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Bureau of Land Management
Battle Mountain District**

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**Mount Lewis Field Office
50 Bastian Road
Battle Mountain, NV 89820**

**Callaghan Complex Wild Horse Gather
Environmental Assessment NV062-EA08-134**

**For the Bald Mountain, Rocky Hills, and Callaghan
Herd Management Areas**



Mount Callaghan, Callaghan HMA. March 2008

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1. Background Information

The Callaghan Complex consists of three wild horse Herd Management Areas (HMAs) administered by the Mount Lewis Field Office (MLFO)¹. The Callaghan, Bald Mountain, and Rocky Hills HMAs are considered a Complex for the purposes of this document due to their proximity to each other and likely movement of wild horses between the areas.

An Environmental Assessment (EA) is a “concise public document” that is designed to “briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI).”² This EA will evaluate and summarize the anticipated direct, indirect, and cumulative effects to the human environment associated with completion of a wild horse gather within the Callaghan Complex in accordance with the Gather Plan located in Appendix A.

The Callaghan HMA was last gathered in 2002, and the Rocky Hills HMA in 1999 following the completion and issuance of an EA, FONSI and Decision. These documents detailed many of the impacts associated with gathering wild horses from these areas (refer to Appendix E for details), and this information will be referenced in this EA. Additionally, the gathering of the Bald Mountain HMA was originally included in the *South Shoshone Complex Wild Horse Gather EA NV062-07-104*, April 2007, and was to be gathered in conjunction with the South Shoshone HMA. Due to National and State budget shortfalls, emergency gathers and lack of available holding space, the Bald Mountain HMA gather was postponed to be completed with the Callaghan HMA. Therefore, analysis included within EA 07-104 will be referenced as appropriate, and this document will include current information only.

General Setting

The Callaghan Complex is located within both Lander and Eureka Counties, approximately 25 miles south of Battle Mountain and 40 miles northwest of Eureka, Nevada.

The proposed Gather Area includes the Bald Mountain, Callaghan, and Rocky Hills HMAs. A small portion of the South Shoshone HMA located within the Austin Allotment is also included, as is the Simpson Park Mountain Range and USFS lands outside of HMA boundaries. The Complex is approximately 1.1 million acres in size, which includes 380,424 acres within and 742,041 outside of HMA boundaries.

Refer to Maps 1-2, for HMA boundaries, livestock grazing allotments and proposed gather area boundary.

Appropriate Management Level (AML)

The Appropriate Management Levels (AMLs) for all HMAs in the Complex were established through Final Multiple Use Decisions (FMUDs) issued by the MLFO following completion of Allotment Evaluations or Rangeland Health Assessments and EAs. These AMLs were established following the collection, analysis, and interpretation of many years of monitoring data, which included precipitation, use pattern mapping, trend, production, census/inventory, and carrying capacity analysis, and through coordination with the interested public.

1. The Mt. Lewis Field Office was formally the Battle Mountain Field Office, and through internal re-organization, has been renamed.

2. 40 CFR Sec. 1508.9.

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An AML range was established for the HMAs within the Complex, where the upper number represents the maximum population for which thriving natural ecological balance would be maintained. The lower range represents the number of animals to remain in the Complex following a wild horse gather in order to allow for a four year gather cycle and prevent the population from exceeding the established AML between gathers. “We interpret the term AML...to mean that “optimum number” of wild horses which results in a thriving natural ecological balance (TNEB) and avoids a deterioration of the range” (109 IBLA 119 API 1989³).

The following table displays the established AMLs for the HMAs within the Callaghan Complex gather area.

Table 1. Callaghan Complex Estimated Population and Gather Information

HMA	AML RANGE	EST. POPULATION ⁴
Callaghan	134-237	982
Rocky Hills	86-143	166
Bald Mountain	129-215	607
South Shoshone (Cedar Pasture Only)	0	18
Simpson Park Mountains - Outside HMA	0	40
USFS - Outside HMA	0	13
Complex Total	349-595	1,826

Appropriate Management Levels were determined to be the level of use by wild horses, which would provide for a thriving natural ecological balance and prevent deterioration of the range, as well as the level which would provide for viable populations within the capacity of the habitat to provide forage and water.

In the case of the Austin Allotment portion of the South Shoshone HMA, an AML of zero was established because this small, fenced area is not suitable to maintain a sound, viable population of wild horses. Water is also lacking in the area.

Refer to Appendix B for more detailed information about the AMLs established for the Complex.

1.1. Purpose and Need for Action

The purpose of the Proposed Action is to implement a wild horse gather consistent with the authority provided in 43 Code of Federal Regulations (CFR) 4700, and the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA). This action is needed to remove excess wild horses, achieve AML within the Complex, and prevent degradation of the range. The gather is also needed to remove wild horses from areas not designated as HMAs or managed as horse-free.

