduction of excess nutrients and bacteria to as well as reduced consumption of surface water sources by wild horses. The degree of the impact would be proportionate to the difference between current wild horse numbers and wild horse numbers realized under the Modified Proposed Action.

## 4.6.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Under this alternative, a population of 130 horses would remain after the proposed gather, representing an 84% reduction in use of surface water sources by wild horses. No efforts would be taken to reduce reproduction rates. With this, high AML would be exceeded within three or four years. No additional gathers would be planned. This would allow the wild horse population to reach current numbers in as little as nine years. It is difficult to quantify the impacts to water resources from Modified Alternative C. However, immediate reduction of the horse herd to low AML would have a greater positive impact to water resources than the Modified Proposed Action immediately after implementation. Over the period of analysis, however, wild horse numbers would continue to increase leading to a continued increase in effects to surface water sources.

Effects would initially include reduced introduction of excess nutrients and bacteria to as well as reduced consumption of surface water sources by wild horses. Within as little as nine years the effects on surface water sources would be identical to those currently observed. The degree of the impact would be proportionate to the difference between current wild horse numbers and wild horse numbers realized under the Modified Proposed Action.

## 4.6.5. Impacts from Alternative D: No Action — Defer Gather and Removal

Under this alternative, the wild horse population within the HMA would not be reduced. Increased competition at currently utilized surface water sources would lead to increased introduction of excess sediment, nutrients, and bacteria. Increasing horse numbers would encourage individual horses to travel further in search of available water sources leading to an increased number of surface water sources being impacted by wild horse use.

# 4.7. Wetlands and Riparian Zones

## 4.7.1. Impacts from Modified Actions Common to Alternatives A-C

Because riparian vegetation occurrence, vigor, and sustainability is so dependent on persistent moisture, drought conditions can lead to an accelerated degradation of these areas from wild horse and cattle utilization. Because the region has minimal snowpack (~13% of average) and have received only ~74% of average water year precipitation, it is anticipated that concentration of wild horse use around riparian areas would be especially detrimental to the maintenance or improvement of functionality of riparian habitats. The impacts to wetland and riparian zones from an emergency gather in early June would be indirect impacts caused by earlier decreased degree of utilization of these areas.

All action alternatives would result in identical types of direct and indirect impacts to wetlands and riparian zones. The degree and timing of these impacts would vary under each alternative. Effects from direct impacts would likely be negligible relative to variations in the affected environment or would be of such short duration that they would not be measurable and would not remain any longer than the gather activities themselves. These effects include trampling of vegetation and alteration of sediments when wild horses cross streams or springs as they are herded to temporary gather sites. Effects from indirect impacts would be related to wild horse population size. Use of riparian areas by wild horses during non-gather periods leads to utilization of riparian vegetation which is not regulated like use by cattle and alteration of soil and hydrologic function due to punching, shearing, and compaction of soft sediments. Loss of vegetation can also lead to increased erosion and, therefore, loss of riparian soils and organic material. All alternatives would aim to reduce the total number of horses in the HMA which would reduce utilization pressure at all wetland and riparian zones. Reduced use is anticipated to allow regeneration of riparian vegetation which would lead to decreased erosion and restored hydrologic function over time.

### 4.7.1.1. Impacts from Modified Actions Common to Alternatives A-C Option 1

Concentration of wild horse use around riparian areas would continue and impacts to wetlands and riparian zones from wild horse use would continue until excess wild horses are removed.

## 4.7.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

The Modified Proposed Action would be expected to reduce the number of horses from approximately 930 to 300. This would reflect a 65% reduction of wild horse use on wetland and riparian zones. After the first gather, wild horse populations would increase at unaltered rates (20-27%/ year). After the second phase gather, 130 horses would remain and population growth rates would be slower (~11%). This would reflect a reduction in utilization of water resources and would slow the increase of use of each source and increase the time required between gathers. It is difficult to quantify the impacts to water resources from the Modified Proposed Action. However, it is assumed that a phased gather plan with more frequent population management actions would lead to a more consistent degree of impact to water resources as a whole when compared to the other Modified Alternatives including the No Action Alternative. Less dramatic population variation would allow the BLM to gain a better understanding of how water resources respond to horse numbers between high and low AML.

Previously degraded riparian zones are able to recover when utilization is dramatically reduced and functioning riparian zones can recover annually from horse and cattle use. It is unknown, however, if the planned reduction of horses described under the Modified Proposed Action would represent a great enough reduction of use on wetland and riparian zones would provide an opportunity for restoration of previously degraded habitats. If the reduction is great enough to allow recovery, riparian vegetation would exhibit greater ground coverage and vigor, soil alterations would heal, and hydrologic function would be restored allowing for expansion of riparian areas. If the reduction is not great enough, a slight improvement of riparian vegetative communities would be observed, however the restoration of soils and hydrologic function would not likely occur.

## 4.7.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Under this alternative, a population of 130 horses would remain after an initial gather, representing an 86% reduction in use of surface wetland and riparian zones by wild horses. The adjusted sex ratio would result in a somewhat decreased population growth rate (somewhere between the growth rates of the Modified Proposed Action and Modified Alternative C). This would result in the wild horse herd exceeding high AML within three or four years. A second gather would occur after high AML was reached and reduce the herd to 130 horses once more.

Previously degraded riparian zones are able to recover when utilization is dramatically reduced and functioning riparian zones can recover annually from horse and cattle use. It is unknown, however, if the planned reduction of horses described under Modified Alternative B would represent a great enough reduction of use on wetland and riparian zones would provide an opportunity for restoration of the functionality of previously degraded habitats. If the reduction

is great enough to allow recovery, riparian vegetation would exhibit greater ground coverage and vigor, soil alterations would heal, and hydrologic function would be restored allowing for expansion of riparian areas. If the reduction is not great enough, a slight improvement of riparian vegetative communities would be observed, however the restoration of soils and hydrologic function would not likely occur. Because Modified Alternative B represents a greater initial reduction of horses, recovery of wetland and riparian zones would be more likely to occur than under the Modified Proposed Action. Increased use due to less frequent population management and decreased population growth management would, near the end of the analysis period, lead to increased utilization of riparian zones, relative to the Modified Proposed Action, which would have the potential to reverse any positive effects realized immediately after the initial gathers.

## 4.7.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Under this alternative, a population of 130 horses would remain after the proposed gather, representing an 86% reduction in use of wetland and riparian zones by wild horses. No efforts would be taken to reduce reproduction rates. With this, high AML would be exceeded within three or four years. No additional gathers would be planned. This would allow the wild horse population to reach current numbers in as little as nine years. It is difficult to quantify the impacts to wetland and riparian zones from Modified Alternative C.

Previously degraded riparian zones are able to recover when utilization is dramatically reduced and functioning riparian zones can recover annually from horse and cattle use. It is unknown, however, if the planned reduction of horses described under Modified Alternative C would represent a great enough reduction of use on wetland and riparian zones would provide an opportunity for restoration of the functionality of previously degraded habitats. If the reduction is great enough to allow recovery, riparian vegetation would exhibit greater ground coverage and vigor, soil alterations would heal, and hydrologic function would be restored allowing for expansion of riparian areas. If the reduction is not great enough, a slight improvement of riparian vegetative communities would be observed, however the restoration of soils and hydrologic function would not likely occur. Because Modified Alternative C represents a greater initial reduction of horses, recovery of wetland and riparian zones would be more likely to occur than under the Modified Proposed Action. Increased use due to non-repeated population management and no population growth management would, within approximately three years relative the Modified Proposed Action, lead to increased utilization of riparian zones which would have the potential to reverse any positive effects realized immediate after the initial gathers. Within nine years the impacts to wetland and riparian zones would be identical to those currently observed.

## 4.7.5. Impacts from Alternative D: No Action — Defer Gather and Removal

Under this alternative, the wild horse population within the HMA would not be reduced. Increased competition at currently utilized wetland and riparian zones would lead to continued loss of vegetative, soil, and hydrologic functionality. Increasing horse numbers would encourage individual horses to travel further in search of available water sources leading to an increased number of wetland and riparian zones being impacted by wild horse use.

# 4.8. Wilderness

## 4.8.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

In the short-term, the sight and noise of helicopters would be noticeable throughout the wilderness during the gather and would reduce opportunities for solitude. Dates of the gather would determine the amount of impact to visitors as use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons. Visitor use levels are generally highest the opening weekends of the hunting seasons.

Under Modified Alternatives A and B, the gather would decrease trampling, trailing, hedging, and forage utilization of native grasses over the long term thereby maintaining vegetative cover and preventing further degradation of natural conditions.

## 4.8.2. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Not utilizing fertility control or sex ratio adjustment would result in more frequent gather activities than Modified Alternatives A and B with corresponding increases to reduction in opportunities for solitude.

## 4.8.3. Impacts from Alternative D: No Action — Defer Gather and Removal

The No Action Alternative would not result in direct impacts to solitude from gather operations. The indirect impacts from the current over-population of wild horses would include removal of natural vegetation, damage to water sources, and increased erosion. These impacts represent continued and accelerating degradation of the quality of the natural conditions, scenic qualities, and conservation aspects of wilderness. Expansion of invasive plant species due to removal of vegetation from trampling and overgrazing would result in long-term degradation of the naturalness and untrammeled conditions. Control of non-native species and reintroduction of native species (if possible) would be costly and reduce opportunities for solitude while crews were working.

# 4.9. Fisheries

## 4.9.1. Impacts from Modified Alternatives A-C Option 1

Direct impacts to fisheries would be minimal, due to the short term duration of the wild horse gather and the minimal fisheries habitat that would be crossed by wild horses during the gather operations. If streams are crossed by the wild horses during the gather, the stream banks could receive greater impacts than under normal wild horse movement crossing a stream due to the speed at which the horses might cross the stream when being herded by the helicopter. Indirect impacts with the reduction of the wild horse herd size and from bringing the population to AML would be a reduction in the long-term impacts of stream bank trampling to the fisheries habitat.

## 4.9.2. Impacts from Modified Alternative D: No Action — Defer Gather and Removal

With the No Action Alternative, there would be no direct impacts on fisheries from gather operations. Indirect impacts resulting from the continued over-population of wild horses would persist. This larger population could impact fisheries through stream bank trampling, increased sedimentation, reduced vegetation (herbaceous and woody) cover, and overall reduced riparian/stream habitat condition.

# 4.10. Paleontology

No appreciable effects to paleontological resources are foreseen from the Modified Proposed Action or Modified Action Alternatives, therefore this resource is dismissed from further analysis.

# 4.11. Public Health and Safety

## 4.11.1. Impacts from Modified Alternatives A-C (Including Option 1)

Public safety as well as the safety of the BLM and contractor staff is always a concern during gather operations and is addressed through the implementation of Jackson Mountains HMA Gather Observation Protocol (see Appendix B, *Jackson Mountains Wild Horse Observation Protocol*) that has been used in recent gathers to ensure that the public remains at a safe distance and does not impede gather operations. Appropriate BLM staffing (public affair specialists and law enforcement officers) would be present to assure compliance with visitation protocols at the site. These measures minimize the risks to the health and safety of the public, BLM staff and contractors, and to the wild horses themselves during the gather operations.

When the helicopter is working close to the ground, the rotor wash of the helicopter is a safety concern for members of the public by potentially causing loose vegetation, dirt, and other objects to fly through the air, and can strike or land on anyone in close proximity as well as cause decreased vision. Should a helicopter crash or have a hard landing it is possible that pieces of the helicopter can travel significant distances through the air, which can strike or land on anyone in close proximity. All helicopter operations must therefore be in compliance with distance restrictions set forth in (FAR) 91.119 (14 CFR § 91.119).

During the herding process, wild horses will try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing horses can go through wire fences, traverse unstable terrain, and go through areas that they normally don't travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal's path.

Disturbances in and around the gather and holding corral have the potential to injure the government and contractor staff who are trying to sort, move and care for the horses by causing them to be kicked, struck, and possibly trampled by the animals trying to flee such disturbance. Such disturbances also have the potential to harm members of the public if they are in too close a proximity to the horses.

## 4.11.2. Impacts from Alternative D: No Action — Defer Gather and Removal

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

# 4.12. Rangeland Management

## 4.12.1. Impacts from Modified Actions Common to Alternatives A-C

If a gather were to occur in early June, livestock will have been removed from critically impacted areas, which would be the focus of initial gather efforts. Therefore little to no impacts would occur to livestock would occur in these areas. However, livestock may be found outside of the critical areas of concern and may be experience minor and short-term impacts due to gathering activities. The livestock are currently experiencing direct competition by wild horses for available forage and water, both within and outside the HMA boundaries in areas that are not designated for wild horse management. The direct and indirect impacts from a gather would increase forage availability and quality, reduce competition for water and forage between livestock and wild horses, and improve vegetative resources, thereby leading to a thriving ecological condition.

### 4.12.1.1. Impacts from Modified Actions Common to Alternatives A-C Option 1

Permittees have been notified of the drought conditions and possible adjustments of use. Livestock have been removed, or are anticipated to be removed, from areas of critical concern. However, livestock may be remaining outside of these areas. There could be minor, short term direct impacts to livestock due to gather activities if the operations disturb or disperse livestock.

## 4.12.2. Impacts from Modified Alternative A: — Phased in Gather and Population Growth Control

Under this alternative removal of 75% of the wild horse population and proposed fertility control measures would provide an opportunity for water and vegetative resources to recover over a longer period of time than provided by Modified Alternative B, C, or D due to the removal of horses and the non-reproducing component which would keep the wild horse population at a somewhat stable, slightly increasing rate for a longer period of time. There would be less competition between wild horses and livestock within the allotments for both water and forage.

## 4.12.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Under this alternative the proposed removal percentage and proposed fertility control measures would provide an opportunity for water and vegetative resources to recover for a moderate amount of time, more time than the No Action Alternative and Modified Alternative C, but

less than Modified Alternative A. Under this alternative wild horse numbers would be fairly stable immediately after the gather and for a year or two, but then begin increasing more quickly than Modified Alternative A. This would allow for a shorter recovery of water and vegetative resources. Competition between wild horses and livestock would ensue more quickly for these resources than under Modified Alternative A.

## 4.12.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Under this action the high range AML would be reached and exceeded in a shorter period of time than under Alternative A or B. This would cause continued resource deterioration resulting from competition between wild horses and livestock for water and forage reduced quantity and quality of forage, and undue hardship on the livestock operators, due to the inability to graze livestock on public lands within the grazing allotments as a result of competition for limited waters or the consumption by excess wild horses of forage allocated to livestock under the operative land-use plans and prior multiple use decisions.

## 4.12.5. Impacts from Alternative D: No Action — Defer Gather and Removal

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

# 4.13. Recreation

## 4.13.1. Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

Activities associated with the wild horse gather would impact recreational opportunities directly and indirectly. Dates of the 2012 gather and future gathers would determine the amount of impact to visitors as use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year. Tourism revenues to the local community from recreationists would follow this trend as well.

Hunters would be directly impacted by wildlife movements if the gather occurs during their hunts. The big game (California bighorn sheep, mule deer, and antelope) hunting seasons are scheduled to begin at the end of the gather, which could cause an impact to hunters if the gather overlapped the hunting seasons. The upland game (blue and ruffed Grouse, Chukar, and Hungarian partridge)

hunting season is scheduled to begin two months after the end of the gather and therefore should not directly affect recreational activities, such as existing campsites along Jackson Creek.

Recreationists in the wilderness areas wanting the opportunities of solitude and naturalness would be affected during helicopters herding activities (see Section 3.2.8, "Wilderness"). Individuals wanting to view/photograph wild horses would also be impacted indirectly by the gather since horses would have a heightened response to human presence following the gather and might be more difficult to observe for a period following the gather. Even though the density of wild horses in the area would be reduced, it would still be possible to view/photograph wild horses.

## 4.13.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

Indirectly, hunters would benefit from the reduction in wild horse populations following the gather by reducing the competition with wildlife for forage and water resources. Under Modified Alternative A this impact would continue for a longer period of time due to the slower population growth rate.

## 4.13.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Impacts would be similar to those described under Modified Alternative A; however, the reduction in competition for forage would be higher after the initial gather since Modified Alternative B proposes to remove a greater number of horses. Over time, the reduction of competition for forage would not last as long as the population growth rate under this alternative would be higher than Modified Alternative A.

## 4.13.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Impacts would be similar to those describe under Modified Alternative B except that the population of wild horses within the HMA would increase at a growth rate similar to Alternative D and AML would be reached in a shorter period of time than under Modified Alternatives A and B.

## 4.13.5. Impacts from Alternative D: No Action — Defer Gather and Removal

No direct impacts would occur under this alternative. However, without a gather to remove excess wild horses, recreational values would continue to be impacted since the overpopulation of wild horses results in competition with wildlife for resources, which in turn reduces hunting opportunities (see Section 4.18, "Wildlife").

Recreationists may also be indirectly impacted at camping locations from the continued overpopulation of wild horses. Preferred camping locations are typically located next to a water source, such as existing campsites along Jackson Creek. As wild horse populations increase, competition for water resources also increases. The growing wild horse population would

increasingly use water sources next to camp locations, and manure piles are unsightly to some users.

## 4.14. Soils

### 4.14.1. Impacts from Modified Alternatives A-C (Including Option 1)

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

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, these gather sites are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the potential impacts to soils.

Indirect impacts of implementing the action alternatives would be reduced concentrations of wild horses, respective to alternatives chosen, leading to reduced soil erosion on soils most frequented in this HMA by wild horses. This reduction in soil erosion would be most notable and important in the vicinity of small spring meadows and water developments experiencing high levels of disturbance and bare ground from the current excess numbers of wild horses.

### 4.14.2. Impacts from Alternative D: No Action — Defer Gather and Removal

No direct impacts are expected under this alternative. In the absence of a wild horse gather, however, soil loss from wind and water vulnerability to erosion, particularly in the vicinity of small spring meadows and water developments, would be expected to accelerate. The increasing over-utilization of vegetation and heavy trailing due to an over-population of wild horses, would continue the loss of perennial native bunchgrasses, forbs and shrubs exposing larger areas to potential soil loss. This loss again would be most notable in the vicinity of small spring meadows and other water sources which attract with high levels of wild horse use.

## 4.15. Special Status Species

### 4.15.1. Impacts from Modified Actions Common to Alternatives A-C

Sensitive Migratory Birds

Impacts to sensitive migratory birds (including raptors) would be the same as those discussed under Section 4.3, “Migratory Birds”.

Townsend's big-eared bat (and other bat species)

These alternatives would also have positive indirect impacts to bats that depend upon flying insects primarily associated with riparian zones. Flying insect populations would be expected to increase as riparian meadows become more productive and stubble heights increase, creating favorable micro sites for insects. Increased insect production would be expected to provide increased foraging opportunities for resident and migratory bats. No direct impacts are expected for bats under these alternatives. An gather in early June (emergency gather) would impact bats by improving habitat conditions sooner than if the gather were to occur in July.