The AMLs and monitoring data for each HMA have been assessed in addition to habitat and animal condition, census and climate data. The AMLs have been determined valid and will be re-assessed in future years following additional gather cycles, collection of pertinent data, and coordination with the interested public.

The 2008 population of the Complex is estimated to be 1,826 wild horses, which exceeds the established AML range of 349-595 wild horses. Through the interdisciplinary evaluation process

3. U.S. Department of the Interior, Internal Board of Land Appeals (IBLA), Animal Protection Institute (API).

4. Estimated population represents the population following 2008 foaling. The most recent census was conducted March 2008.

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and analysis of monitoring data, it was determined that when wild horse populations exceed established AMLs degradation of the rangeland resources and animal health result. As a result, it has been determined that an excess population of wild horses exists within the Complex.

Portions of the HMAs within the Callaghan Complex are in poor ecological condition, particularly lower elevation winter habitat. Wild horses have and continue to degrade water sources and riparian ecosystems within the Callaghan and Bald Mountain HMAs. Forage and water sources are not adequate to support the current level of wild horses in a healthy state. The AMLs need to be achieved and maintained to not only stop and prevent further deterioration of important wild horse habitat, but also to allow for improvement of habitat and ensure long-term health and fitness of the wild horses through variable environmental conditions. The proposed wild horse gather is needed to:

- Remove approximately 1,480 excess wild horses,
- Achieve the established AMLs,
- Promote a thriving natural ecological balance between wild horse populations, livestock, wildlife, rangeland vegetation, and water availability,
- To protect the range from further degradation by wild horses , and
- Maintain a self-sustaining population of healthy animals, protecting the population from starvation or death due to inadequate forage or water to support the population.

1.2. Conformance with Existing Land Use Plans

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

Wild Horse & Burro Management Objectives:

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

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

The Proposed Action is in conformance with the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195, as amended) the Code of Federal Regulations (CFR) at 43 CFR §4700, and policies.

Section 2 (f) of the Wild Free-Roaming Horses and Burros Act defines excess animals as follows: *"excess animals" means wild free-roaming horses or burros (1) which have been removed from an area by the Secretary pursuant to application law or, (2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.*

Furthermore, 3 (b) (2) of the Act states:

"Where the Secretary determines on the basis of (i) the current inventory of lands within his jurisdiction; (ii) information contained in any land use planning completed pursuant to section 202 of the Federal Land Policy and Management Act of 1976; (iii) information contained in court ordered environmental impact statements as defined in section 2 of the Public Rangelands Improvement Act of 1978; and (iv) such additional information as becomes available to him from time to time, including that information developed in the research study mandated by this section, or in the absence of the information contained in

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(i-iv) above on the basis of all information currently available to him, that an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken . . . until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation”.

Applicable regulatory requirements at 43 CFR §4700 are as follows:

- **CFR 4700.06(a):** Wild horses and burros shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.
- **CFR 4720.1:** 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.

This EA analyzes the impacts to the human environment that could result from gathering wild horses. The MLFO has analyzed impacts of wild horse gathers through numerous Gather Plan/Environmental Assessments. In addition, Multiple Use Evaluations, Rangeland Health Assessments, and EAs have been completed in the process of establishing AML for wild horses. This EA tiers to these existing documents and will incorporate relevant portions of the documents by reference, where applicable. These documents are identified within Appendix E and include pertinent documents for the Austin, Grass Valley, Carico Lake, Grass Valley, and Simpson Park Allotments, and for the Callaghan, Rocky Hills and Bald Mountain HMAs, and the Simpson Park Mountain Range.

1.4. Conformance with Rangeland Health Standards and Guidelines

The proposed action and other action alternatives are in conformance with the Northeastern Great Basin Resource Advisory Council (RAC) Rangeland Health Standards and Guidelines. Standard 5: Healthy Wild horse and Burro Populations is available in Appendix A.

1.5. Decision to be Made

The authorized officer would determine whether or not to implement the proposed population control measures in order to achieve and maintain the established Appropriate Management Levels (AMLs) for the Callaghan Complex and to prevent the further deterioration of the range resulting from overpopulation of wild horses.

1.6. Scoping and Issue Identification

Prior to completion of this EA, a scoping letter dated April 24, 2008, was mailed to 62 individuals, organizations or State and Federal agencies which comprise the interested public list for the Callaghan Complex.