Pygmy Rabbit

A slight chance of damage to pygmy rabbits and burrows could occur due to trampling by horses. Rabbit behavior may be disrupted due to noise from the low-flying helicopter and running horses. Potential indirect impacts to pygmy rabbits would include increased herbaceous cover under existing stands of big sagebrush used as pygmy rabbit habitats. Decreased wild horse numbers would decrease physical damage to tall sage-brush plants that screen rabbit burrows and decrease hoof damage to burrows. An gather in early June (emergency gather) would impact pygmy rabbits by improving habitat conditions sooner than if the gather were to occur in July.

Cordelia beardtongue (*Penstemon floribundus*)

Impacts to this sensitive plant are not expected. This species grows in steep sloped areas (usually 50% slope or more) utilized infrequently by wild horses.

Windloving buckwheat (*Eriogonum anemophilum*)

Modified Alternatives A-C would be expected to provide better opportunity for population maintenance and growth of this species due to reduced trampling and utilization from wild horses. Although grasses make up the vast majority of a horse's diet, they will eat forbs, especially if forage is limited. A gather in early June (emergency gather) would improve habitat conditions sooner than if the gather were to occur in July.

Bighorn Sheep (*Ovis Canadensis*)

During a gather in early June (emergency gather) bighorn sheep may be impacted by disturbance from gather activities during lambing season (April-June). If disturbance occurs near lambing areas, it could temporarily stress ewes and lambs. The disturbance would be short-term and impacts would likely be minor (slight, but detectable). Improvement to habitat conditions however would occur sooner than if the gather were postponed until the originally proposed start date.

Impacts to bighorn sheep may include disturbance during feeding and watering. Removal of excess wild horses would decrease competition for available cover, space, forage, and water between wild horses and bighorn sheep. Decreased wild horse levels would reduce conflicts between horses and wildlife at limited water sources. Reduced harvest of vegetation would result in increased plant vigor, production, seedling establishment, and ecological health of important wildlife habitat. Bighorn sheep would benefit from an increase in forage availability, vegetation density, and structure.

### 4.15.1.1. Impacts from Modified Actions Common to Alternatives A-C Option 1

Impacts to bats, pygmy rabbits and windloving buckwheat would be similar under Option 1. The original proposed gather dates for the summer 2012 (on or after July 1) and the follow-up gathers are outside of lambing season, so impacts to ewes during lambing would be avoided.

## 4.15.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

Under Modified Alternative A, the wild horse population would be reduced to low -AML (approximately 130 animals) over a period of several years. Impacts to special status species habitat would still occur, but to a lesser degree. With the population controls and follow-up gathers proposed by Modified Alternative A, improved habitat conditions would be maintained for a longer period of time before horse populations, once again, increase to high AML or above.

## 4.15.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

This alternative would have similar impacts to Modified Alternative A but the beneficial impacts would occur sooner if the horse population can be successfully reduced to low AML during the initial gather attempt. The beneficial impacts would be of shorter duration than with Modified Alternative A, since PZP would not be used and horse populations would be expected to increase at a faster rate than with PZP treatment.

## 4.15.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Short-term impacts to special status species from the gather are expected to be the same as was discussed under Modified Alternative A but the beneficial long-term impacts would be to a lesser extent since without sex ratio adjustment and the use of PZP, the wild horse population would increase to high AML or above at a faster rate.

## 4.15.5. Impacts from Alternative D: No Action — Defer Gather and Removal

No direct impacts to special status species are expected under this alternative. However, maintaining the existing excess wild horse numbers within the gather area, which would continue to increase as a result of population growth, would result in continued indirect impacts to sensitive species populations and habitats. Wild horse populations would increase approximately 20% each year that the gather is postponed. Upland habitats would continue to see locally heavy levels of utilization associated with wild horse use which would expand as horse populations continue to grow.

If excess wild horses are not removed, continued heavy grazing would occur on spring meadow systems that serve important habitat functions for sensitive species. Beneficial impacts, as discussed under Modified Alternatives A, B and C would not be realized.

# 4.16. Vegetation

## 4.16.1. Impacts from Modified Alternatives A-C (including Option 1)

Direct and indirect impacts associated with the action alternatives would consist of disturbance to vegetation immediately in and around the temporary, public viewing areas, gather site(s) and holding facilities. Human impacts would be created by vehicle traffic to, around and from temporary gather sites and public viewing areas. Wild horse impacts as a result of herding concentration could be substantial in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. These impacts would include trampling of vegetation. Long term impacts would be minimal as herding would have a short-term duration.

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the short and long-term effects of these impacts.

Implementation of the action alternatives would reduce the current wild horse populations, providing the opportunity for impacted vegetation communities to achieve increased resiliency to environmental disturbance and improved ecological function. Competition for forage among wild horses, wildlife, and livestock would be reduced as utilization levels decrease, allowing impacted vegetation conditions to improve.

## 4.16.2. Impacts from Alternative D: No Action — Defer Gather and Removal

There would be no direct impacts expected under this alternative.

As a result of the increasing wild horse over-population within the Jackson Mountains HMA, wild horses would continue to trail farther out from limited waters to foraging areas, subsequently broadening the areas receiving heavy to severe grazing or trailing use. Indirect impacts include increased competition for forage among multiple-users of the range as wild horse populations continue to increase. Forage utilization would exceed the capacity of the range, resulting in a loss of desired forage species from plant communities as plant health and watershed conditions deteriorate. Abundance and long-term production potential of desired plant communities may be compromised and become irreversible, potentially precluding the return of these vegetation communities to their full potential as identified in ecological site descriptions published by the Natural Resource Conservation Service.


**Figure 4.1. South Jackson West Sugarloaf Spring**


**Figure 4.2. North Jackson HMA**

Indirect impacts are similar to those described in Section 4.7, "Wetlands and Riparian Zones" and would consist of increasing degradation to riparian vegetation as the wild horse population increases each year that a gather is postponed.

# 4.17. Wild Horses

## 4.17.1. Impacts from Actions Common to Modified Alternatives A-C

Impacts to wild horses under Modified Alternatives A-C would be both direct and indirect, occurring on both individual animals and populations as a whole.

Capturing Wild Horses

The BLM has been gathering excess wild horses from public lands since 1975, and has been using helicopters for such gathers since the late 1970s. Refer to Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers* for information about methods that are utilized to reduce injury or stress to wild horses during gathers. Since 2004, BLM Nevada has gathered over 40,000 excess animals. Of these, gather related mortality has averaged 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 are a safe, humane, effective and practical means for gathering and removing excess wild horses from the range. 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 (mid-April to mid-May). Although helicopter gathers generally are not conducted before July 1 absent emergency conditions, an emergency removal of wild horses from the south west portion of the gather area near the end of foaling season would be necessary due to current conditions.

Injuries sustained by wild horses during gathers include nicks and scrapes to legs, face, or body from brush or tree limbs while being herded to the trap corrals by the helicopter. Rarely, wild

horses may encounter barbed wire fences and receive wire cuts. These injuries are not fatal and are treated with medical spray at the holding corrals until a veterinarian can examine the animal. During the actual herding of horses with a helicopter, injuries are rare, and consist of scrapes and scratches from brush, or occasionally broken legs from horses stepping into a rodent hole. Serious injuries requiring euthanasia could be anticipated to occur in 1-2 horses per every 1000 captured based on prior gather statistics. If an emergency gather were to be implemented additional care and monitoring would be planned to ensure pregnant mares and foals were appropriately cared for.

Though some members of the public have expressed the view that helicopter gathers are not humane, most injuries occur once the horses are captured, and similar injuries would also be sustained if horses were captured through a more passive gather method such as bait trapping, as the animals would still need to be sorted, aged, transported and otherwise handled.

Environmental Stressors

Gathering wild horses during the summer months can potentially cause heat stress, although this can occur during any gather, especially in older or weaker animals. Adherence to the Standard Operating Procedures (SOPs) and techniques used by the gather contractor help minimize the risks of heat stress. Heat stress does not occur often, but if it does, death can result. Most temperature related issues during a gather can be mitigated by adjusting daily gather times to avoid the extreme hot or cold periods of the day. The BLM and the contractor would be pro-active in controlling dust in and around the holding facility and the gather corrals to limit the horses' exposure. Electrolytes can be administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal.

As described in the Modified Proposed Action, water resources would continue to be monitored through the summer months to address any potential concerns before and after the proposed gather operations. If necessary, BLM would provide water for wild horses as a temporary measure until wild horse populations are within the AML as well as during periods of critical need. Any watering of horses would be separately evaluated under NEPA.

The June gather is proposed for this gather as the dry conditions currently being experienced within the Winnemucca District have exacerbated potential water and forage shortages in the Jackson Mountains HMA. Wild horses have been observed outside the HMA in large numbers and trailing into water sources in abnormally large groups. This has been attributed to the overpopulation of horses. Moderate to severe forage utilization within 5-10 miles of the current water sources has been observed throughout the winter months and into the spring. In order to ensure the health and wellbeing of the wild horses in the Jackson Mountains HMA and outlying areas it is imperative to remove excess animals as soon as possible. Gathering the wild horses as they are concentrating around limited water sources should reduce the distance traveled during gather activities reducing stress. Also, in the event horses are located at higher elevations the helicopter pilot routinely allows horses to travel slowly at their own pace. Due to the escalation of drought conditions an emergency removal would be necessary. Immediate removal of wild horses from the south west portion of the gather area near the end of foaling season and the concurrent removal of wild horses from the remaining portions would prevent harm to the wild horse population within the Jackson Mountains. The lack of spring vegetation growth, minimal residual vegetation from the previous year's forage crop and reduced spring flows and natural water sources are reflected in the Jackson Mountains wild horses as can be observed in the reduction of wild horse body condition and overall health illustrated in current monitoring data.

The entire Area would be gathered to minimize movement of wild horses and to reduce stress from competition for severely limited resources and multiple gather attempts. Although it is likely there will be an increased number of pregnant mares and younger foals gathered during this time, the overall benefits of gathering and removing wild horses before July 1 is to limit the probability of death loss due to extremely poor health related to poor nutrition and limited water consumption opportunities. In order to preserve the overall health of mares and foals specifically an early gather would provide an opportunity to transition the animals to adequate feed at temporary and short term holding while their bodies are still capable of recovering from a poor state of health. If a gather were to be delayed body condition would continue to decrease and the probability of death loss to pregnant and nursing mares would increase, also increasing the probability of orphaning foals. Although there may be incidence of orphan foals and/or spontaneous abortions during gather operations an earlier gather would allow the opportunity to offer proper nutrition by feeding hay and providing water to mares at temporary and short term holding, increasing the chances of survival for mares and foals.

Sorting and Transporting Wild Horses

Most injuries are sustained once the wild horse has been captured and is either within the trap corrals or holding corrals, or during transport between the facilities and during sorting. These injuries result from kicks and bites, and from animals making contact with corral panels or gates. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and to move the horses into the large holding pens where they can settle in with hay and water. Injuries that may be experienced by wild horses during transport and sorting consist of superficial wounds of the rump, face, or legs. Despite precautions, occasionally a wild horse may rear up or make contact with panels hard enough to sustain a fatal neck break, though such incidents are rare. There is no way to reasonably predict any of these types of injuries. On many gathers, no wild horses are injured or die. On some gathers, due to the genetic background of the horse, they are not as calm and injuries are more frequent. Overall, however, injuries and death are not frequent and usually average less than 0.5%.

Through the capture and sorting process, wild horses are examined for health status, injury and other defect. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM-2009-041 is used as a guide to determine if animals meet the criteria and should be euthanized (refer to Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers*). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining (dental regression or breakage), are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical defects such as club foot, or sway back and would not be successfully adopted, or should not be returned to the range.

Wild Horses Response to Handling

Impacts to individual animals may occur as a result of handling stress associated with the gathering, processing, and transportation of animals. The intensity of these impacts varies by individual animal and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality to individuals from handling is infrequent but does occur in 0.5% to 1% of wild horses gathered in a given gather. Other impacts to individual wild horses include separation of members of individual bands of wild horses and removal of animals from the population.

The wild horse is a very adaptable animal and assimilates into the environment with new members quite easily. Observations made following completion of gathers shows that captured wild horses acclimate quickly to the holding corral situation, becoming accustomed to water tanks and hay, as well as human presence.

Indirect individual impacts are those impacts which occur to individual wild horses after the initial stress event, and may include spontaneous abortions in mares, and increased social displacement and conflict in stallions. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs among older stallions/jacks following sorting and release into the stallion pen, which lasts less than a few minutes and ends when one stallion retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which do not break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual animal.

Spontaneous abortion events among pregnant mares following capture is also rare, though poor body condition can increase the incidence of such events. Given the timing of this gather, spontaneous abortion is not considered to be an issue for the proposed gather.

Foals are often gathered that were orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized. Due to the timing of the proposed gather, it is likely that a small number of orphan foals would be encountered as the majority of the current year's (2012) foals would be less than five months of age and may not be weaned by their mothers. In private industry, domestic horses are normally weaned between four and six months of age. During an emergency gather it is likely there will be an increased number of pregnant mares and younger foals gathered during this time, the overall benefits of gathering and removing wild horses before July 1 is to limit the probability of death loss due to extremely poor health related to poor nutrition and limited water consumption opportunities. In order to preserve the overall health of mares and foals specifically an early gather (before July 1) will provide an opportunity to transition the animals to adequate feed at temporary short term holding while their bodies are still capable of recovering from a poor state of health. If the gather were to be delayed body condition would continue to decrease and the probability of death loss to pregnant and nursing mares would increase, also increasing the probability of orphaning foals. Although there may be incidence of orphan foals and/or spontaneous abortions during gather operations an earlier gather would allow the opportunity to offer proper nutrition by feeding hay and providing water to mares at temporary and short term holding, increasing the chances of survival for mares and foals.

Temporary Holding Facilities During Gathers

Wild horses that are gathered would be transported from the gather sites to a temporary holding corral within the HMA in goose-neck trailers. At the temporary holding corral wild horses would be sorted into different pens based on sex. The horses would be aged and provided good quality hay and water. Mares and their un-weaned foals would be kept in pens together. At the temporary holding facility, a veterinarian, when present, would provide recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital or

developmental abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA).

Transport, Short Term Holding, and Adoption Preparation

Wild horses removed from the range would be transported to the receiving short-term holding facility in a goose-neck stock trailer or straight-deck semi-tractor trailers. Trucks and trailers used to haul the wild horses would be inspected prior to use to ensure wild horses can be safely transported. Wild horses would be segregated by age and sex when possible and loaded into separate compartments. Mares and their un-weaned foals may be shipped together. Transportation of recently captured wild horses is limited to a maximum of 12 hours. During transport, potential impacts to individual horses can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to die during transport.

Upon arrival, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are provided good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. At the short-term holding facility, a veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital or developmental abnormalities) would be humanely euthanized using methods acceptable to the AVMA. Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to feed. A small percentage of animals can die during this transition; however, some of these animals are in such poor condition that it is unlikely they would have survived if left on the range.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freeze-marking the animals with a unique identification number, vaccination against common diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses are similar to those that can occur during transport. Injury or mortality during the preparation process is low, 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% (GAO-09-77, Page 51) including 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 die accidentally during sorting, handling, or preparation. As of February 2012, approximately 15,600 excess wild horses are being maintained within BLM's short-term holding facilities.

Adoption

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse for one year and the horse and facilities are inspected. After one year, the applicant may take title to the horse at which point the horse becomes the property of the applicant. Adoptions are conducted in accordance with 43 CFR § 5750.

Sale with Limitation

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 at least three times. The application also specifies that all buyers are not to sell to slaughter buyers or anyone who would sell the animals to a commercial processing plant. Sales of wild horses are conducted in accordance with the 1971 WFRHBA and congressional limitations.

Long-Term Grassland Pastures

Since fiscal year 2008, the BLM has removed over 37,400 excess wild horses from the Western States. Most animals not immediately adopted or sold have been transported to long-term grassland pastures in the Midwest.

Potential impacts to wild horses from transport to adoption, sale or long-term grassland pastures (LTP) are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or LTP, animals may be transported for up to a maximum of 24 hours. Immediately prior to transportation, and after every 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 two pounds of good quality hay per 100 pounds of body weight with adequate bunk space to allow all animals to eat at one time. The rest period may be waived in situations where the anticipated travel time exceeds the 24-hour limit but the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

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. As of February 2012, about 31,400 wild horses that are in excess of the current adoption or sale demand (because of age or other factors such as economic recession) are currently located on private land pastures in Oklahoma, Kansas, and South Dakota. Establishment of LTPs was subject to a separate NEPA and decision-making process. Located in mid or tall grass prairie regions of the United States, these LTPs are highly productive grasslands compared to the more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 10-11 acres per animal).

Mares and sterilized stallions (geldings) are segregated into separate pastures except at one facility where geldings and mares coexist. Although the animals are placed in LTP, they remain available for adoption or sale to qualified individuals; and foals born to pregnant mares in LTP are gathered and weaned when they reach about 8-12 months of age and are also made available for adoption. The LTP contracts specify the care that wild horses must receive to ensure they remain healthy and well-cared for. Handling by humans is minimized to the extent possible although regular on-the-ground observation by the LTP contractor and periodic counts of the wild horses to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians. A small percentage of the animals may be humanely euthanized if they are in very poor condition due to age or other factors. Although horses residing on LTP facilities live longer, on the average, than wild horses residing on public rangelands, 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).

Euthanasia or Sale Without Limitation

While euthanasia and sale without limitation has been limited by Congressional appropriations, it is allowed under the WFRHBA. Neither option is available for wild horses under the Department of the Interior's fiscal year 2012 budgetary appropriations. Although the appropriations restrictions could be lifted in future appropriations bills, it would be contrary to Departmental policy to euthanize or sell without limitations healthy excess wild horses.

Water/Bait Trapping (if used)

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

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

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

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

## 4.17.1.1. Impacts from Actions Common to Modified Alternatives A-C Option 1

Although water would be supplied the lack of forage in the area would continue to seriously impact wild horse health. In this case individual wild horse mortality would be likely before, during and after gather activities due to compromised health related to starvation. This current decline would continue if prompt action is not taken and wild horse mortality on the range is expected. Immediate intervention is needed to humanely care for the excess wild horses. An emergency gather will avert mortality on the range as well as mortality during and after the gather activities due to poor health. If the gather were to be delayed body condition would continue to decrease and the probability of death loss to pregnant and nursing mares would increase,

also increasing the probability of orphaning foals. Although there may be incidence of orphan foals and/or spontaneous abortions during gather operations an earlier gather would allow the opportunity to offer proper nutrition be feeding hay and providing water to mares at temporary and short term holding, increasing the chances of survival for mares and foals.

## 4.17.2. Impacts from Modified Alternative A: Proposed Action — Phased in Gather and Population Growth Control

The Modified Proposed Action would decrease and then maintain the existing population of wild horses to the low range of AML in the course of successive helicopter gather operations over a 10 year period and stallions would be selected for release with the objective of establishing a 60% male ratio within the core breeding population of 130 horses (low AML) on the range. . All animals selected to remain in the population would be selected to maintain a diverse age structure, herd characteristics and body type (conformation). The Modified Proposed Action would not reduce all of the associated impacts to the wild horses and rangeland resources as quickly as the other alternatives. Over the short-term, individuals in the herd would still be subject to increased stress and possible death as a result of continued competition for water and forage until the project area's population can be reduced to the AML range. The areas experiencing heavy and severe utilization levels by wild horses would likely still be subject to some excessive use and impacts to rangeland resources (concentrated trailing, riparian trampling, increased bare ground, etc.) throughout the HMA would be expected to continue until the project area's population can be reduced to the AML range and concentration of horses can be reduced.

Because it would take successive gather operations over a period of ten years to attain the areas wild horse population to low end of AML and then maintain it, bands of horses would continue to leave the boundaries of the HMAs and move into areas not designated for their use in search of forage and water. This would not achieve the stated objectives for wild horse herd management areas, to "prevent the range from deterioration associated with overpopulation", and "preserve and maintain a thriving natural ecological balance and multiple use relationship in that area" until such time as the Modified Proposed Action has been completed.

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

Bringing the reproducing wild horse population back to low range of AML and slowing its growth rate once the Modified Proposed Action has been achieved would reduce damage to the range from the current overpopulation of wild horses and allow vegetation resources to start recovering, without the need for additional gathers in the interim. As a result, there would be fewer disturbances to individual animals and the herd, and a more stable wild horse social structure would be provided.

Impacts to individual animals may occur as a result of handling stress associated with the gathering, processing, and transportation of animals. The intensity of these impacts varies by individual animal and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality to individual animals from these impacts is infrequent but does occur in 0.5% to 1% of wild horses gathered in a given gather. Other impacts to individual wild horses include separation of members of individual bands of wild horses and removal of animals from the population.

Indirect impacts can occur after the initial stress event, and may include increased social displacement or increased conflict between stallions. These impacts are known to occur intermittently during wild horse gather operations. Traumatic injuries may occur, and typically involve bruises from biting and/or kicking, which do not break the skin.

Stallions selected for release would be released to increase the post-gather sex ratio to approximately 60% stallions in the remaining herds. Stallions would be selected to maintain a diverse age structure, herd characteristics and body type (conformation). It is expected that releasing additional stallions to reach the targeted sex ratio of 60% males would result in smaller band sizes, larger bachelor groups, and some increased competition for mares. With more stallions involved in breeding it should result in increased genetic exchange and improvement of genetic health within the herd.

Population Control Measures

As described in the Modified Proposed Action, all breeding age mares selected for release, including those previously treated with fertility control, would be treated/retreated with a two-year Porcine Zona Pellucida (PZP-22) or similar vaccine and released back to the range. Immunocontraceptive treatments would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers*). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

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

The treatment would be controlled, handled, and administered by a trained BLM employee (Appendix A, *Standard Operating Procedures (SOPs) for Wild Horse Gathers* and Appendix C, *Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments*). 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 experience long term impacts from the fertility control injections. Mares treated and released during the previous gathers were freeze-marked on the left

hip with two 4 inch letters for future identification. These identifiers would be recorded along with age and health of the mare for future analysis. Additional letters could be added for future tracking purposes. Newly captured mares that do not have markings associated with previous fertility control treatments would be marked with new freeze-mark letters for tracking purposes. This information would also be used to determine the number of mares captured that were not previously treated and to provide additional insight into gather efficiencies.

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

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

The highest efficacy for fertility control has been achieved when applied during the time frame of November through March. Refer to Appendix C, *Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments* for more information about fertility control research procedures. The efficacy for the application of the two-year PZP vaccine based on winter application is as follows:

| Application | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| Winter | Normal | 94% | 82% | 68% |
| Summer | Normal | 80% | 65% | 50% |

The one-time application of PZP, applied at the capture site, would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effects on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in 2013 (Year 1).

Refer to Appendix C, *Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments* for detailed information about fertility control treatment and results of the WinEquus horse population modeling in Appendix F, *Jackson Mountains Population Modeling*.

Under Alternative A, stallions would be selected for release to increase the post-gather sex ratio to approximately 60% stallions in the remaining herds in an effort to further reduce growth rates in combination with fertility control. Stallions would be selected to maintain a diverse age structure, herd characteristics and body type (conformation). It is expected that releasing additional stallions to reach the targeted sex ratio of 60% males would result in smaller band sizes, larger bachelor groups, and some increased competition for mares. With more stallions involved in breeding it is expected that there would be increased genetic exchange and improvement of genetic health within the herd.

Wild Horses Remaining or Released into the HMA following Gather

The primary effects to the wild horse population as a direct result of this proposed gather would be to alter herd population dynamics, age structure or sex ratio, and subsequently reduction of the growth rates and population size over time. Reducing population size would also ensure that the remaining wild horses remain healthy and vigorous, and that the wild horses in the HMA are not at risk of death or suffering as a result of starvation due to insufficient forage and/or water as a result of frequent drought conditions.

The wild horses that are not captured may be temporarily disturbed and may move into another area during the gather operations. With the exception of changes to herd demographics, direct population-wide impacts from a gather have proven, over the last 30 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of when wild horses are released back into the area. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

As a result of lower density of wild horses across the HMA following the removal of excess horses, competition for resources would be reduced, allowing wild horses to utilize preferred, quality habitat. Forage and water resources would be allowed to improve in quality and quantity. Improved range condition and increased forage availability would promote healthy, viable populations of wild horses. A thriving natural ecological balance between wild horses and other resource values would be achieved throughout the HMA, and deterioration of the range from an over-population of wild horses would be temporarily alleviated or prevented. Managing wild horse populations in balance with the habitat and other multiple uses would ensure that the populations are less affected by drought or other climate fluctuations, and that emergency gathers are either avoided or minimized, thus reducing stress to the animals, and increasing the long-term success of these herds.

Removal of excess wild horses would improve herd health. Decreased competition for forage and water resources would reduce stress and promote healthier animals. This removal of excess animals, coupled with anticipated reduced reproduction (population growth suppression) as a result of fertility control and sex ratio adjustment, should result in improved health and condition of mares and increased foal survival rates. Additionally, reduced population growth rates would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as to herd social structure over the foreseeable future.

Under Alternative A and B, band size would be expected to decrease, competition for mares would be expected to increase, genetic exchange would be expected to increase with additional stallions breeding, and size and number of bachelor bands would be expected to increase. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. 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.

It is not expected that genetic health would be impacted by Modified Alternatives A or B. The AML range of 130-217 wild horses would provide adequate opportunity for genetic health. Following analysis of samples that would be collected in 2012, the Winnemucca District would work with Dr. Gus Cothran's recommendations to develop plans to maintain and further improve genetic health.

The wild horses that remain in the HMA following the gather would maintain their social structure and herd demographics (age and sex ratios). No observable effects to the remaining population would be expected except a heightened shyness toward human contact.

## 4.17.3. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Under this alternative, excess wild horses would be removed to the lower range of the AML. Impacts from this Alternative would be similar to the Modified Alternative A; however this Alternative would not phase-in the removal of excess horses as in Modified Proposed Action. Modified Alternative B would remove excess wild horses within the HMA and outside the HMA boundaries. Successful implementation of this alternative would be dependent on gathering 90-95% of the current wild horse population. Due to the mountainous terrain and vegetative cover, gather efficiency is likely to be less since historically they have averaged only about 80% gather efficiency on the HMA. With the possibility of a smaller gather efficiency, a follow up gather may be needed in 2014 or 2015 to achieve low range AML and to complete the management actions proposed to slow the wild horse population growth rate. Follow-up gather would occur every 2-3 years to continue population suppression activities.

## 4.17.4. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Impacts from this alternative would be similar to Modified Alternative B; however there would be no horses released because only enough animals would be gathered to reduce the population to the low end of AML, sex ratios would not be adjusted and fertility control would not be applied. AML would be achieved but would most likely exceed the high end of AML sooner than the Modified Proposed Action.

## 4.17.5. Impacts from Alternative D: No Action — Defer Gather and Removal

Under the No Action alternative, AML would not be achieved within the HMA and excess wild horses would not be removed from areas within or outside of the designated HMA. There would be no active management to control the size of the population at this time. Wild horse populations would continue to increase at an average rate of 20-27% per year. Without a gather and removal now, the wild horse population in the HMA would exceed 2,179 horses within 5 years and 5,670 horses within 10 years based on population annual reproduction rate estimates. These population levels would continue to exceed the carrying capacity of the range.

AML is the maximum population at which a thriving natural ecological balance would be maintained and that avoids deterioration of the rangeland. The increasing population of wild horses even further in excess of AML under the No Action alternative would over-extend and deplete water and forage resources. Excessive utilization, trampling, and trailing by wild horses would further degrade the vegetation, prevent improvement of range that is already in less than desirable or in degraded condition, would degrade currently healthy rangelands, and would not allow for sufficient availability of forage and water for either wild horses or other ungulates, especially during drought years or severe winter conditions.

Throughout the HMAs administered by the Winnemucca District, few predators exist to control wild horse populations. Some mountain lion predation occurs, but does not appear to be substantial. Coyote are not prone to prey on wild horses unless such horses are very young or extremely weak. Other predators such as wolf or bear do not exist.

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

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

Wild horses are not a self-regulating species and would continue to reproduce until their habitat can no longer support them. Usually the habitat is severely, if not irreversibly, damaged before the wild horse population is abruptly impacted and experiences substantial death loss. Once the vegetative and water resources are at these critically low levels due to excessive utilization by an over population of wild horses, the weaker animals, generally the older animals and the mares and foals, are the first to be impacted. It is likely that a majority of these animals would die from starvation and dehydration. The resultant population would be heavily skewed towards the stronger stallions which would lead to substantial social disruption in the HMA. Fighting among stud horses would increase as they protect their position at scarce water sources, and injuries and death to all age classes of animals would be anticipated. Substantial loss of the wild horses in the HMA due to starvation or lack of water would have obvious consequences to the long-term viability of the herd. By managing the public lands in this way, the vegetative and water resources would be impacted first and to the point that they have no potential for recovery. This degree of resource impact would lead to management of wild horses at a greatly reduced level if BLM is able to manage for wild horses at all on the HMA in the future.

Trampling and trailing damage by wild horses in/around riparian areas would also be expected to increase, resulting in larger, more extensive areas of bare ground. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have obvious impacts to the future of the HMA and all other users of the range's resources. Competition for the available water and forage between wild horses, domestic livestock, and native wildlife would increase. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have obvious impacts to the future of the HMA and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands that would allow for the management of a healthy wild horse population, and would not promote a thriving natural ecological balance.

As populations increase beyond the capacity of the habitat to sustain them, more bands of horses would leave the boundaries of the HMA in search of forage and water. This alternative would also result in increasing numbers of wild horses in areas not designated for their use, and would not achieve the stated objectives for wild horse herd management areas, to "prevent the range from deterioration associated with overpopulation", and "preserve and maintain a thriving natural ecological balance and multiple use relationship in that area".

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). Allowing excess wild horses to remain ungathered would be inconsistent with the mandates of the WFRHBA and implementing regulations.

# 4.18. Wildlife

## 4.18.1. Impacts from Modified Actions Common to Alternatives A-C

During an emergency gather in early June, pronghorn, mule deer and other species may be impacted by disturbance from gather activities during parturition and early offspring-rearing. Since the disturbance would be short-term, impacts would likely be minor (slight, but detectable). Improvement to habitat conditions, as discussed under the Modified Proposed Action (summer gather), would occur sooner.

In addition to direct impacts previously analyzed for Migratory Bird and Special Status Species, direct impacts would consist primarily of disturbance and displacement to wildlife by the low-flying helicopter, running horses and construction of temporary trap/holding facilities. Typically, the natural survival instinct of wildlife to this type of disturbance is to flee from the perceived danger. These impacts would be minimal, temporary, and of short duration. There is a slight possibility that non-mobile or site-specific animals would be trampled.

Decreased wild horse levels would reduce conflicts between horses and wildlife at limited water sources. Reduced harvest of vegetation would result in increased plant vigor, production, seedling establishment, and ecological health of important wildlife habitat. Resident populations of mule deer and pronghorn antelope would benefit from an increase in forage availability, vegetation density, and structure.

## 4.18.2. Modified Actions Common to Alternatives A-C Option 1

The originally proposed gather date (on or after July 1) and follow-up gather dates are outside of kidding and fawning for pronghorn and mule deer so no disturbance from the gather would occur during these important times.

## 4.18.3. Impacts from Modified Alternative A: Modified Proposed Action — Phased in Gather and Population Growth Control

Under Modified Alternative A, the wild horse population would be reduced to low-AML (approximately 130 animals) over the next several years. Impacts to wildlife habitat would still occur, but to a lesser degree than if horse populations were to remain at current populations. With

the population controls and follow-up gathers proposed by Modified Alternative A, improved habitat conditions would be maintained for a longer period of time before horse populations, once again, increase to high AML or above.

## 4.18.4. Impacts from Modified Alternative B: Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

This alternative would have similar impacts to Modified Alternative A but the beneficial impacts would occur sooner if the horse population can be successfully reduced to low AML during the first gather attempt. The beneficial impacts would be of shorter duration than with Modified Alternative A, since PZP would not be used and horse populations would be expected to increase at a faster rate than with PZP treatment.

## 4.18.5. Impacts from Modified Alternative C: Remove Excess Animals to Low AML

Beneficial long-term impacts would be to a lesser extent than with Modified Alternative B since without sex ration adjustment and the use of PZP, the wild horse population would increase to high AML or above at a faster rate.

## 4.18.6. Impacts from Alternative D: No Action — Defer Gather and Removal

No direct impacts are expected under this alternative. Maintaining the current numbers of excess wild horses on the range and augmented by yearly population growth, would result in continued impacts to wildlife populations and habitats. Wild horse populations would increase by about 20-27%. Upland habitats would continue to see locally heavy levels of utilization associated with wild horse use which would expand as horse populations continue to grow. The associated decrease in herbaceous vegetation would reduce wildlife forage availability and quality, decreasing population levels. Wildlife habitat would also continue to be impacted by the physical action of horse movement.

Continued heavy grazing or trampling would occur on spring meadow systems. The result would be to decrease water availability, leading to increased competition for this critical resource. Habitats associated with wetland and riparian areas would remain degraded due to removal of residual stubble height and compaction, leading to increased disturbance and levels of bare ground. Based on spring inventory assessments, increasing wild horse populations would continue to concentrate and trample riparian areas, thereby degrading riparian habitats and the important functions these sites represent for many wildlife species.

# Chapter 5. Cumulative

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

The Cumulative Assessment Area (CAA) for the purpose of this analysis is the Jackson Mountains HMA Gather Area (Map 1).

# 5.1. Past and Present Actions

On the basis of aerial photographic data, agency records, GIS, and BLM Legacy Rehost 2000 database (which records lands and mineral actions) the following past and present actions, which have impacted the assessment area to varying degrees, have been identified within the cumulative assessment area: livestock grazing, lands and realty, recreation, wild horses, wilderness, and wildfires.

Livestock Grazing

Forage utilization during the 1900s was high when thousands of cattle, sheep, and horses grazed lands in northern Nevada. In the 1930s when overgrazing threatened to reduce Western rangelands to a dust bowl, Congress approved the TGA of 1934, which for the first time regulated grazing on public lands. The TGA required ranchers who grazed horses or livestock on public lands to have a permit and to pay a grazing fee, but by that time, thousands of horses roamed the Nevada desert unbranded and unclaimed.

Prior to the TGA, livestock grazing practices resulted in major impacts to soil resources and the vegetation communities they supported. As a result, historic livestock grazing activities prior to the TGA had significant impacts on the vegetation resources within the impact assessment area by eliminating or greatly reducing the primary understory plants. Cheat grass was introduced into the area in the early 1900s.

Prior to the TGA, livestock grazing practices also significantly impacted wetland and riparian zones. Wetland and riparian zones declined, riparian vegetation was insufficient to dissipate energy or to filter sediments, thereby increasing erosion and destabilizing stream banks and meadows. Destabilization of streams and meadows led to incised channels and gullies resulting in lowered water table. In an effort to prevent adverse impacts to rangeland health and to support and better distribute livestock on the public range, a variety of range improvement projects have been implemented through the years dating back to the 1930s.

A series of livestock grazing decisions since the TGA have resulted in reductions in livestock numbers and changes in seasons of use and in grazing management practices to promote rangeland health within grazing allotments. Through various grazing decisions, the current level of permitted livestock grazing use has been reduced to less than half (48%) of the level of grazing permitted in 1982. Refer to Table 3.4, "Livestock AUMs" and Table 3.5, "Grazing Use (AUMs) by Year". Other management changes have also resulted in restrictions on when, where, and how long livestock can graze, to minimize potential impacts to rangeland health.

The present livestock grazing system and efforts to manage the wild horse population within AML has helped reduce past historic soil impacts and has improved current soil resource conditions.

Lands and Realty

According to BLM records, LR 2000, GIS data, past and present lands actions that have impacted the cumulative assessment area to varying degrees are: transportation and access (use and maintenance of roads and trails), development of utilities (power lines, natural gas line, fiber optic lines, communication sites), water pipelines, and easements across private lands.

Transportation and access – Past and present actions within the assessment area are supported by an extensive transportation system which includes approximately 752 miles of roads. Humboldt County currently maintains approximately 83 miles of paved and/or graveled roads, and approximately 36 miles of road in the area are part of the BLM road system which receives minimum maintenance. Most of these roads originated from mining exploration or ranching access and few are regularly maintained.

Utilities - Power lines, and other various land authorizations identified above, traverse the assessment area and have been in place for many years. Periodic maintenance to the existing facilities has resulted in some temporary vegetation removal and short term disturbance to wild horses due to human presence.

The Ruby Pipeline Project is a forty-two inch buried natural gas transmission pipeline licensed by the Federal Energy Regulatory Commission (FERC) that crosses the northern end of the assessment, generally running east to west. The pipeline was installed to transport natural gas from Wyoming to a transfer station located in Milan, Oregon. From this transfer station natural gas is distributed throughout the western United States, primarily California, Oregon, and Nevada. Construction began in 2010, has been completed, and the trench has been closed. The pipeline development has impacted the vegetative resource during construction (short term removal of vegetation) and in areas of pipeline operation facilities (permanent removal of vegetation of not more than 200 acres) distributed along the pipeline.

Recreation

Recreation resources that exist in the area are mainly outdoor recreation, wildlife watching/photography, wild horse watching/photography, rock hounding and hunting for both large and small game. The gather area encompasses the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area. The area is a preferred site by visitors who enjoy wilderness areas and historic landmarks and mining sites. Visitor use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year.