Responses were received from the Nevada Division of State Lands and the Nevada State Historic Preservation Office in support for the proposed wild horse gather. Additional responses were received from Animal Welfare Institute, Candace D. Oathout, and Cindy McDonald, involving comments, questions and recommended topics for analysis within the EA. The MLFO also received comments from livestock permittees Pauline Padilla, and Jim and John Filipinni during meetings pertaining to allotment administration and monitoring. These comments/concerns are summarized in Appendix I and were considered and incorporated in the preparation of this environmental assessment. Through the evaluation process and consultation with the interested public, the following issues have been identified:

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1. *Long term health and viability of wild horses,*
2. *The effects to population size and growth rates from fertility control application. The potential for inbreeding and population crashes,*
3. *Impacts and stress to wild horses through helicopter removals, especially in drought conditions, or during the winter months,*
4. *Humane treatment of wild horses during gathers,*
5. *Wild horse habitat health to include condition of upland rangeland and riparian/wetland habitat.*

Some members of the interested public believe that livestock should be removed from the range before or instead of wild horses. However, management of livestock is an appropriate multiple use of public lands, and decisions pertaining to the use of livestock on public lands have been made through the SERA LUP (1986), and Final Multiple Use Decisions for all of these allotments. The allocation of forage to livestock, wild horses and wildlife was made following analysis of monitoring data, carrying capacity analysis, and consultation with the interested public. The purpose of this EA is not to assess or adjust livestock use. These areas will be evaluated in the future following collection of monitoring data and coordination with the interested public.

2. Description of the Proposed Action and Alternatives

The following section details the Proposed Action and Alternatives that will be analyzed in this EA, as well as alternatives considered, but not carried forward for analysis. Following the issuance of the scoping letter on April 24, 2008, comments and recommendations were received several organizations/individuals. Variations to alternatives and additional alternatives were recommended through the comment letters.

The following Alternatives will be analyzed:

- ***Proposed Action: Gather the Complex to achieve AML with the addition of fertility control research***
- ***Alternative 1: Achieve AML, modify sex ratios to 60:40 favoring males***
- ***Alternative 2: Achieve AML, gather only***
- ***Alternative 3: No Action Alternative: No Wild Horse Gather***

The Proposed Action and Alternatives 1 and 2 were developed to achieve the established AML, remove excess animals from the range, prevent further deterioration to the range, and ensure the long-term success of the HMAs within the Complex. Fertility control research and modification of sex ratios of released animals would be analyzed to assess the effectiveness of slowing population growth. The No Action Alternative is in violation of the Wild Free-Roaming Horses and Burros Act, of 1971 (PL-195, as amended) and is not in conformance with BLM wild horse and burro management requirements contained in 43 CFR §4700. 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 action alternatives, and to assess the effects of not conducting a gather at this time.

2.1. Actions common to the Proposed Action and Alternative 1-2

The proposed gather would achieve the established AMLs in accordance with this EA, Wild Horse Gather and Standard Operating Procedures (Appendix A).

- The gather would be accomplished by helicopter drive trapping and helicopter assisted roping and would not occur during peak foaling season (March 1-June 30). The Complex could be gathered during November 2008 through January 2009.
- Animals selected for release back to HMAs would be transported to within the HMA boundary as near to an available water source as transportation allows.
- As a priority, wild horses would be removed from outside of HMA boundaries and from areas where concentrations of wild horses currently exist.

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- Excess wild horses removed from the range would be transported to BLM Wild Horse and Burro facilities.
- Released animals could be implanted with an electronic microchip and corresponding freezemarked brand on the hip for future identification from the ground and during future census flights and gathers.
- Hair samples would be collected for genetics analysis as described in Appendix A.
- Helicopter census flight for both HMAs may be conducted during the gather to collect information about numbers and locations of remaining wild horses within the HMAs.
- A trapsite adoption event could be planned to occur in conjunction with the gather activities in which selected wild horses would be adopted to qualified applicants at the gather location (refer to Gather Plan, Appendix A for more information).
- Animals selected for release would be comprised of a variety of color and good conformation and size to ensure future adoptability.

The objective for a gather to be conducted under the Proposed Action and Alternative 1 and 2 would be the achievement of the low end of the AML range for the HMAs within the Complex. The goal would be to reduce the population of the Complex to approximately 349 wild horses, ensuring a genetically viable population would exist within the Complex. Additionally, the population may not exceed the upper range of the established AML (595 wild horses) until three to four years (or more) following the gather.

The following table displays estimated populations, and gather and removal numbers for a Fall/Winter 2009 gather of the Callaghan Complex:

Table 2: Population, Gather Numbers–Callaghan Complex

HMA	AML RANGE	EST. POPULATION ⁵	EST. GATHER NUMBER ⁶	EST. TO REMOVE	EST. TO RELEASE	EST. POST GATHER
Callaghan	134-237	982	933	848	97	134
Rocky Hills	86-143	166	158	80	78	86
Bald Mountain	129-215	607	577	481	96	129
South Shoshone (Cedar Pasture Only)	0	18	18	18	0	0
Outside HMA Simpson Park Mountains	0	40	40	40	0	0
Outside HMA USFS	0	13	13	13	0	0
Complex Total	349-595	1,826	1,739	1,480	259	349

Following the capture of wild horses, animals would be sorted by age, sex and for release back to the HMA or for transport to the BLM Wild Horse and Burro Facilities. A selection of mares, studs, and foals could also be sorted for a trapsite adoption event.

BLM Wild Horse and Burro Specialists would adhere to National Selective Removal Policy to the extent possible (refer to Appendix A), while ensuring that the post gather populations consist of diverse age groups and animal characteristics. Goals for the gather include releasing horses within all age classes except weanlings, and most yearlings.

5. Estimated population represents the population following 2008 foaling. The most recent census was conducted March 2008.

6. Estimated gather numbers based on ability to capture 95% of the population. Gather efficiency would be influenced by time of year, snow cover and terrain.

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Wild horses would be selected and released back to the HMA, which represent the historic characteristics of the Complex. This would include selecting animals of moderate or larger stature, average or better confirmation, and coloring patterns, which reflect the historic range of colors found within the Complex. Animals that exhibit exceptional characteristics may be chosen for release outside of the selective removal priorities on a case by case basis. Wild horses to be released would be selected for health, stamina, strength and mothering abilities when these factors can be determined. Weak, unhealthy, and unthrifty animals would not be selected for release back onto the HMAs. Refer to Appendix B for detailed information about the anticipated age structures and sex ratios.

Most of the older mares and studs (15-19 years of age and primarily those 20+ years of age) would be released to avoid the stress of transportation and handling to these older horses. If deemed appropriate, additional older horses may be released above the low end of AML, if it would be too stressful to ship them. Most foals would be removed from the range and transported to BLM Wild Horse and Burro facilities with their mothers. In certain circumstances, some foals could be selected to be released with their mothers if it is determined that the foals are too young to travel safely or if the mother has been selected for release and the foal should not be weaned. In general, most young horses under 4 years of age would be removed from the range.

Terrain within the Complex is variable. Should the proposed gather be completed during winter months, snow could cover the ground and temperatures would be cool to cold. Wild horses would typically be herded 4-7 miles to trapsites. Some groups of horses could be herded 10 miles or more at the discretion of the BLM staff on site at the gather. During a winter gather, most horses would be located throughout foothills and other rolling terrain. Some groups of horses could be herded from within drainages or higher elevational areas. BLM staff would coordinate with the contractor on a daily basis to determine wild horse locations in proximity to trapsites, and discuss terrain, animal health, gather distances and other gather logistics.

2.2. Actions that differ among the Proposed Action and Alternatives

2.2.1. Proposed Action: Gather the Complex to achieve AML with the addition of fertility control research.

Fertility control research would be implemented throughout the Bald Mountain, Callaghan and Rocky Hills HMAs. Approximately 85-95% of the population would be captured, and 100% of the mares released back to the range inoculated with an immunocontraceptive vaccine, Porcine Zona Pellucidae (PZP), for fertility control research. The fertility control vaccine can have the effect of reducing herd growth rates. The desired sex ratio of the animals remaining on the range would be 50% mares and 50% studs.

The highest success obtained for fertility control has been achieved when applied during the timeframe of November through March. Refer to Appendix C for more information about fertility control research procedures. The efficacy for the application of the three-year PZP vaccine based on winter application is as follows:

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Normal	94%	82%	68%

2.2.2. Alternative 1: Achieve AML, modify sex ratios to 60:40 favoring males.

Under Alternative 1, the gather would occur as described under the Proposed Action with the exception that the objective for the sex ratio of the post gather population would be 60% studs and 40% mares within the Bald Mountain, and Callaghan HMAs. Modification of sex ratios through the release of fewer mares can have the effect of slowing growth rates of the population.

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The alternative to release 60% studs and 40% mares does not apply to the Rocky Hills HMA. The estimated 2009 age structure obtained through WinEquus population modeling for this HMA suggests that if all animals 2 years old and younger were captured and transported to the adoption program, all of the remaining horses 3 years and older could be released, and the low AML attained. A 60:40 sex ratio alternative favoring studs would require that additional *younger* studs be released to the HMA, and additional *older* mares be shipped to facilities. It is desirable to remove and transport as few older or unadoptable animals as possible, so this alternative was not explored further for the Rocky Hills HMA.