Wild Horses

Refer to Section 3.3.9, "Wild Horses" for more information on AML establishment, current population, aerial population counts, growth rates, genetic analysis and herd history, gather history, and wild horse use and habitat health.

In 1971 Congress passed the Wild Free-Roaming Horses and Burros Act which placed wild and free-roaming horses that were not claimed for individual ownership under the protection of the Secretaries of Interior and Agriculture. In 1976 the FLPMA gave the Secretary the authority to use motorized equipment in the capture of wild free-roaming horses as well as continued authority to inventory the public lands. In 1978, the Public Range Improvement Act (PRIA) was

passed which amended the WFRHBA to provide additional directives for BLM's management of wild free-roaming horses on public lands.

The PD MFP designated the Jackson Mountains HMA for the long-term management of wild horses. The HMA established in 1982 is identical in size and shape to the original HA representing where wild horses were located in 1971. Currently, management of the HMA and its wild horse population is guided by the PD MFP (1982) and the BR/HR/NCA RMP (2004) and associated FMUDs as identified in Table 1- AML Decision Documents. The AML range for the Jackson Mountains HMA is 130-217 wild horses. The Land Use Plan analyzed impacts of management's direction for grazing and wild horses, as updated through Bureau policies, Rangeland Program direction, and Wild Horse Program direction. Forage was allocated within the allotments for livestock use and range monitoring studies were initiated to determine if allotment objectives were being achieved, or that progress toward the allotment objectives was being made.

The actions which have influenced the wild horse populations in existence today are primarily wild horse gathers, which resulted in the capture of some 3,122 wild horses, the removal of 2,694 excess horses and release of 415 horses back into Jackson Mountains HMA. Refer to Table Table 3.8, "Jackson Mountains HMA Gather History" in Section 3.3.9, "Wild Horses" above.

Wilderness

Congress designated the North Jackson Mountains Wilderness and South Jackson Mountains Wilderness in 2000. Since designation, the areas have been managed to protect and enhance their wilderness character including naturalness and outstanding opportunities for solitude and primitive recreation. Rehabilitation of closed vehicle routes has largely been completed. As only Congress can change wilderness designation, this management would be expected to continue.

Wildfires

Since 1985, approximately 13,304 acres have been burned by wildfire in the cumulative impact assessment area. Most of these fires occurred in 1999, with the largest two fires consuming 6,272 and 4,817 acres respectively. Burned areas were rehabilitated or allowed to recover naturally with varying degrees of success.

## 5.2. Reasonably Foreseeable Future Actions

All past and present actions discussed in section 5.1 are expected to continue into the foreseeable future.

Livestock Grazing

Livestock grazing is expected to continue at similar stocking rates

Lands and Realty

A portion of an access road right-of-way is anticipated to occur within the southern end of the gather area. Any maintenance to occur on the Ruby pipeline may result in a short term open trench.

Recreation

Recreational use is expected to increase, approximately five percent annually, as a result of population growth and family oriented activities. Some activities, such as hunting and off-road

vehicle use will likely continue and/or increase over time (Winnemucca RMP AMS, 2005). The assessment area includes two Nevada Department of Wildlife Hunt Units, (Units 034 & 035). The big game (California big horn sheep, mule deer, and antelope) hunting seasons are scheduled to open September 1st, August 10th, and August 1st respectively. The upland game (blue and ruffed grouse, chukar, quail and Hungarian partridge) season is scheduled to begin the first weekend in October.

Wild Horses

Wild horse population is expected to continue to grow and increase. The rate of increase would be dependant on the alternative chosen and would be lowest under Alternatives A and B and highest under Alternatives C and D. If necessary BLM would provide water for wild horses until wild horse populations are within AML or in periods of critical need. Water hauling actions would be evaluated under National Environmental Policy Act at that time.

Wildlife

Nevada Department of Wildlife (NDOW) plans to release approximately 30 bighorn sheep on the Jackson Mountains between October 2012 and January 2013 to augment an existing bighorn population

# 5.3. Cumulative Impacts

Impacts associated with past, present, and reasonably foreseeable future actions are generally created by ground or vegetation-disturbing activities that affect natural and cultural resources in various ways. Of particular concern is the accumulation of these impacts over time. This section of the EA considers the nature of the cumulative effect and analyzes the degree to which the Modified Proposed Action and alternatives contribute to the collective impact.

# 5.3.1. Cultural Resources

## 5.3.1.1. Impacts from Past and Present Actions

Past actions have been known to damage or destroy cultural resources where the actions have occurred in areas of high cultural resource sensitivity. Previous grazing, range improvements, fire suppression activities, road construction/maintenance and accompanying gravel pits, and OHV use have caused these types of impacts to cultural resources. Since many Great Basin prehistoric sites are surface or near surface sites, any ground disturbing activities destroy site integrity, spatial patterning and site function. Datable organic features are either destroyed or contaminated. This kind of damage and contamination can result from concentration of grazing animals (livestock and wild horses), use and maintenance of roads and trails, development and maintenance of utilities (power lines, natural gas lines, fiber optic lines, communication sites, water pipelines), and recreational activities such as off-highway vehicle use. These types of impacts have generally been mitigated through avoidance, controlled excavation, and monitoring. Cultural resources located within wilderness areas are indirectly protected due to wilderness management protocols. Wildfire can impact cultural resources by destroying wooden or other flammable artifacts and features.

Looting of cultural resources has also heavily impacted sites in the past. Artifacts have been removed and the synchronic context of some sites has been destroyed. Passage of the NHPA of 1966, the NEPA of 1969, the FLPMA of 1976 and the ARPA of 1979 and an improved level of cooperation between agency fire fighters and archaeologists has led to increased protection of cultural resource and reduced impacts to these resources as a result of the actions just described, although OHV use and looting are exacerbated by current population growth trends.

## 5.3.1.2. Impacts from Reasonably Foreseeable Future Actions

Impacts to cultural resources described under Impacts from Past and Present Actions will continue. The foreseeable lands and realty action of the access road right-of-way could directly or indirectly impact cultural resources if present through ground disturbing activities. Like impacts from past actions, the reasonably foreseeable future actions would be subject to mitigation or avoidance to minimize impacts. Increase in recreational use, particularly OHV traffic, is especially destructive to cultural resources through direct ground disturbance or by increasing erosion. Looting and vandalism (intentional or accidental) may also occur more often as the population grows and as access and recreational activities increase.

Implementation of laws and regulations, continuing improvement in consultation between fire officials and archaeology staff and increasing awareness of potential impacts that may result from certain horse management practices should minimize impacts to cultural resources from authorized activities on public lands.

## 5.3.1.3. Cumulative Impacts

No cumulative impacts from activities proposed under Modified Common to Alternatives A-C (including Option 1) are expected

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

Previous land management practices and other human activities as described above have contributed to the overall condition of cultural resources in the Jackson Mountains HMA. However, horse population management goals as outlined in the Modified Proposed Action should result in improved vegetation.

No direct cumulative impacts are expected as a result of Modified Alternative A. Indirectly, the removal of excess horses and controlling the population growth through sex ratio adjustment and application of fertility control would incrementally reduce indirect impacts further than what has been, and would be, provided by mitigation, avoidance, and monitoring from past, present, and reasonably foreseeable actions. Initially, this reduction of impacts would be less than what would be expected under Modified Alternative B or C due to the fact that fewer horses would be gathered. However, in the long term, the population growth suppression measures proposed in Alternative A leading to the slowest growth rate among the alternatives would extend the reduction of impacts to cultural resources over a longer period of time.

The Modified Proposed Action would not affect foreseeable increases in OHV use and site looting as discussed above. Since there would be a slight improvement to the ecological condition over time, the health and vigor of certain plants used by Native Americans would improve accordingly.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Direct and indirect cumulative impacts would be similar to those described for Modified Alternative A except that the reduction of impacts would be greater after the initial gather, but the length of time of the reduction of impacts would not be as long.

Cumulative Impacts form Alternative D (No Action and Defer Gather and Removal

This alternative, along with the past, present, and reasonable foreseeable future actions, would incrementally increase damage to cultural resources. Horse populations would not be controlled; substantial increases in horse numbers would lead to over grazing and possibly exacerbate natural erosional processes, which, in turn, could impact cultural sites. This alternative would not affect foreseeable increases in OHV use and site looting of cultural resources.

# 5.3.2. Invasvie, Nonnative Species

## 5.3.2.1. Impacts from Past and Present Actions

Past impacts from road maintenance, grazing, recreation, wild fires, and other ground disturbing activities have introduced and spread invasive species throughout the assessment area. Cattle, sheep, and horse grazing during the 1900s caused high forage utilization which led to the degradation of the soil medium needed to maintain the desired native perennial understory. These areas of high disturbance caused a decrease competition of perennial herbaceous grasses and forbs which was exacerbated by the introduction of cheatgrass and other non-native species. Since these non-native species are capable of out-competing most perennial seedlings, increased distribution and abundance of invasive species resulted. Cattle trailing was and continues to be a catalyst in distributing invasive species across the landscape. The TGA of 1934, ongoing grazing management projects and practices to promote rangeland health have eased the pressure on perennial vegetation; however, areas that were previously invaded by non-native species will likely remain in a dominated state. With correct management, continued livestock grazing within the project area should maintain current conditions. Above AML- range use of the project area by wild horses has and continues to adversely impact soil and vegetative health, promoting establishment and spread of non-native species.

The establishment roads, trails, fiber optic lines, communication sites, water pipelines in past and current lands and realty projects within the gather area result in varying degrees of ground disturbance. Disturbances that are not re-vegetated with native species create opportunities for non-native establishment, and spread. Past and current implementation of best management practices including treatments on ground disturbing activities have been occurring on public and private land within the assessment area and reduce the spread of invasive species.

Past and current recreational activities including OHV use have provided corridors for weed transportation and establishment, as well as site specific infestations. In areas with approved OHV routes and recreation sites, past and current implementation of best management practices including treatments have been occurring on public and private land; these have reduced the spread of invasive species within the assessment area. OHV use in unauthorized areas has and will continue to increase the spread of invasive species and introduce new infestations in these areas.

The designation of the North Jackson Mountains Wilderness and South Jackson Mountains Wilderness in 2000 has reduced amount of new infestations located in the designated areas, as vehicle routes have been closed and rehabilitated. This limits the access and transportation of invasive species into the area.

The spread of invasive species (especially grasses and forbs) following the severe overgrazing that occurred in the 1900s also affected the fire regime. These non-natives contributed to high levels of fine fuel loading, resulting in more frequent fires. Without rehabilitation, burn areas have and will continue to be extremely susceptible to invasive species dominance. Existing areas dominated with invasive species will continue to be susceptible to wildfire ignition.

## 5.3.2.2. Impacts from Reasonably Foreseeable Future Actions

With correct management, continued livestock grazing within the project area should maintain current conditions. Above AML- range use of the project area by wild horses will continue to adversely impact soil and vegetative health, promoting establishment and spread of non-native species in the future. Water-hauling activities associated with increasing wild horse populations would also provide conduits for invasive species spread within the area.

Disturbances that are not re-vegetated with native species create opportunities for non-native establishment, and spread. Future implementation of best management practices including treatments on ground disturbing activities have been occurring on public and private land within the assessment area and reduce the spread of invasive species.

In areas with approved OHV routes and recreation sites, past and current implementation of best management practices including treatments have been occurring on public and private land; these have reduced the spread of invasive species within the assessment area. Increased OHV use in unauthorized areas in the future will increase the spread of invasive species and introduce new infestations in these areas.

Areas dominated with invasive species will continue to be susceptible to wildfire ignition. New infestations, as well as increased OHV use could increase the probability of ignition.

## 5.3.2.3. Cumulative Impacts

Cumulative Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

Establishing trap sites leading to wild horses congregating in specific locale, the impacts associated with helicopter landing zones, transportation, and observation in the gather area would exacerbate soil and vegetative stresses that resulted from past grazing pressures and on degraded soils. However these stresses would be short-term. The cumulative impacts of Modified Alternatives A-C would positively affect long term management goals to maintain rangeland health and healthy wild horse populations, which would reduce trailing; this would reduce the probability of invasive species being transported to new locations. The reduction would also reduce the amount of herbivory of native perennial species which compete with invasive species.

Cumulative Impacts from Modified Alternative A. Modified Proposed Action–Phased-in Gather and Population Growth Control

The cumulative impacts of Modified Alternative A would positively affect long term management goals to maintain rangeland health by promoting sustainable wild horse populations, which would

reduce trailing; this would reduce the probability of invasive species being transported to new locations. This alternative would reduce areas of bare ground caused from concentrated wild horse grazing and hoof action thereby decreasing the areas available for weed infestation. The reduction would also reduce the amount of herbivory of native perennial species which compete with invasive species. While Modified Alternative A would remove less horses during the first phase of implementation, it would achieve the most effective overall reduction in invasive/non-native species establishment and spread because of its duration. This, addition to existing mitigation associated with federal actions (such as authorizing right-of-ways) and post-fire rehabilitation efforts would promote re-establishment of native vegetation in the long term.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

The direct cumulative impacts would be similar to Modified Alternative A; however, the effects would be more effective initially with Modified Alternative B as the initial gather proposes to gather to low AML.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Incremental impacts would be the same as those discussed above in Cumulative Impacts from Modified Actions Common to Alternatives A-C. A reduction in numbers after the initial gather would reduce the amount of impacts being caused by the horses. However, despite the removal, the population would continue to increase at the historic rate of 27% and impacts associated with wild horse grazing would continue.

Cumulative Impacts from Alternative D. No Action- Defer Gather and Removal

Impacts from the continuous growth and overpopulation of the wild horses would add to the impacts from past, present and future actions resulting in large areas that would be susceptible to establishment and spread of invasive species.

# 5.3.3. Migratory Birds

## 5.3.3.1. Impacts from Past and Present Actions

Wildlife and their habitats have been impacted through wildfire and various multiple uses such as, livestock grazing, lands and realty, recreation, wild horses, wilderness designation and associated roads and trails. Human activities have also increased the introduction and spread of weeds.

Livestock and wild horses continue to utilize vegetation and impact riparian vegetation, soils and water quality. These impacts can especially pronounced during times of below average precipitation. Forage and water availability can become limited, and negatively affect wildlife health and fitness.

Projects, such as fences and water developments have been installed over the last several decades and continue to be used and maintained for the purpose of livestock grazing management.

Fences and water projects will continue to have impacts to wildlife. The use of fencing limits access and can help reduce adverse impacts to habitat from livestock, wild horse and human use. They can also allow implementation of livestock grazing systems which have a beneficial impact to wildlife habitat by providing periodic rest from grazing. Negative impacts can result from

injuries or death to wildlife from entanglement or from alteration of natural movement. Fences may also provide unnatural, advantageous perch sites for avian predators. Additional water sources can increase populations by providing water where it would not naturally occur. This may be beneficial to some species and detrimental to others. For instance, insect numbers may increase and provide a greater abundance of food for birds and bats but may also increase the incidence of disease (e.g. West Nile virus) transmission to some species of wildlife.

Realty actions have added to impacts to wildlife through authorization of access and permitting of structures and activities in the assessment area. Consequently, the need for roads and trails is increased. Since some species are reluctant to go near or cross roads or trails, fragmentation of habitats can result. Such actions result in more human activity, noise, and disturbance to wildlife habitat.

Recreation activities affect wildlife in similar ways as does realty actions. Cross country OHV use in addition to use of existing trails, can injure wildlife, disrupt their activities, disturb soil and vegetation, and spread weeds.

Wilderness areas result in reduced noise and disturbance to wildlife due to the limited activities allowed within wilderness. The rehabilitation of roads has also reduced the level of fragmentation, allowing more natural movement of wildlife.

## 5.3.3.2. Impacts from Reasonably Foreseeable Future Actions

Impacts from livestock grazing and associated projects are expected to remain at the current level. The removal of excess numbers of wild horses is expected to reduce impacts, as described in Section 5.3.3.1, "Impacts from Past and Present Actions", to upland and riparian habitats.

The future realty action of the access road right-of-way would result in additional noise, fragmentation and disturbance to wildlife and habitat. Recreational activities are expected to increase in the future (Section 5.3.11.2, "Impacts from Reasonably Foreseeable Future Actions", resulting in a proportionate increase of impacts as described in Section 5.3.3.1, "Impacts from Past and Present Actions". Impacts to wildlife and habitat from Wilderness management is expected to remain at current levels.

If it becomes necessary to provide additional water to wild horses, this would benefit birds and wildlife since they are also negatively affected when water is not in adequate supply.

## 5.3.3.3. Cumulative Impacts

Cumulative Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

The Modified Proposed Action would add slightly to impacts discussed in Section 5.3.3.1, "Impacts from Past and Present Actions" and Section 5.3.3.2, "Impacts from Reasonably Foreseeable Future Actions" through horse gather activities. Disturbance to migratory birds and other wildlife from the helicopter and horses could occur but would be short-term and minimal. Damage to vegetation at trap sites would be on a small scale and would not have a measurable impact. Human presence at trap sites would disrupt bird activities. Disturbance to nesting birds or damage to their nests could occur during gather activities but would not affect bird populations as a whole. Beneficial short and long-term impacts would result from reducing wild horse numbers within the assessment area. The removal of excess wild horses would provide immediate benefit

to wildlife through less competition for forage and water and would allow gradual improvement of upland and riparian health.

Impacts to migratory bird nests during an emergency gather in June would likely be greater but improvements to habitat conditions would occur sooner. It is believed that these potential impacts would offset each other.

Cumulative Impacts from Modified Alternative A. Modified Proposed Action–Phased-in Gather and Population Growth Control

Cumulative impacts specific to this alternative would be beneficial in nature and would be longer lasting than the other alternatives since improved habitat conditions would be maintained for a longer period of time before horse populations, once again, increase to high AML or above.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Cumulative impacts from this alternative are very similar to those under Modified Alternative A, except the beneficial impacts would be more immediate since more horses would be removed in 2012 but those benefits would diminish sooner without PZP treatment.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

As with Modified Alternative B, this alternative would have more immediate beneficial impacts since more horses would be removed in 2012 but the benefits would diminish even sooner without sex ratio adjustment and the use of PZP.

Cumulative Impacts from Alternative D. No Action- Defer Gather and Removal

Negative impacts such as disturbance and possible injury to birds would not occur under this alternative, therefore resulting in less cumulative negative impacts. Beneficial impacts to bird and wildlife habitats would not be realized and horse numbers in excess of AML would result in continuing decline of habitat condition and viability of bird and wildlife populations.

# 5.3.4. Native American Religious Concerns

## 5.3.4.1. Impacts from Past and Present Actions

From contacts with settlers, disease and alcohol have decimated Northern Paiute and Shoshone population groups. Further, past historical actions ranging from mining and gravel extraction, grazing, home building, and road construction, have served to drive the Northern Paiutes off the land, confine them to reservations, and further destroy their culture. Only in the past 50 years has an attempt been made by the federal and state governments to undo some of these actions.