2.2.3. Alternative 2: Achieve AML, Gather Only

Under Alternative 2, no additional treatments to include fertility control or sex ratio modification to the post-gather populations would occur. Wild horses would be selected for release back to the range to achieve the low end of the established AMLs, and allowed to increase at normal levels until the next gather is scheduled. A 50:50 sex ratio would be the objective for the post-gather population, which represents a near normal sex ratio among HMAs administered by the MLFO.

2.2.4. Alternative 3: No Action Alternative (No Wild Horse Gather)

Under the No Action Alternative, a wild horse gather would not be conducted within the Callaghan Complex. Wild horse populations would not be actively managed at this time, and wild horses would not be removed from horse-free areas. The current population of 1,826 wild horses would continue to increase at an estimated rate of 17-20% annually. The established AML of 349-595 wild horses would continue to be exceeded.

2.3. Alternatives Considered but Eliminated from Detailed Analysis

Several Alternatives were recommended by individuals or organizations through comment letters following scoping that would not address the purpose and need. Additionally, other alternatives were identified by the MLFO for consideration, yet not analyzed further for the same reasons. These alternatives are identified below.

2.3.1. Gathering the Complex to upper range of AML

A post-gather population size at the upper level of the AML would result in AML being exceeded following the next foaling season (spring 2009). This would be unacceptable for several reasons.

The upper level of the AMLs established for the HMAs within the Complex represent the maximum population for which thriving natural ecological balance would be maintained. The lower level represents the number of animals to remain in the Complex following a wild horse gather in order to allow for a periodic gather cycle, and prevent the population from exceeding the established AML between gathers.

“We interpret the term AML within the context of the statute to mean 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 AML, would result in the need to follow up with another gather within one year, and could result in overutilization of vegetation resources and damage to the rangeland. For these reasons, this alternative did not receive further consideration in this document.

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2.3.2. Fertility control only to control the population size of the Complex

An alternative to implement fertility control without gathering to AML would not result in AML initially being achieved, and would result in increased gather and fertility control costs. This alternative has previously been analyzed through the WinEquus Population Model, which indicates that not only would fertility control as the only method of population control and population reduction not achieve the AMLs, but that far many more horses would need to be gathered over the course of time to repeat treatment on the mares in the population. This alternative would not meet the purpose and need and did not receive any further consideration.

2.3.3. Combination of fertility control and natural controls

Recommendation by Animal Welfare Institute (AWI). Refer to Comment #1 in Appendix I. The MLFO chose to analyze the modification of sex ratio and the application of fertility control in two separate alternatives. AWI did not identify specific types of “natural controls” to include in the analysis.

The two treatments were not analyzed in a single alternative due to several reasons. In 1999, nearly all of the wild horses were removed from the Rocky Hills HMA after the Trail Canyon wildfire burned large portions of the habitat. Removed animals were held in a contracted pasture setting in Nevada until October 2002 when 74 were released back to the range. No genetic testing has been completed on the herd. Additionally, because primarily older horses were released to the range in 2002, the current age structure, mortality rates and reproduction rates are unknown and possibly have fluctuated greatly since 2002. The MLFO decided not to apply multiple treatments to this herd until more information is known and can be used to make a reasoned analysis of the impacts. Following receipt of the genetics analysis, a Herd Management Area Plan (HMAP) will be completed with appropriate environmental documentation and public involvement. The proposal and analysis of multiple population control treatments will be included in the HMAP.

Additionally, the Bald Mountain HMA has not been gathered since 1981, and no genetic data has been analyzed. Although an estimate of the current age structure and sex ratio has been formulated, previous (current) gather data does not exist. The HMA’s population size and annual rates of increase have also fluctuated in response to compensatory distribution changes following gathers and removals in the adjacent Callaghan HMA or other environmental factors. Gathering the entire Callaghan/Bald Mountain unit at once will allow for the collection of baseline genetics data and future distribution and population changes for this “metapopulation”. This information will then be assessed during formulation of an HMAP and development of long-term management strategies for the herds, which could include fertility control, age structure or sex ratio modifications or both.

2.3.4. Separate Alternative for Trap-site Wild Horse Adoption Event

Refer to Comment #56, Appendix I, Response to Comments for more information about this recommendation received by Cindy McDonald. The BLM is not required to analyze wild horse or burro adoptions in Environmental Assessments. In fact the decision to approve wild horse or burro adoptions falls under the category of Categorical Exclusion which are “*categories of actions that Federal agencies have determined do not have a significant effect on the quality of the human environment, and for which, therefore, neither an EA or and EIS is required*” (40 CFR 1508.4).