## 5.3.4.2. Impacts from Reasonably Foreseeable Future Actions

Impacts to Native American Religious Concerns described under Impacts from Past and Present Actions will continue. The foreseeable lands and realty action of the access road right-of-way could directly or indirectly impact Native American spiritual sites if present through ground disturbing activities. Like impacts from past actions, the reasonably foreseeable future actions would be subject to mitigation or avoidance to minimize impacts. Increase in recreational use,

particularly OHV traffic, is especially destructive to cultural resources through direct ground disturbance or by increasing erosion. Looting and vandalism of archaeological sites, which are considered to be sacred by many tribes, (intentional or accidental) may also occur more often as the population grows and as access and recreational activities increase.

### 5.3.4.3. Cumulative Impacts

Cumulative Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

Under Alternatives A through C removal of excess horses would reduce direct and indirect impacts of the horses on vegetation and riparian areas. These impacts would be reduced for a limited time, dependent on how many horses are removed and how fast their population reaches high AML again.

Cumulative Impacts from Alternative D. No Action- Defer Gather and Removal

Not gathering horses would increase their impacts on vegetation and riparian areas.

## 5.3.5. Threatened and Endangered Species

### 5.3.5.1. Impacts from Past and Present Actions

Past and present actions have caused impacts to LCT habitats from wild horse and livestock grazing, recreation and road construction/maintenance. The impacts to the LCT habitats from these past and present actions, in general, include: loss of streamside vegetation, increased sedimentation, increased stream channel width, and loss of undercut streambank habitat. These impacts to LCT habitats have been reduced through implementation of mitigation measures. Recreation use has removed streamside vegetation and increased stream sedimentation due to OHV use in and around streams. Past actions from road construction and transportation have caused impacts to LCT habitats with increased sedimentation and loss of streamside vegetation at the road/stream crossings.

Impacts would be the same for sage grouse as was described in Section 5.3.3.1, “Impacts from Past and Present Actions”

### 5.3.5.2. Impacts from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions for wild horse and livestock grazing, road maintenance, and recreation use would impact LCT habitats. The expected impacts to the LCT habitat would be similar to the past and present actions to include: loss of streamside vegetation, increased sedimentation, increased stream channel width, and loss of undercut streambank habitat. Implementation of mitigation measures would reduce these impacts.

Impacts to sage grouse from future actions are expected to be similar to but less than described in Section 5.3.3.2, “Impacts from Reasonably Foreseeable Future Actions”. Due to new BLM management actions, impacts to sage grouse from multiple uses will be lessened in an effort to prevent their listing under the Endangered Species Act.

### 5.3.5.3. Cumulative Impacts

Cumulative Impacts from Modified Alternatives A through C (including Option 1)

There should be an incremental improvement in the riparian and aquatic habitat conditions over an extended period of time.

Cumulative impacts to sage grouse would be the same as those described for migratory birds in Section 5.3.3.3, "Cumulative Impacts" except there would not be the potential for disturbance to nesting sage grouse or damage to their nests since the proposed gather dates are outside of their nesting season.

An emergency gather during June could impact to sage grouse nests but habitat conditions would improve sooner. It is believed that these impacts would offset each other, resulting in a similar level of cumulative impacts.

Cumulative Impacts from Alternative D. No Action- Defer Gather and Removal

If the no action is chosen, impacts to LCT habitat described in the past, present, and reasonably foreseeable future sections could increase from habitat lost due to the increase in size of the wild horse population in this HMA.

Cumulative impacts to sage grouse would be the same as Section 5.3.3.3, "Cumulative Impacts" under Alternative D.

## 5.3.6. Water Quality (Surface) and Wetland Riparian Zones

### 5.3.6.1. Impacts from Past and Present Actions

Impacts to water resources from past and present management of wild horses and grazing have largely led to the conditions which describe the affected environment for water resources and wetland and riparian zones. One hundred percent of these resources within the HMA that occur on land managed by the BLM have been affected by grazing from wild horses and cattle. This has led to continued use of riparian vegetation and alteration of wetland and riparian soils. This has led to hummocking and erosion. Loss of vegetation and alteration of soils also degrades the hydrologic function of these areas either by altering surface flow patterns or by reducing the ability of these habitats to retain water from rain or snowmelt events. Erosion and use of water sources and riparian areas also increases sediments, nutrients, and bacteria within surface waters.

Designation of a portion of the HMA as wilderness has led to the protection of 162 miles (25.5%) of perennial, intermittent, and ephemeral streams and 407 acres (29.7%) of the riparian habitat within the HMA. These protections have included decreased disturbance by recreation activities, especially OHV use.

Impacts to water resources and wetland and riparian zones related to realty action come primarily from recreational use of transportation routes. Where roads cross streams or meadows, degradation of vegetation and soil/ hydrologic function can occur. These impacts can be of short or long duration depending on the frequency of the impact. Additionally, introduction of excess sediment and pollution can occur where road cross surface water sources even when the sources

only flow for a portion of the year. These effects are generally short lived and of low severity which allows the impacts to dilute or recover soon after the impact occurs.

Since 1985, a very few water or riparian resources have been affected by fire. Three fires have burned 10.3 miles (1.6%) of perennial, intermittent, or ephemeral stream and 2.1 acres (0.2%) of riparian habitat within the HMA. The severity of the fires in these areas is not known. It is likely, though that these fires lead to temporary increases in sediment and nutrient loading in surface waters along with degradation of riparian vegetation. Nearly all of the stream length (9.9 miles) impacted by fire occur in the southern end of the HMA in lower elevations where surface water would not be present during the portion of the year when fires are most prevalent. There were likely no impacts to water during the fire event and the lack of riparian habitat would indicate that no long term impacts to water would have occurred. The remainder of the burned stream miles are associated with riparian habitat and burned in 2006. The resilient nature of riparian habitats would most likely have led to the rehabilitation of any degradation cause by the fire.

## 5.3.6.2. Impacts from Reasonably Foreseeable Future Actions

Impacts to water resources and wetland and riparian zones from future wild horse and livestock grazing are expected to identical in type and distribution to those observed currently. Any variation from current impacts would likely be in benefit to water resources and wetland and riparian zones. In general, the BLM strives to manage wild horses and livestock to maintain or improve habitat functionality for multiple uses. Grazing permit stipulations would be in favor of managing utilization of riparian and wetland zones to promote maintenance or improvement soil, vegetative, and hydrologic functionality. If attainment of proper functioning could not be achieved under permitted use, and wild horse populations are within the AML range, livestock grazing practices could be adjusted to provide opportunity for riparian zones to recover. However, wild horse management requires season long use. In order for these areas to recover from wild horse use, horses would have to be excluded from the areas by the use of fences and providing alternative water sources.

The reasonably foreseeable future action related to lands and realty is not expected to impact water quality or wetland and riparian zones.

Recreation increases would tend to increases the number of times that water or riparian resources would be impacted, however the severity and type of impacts would not likely change. Because of the instantaneous nature of the impacts to water and riparian resources from recreation, general increases in use would not likely lead to measurable changes in the condition of the resources.

The introduction of big horn sheep by NDOW is not expected to have a measurable impact to water or riparian resources.

## 5.3.6.3. Cumulative Impacts

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

Implementation of the Proposed Action would have a countervailing impact to the degradation of water resources and wetland and riparian zones caused by impacts that have occurred and are expected to occur from wild horses and livestock grazing management. Removal of animals that put disruptive or consumptive pressure on these resources would decrease the overall degradation

of these resources and may lead to improvement if the number of animals removed is sufficient. This countervailing impact would affect 100% of the water resources and wetland and riparian zones within the HMA.

Implementation of the Modified Proposed Action would have an additive impact to the rehabilitation of degraded water resources and wetland and riparian zones caused by protections afforded by the designation of a portion of the HMA as wilderness. These impacts would lead to improved water quality and riparian functionality in 162 miles of stream and 407 acres of riparian habitat.

Implementation of the Modified Proposed Action would have a countervailing impact on any degradation to water resources and wetland and riparian zones caused by transportation routes. Even if stream or meadow crossings continue to be impacted by transportation activities, these impacts would be diminished if the functionality of the remainder of the habitat is restored.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Impacts to water resources and wetland and riparian zones would be identical in type and distribution as those described under the Modified Proposed Action. All impacts would be greater than those described under the Modified Proposed Action after the initial gather due to a smaller wild horse population in the HMA. At some point after the second gather, however, all impacts would begin to diminish as horse numbers exceeded those anticipated under the Modified Proposed Action. All impacts would be expected to remain, at least partially, throughout the period of analysis.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Impacts to water resources and wetland and riparian zones would be identical in type and distribution as those described under the Modified Proposed Action. All impacts would be greater than those described under the Modified Proposed Action after the initial gather due to a smaller wild horse population in the HMA. Impacts would begin to diminish as wild horse numbers would increase annually. Within approximately nine years, all impacts would be reduced to zero and the impacts from wild horses would be roughly identical to those currently observed.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

Selection of the No Action Alternative would have a compounding impact to the degradation of water resources and wetland and riparian zones caused by impacts that have occurred and are expected to occur from wild horse and livestock grazing management. Wild horse numbers would continue to increase, leading to increased use pressure to water resources and riparian zones. Additionally the number of water sources and riparian areas that would be utilized by both wild horses and cattle would increase.

Selection of the No Action Alternative would have a countervailing impact to the rehabilitation of degraded water resources and wetland and riparian zones caused by protections afforded by the designation of a portion of the HMA as wilderness. Continued increase of wild horse numbers would put greater use pressure on water sources and riparian areas within wilderness where it is more difficult for BLM to monitor and manage these resources.

Selection of the No Action Alternative would have a compounding impact on any degradation to water resources and wetland and riparian zones caused by transportation routes. Increased use

of these areas by increasing numbers of horses would reduce the ability of these habitats to absorb or offset the effects from road crossings.

# 5.3.7. Wilderness

## 5.3.7.1. Impacts from Past and Present Actions

Congress designated the North Jackson Mountains Wilderness and South Jackson Mountains Wilderness in 2000. Since designation, the areas have been managed to protect and enhance their wilderness character including naturalness and outstanding opportunities for solitude and primitive recreation. Rehabilitation of closed vehicle routes has largely been completed. Authorized grazing by cattle has largely remained stable with usage comparable to that occurring at designation. These developments have reduced the naturalness, undeveloped nature, and untrammeled nature of the wilderness areas. Small wildfires have occurred and been suppressed. These have protected the naturalness of the areas while reducing the untrammeled quality.

## 5.3.7.2. Impacts from Reasonably Foreseeable Future Actions

Continued management for the protection and enhancement of wilderness values will continue to protect habitat for wildlife including special status species. Grazing is expected to continue in both wilderness areas including maintenance of range developments such as water troughs and fences. These developments will continue to reduce the naturalness, undeveloped nature, and untrammeled nature of the wilderness areas. Wildfires and their suppression are expected to continue in the future.

## 5.3.7.3. Cumulative Impacts

Cumulative Impacts from Modified Alternatives A-C (including Option 1)

Cumulative impacts would be the same under Modified Alternatives A through C. Increased human activity associated with gather activities would increase the percentage of time the wilderness areas have human use, reducing opportunities for solitude. There would be incremental increase in the amount of trammeling of the area. Removal of excess wild horses, along with fire suppression and route restoration would increase the naturalness and vegetation quality of the areas.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

Over-utilization of vegetation and other habitat resources would degrade the natural vegetative community allowing invasive non-native species to dominate. Increased frequency of repairs of range developments damaged by excess horses would decrease opportunities for solitude.

# 5.3.8. Fisheries

## 5.3.8.1. Impacts from Past and Present Actions

Past and present actions have caused impacts to fishery habitats from wild horse and livestock grazing, recreation and road construction/maintenance. The impacts to the fishery habitats from

these past and present actions, in general, include: loss of streamside vegetation, increased sedimentation, increased stream channel width, and loss of undercut streambank habitat. These impacts to fisheries have been reduced through implementation of mitigation measures. Recreation use has removed streamside vegetation and increased stream sedimentation due to OHV use in and around streams. Past actions from road construction and transportation have caused impacts to fishery habitats with increased sedimentation and loss of streamside vegetation at the road/stream crossings.

### 5.3.8.2. Impacts from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions for wild horse and livestock grazing, road maintenance, and recreation use would impact fisheries. The expected impacts to the fishery habitat would be similar to the past and present actions to include: loss of streamside vegetation, increased sedimentation, increased stream channel width, and loss of undercut streambank habitat. Implementation of mitigation measures would reduce these impacts.

### 5.3.8.3. Cumulative Impacts

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

There should be an incremental improvement in the riparian and aquatic habitat conditions over an extended period of time.

Cumulative Impacts from Modified Alternatives B and C

There should be an incremental improvement in the riparian and aquatic habitat condition over a period of time but would not be expected to last as long as the Modified Proposed Action.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

If the no action is chosen, impacts to fisheries described in the past, present, and reasonably foreseeable future sections could increase from habitat lost due to the increase in size of the wild horse population in this HMA.

## 5.3.9. Public Health and Safety

As defined by 40 CFR 1508.7, the cumulative impact is the impact which results from the incremental impact of the action, decision, or project when added to the other past, present, and reasonably foreseeable future actions. No impacts to public health and safety have been identified from past, present, or reasonably foreseeable future actions; therefore, cumulative impacts to public health and safety are not expected.

## 5.3.10. Rangeland Management

### 5.3.10.1. Impacts from Past and Present Actions

Past and present activities have affected livestock grazing through the removal of forage within disturbed areas related to realty and transportation activities. Transportation and access

improvements and activities have also provided livestock operators better access to portions of their allotments to better check and care for the livestock on the allotments. Recreational activities have caused impacts due to damage or vandalism of range improvements and difficulties in managing livestock from fences being cut/broken or gates being left open. Past wildfire events have removed large areas of forage and restricted access to forage. Fire rehabilitation projects have re-established vegetation in some areas and mitigated some of the effects associated with wildfire events. Past and present wild horse use has impacted livestock grazing by creating competition between horses and livestock for forage and water resources, especially when wild horses are above AML. In the past livestock operators have removed cattle from the rangeland earlier or ran fewer numbers than they are allowed due to wild horses being above AML. Wilderness management activities have also impacted livestock grazing and rangeland management by removing access routes into areas making it more difficult for livestock operators to reach existing range improvements and livestock.

## 5.3.10.2. Impacts from Reasonably Foreseeable Future Actions

Impacts to livestock grazing from reasonably foreseeable future actions would remain similar to those analyzed under the past and present actions.

## 5.3.10.3. Cumulative Impacts

Cumulative Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

Cumulative impacts from activities proposed under Modified Common to Alternatives A-C would be potential trampling of forage from activities around trap sites, both human and animal. Based on the emergency situation, livestock have been removed from the critical area of concern, thus no direct impacts would occur. In addition to any disturbance to livestock from past, present, or reasonably forseeable future actions listed above, livestock in areas outside of the critical area of concern may be frightened and leave the area due to helicopter, traffic, and human interactions.

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

The removal of excess horses and controlling the population through sex ratio adjustment and application of fertility control would reduce competition between livestock and wild horses for forage and water resources. Immediate reductions to wild horse numbers would be less than what is proposed under Modified Alternative B or C, however; under this alternative the competition between the two species would be reduced for a greater length of time allowing the rangeland a greater recovery period. Impacts from wild horse use would be reduced over a longer period of time than under Modified Alternatives B, or C or under Alternative D deriving a more long term benefit.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Direct and indirect cumulative impacts would be similar to those described for Modified Alternative A except that the reduction of impacts would be greater after the initial gather, but the length of time of the reduction of impacts would not be as long.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Direct and indirect cumulative impacts would be similar to those described for Modified Alternatives A and B; however, the length of time of the added reduction of impacts would be non-existent. Without population controls the wild horse population within the gather area would continue increase within the year, and continue to increase. Over time, incremental impacts would become the same as those under Alternative D.

Cumulative Impacts from Alternative D. No Action-Defer Gather and Removal.

This alternative, along with the past, present, and reasonable foreseeable future actions, would incrementally increase damage to rangeland ecosystems. With unchecked population growth and no planned wild horse gathers, rangeland resources would become degraded at an accelerated rate. Livestock numbers would be continually reduced to accommodate the increasing wild horse numbers.

# 5.3.11. Recreation

## 5.3.11.1. Impacts from Past and Present Actions

Since wilderness designation, the area has been managed to provide outstanding opportunities for solitude and primitive recreation. Livestock grazing and wild horses have caused unsightly manure piles, trailing impacts near waterways and campsites, and unsightly degradation to spring sites that hikers like to visit. Wildfires temporarily remove vegetation supporting wildlife that has supported hunting activities. Livestock and wild horses have also competed for forage used by wildlife. Lands and realty actions identified in Section 5.1, "Past and Present Actions" would have little to no impact to recreational values.

## 5.3.11.2. Impacts from Reasonably Foreseeable Future Actions

Past and present actions are expected to continue. The bighorn sheep augmentation may slightly increase hunting opportunities during the appropriate season.

## 5.3.11.3. Cumulative Impacts

Impacts associated with any of the action Alternatives would not cumulatively impact recreational values. Impacts from wild horses would be reduced as excess horses are removed from the gather area; however, the impacts caused by livestock and the remaining wild horses would continue.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

This alternative, along with the past, present, and reasonable foreseeable future actions, would incrementally increase impacts to recreational resources through continued grazing and population increases of wild horses.

# 5.3.12. Soils

## 5.3.12.1. Impacts from Past and Present Actions

Forage utilization during the 1900s was high when thousands of cattle, sheep, and horses grazed lands in northern Nevada. In the 1930s when overgrazing threatened to reduce Western

rangelands to a dust bowl, Congress approved TGA of 1934, which for the first time regulated grazing on public lands. The TGA required ranchers who grazed horses or livestock on public lands to have a permit and to pay a grazing fee, but by that time, thousands of horses roamed the Nevada desert unbranded and unclaimed.

Prior to the TGA, livestock grazing practices resulted in significant major impacts to soil resources. The soil tolerance was exceeded and the soil medium for plant growth was not maintained. As a result, historic livestock grazing activities prior to the TGA had significant impacts on soil resources within the impact assessment area. A series of livestock grazing decisions since the TGA have resulted in reductions in livestock numbers and changes in seasons of use and in grazing management practices to promote rangeland health within grazing allotments. While the present livestock grazing system and efforts to manage the wild horse population within AML has helped reduce past historic soil impacts and has improved current soil resource conditions, the current overpopulation of wild horses is resulting in areas of heavy vegetative utilization, trailing and trampling damage, and prevents BLM from managing public lands within the Jackson Mountains HMA for rangeland health and for a thriving natural ecological balance.

## 5.3.12.2. Impacts from Reasonably Foreseeable Future Actions

Multiple-use activities will continue to have similar to present impacts on soils within the gather area, with slight increases expected from recreational activities.

## 5.3.12.3. Cumulative Impacts

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

No direct cumulative impacts are expected as a result of Modified Alternative A. Indirectly, the removal of excess horses and controlling the population through sex ratio adjustment and application of fertility control would incrementally reduce indirect impacts further than what has been, and would be, provided by mitigation, avoidance, and monitoring from past, present, and reasonably foreseeable actions. This reduction of impacts would be less than what would be expected under Modified Alternative B or C due to the fact that fewer horses would be gathered initially. However, in the long term, the population control measures proposed in Modified Alternative A leading to the slowest growth rate among the alternatives would extend the reduction of impacts to soil and vegetation resources over a longer period of time.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Direct and indirect cumulative impacts would be similar to those described for Modified Alternative A except that the reduction of impacts would be greater after the initial gather, but the length of time of the reduction of impacts would not be as long.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Direct and indirect cumulative impacts would be similar to those described for Modified Alternatives A and B; however, the length of time of the added reduction of impacts would be non-existent. Without population controls the wild horse population within the gather area would

continue increase within the year, and continue to increase. Over time, incremental impacts would become the same as those under Alternative D.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

This alternative, along with the past, present, and reasonable foreseeable future actions, would incrementally increase damage to soil resources.

# 5.3.13. Special Status Species

Impacts from past, present and reasonably foreseeable future actions to special status species would be the same as those discussed in Section 5.3.3, "Migratory Birds". However, impacts from future actions would be to a lesser extent overall, since BLM management provides greater protection to species designated as having "special status" than those species that are not. Cumulative impacts from Modified Alternative A through D would be similar to those described for the Modified Proposed Action in Section 5.3.3, "Migratory Birds". The augmentation of bighorn sheep and proposed horse gather would not be concurrent and would not directly impact one another.

Impacts relating to an emergency gather in early June on special status species bird nests are addressed in section 4.3.1. Special status wildlife species, such as Bighorn sheep, may also be impacted (See section 4.15.1.) during parturition and early offspring-rearing, but improvements to habitat conditions would occur sooner than if the proposed gather were to be postponed until July. It is believed that these impacts to habitat conditions would offset impacts to nesting birds and Bighorn sheep offspring. Cumulative impacts to other special status species would likely be less with earlier removal of horses than waiting until July 1 since improvement to their habitats would occur sooner.

# 5.3.14. Vegetation

## 5.3.14.1. Impacts from Past and Present Actions

Prior to the TGA, livestock grazing practices resulted in significant major impacts to the rangeland vegetation . As a result, historic livestock grazing activities prior to the TGA had significant impacts on the vegetation resources within the impact assessment area by eliminating or greatly reducing the primary understory plants. Cheat grass was introduced into the area in the early 1900s.

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

While the present livestock grazing system and efforts to manage the wild horse population within AML has helped reduce past historic impacts and has improved current resource conditions, the current overpopulation of wild horses is resulting in areas of heavy vegetative utilization, trailing and trampling damage, and prevents BLM from managing public lands within the Jackson Mountains HMA for rangeland health and for a thriving natural ecological balance.

### 5.3.14.2. Impacts from Reasonably Foreseeable Future Actions

Multiple-use activities will continue to have similar to present impacts on vegetation within the gather area, with slight increases expected from recreational activities.

### 5.3.14.3. Cumulative Impacts

Cumulative Impacts from Modified Alternative A. Proposed Action–Phased-in Gather and Population Growth Control

No direct cumulative impacts are expected as a result of Modified Alternative A. Indirectly, the removal of excess horses and controlling the population through sex ratio adjustment and application of fertility control would incrementally reduce indirect impacts further than what has been, and would be, provided by mitigation, avoidance, and monitoring from past, present, and reasonably foreseeable actions. This reduction of impacts would be less than what would be expected under Modified Alternatives B or C due to the fact that fewer horses would be gathered initially. However, in the long term, the population control measures proposed in Modified Alternative A leading to the slowest growth rate among the alternatives would extend the reduction of impacts to soil and vegetation resources over a longer period of time.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

Direct and indirect cumulative impacts would be similar to those described for Modified Alternative A except that the reduction of impacts would be greater after the initial gather, but the length of time of the reduction of impacts would not be as long.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Direct and indirect cumulative impacts would be similar to those described for Modified Alternatives A and B; however, the length of time of the added reduction of impacts would be non-existent. Without population controls the wild horse population within the gather area would continue increase within the year, and continue to increase. Over time, incremental impacts would become the same as those under Alternative D.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

This alternative, along with the past, present, and reasonable foreseeable future actions, would incrementally increase damage to vegetation resources.

## 5.3.15. Wild Horses

### 5.3.15.1. Impacts from Past and Present Actions

Impacts to wild horses from past actions include establishment of wild horse HMAs, establishment of AML for wild horses, wild horse gathers, livestock grazing, and recreational activities throughout the areas. Impacts associated with lands and realty actions, such as right-of-way developments, include disruption of horses' daily activities, such as foraging and watering, small reduction in available habitat, disruptions to herd movements along construction routes, and wild

horse/vehicular accidents, and are due to habitat disturbance, construction activities and increased human presence. The majority of these impacts have been short-lived and temporary in nature

## 5.3.15.2. Impacts from Reasonably Foreseeable Future Actions

In the future, the BLM would manage wild horses within HMAs that have suitable habitat for an AML range that maintains genetic diversity, age structure, and targeted sex ratios. Current policy is to express all future wild horse AMLs as a range, to allow for regular population growth, as well as to better management of populations rather. Future wild horse management in the BLM's Winnemucca District would focus on an integrated ecosystem approach. This process will identify actions associated with habitat improvement within the HMA. The BLM would continue to conduct monitoring to assess progress toward meeting rangeland health standards. Wild horses would continue to be a component of the public lands, managed within a multiple use concept.

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

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

The proposed gather area contains a variety of resources and supports a variety of uses. Any alternative course of wild horse management has the opportunity to affect and be affected by other authorized activities ongoing in and adjacent to the area. Future activities which would be expected to contribute to the cumulative impacts of implementing the Modified Proposed Action include: future wild horse gathers, continuing livestock grazing in the allotments within the area, new or continuing infestations of invasive plants, noxious weeds, and pests and their associated treatments, and continued native wildlife populations and recreational activities historically associated with them.

## 5.3.15.3. Cumulative Impacts

Cumulative Impacts from Modified Actions Common to Alternatives A-C (including Option 1)

An emergency gather would ultimately benefit wild horses, wildlife, range, livestock and water resources. An early gather would ensure wild horses are provided adequate feed and water at temporary and short term holding when captured and would also allow for reduced competition for the remaining wild horses within the HMA of limited resources on the range. Emergency removal of excess wild horses would ensure that individual animals do not perish due to starvation, dehydration, or other health concerns related to insufficient feed and water. Additionally, an emergency gather would remove excess wild horses while they remain in adequate health to transition to feed.

All Modified Action Alternatives address the need for recurring gathering and removal of wild horses from the Jackson Mountains HMA. Additionally, each would address attainment and maintenance of a thriving natural ecological balance. Achieving AML and removal of all wild horses residing outside the HMA would be addressed. Direct impacts to the wild horse population

would be a decrease in population resulting in reduced competition for scarce resources within the HMA such as water, forage and space. Improved body condition would be experienced by the remaining wild horse population in the Jackson Mountains HMA. There would be increased opportunities for wild horses to utilize higher quality habitat related to a reduction in competition in these areas and to lessened pressure on the habitat itself. Reduced wild horse densities would result in less competition between bands resulting in fewer injuries and a reduced risk of disease outbreak. Genetic health would be assessed under all action alternatives.

Under each Modified Action Alternative excess wild horse populations would be managed. Maintaining wild horse populations within the AML would reduce competition with livestock and wildlife for the limited and previously allocated forage and water resources in the gather area. This would be beneficial for wild horses, wildlife, livestock and range conditions. Additionally, these management actions would increase the potential for successful reclamation of surface disturbing actions such as rights—of-ways or other related permitted uses within the Jackson Mountains HMA.

Managing the Jackson Mountains wild horse population within AML would also offer improved recreational opportunities by maintaining healthy rangeland resources and offering the public healthy herds of wild horses for viewing opportunities rather than deteriorating herds in poor health due to overpopulations and scarce or unavailable resources.

Gather activities may increase the potential for new or continuing infestations of invasive plants, and/or noxious weeds in the localized areas where traps or holding facilities are located. However, removing the excess wild horse populations would decrease long term and wide spread potential for new or continuing infestations of invasive plants, and/or noxious weeds by promoting healthy rangelands.

Cumulative Impacts from Modified Alternative A. Modified Proposed Action–Phased-in Gather and Population Growth Control

Wild horse populations would remain above AML initially. The benefits of a lower population would be realized only to a reduced degree. Competition for optimal habitat, water, forage and space would continue on a smaller scale. The other resources present in the HMA would continue to be impacted by excess wild horse populations until the gather plan could be fully implemented over a period of approximately 10 years.

Population control measures should reduce overall population growth rates reducing the frequency of gathers and reducing the number of animals removed from the range. This would directly impact the BLM's short term holding and long term pastures by decreasing the number of animals that would need to be maintained at these facilities.

Under Modified Action Alternative A other resources in the HMA would continue to be impacted by excess wild horses albeit to a lesser degree in the short term. However, after the gather plan was fully implemented and wild horse populations were managed within the AML impacts to livestock grazing, wildlife, recreation and realty actions would be minimal as referenced in Cumulative Impacts Common to Modified Alternatives A-C.

Cumulative Impacts from Modified Alternative B. Selective Removal of Excess Animals to Low AML and Sixty Percent Male Sex Ratio

This action would address the need to remove excess wild horses while bringing the population on the range to the low AML (130). This action would address attainment and maintenance of a thriving natural ecological balance within the first gather. However, it is not likely that a high enough gather efficiency can be achieved in order to accomplish the desired goal. Direct impacts to the wild horse population would be the decreased population to low AML (130) resulting in reduced competition for scarce resources within the HMA such as water, forage and space. Improved body condition would be experienced by the remaining wild horse population in the Jackson Mountains HMA. There would be increased opportunities for wild horses to utilize higher quality habitat related to a reduction in competition in these areas and to lessened pressure on the habitat itself. Reduced wild horse densities would result in less competition between bands resulting in fewer injuries and a reduced risk of disease outbreak.

This alternative would directly impact the BLM's Wild Horse Program's short term holding and long term pasture facilities. Currently the BLM is facing very limited available space to hold excess wild horses. Due to drought and other National issues the available space at these facilities may be needed for other higher priority removals. However, the 60% male sex ratio adjustment should slow population growth over the long term and result in greater intervals between gathers and fewer excess wild horses being removed and sent to short term holding and long term pasture facilities.

Under Modified Action Alternative B impacts to livestock grazing, wildlife, recreation and realty actions would be minimal almost immediately after the initial gather. The population growth rate should be slightly higher under this alternative than with Modified Alternative A and so the population should increase at a higher rate resulting in more frequent gathers and more animals being removed over time. More frequent gathers would increase the potential for direct conflicts during gather activities involving livestock, wildlife, recreation and realty.

Cumulative Impacts from Modified Alternative C. Removal of Excess Animals to Low AML

Much like Modified Alternative B this action would address the need to remove excess wild horses while bringing the population on the range to the low AML (130). This action would address attainment and maintenance of a thriving natural ecological balance within the first gather. However, it is not likely that a high enough gather efficiency can be achieved in order to accomplish the desired goal. Direct impacts to the wild horse population would be the decreased population to low AML (130) resulting in reduced competition for scarce resources within the HMA such as water, forage and space. Improved body condition should be experienced in the short term by the remaining wild horse population in the Jackson Mountains HMA. There would be increased opportunities for wild horses to utilize higher quality habitat related to a reduction in competition in these areas and to lessened pressure on the habitat itself. Reduced wild horse densities should result in less competition between bands resulting in fewer injuries and a reduced risk of disease outbreak.

This alternative would directly impact the BLM's Wild Horse Program's short term holding and long term pasture facilities. Currently the BLM is facing very limited available space to hold excess wild horses. Due to drought and other National issues the available space at these facilities may be needed for other higher priority removals. This action would not address population control on the range by reducing population growth and would not slow population growth over the long term or result in greater intervals between gathers or fewer excess wild horses being removed and sent to short term holding and long term pasture facilities.

Under Modified Action Alternative C impacts to livestock grazing, wildlife, recreation and realty actions would be minimal almost immediately after the initial gather much like Modified Alternative B. However, the population growth rate should be moderately higher under this alternative than with Modified Alternatives A and B and so the population should increase at a higher rate resulting in more frequent gathers and many more animals being removed over time. More frequent gathers would increase the potential for direct conflicts during gather activities involving livestock, wildlife, recreation and realty.

Cumulative Impacts from Alternative D No Action- Defer Gather and Removal

Deferral of removing excess wild horses and/or applying population control measures in the Jackson Mountains HMA would further exacerbate deterioration of range conditions and wildlife habitat. The action would not be conformance with existing law and regulation which requires the authorized officer to remove the animals immediately upon determination that excess wild horses are present.

This action would not address population control on the range by reducing population growth and would not slow population growth over the long term or result in greater intervals between gathers or fewer excess wild horses being removed and sent to short term holding and long term pasture facilities. In fact deferring the gather would likely cause a sharp rise in the wild horse population and result in a larger number of excess wild horses being removed in the future and sent to short term and long term pasture facilities. When a gather was implemented to remove the excess horses the animals would likely be in poor condition due to extreme competition for very limited resources and the animal's health would likely be compromised.

Deferral of gather activities would continue to cause impacts to the other resources and uses within and around the Jackson Mountains HMA. Livestock grazing could be suspended, wildlife habitat devoid, recreational opportunities severely limited and realty actions compromised. All of these impacts would be contrary to the BLM's multiple use mission as well as many other laws, regulations and policies pertaining to wild horses and the resources being impacted. As wild horse populations continue to expand beyond the HMA boundaries these impacts would continue to expand compound.

## 5.3.16. Wildlife

Impacts from past, present and reasonably foreseeable future actions to wildlife would be the same as those discussed in Section 5.3.3, "Migratory Birds". However, impacts from future actions would be to a greater extent since wildlife species not designated as special status species are afforded a lesser level of protection from multiple use activities. Cumulative impacts from Modified Alternatives A through C and Alternative D would similar as those described in Section 5.3.3, "Migratory Birds". The augmentation of bighorn sheep and proposed horse gather would not be concurrent and would not directly impact one another.

Impacts associated with an emergency gather to some wildlife species could occur during parturition and early offspring rearing but improvements to habitat conditions would occur sooner than if the gather were postponed. It is believed that these impacts would offset each other.

# Chapter 6. Monitoring and Mitigation

Monitoring

The BLM Contracting Officer Representative (COR) and Project Inspectors (PIs) assigned to the gather would be responsible for ensuring contract personnel abide by contract specifications and SOPs. Ongoing rangeland, riparian, and wild horse monitoring would continue, including periodic aerial population counts.

Under the Action Alternative A fertility control monitoring of treated mares would be conducted in accordance with the SOPs outlined in Appendix C, *Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments*; and, monitoring of the herd health would continue as part of routine monitoring.

# Chapter 7. Tribes, Individuals, Organizations, or Agencies Consulted:

Public hearings are held annually on a state-wide basis regarding the use of motorized vehicles, including helicopters and fixed-wing aircraft, in the management of wild horses. During these meetings, the public is given the opportunity to present new information and to voice any concerns regarding the use of the motorized vehicles. The Ely District Office hosted the state-wide meeting on June 15, 2011; the current gather operation SOPs were reviewed in response to the concerns expressed and no changes to the SOPs were identified. Additionally, the Carson District Office held a public hearing on May 29, 2012, providing the public an opportunity to comment.

On-going consultation with Resource Advisory Councils, the Nevada Department of Wildlife, US Fish and Wildlife Service, livestock operators and others, underscores the need for BLM to maintain wild horse populations within AML.

Endangered Species Act Consultation

Section 7 consultation is in progress with the U.S. Fish and Wildlife Service. A species list was requested March 1, 2012, and received March 27, 2012 from the U.S. Fish and Wildlife Service in Reno, Nevada.

Native American Consultation

Letters requesting consultation meetings on the Proposed Action were sent out on March 6-7, 2012 to the following tribes: Summit Lake Paiute Tribe, Pyramid Lake Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, and Winnemucca Indian Colony.

On March 19th, 2012, the proposed action was discussed in a consultation meeting with the Fort McDermitt Paiute and Shoshone Tribe.

A consultation meeting was held with the Summit Lake Paiute Tribe on April 21, 2012. The proposed gather was also discussed during consultation on May 29, 2012. The tribe expressed concerns regarding livestock use in the area this year and whether the skewed sex ratio would affect the viability and genetics of the herd. Livestock use is discussed in section 3.3.4 and the impacts of the skewed sex ratio is discussed in Section 4.17.

# Chapter 8. Public Involvement

The Preliminary Jackson Mountain Herd Management Area Gather Plan EA #DOI-BLM-NV-W030-2012-0005-EA was sent to the interested public list for the gather area on April 18, 2012, for a review and comment period that would end on May 1, 2012. This list included approximately 76 individuals, organizations, County officials, and State and Federal Agencies. Among these was the Nevada State Clearinghouse which made the interested party letter available for review by 37 Nevada State Agencies. The EA and associated documents were also available from the BLM's NEPA Register, and a link to the NEPA Register was provided from the Winnemucca District's NEPA website. The Nevada State Office issued a news release notifying the general public of the availability of the document for review, how to access the the document, and where to submit comments. The news release was issued to a list of over 75 media sources in Nevada and California as well as Nevada Congressional representatives. Among these was the Nevada State Clearinghouse which made the preliminary EA available for review by thirty-seven Nevada State Agencies.

On April 26, 2012 the BLM Nevada State Office issued another news release notifying the public that the public comment period was extended until May 18, 2012. A second notification was sent to the same list of individuals, organizations, governmental agencies, media sources and congressional representatives as the first. The NEPA Register and Winnemucca District's NEPA page also updated the general public that the comment period had been extended.

A Notice of Proposed Action (NOPA) letter was sent to 45 interested parties for activities within Wilderness areas. Like the letter referred to in the preceding paragraph, the NOPA notified these individuals of how to access the EA and where to submit comments.

All comments received during the 30 day comment period were reviewed and considered prior to finalizing this EA. Letters and e-mails were received both in support of and in opposition to the gather. Numerous form letters were also received. These are letters that are generated from a singular website from a non-governmental organization, such as an animal advocacy group. Comments identified on the form were considered along with the rest of the comments received, but as one collective comment letter. Form letters are not counted as separate comments due to their duplicative nature. However, where individuals added their own comments to the form, the personalized comments were considered as separately submitted comments.