Holding adoption events in conjunction with wild horse gathers is in conformance with the *Wild Horse Revised Nevada Tactical Plan* (BLM, 2001), and guidance located within IM NV 2001-041 *Guidelines for Adoption of Wild Horses and Burros During Gather Operations*. This policy provides guidance to assist BLM staff to plan and implement adoptions during gathers while ensuring that adequate public notification occurs as well as proper preparation of animals and other adoption related requirements.

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The policy states “Trap site adoptions will be identified in the gather plan, environmental assessment and communications plan for those herd management areas planned for such events”. It is for these reasons that the proposals for trap site adoptions are identified within the Proposed Action and Action Alternatives for wild horse gathers planned by the MLFO. The decision to plan and follow through with adoption events at wild horse gathers is dependent upon many factors including budget, interest by the public, time of year, and accessibility to the gather area.

2.3.5. Removal through the use of Bait/Water trapping or combination water-trapping and helicopter removal.

Refer to Comment #54, Appendix I, Response to Comments for more information about this recommendation received by Cindy McDonald.

Bait and water trapping involves the construction of traps, and baiting wild horses into the traps with the use of hay or water. Specialized one-way gates are often used to prevent the animals from leaving the trap once inside. Bait and water trapping methods are usually only effective in areas where water and forage is absent, resulting in high motivation for wild horses to enter the trap to access them. These types of situations may occur during drought emergencies or severe winters. Typically, small groups of horses enter the traps at a time, necessitating many days to many weeks to remove more than a few animals from an area.

Within the Complex, widespread shortages of forage and water do not currently exist and wild horses would not be sufficiently motivated to enter a trap through these methods. Additionally, the Complex is large, and involves over 1,800 wild horses distributed across 1.1 million acres. The purpose and need would not be met through these gather methods. The topography, terrain, habitat, population size, and accessibility of the Callaghan Complex is not appropriate for water or bait trapping, therefore it did not receive further consideration.

The capture of wild horses utilizing helicopter is the safest and most efficient method to remove large numbers of wild horses from public lands. Injury and death as a direct result of the helicopter herding or roping is minimal and occurs in less than 1% of animals gathered. In fact, most injuries or death occur *after* the animal is gathered and in the process of being sorted or loaded for transport, or while in the holding corrals (which would still occur during bait or water trapping capture methods). Additionally, animals may be identified for euthanasia for reasons other than injuries sustained by helicopter gather and usually include genetic deformities, old injuries, chronic illness, or old age.

BLM staff is on-site at all times to observe the gather, monitor animal health, and coordinate the gather activities with the contractor. Refer to Appendix A for more information about helicopter gather methods.

2.3.6. Release of a portion of the population as a non-breeding population (release of gelded males).

The MLFO chose not to further consider managing a portion of the population as geldings due to the general current lack of information about the effects to overall population dynamics and individual animals, as well as the logistical obstacles that the alternative would involve. Potential future pilot projects involving the management of geldings on the range would provide data needed to analyze this alternative in more detail in future planning efforts such as completion of HMAPs.

2.3.7. Relocation of wild horses to other areas

This alternative was developed from a recommendation by AWI. Refer to Comment #X in Appendix I.. The relocation of wild horses to other areas is not only risky to animal health and long-term herd viability, but also may be considered beyond the intent of the WFRHB Act to limit management activities to the “minimal feasible level”. Widespread use of this management action is also not supported by the SERA LUP.

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Currently, the MLFO would only consider relocation of wild horses in cases of emergency or in cases where genetics analysis indicates the need to introduce a small number of breeding adult animals to a herd to improve genetic variability. Wild horses that are relocated to other areas often die attempting to return to their home HMA while crossing cattle guards or from dehydration after being fenced away from water. Additionally, relocation to another area would require that the “area” is a designated HMA, and that the existing population in that HMA is below the established AML. Areas meeting these criteria are limited. Additional environmental analysis would be necessary. According to MLFO experience, there would be limited a likelihood that the animals would stay in the area where they were released. For these reasons, this alternative was not further analyzed. This proposal could be analyzed for certain HMAs in future HMAP documents.

2.3.8. Remove or Reduce Livestock within the HMAs

This alternative would involve no removal of wild horses but removal or reduction of livestock within the HMAs. This alternative was not brought forward for analysis because it is outside of the scope of the analysis, inconsistent with the SERA RMP objectives, and inconsistent with multiple use management.

The allotments within the Callaghan Complex have been evaluated for Rangeland Health or analyzed within an Allotment Evaluation or Permit Renewal. These processes resulted in extensive data interpretation, and carrying capacity analysis, which determined the number of AUMs to be allocated to wildlife, wild horses, and livestock. These management actions (including determination of wild horse AML and management objectives) were analyzed within Environmental Assessments, and finalized within Final Multiple Use Decisions or other Decisions following public comment (refer to Appendix E).