Although the BLM's review of public comments did not indicate that substantative changes to the conclusions presented in the preliminary EA were warranted, they did lead to changes throughout the document to better explain and clarify BLM's analysis in response to comments, which resulted in a more comprehensive and complete document.

# Chapter 9. List of Preparers

## Table 9.1. List of Preparers

| Name | Responsible for the Following Section(s) of this Document |
|---|---|
| Allie Hensen | Invasive, Non-native species (plants and animals) |
| Angela Arbonies | Rangeland Management |
| Celeste Mimnaugh | General Wildlife, Migratory Birds, Threatened and Endangered, Species, other Special Status Species, |
| Greg Lynch | Fisheries and Threatened and Endangered Fish Species |
| John McCann | Water Quality, Wetlands and Riparian |
| Julie McKinnon | Lands and Realty |
| Kristine Struck | Wilderness |
| Mark Hall | Native American Religious Concerns |
| Melanie Mirati | Project Lead, Wild Horses and Burros, overall document preparation |
| Patrick Haynal | Cultural Resources, Paleontology |
| Rob Burton | Soils, Vegetation |
| Zach Million | Outdoor Recreation Planner |
| Zwaantje Rorex | National Environmental Policy Act Compliance |

# Chapter 10. List of References

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# Appendix A. Standard Operating Procedures (SOPs) for Wild Horse Gathers

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

Prior to any gathering operation, the BLM will provide for a pre-gather 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 gather 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 gather operations could be facilitated by a veterinarian, these services would be arranged before the gather would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the gather and handling of animals to ensure their health and welfare is protected.

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

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

1. Helicopter Drive Gathering. This gather method involves utilizing a helicopter to herd wild horses into a temporary gather site.

2. Helicopter Assisted Roping. This gather method involves utilizing a helicopter to herd wild horses to ropers.

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

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

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

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

   All gather sites 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 gather locations as determined by the COR/PI. All gather sites 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 sites, 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 sites and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All gather sites and holding facilities shall be oval or round in design.

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

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

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

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

4. No modification of existing fences 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 gather site or holding facility, the Contractor shall be required to wet down the ground with water.

6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays or other animals the COR determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government 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 gather area(s). In areas requiring one or more satellite gather site, 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 sites 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 site or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor will supply certified weed free hay if required by State, County, and Federal regulation.

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

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

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

1. Gather attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary gather site. If this gather method is selected, 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 gather of animals.

   c. Gather sites shall be checked a minimum of once every 10 hours.

2. Gather attempts may be accomplished by utilizing a helicopter to drive animals into a temporary gather site. If the contractor selects this method the following applies:

    a. A minimum of two saddle-horses shall be immediately available at the gather 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. Gather attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the following applies:

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

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

    c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who 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 gathered animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI, if requested, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

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

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

the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

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

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

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

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

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

# D. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the gather 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.

# G. Site Clearances

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

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

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

# H. Animal Characteristics and Behavior

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

# I. Public Participation

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

# J. Responsibility and Lines of Communication

**Contracting Officer's Representative/Project Inspector:** Melanie Mirati

**Contracting Officer's Representative/Project Inspector:** Alan Shepherd

The Contracting Officer’s Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor’s compliance with the contract stipulations. The Field Manager for the Black Rock River Field Office will take an active role to ensure the appropriate

lines of communication are established between the field, Field Office, District Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Field Manager and District Public Affairs Officer. These individuals will be the primary contact and will coordinate with the COR/PI on any inquiries.

The COR will coordinate with the contractor and the BLM Corrals to ensure animals are being transported from the gather 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 gather 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. Jackson Mountains Wild Horse Observation Protocol

BLM recognizes and respects the right of interested members of the public and the press to observe wild horse gather operations. 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, the 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.

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.

## Daily Visitor Protocol

- A Wild Horse Gather Information 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 on public outreach and education days. 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 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 on public outreach and education days 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 re*serves 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

- The media and public are welcome to attend the gather any day, and are encouraged to attend on public outreach and education days. On this day, BLM will have additional interpretive opportunities and staff available to answer questions.
- The number of public outreach and education days per week, and which days they are, will be determined prior to the gather and will be announced through a press release and on the website. Interested observers should RSVP ahead through the BLM-Winnemucca District Office number (TBD). A meeting place will be set for each public outreach and education day and the RSVP list notified. BLM representatives will escort observers on public outreach and education days to and from the gather site and temporary holding facility.

# Appendix C. Standard Operating Procedures (SOPs) for Population-level Porcine Zona Pellucida (PZP) Fertility Control Treatments

## 22-Month Time-Release Pelletted Porcine Zona Pellucida (PZP) Vaccine:

The following implementation and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.

2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. These are delivered using a modified syringe and jabstick to inject the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time-release cold capsule.

3. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).

4. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. 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 D. Minimum Requirement Decision Guide Worksheets

## Step 1 Part A: Minimum Requirement Key to Making Determinations on Wilderness Management Proposals

| Guiding Questions | Answers and explanations |
|---|---|
| **1. Is this an emergency?** (i.e. a situation that involves an inescapable urgency and temporary need for speed beyond that available by primitive means, such as fire suppression, health and safety of people, law enforcement efforts involving serious crime or fugitive pursuit, retrieval of the deceased or an immediate aircraft accident investigation)<br><br>**If Yes>** Document the rationale for line officer approval using the minimum tool form and proceed with action.<br><br>**If No>** Go to question 2 | **No**. The Modified Proposed Action is not currently an emergency for Wilderness resources. However, as water and forage are further depleted and the physical condition of the horses degrade, it has become an emergency situation for the wild horses within the HMA. |
| **2. Does the project or activity conflict with the stated management goals, objectives and desired future conditions of applicable legislation, policy and management plans?**<br><br>**If Yes>** Do not proceed with the proposed project or activity.<br><br>**If No>** Go to question 3 | **No**. Currently no approved wilderness management plan exists for the involved wilderness areas. Management is based on law, regulation, and policy and the NCA RMP. BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove wild horses when it is considered the minimum tool that can accomplish the task with the least lasting impact to wilderness values. The NCA RMP WHB-6 states "Gathers in wilderness will continue to be conducted by herding the animals by helicopter or on horse back to temporary corrals, generally located outside of wilderness. No landing of aircraft will occur in Wilderness Areas except for emergency purposes, and no motorized vehicles will be used in Wilderness in association with gather operations unless such use was consistent with the minimal tool requirement for management of Wilderness." |
| 3. **Is there any less intrusive actions that should be tried first?** ( i.e. signing, visitor education, or information)<br><br>**If yes>** Implement other actions using the appropriate process.<br><br>**If No>** Go to question 4 | **No.** The only way to reduce the excess population of wild horses in the wilderness areas to the Appropriate Management Level (AML) is to physically remove the excess horses from the area. |

| | |
|---|---|
| **4. <u>Can this project or activity be accomplished outside of wilderness and still achieve its objectives?</u>** (such as some group events)<br><br>**If Yes>** Proceed with action outside of wilderness using the appropriate process.<br><br>**If No>** Go to question 5 | **No.** The majority of the HMA overlaps the wilderness areas and much of the preferred habitat for the wild horses is within wilderness The temporary corrals/traps will be located outside of the wilderness boundary. |
| **5. <u>Is this project or activity subject to valid existing rights?</u>** (such as mining claims or right of way easements)<br><br>**If Yes>** Proceed to Minimum Tool Analysis<br><br>**If No>** Go to question 6 | **No.** Valid existing rights are not associated with the proposed action. |
| **6. <u>Is there special provisions in legislation (the Wilderness Act of 1964 or the Black Rock Desert-High Rock Canyon Emigrant Trails NCA Act of 2000) that allows this project or activity?</u>**<br><br>**If Yes>** the proposed project or activity should be considered but is not necessarily <u>required</u> just because it is mentioned in legislation. **Go to part B**<br><br>**If No> Go to Part B** | **No**. There are no special provisions dealing with wild horses in the legislation. |

# Step 1 Part B- Determining the Minimum Requirement

| Effects on Wilderness Character | Responses |
|---|---|
| **1. How does this project/activity benefit the wilderness as a whole as opposed to one resource?** | The objective of the proposed action is to remove excess wild horses from the Jackson Mountains HMA, which includes the North Jackson Mountains and South Jackson Mountains Wilderness areas. Excess wild horses can have a negative impact to the naturalness of the wilderness areas, by competing with the areas native populations of wildlife, overgrazing riparian areas, and trampling springs. The proposed action would maintain and enhance the naturalness of the wilderness areas by removing the excess horses and the impacts they are having on the overall naturalness of the areas. |

| | |
|---|---|
| **2. If this project/activity were not completed, what would be the beneficial and detrimental effects to the wilderness resources?** | If the proposed action were not conducted the excess number of horses would continue to compete with native wildlife and impact the vegetation and riparian resources of the wilderness. Expansion of invasive, non-native species would result from the large-scale removal of native vegetation. Over the long term, these effects would also impact the scenic qualities of the wildernesses. The impacts to solitude and primitive recreation that would be associated with the gather operations would not occur if the proposed action was not completed. However, impacts to solitude would occur without the gather from increased management efforts to restore vegetation and water sources. Without the gather, opportunities for hunting (the primary form of primitive recreation in the wilderness areas) would be decreased. |
| **3. How would the project or activity help ensure that the wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation? (e.g. does the project/activity contribute to the people's sense that they are in a remote place with opportunities for self discovery, adventure, quietness, connection with nature, freedom, etc.)** | The project would not enhance the opportunities for solitude or for primitive and unconfined recreation during gather operations. Dates of the gather would determine the amount of impact to visitors as use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year. If the gather did not occur, opportunities for primitive recreation would continue to degrade as wildlife habitat including water resources were damaged and vegetative composition degrades. |
| **4. How would the project/activity help ensure that human presence is kept to a minimum and that the area is affected primarily by the forces of nature rather than being manipulated by humans?** | Although the Wild and Free Roaming Horse and Burro Act of 1971 mandates that BLM manage horses as an integral part of the natural systems where they are found, wild horses are human introductions into the wilderness areas and overpopulations of horses can impact the naturalness of the areas. Removing excess horses would maintain and enhance the naturalness of the areas and allow the area to be affected primarily by the forces of nature. |
| **Management Situation**<br><br>**5. What does your management plan, policy, and legislation say to support proceeding with this project?** | Currently no approved wilderness management plan exists for the involved wilderness areas. Management is based on law, regulation, and policy and the NCA RMP. BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove wild horses when it is considered the minimum tool that can accomplish the task with the least lasting impact to wilderness values. The NCA RMP WHB-6 states "Gathers in wilderness will continue to be conducted by herding the animals by helicopter or on horse back to temporary corrals, generally located outside of wilderness. No landing of aircraft will occur in Wilderness Areas except for emergency purposes, and no motorized vehicles will be used in Wilderness in association with gather operations unless such use was consistent with the minimal tool requirement for management of Wilderness." |
| **6. How did you consider wilderness values over convenience, comfort, political, economic or commercial values while evaluating this project/activity?** | The purpose of the proposed action is to enhance the naturalness of the wilderness areas by removing excess horses, and alleviating the impacts that they are having on the naturalness of the areas. |
| **7. Should We Proceed?** | **Yes**<br><br>Go to Step 2<br><br>(Minimum Tool Analysis) |

# Step 2 - Minimum Tool Analysis

| Option 1 | Option 2 | Option 3 |
|---|---|---|
| Modified Proposed Action – (Described in detail in the EA)<br><br>Phased-in Gather and Population Growth Control using fertility control treatments (PZP-22 or most current formulation) and sex ratio adjustments.<br><br>The horses would be gathered using helicopters to herd the horses to traps outside of wilderness. Roping methods could also be used if required.<br><br>Gathering the horses using these methods would require low level helicopter flights over the involved wilderness areas. Helicopters would only land in wilderness in emergency situations.<br><br>The action is being proposed in this manner because it is the most successful way to gather horses from the type of terrain found in the wilderness areas.<br><br>The proponent is the Winnemucca District Office, BLM. | Same as Option 1, but horses would only be herded by wranglers on horseback to traps located outside of wilderness. | Same as Option 1, but the horses would be gathered by setting up bait/water traps. To successfully remove horses from the wilderness areas the traps would need to be set up inside the wilderness areas. Traps would be transported to the sites by helicopter or by motorized vehicle using existing ways in the wilderness.<br><br>Once the horses were trapped they would need to be transported out of the wilderness by truck. Motorized vehicle use would only be authorized on existing ways. |
| **Biophysical Effects** | | |
| The proposed action would have minimal impacts on the biophysical characteristics of the Wilderness Areas. There may be some trampling of vegetation and soil by the herding of the horses, but these impacts would be similar to those associated with the normal movement of the herds. | Same as Option 1. | The trap sites would see an increase in soil and vegetation trampling due to the increase in horse numbers in the vicinity of the traps. The likelihood of transferring noxious weeds into the wilderness areas would increase by allowing the motorized vehicles to drive in and transport the horses out of the wilderness. |
| **Social/Recreation/Experiential Effects** | | |

| | | |
|---|---|---|
| Solitude would be impacted for the duration of the actual gather. The sights and sounds associated with a low flying helicopter would be heard and seen for long distances in the Wilderness Areas and would have an impact on the wilderness experience of visitors. This impact will be temporary and relatively short in duration. Dates of the gather would determine the amount of impact to visitors as use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year. | Solitude would be impacted for the duration of the actual gather. This alternative would have the least impact on solitude and the wilderness experience. The use of wranglers on horseback to herd the horses to traps would be less intrusive and would only impact the immediate area. | Solitude would be impacted for the duration of the actual gather. The site of the traps set up in wilderness would impact the wilderness experience of visitors. The use of helicopters or motorized vehicles to transport the traps and horses would impact the solitude of the area. This alternative would take the longest time to accomplish the task and would therefore impact the solitude of the areas for the longest time. Using motorized vehicles on the existing routes would probably increase the amount of motorized trespass along them. |
| **Societal/Political Effects** | | |
| BLM has made commitments to remove excess horses to achieve AML in the HMA.<br><br>Wilderness groups have commented in favor of the project.<br><br>BLM wilderness policy provides for the use of motorized and mechanized equipment, including aircraft use to remove excess wild horses when no other alternatives exist. | Same as Option 1 | Same as Option 1 |
| **Health and Safety Concerns** | | |
| Using low flying helicopters to herd horses can pose some safety concerns. Only experienced contractors with a good safety record would be allowed to conduct the work. The general public would not be put at risk by the project. | Under this alternative all herding would be by wranglers on horseback. This type of herding also has safety concerns such as; being thrown from a horse, horses falling over on riders, etc. The risk associated with this work would be increased because of the remoteness of the areas where the horses would be herded. The general public would not be put at risk by the project. | Under this alternative risks would involve those normally associated with driving motorized vehicles on rough terrain, and sling loading materials by helicopter. The general public would not be put at risk by the project. |
| **Economic and Timing Considerations** | | |
| This alternative would greatly decrease the amount of time that would be required for the project because the horses could be located quickly and then immediately herded to the corrals. | This alternative would take a much longer time to accomplish the goal of achieving AML. The wild horses would have to be located and then herded by the wranglers which would take a considerable amount of time. | This alternative would take much more time to achieve AML than Option 1 or 2. Because the traps would only hold a small number of horses, it would potentially take months to reach AML in the HMAs. |

# Determination

The preferred option is Option 1, which is described in detail in the EA. This option would allow BLM to effectively achieve AML in the area while minimizing the impacts to solitude and primitive recreation by decreasing the amount of time that the will be required for the gather. Helicopters will be used to herd the horses to trap sites located outside of wilderness. No landing of aircraft will occur in the wilderness areas other than for emergency purposes, and no motorized vehicles would be used in the wilderness areas.

# Appendix E. Noxious Weed List

**Nevada Administrative Code**

**(effective 10-31-05)**

555.10 1. The following weeds are designated noxious weeds:

DEFINITIONS

Category ”A”: Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; control required by the state in all infestations

Category "B": Weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur

Category "C": Weeds currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer

## Common Name *Scientific Name*

**Category A Weeds:**

African Rue *Peganum harmala*

Austrian fieldcress *Rorippa austriaca*

Austrian peaweed *Sphaerophysa salsula / Swainsona salsula*

Camelthorn *Alhagi camelorum*

Common crupina *Crupina vulgaris*

Dalmation Toadflax *Linaria dalmatica*

Dyer"s woad *Isatis tinctoria*

Eurasian water-milfoil *Myriophyllum spicatum*

Giant Reed *Arundo donax*

Giant Salvinia *Salvinia molesta*

Goats rue *Galega officinalis*

Houndstongue *Cynoglossum officinale*

Hydrilla *Hydrilla verticillata*

Iberian Star thistle *Centaurea iberica*

Klamath weed *Hypericum perforatum*

Leafy spurge *Euphorbia esula*

Malta Star thistle *Centaurea melitensis*

Mayweed chamomile *Anthemis cotula*

Mediterranean sage *Salvia aethiopis*

Purple loosestrife *Lythrum salicaria, L.virgatum* and their cultivars

Purple Star thistle *Centaurea calcitrapa* 104

Rush skeletonweed *Chondrilla juncea*

Sow Thistle *Sonchus arvensis*

Spotted Knapweed *Centaurea masculosa*

Squarrose star thistle *Centaurea virgata* Lam. Var. *squarrose*

Sulfur cinquefoil *Potentilla recta*

Syrian Bean Caper *Zygophyllum fabago*

Yellow Starthistle *Centaurea solstiltialis*

Yellow Toadflax Linaria vulgaris

**Category B Weeds:**

Carolina Horse-nettle *Solanum carolinense*

Diffuse Knapweed *Centaurea diffusa*

Medusahead *Taeniatherum caput-medusae*

Musk Thistle *Carduus nutans*

Russian Knapweed *Acroptilon repens*

Sahara Mustard *Brassica tournefortii*

Scotch Thistle *Onopordum acanthium*

White Horse-nettle *Solanum elaeagnifolium*

**Category C Weeds:**

Black henbane *Hyoscyamus niger*

Canada Thistle *Cirsium arvense*

Green Fountain grass *Pennisetum setaceum*

Hoary cress *Cardaria draba*

Johnson grass *Sorghum halepense*

Perennial pepperweed *Lepidium latifolium*

Poison Hemlock *Conium maculatum*

Puncture vine *Tribulus terrestris*

Salt cedar (tamarisk) *Tamarix spp*

Water Hemlock Cicuta maculate

# Appendix F. Jackson Mountains Population Modeling

To complete the population modeling for the Jackson Mountains HMA, version 1.40 of the WinEquus program, created April 2, 2002, was utilized.

## Objectives of Population Modeling

Review of the data output for each of the simulations provided many useful comparisons of the possible outcomes for each alternative. Some of the questions that need to be answered through the modeling include:

- Do any of the Alternatives "crash" the population?
- What effect does fertility control have on population growth rate?
- What effects do the different alternatives have on the average population size?
- What effects do the different alternatives have on the genetic health of the herd?