These FMUDs and Decisions detailed the adjustment/reduction of livestock AUMS and implementation of grazing systems, proper season of use and Allotment Specific Objectives. Livestock reductions have been implemented for the allotments involved in the Callaghan Complex. Refer to Section 3.3.

For these reasons, this Gather Plan and EA would not involve reductions of permitted livestock or increases of the established AMLs. Allocations to livestock or wild horses would be re-evaluated in future years and implemented through appropriate decision and environmental analysis documents.

The BLM is currently 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*” under CFR 4710.5. This authority is usually applied in cases of emergency and not for general management of wild horses or burros.

3. Affected Environment and Environmental Consequences

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

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Discussion of expected impacts to the affected resources follows the tables. Direct impacts are those that result from the actual gather and removal of wild horses from the Callaghan Complex. Indirect impacts are those impacts that occur once the excess animals are removed.

Table 3a: Elements Checklist

ELEMENT	PRESENT YES/NO	AFFECTED YES/NO	RATIONALE
Air Quality	Yes	No	The proposed gather area is not within an area of non-attainment, or areas where total suspended particulate matter exceed Nevada air quality standards. Areas of disturbance would be small and temporary, and would consist of fugitive dust.
ACECs	No	No	Resource is not present.
Cultural Resources	Yes	Yes	Known cultural resources would be avoided during the gather. Trapsites and holding facilities located in areas that have not been surveyed would be surveyed prior to use as described in the Gather Plan Appendix A to prevent any effects to cultural resources.
Environmental Justice	No	No	The Proposed action or alternatives would have no effect on minority or low-income populations.
Fish Habitat	Yes	Yes	Discussed in detail below.
Flood Plains	No	No	Resource is not present.
Forests and Rangelands	Yes	Yes	Discussed in detail below under Vegetation.
Noxious Weeds and Invasive, Nonnative Species	Yes	Yes	Discussed in detail below.
Migratory Birds	Yes	Yes	Discussed below under Wildlife.
Native American Religious Concerns	Yes	No	There are no known Native American concerns.
Prime or Unique Farmlands	No	No	Resource not present.
Threatened or Endangered Species (plants and animals)	No	No	No Threatened or Endangered Species are known to exist within the project area.
Wastes, Hazardous or Solids	No	No	Not Present.
Water Quality	Yes	Yes	Discussed below under Riparian-Wetland.
Wetlands and Riparian Zones	Yes	Yes	Discussed in detail below.
Wild and Scenic Rivers	No	No	Resource not present.
Wilderness	No	No	Resource not present. No Wilderness Study Areas are present.

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

Table 3b. Checklist of other Resources

OTHER RESOURCES	PRESENT YES/NO	AFFECTED YES/NO	RATIONALE
Grazing/Livestock Management	Yes	Yes	Discussed below.
Land Use Authorization	Yes	No	Resource is not affected by the proposed action or alternatives Gather operations would be temporary and isolated in nature, and would not interfere with land use authorizations.
Minerals	Yes	No	Resource is not affected by the proposed action or alternatives. Gather operations would be temporary and isolated in nature,

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			and surface disturbance would not have effects to minerals.
Paleontological Resources	No	No	Resource is not affected by the proposed action or alternatives. There is a minimal likelihood that resources would be present. Surface disturbance of the proposed gather would not be sufficient to cause impacts.
Recreation	Yes	No	Resource is not affected by the proposed action or alternatives.
Socio-Economic Values	Yes	No	Resource is not affected by the proposed action or alternatives. Impacts to socioeconomics would be temporary in nature and would cease upon gather completion. These impacts would consist of hiring contractors to conduct the gather operations, and contributions to local economies/towns for food and lodging during gather operations. There would be no permanent changes in employment or population from the proposed action or alternatives.
Soils	Yes	Yes	Discussed below.
Special Status Species (plants and animals)	Yes	Yes	Discussed below under Wildlife.
Vegetation	Yes	Yes	Discussed below.
Visual Resources	Yes	No	Resource is not affected by the proposed action or alternatives. Gather operations would be temporary and isolated in nature. There would be no permanent changes to the landscape.
Wild Horses and Burros	Yes	Yes	Discussed below.
Wildlife	Yes	Yes	Discussed below.

The Affected Environment for all three HMAs has been described within Evaluations, Rangeland Health Assessments, FMUDs and Gather Plan/EAs identified in Appendix E.