Population Data, Criteria, and Parameters utilized for Population Modeling

All simulations used the survival probabilities, foaling rates, and sex ratio at birth that was supplied with the WinEquus population model for the Garfield HMA.

Sex ratio at Birth:

58% Males

42% Females

The following percent effectiveness of fertility control was utilized in the population modeling:

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

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

Contraception Criteria

(Alternative A)

| Age | Percentages for<br><br>Fertility Treatment |
|---|---|
| Foal | 0% |
| 1 | 100% |
| 2 | 100% |
| 3 | 100% |
| 4 | 100% |
| 5 | 100% |
| 6 | 100% |
| 7 | 100% |
| 8 | 100% |

| | |
|---|---|
| 9 | 100% |
| 10-14 | 100% |
| 15-19 | 100% |
| 20+ | 100% |

# Population Modeling Criteria

The following summarizes the population modeling criteria that are common to the Proposed Action, and all Action Alternatives:

- Starting Year: 2012
- Initial gather year: 2012
- Gather interval: regular interval of three years
- Gather for fertility treatment regardless of population size: No
- Continue to gather after reduction to treat females: Yes
- Sex ratio at birth: 58% males
- Percent of the population that can be gathered: 85%
- Minimum age for long term holding facility horses: Not Applicable
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each

The following table displays the population modeling parameters utilized in the model:

Population Modeling Parameters

| Modeling Parameter | Alternative A | Alternative B | Alternative C | Alternative D |
|---|---|---|---|---|
| Management by removal, 60:40 adjustment in sex ratio, and fertility control | Yes | Yes | No | N/A |
| Management by removal only | No | No | Yes | N/A |
| Threshold Population Size following Gathers | 217 | 217 | 217 | N/A |
| Target Population Size Following Gathers | 130 | 130 | 130 | N/A |
| Gather for fertility control regardless of population size | Yes | Yes | No | N/A |
| Gathers continue after removals to treat additional females | Yes | Yes | No | N/A |
| Effectiveness of Fertility Control: year 1 | 94% | 94% | N/A | N/A |
| Effectiveness of Fertility Control: year 2 | 82% | 82% | N/A | N/A |
| Effectiveness of Fertility Control: year 3 | 68% | 68% | N/A | N/A |

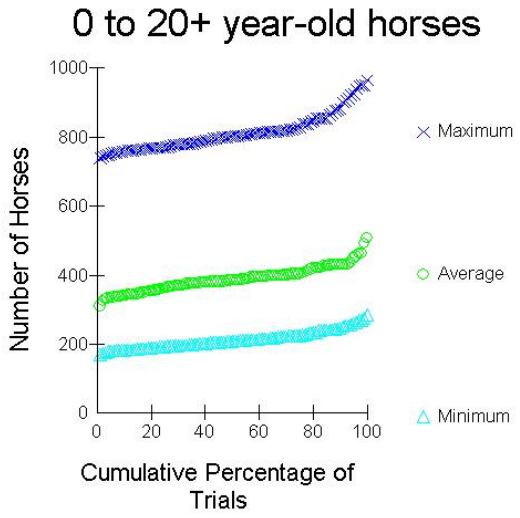
# Results of WinEquus Population Modeling

Population modeling was completed for the proposed action and the alternatives. One hundred trials were run, simulating population growth and herd demographics to determine the projected herd structure. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

To date, one herd has been studied using the 2-year PZP vaccine. The Clan Alpine study, in Nevada, was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% year one and 18% year two.

# Results – Proposed Action – Phased-in Gather and Fertility Control, 60% Male Sex Ratio

Population Size

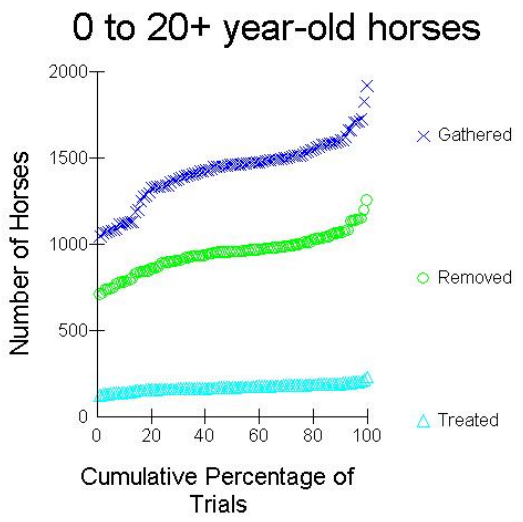



| Population Sizes in 11 Years* | | | |
|---|---|---|---|
| | Minimum | Average | Maximum |
| Lowest Trial | 170 | 311 | 741 |
| 10th Percentile | 184 | 341 | 762 |
| 25th Percentile | 194 | 365 | 772 |
| Median Trial | 208 | 385 | 804 |
| 75th Percentile | 226 | 404 | 835 |
| 90th Percentile | 248 | 431 | 892 |
| Highest Trial | 284 | 508 | 967 |
| * 0 to 20+ year-old horses | | | |

Explanation

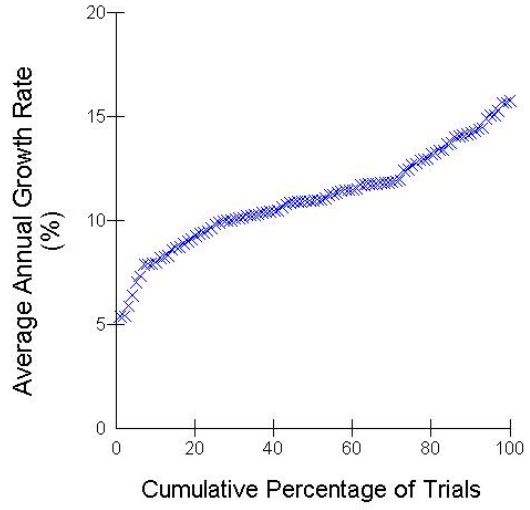
In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 170 and the highest was 967. In half the trials the minimum population size in 11 yrs was less than 208 and the maximum was less than 804. The average population size in 11 yrs ranged from 311 to 508.

Gathers




| Totals in 11 Years* | | | |
|---|---|---|---|
| | Gathered | Removed | Treated |
| Lowest Trial | 1,051 | 713 | 129 |
| 10th Percentile | 1,130 | 782 | 144 |
| 25th Percentile | 1,347 | 894 | 162 |
| Median Trial | 1,468 | 958 | 174 |
| 75th Percentile | 1,523 | 1,004 | 184 |
| 90th Percentile | 1,609 | 1,070 | 194 |
| Highest Trial | 1,921 | 1,255 | 233 |
| * 0 to 20+ year-old horses | | | |

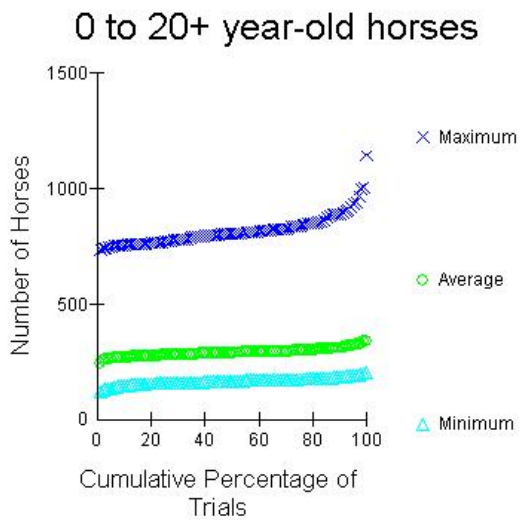
Growth Rate




| Average Growth Rate in 10 Years | |
|---|---|
| Lowest Trial | 5.4% |
| 10th Percentile | 8.1% |
| 25th Percentile | 9.9% |
| Median Trial | 11.0% |
| 75th Percentile | 12.7% |
| 90th Percentile | 14.3% |
| Highest Trial | 15.8% |

# Results – Action Alternative B - Selective Removal to Low AML (130 horses) and Sixty Percent Male Sex Ratio

Population Size

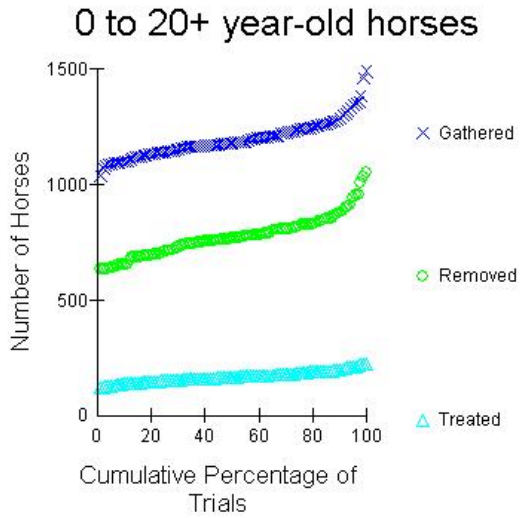



| Population Sizes in 11 Years* | | | |
|---|---|---|---|
| | Minimum | Average | Maximum |
| Lowest Trial | 122 | 246 | 740 |
| 10th Percentile | 148 | 273 | 760 |
| 25th Percentile | 160 | 280 | 778 |
| Median Trial | 168 | 290 | 810 |
| 75th Percentile | 177 | 302 | 846 |
| 90th Percentile | 188 | 313 | 896 |
| Highest Trial | 207 | 343 | 1,145 |
| * 0 to 20+ year-old horses | | | |

Explanation

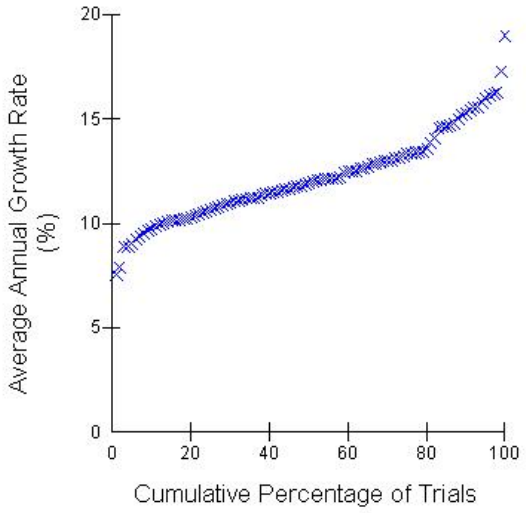
In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 122 and the highest was 1,145. In half the trials the minimum population size in 11 yrs was less than 168 and the maximum was less than 810. The average population size in 11 yrs ranged from 246 to 343.

## Gathers




| Totals in 11 Years* | | | |
|---|---|---|---|
| | Gathered | Removed | Treated |
| Lowest Trial | 1,037 | 633 | 122 |
| 10th Percentile | 1,106 | 474 | 225 |
| 25th Percentile | 1166 | 658 | 140 |
| Median Trial | 1,146 | 712 | 152 |
| 75th Percentile | 1,184 | 770 | 168 |
| 90th Percentile | 1,244 | 880 | 201 |
| Highest Trial | 1,492 | 1,051 | 226 |
| * 0 to 20+ year-old horses | | | |

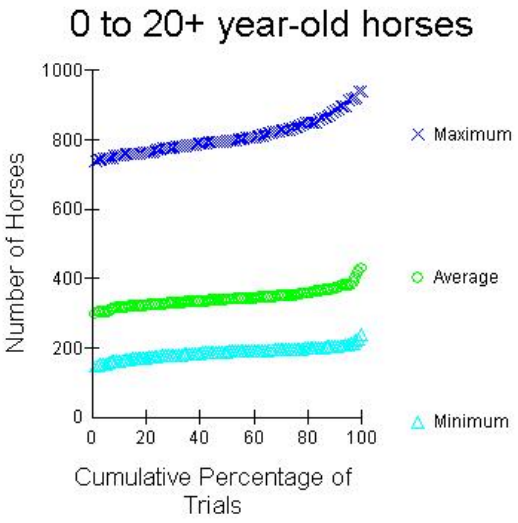
## Growth Rate




| Average Growth Rate in 10 Years | |
|---|---|
| Lowest Trial | 7.6% |
| 10th Percentile | 9.8% |
| 25th Percentile | 10.7% |
| Median Trial | 12.0% |
| 75th Percentile | 13.4% |
| 90th Percentile | 15.3% |
| Highest Trial | 19.0% |

# Results – Action Alternative C - Removal to Low AML (130 horses) without Sixty Percent Male Sex Ratio or Fertility Control

Population Size

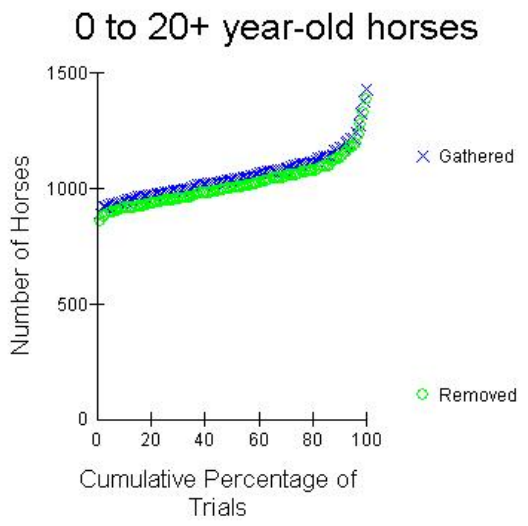



| Population Sizes in 11 Years* | | | |
|---|---|---|---|
| | Minimum | Average | Maximum |
| Lowest Trial | 148 | 298 | 742 |
| 10th Percentile | 164 | 317 | 759 |
| 25th Percentile | 178 | 326 | 776 |
| Median Trial | 190 | 340 | 801 |
| 75th Percentile | 198 | 352 | 838 |
| 90th Percentile | 206 | 374 | 887 |
| Highest Trial | 241 | 430 | 940 |
| * 0 to 20+ year-old horses | | | |

Explanation

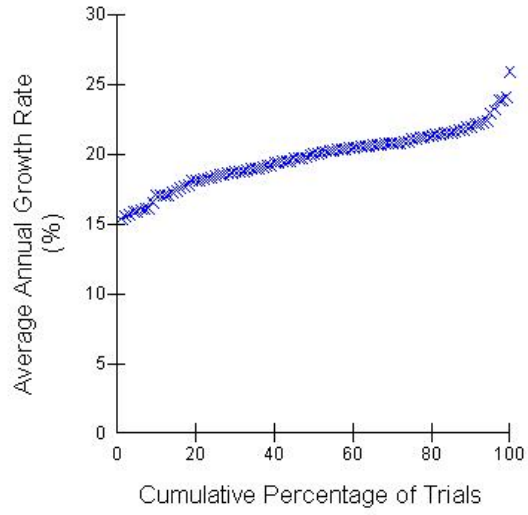
In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 148 and the highest was 940. In half the trials the minimum population size in 11 yrs was less than 190 and the maximum was less than 801. The average population size in 11 yrs ranged from 298 to 430.

Gathers




| Totals in 11 Years* | | | |
|---|---|---|---|
| | Gathered | Removed | Treated |
| Lowest Trial | 895 | 863 | N/A |
| 10th Percentile | 954 | 918 | N/A |
| 25th Percentile | 987 | 948 | N/A |
| Median Trial | 1,044 | 1,003 | N/A |
| 75th Percentile | 1,108 | 1,066 | N/A |
| 90th Percentile | 1,182 | 1,136 | N/A |
| Highest Trial | 1,428 | 1,386 | N/A |
| * 0 to 20+ year-old horses | | | |

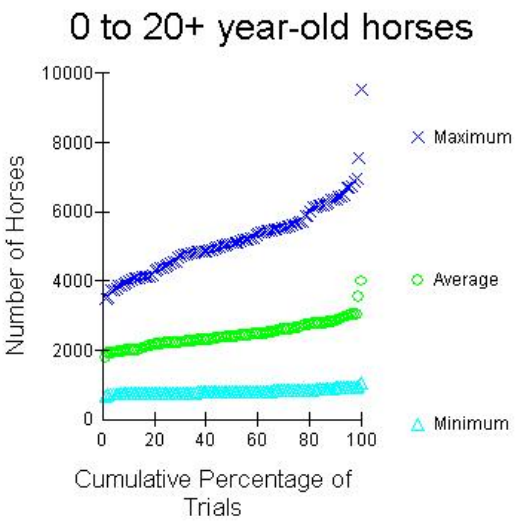
Growth Rate




| Average Growth Rate in 10 Years | |
|---|---|
| Lowest Trial | 15.3% |
| 10th Percentile | 17.1% |
| 25th Percentile | 18.5% |
| Median Trial | 20.1% |
| 75th Percentile | 21.2% |
| 90th Percentile | 22.1% |
| Highest Trial | 25.9% |

# Results – No Action Alternative

Population Size

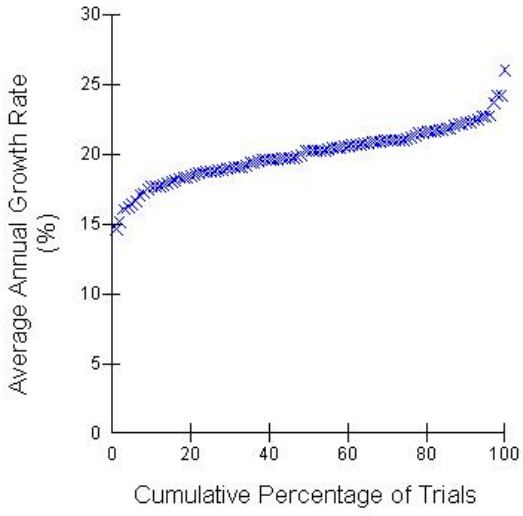



| Population Sizes in 11 Years* | | | |
|---|---|---|---|
| | Minimum | Average | Maximum |
| Lowest Trial | 681 | 1,813 | 3,529 |
| 10th Percentile | 762 | 2,014 | 4,053 |
| 25th Percentile | 778 | 2,212 | 4,522 |
| Median Trial | 812 | 2,408 | 5,116 |
| 75th Percentile | 860 | 2,654 | 5,714 |
| 90th Percentile | 927 | 2,874 | 6,422 |
| Highest Trial | 1,055 | 4,000 | 9,532 |
| * 0 to 20+ year-old horses | | | |

Explanation

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 681 and the highest was 9,532. In half the trials the minimum population size in 11 yrs was less than 812 and the maximum was less than 5,116. The average population size in 11 yrs ranged from 1,813 to 4,000.

## Growth Rate




| Average Growth Rate in 10 Years | |
|---|---|
| Lowest Trial | 14.7% |
| 10th Percentile | 17.7% |
| 25th Percentile | 18.8% |
| Median Trial | 20.3% |
| 75th Percentile | 21.2% |
| 90th Percentile | 22.3% |
| Highest Trial | 26.0% |