3.1. Cultural Resources (and Paleontology)

Affected Environment

Only about 5% of the region encompassed within the Callaghan Complex has been inventoried for cultural resources. This has produced a total of 1,120 prehistoric sites, 326 historic sites, and 103 sites that contain both prehistoric and historic components. Of these sites, 13% are eligible for inclusion on the National Register of Historic Places, while 36% remain unevaluated for their National Register potential.

Prehistoric sites known from the region most often consist of surficial scatters of stone artifacts including projectile points, scrapers and bifaces, lithic debitage, and less frequently pottery and evidence of plant processing (milling stones, grinders, seed hullers etc...). Occasionally rock-shelters, hunting blinds and the evidence of other types of shelter are discovered. These include rock-rings and wickiups, the remains of which are usually found within the pinyon – juniper zone within traditional pine-nut harvesting areas. These sites are expected to be located in areas conducive to resource gathering and most frequently take the form of either camp sites or resource procurement areas (residential bases or logistical camps respectively, after Binford 1978, 1980).

The remains of mining camps, charcoal production ‘ranches,’ early transportation corridors and the like would necessarily contain artifactual assemblages associated with their respective activities. Most frequently these include fragments of glass, scraps of metal, rusted cans and other items of predominantly recognizable, Euro-American manufacture. In addition, many intact or semi-intact structures remain such as mine cribbing, various shacks, cabins and shanties, talus slopes, assay pits, and an assortment of fencing, corrals, bins, holes, and trenches.

In terms of paleontological resources, this region of central Nevada is poorly understood. Little fossiliferous remains have been discovered from within the region although there are indicators

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that at least Pleistocene mammalia should be represented. The geological history of the region is convoluted to say the least and is comprised of faulted and overlain Late Paleozoic and Early Mesozoic clastic material generally covered with Tertiary ash-flow and Quaternary alluvium (see Tingley and Smith 1983: 71). In general, this indicates that the likelihood of intact, significant, paleontological remains is small. Although some brachiopods or corals may be found, no major fauna or flora are likely to be represented within the area encompassed by the proposed gather.

Environmental Consequences

Proposed Action and Alternatives 1 and 2

There is a potential for cultural resource sites to be affected primarily through ground disturbing activities associated with construction of temporary holding facilities, and trap corrals, use of vehicles and horse trailers to transport wild horses, and hoof action by wild horses in the process of being gathered and loaded for transport. Through adherence of the Standard Operating Procedures (SOPs) (Appendix A), potential impacts would be minimized. Archeological clearance of trap sites, holding corrals and others areas of potential effects would occur prior to construction. If cultural resources were encountered, those locations would not be utilized unless impacts could be avoided. Due to the inherent nature of wild horse gathers, trap sites and holding corrals would be identified just prior to use in the field. As a result, Cultural Resource staff would coordinate with Wild Horse and Burro personnel to inventory proposed locations as they are identified, and complete required documentation.

It is expected that through the Proposed Action and Alternative 1-2, that disturbance to springs and riparian areas because of an overpopulation of wild horses would decrease, thus reducing potential negative impacts to cultural resources at these locations. Trailing, trampling, and concentrated use by wild horses would be minimized or eliminated through achievement and maintenance of the established AMLs. The affects to cultural resources would be similar for all action alternatives; however, the Proposed Action could result in reduced population growth rates and subsequent population size within the HMAs in the Complex as compared to Alternative 1 and 2. Consequently, gather interval could be increased. Lower populations, reduced trailing, and less ground disturbance through gathers would result in fewer impacts to cultural resources by wild horses when compared to the other action alternatives. Refer to the population modeling discussion located in Section 3.7 of the EA, and detailed in Appendix D.

No Action Alternative (No Wild Horse Gather):

Wild horse and burro populations affect cultural resources, and to a lesser extent paleontological resources, especially Pleistocene-age fossils, through both direct means (i.e. trampling) as well as indirect means (erosion caused by vegetation destruction). Therefore, the impact to these resources by uncontrolled populations of these animals could be severe. Impacts to cultural resources could increase as the wild horse population increases. According to the population modeling, within 6 years the populations could increase to 626 horses within the Rocky Hills HMA, and 6,420 within the Bald Mountain and Callaghan HMAs combined. If the populations were allowed to increase to these levels, substantial soil disturbance would be inevitable, as would certain impacts to cultural resources across the Complex from erosion and trampling.

3.2. Noxious weeds, Invasive and Non-Native species

Affected Environment

The Bureau of Land Management defines a noxious weed as, “a plant that interferes with management objectives for a given area of land at a given point in time”. The Battle Mountain District (BMD) recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture, found at http://agri.nv.gov/nwac/PLANT_NoXWeedList.htm. Noxious weeds, invasive & non-native species are highly competitive, aggressive and easily spread. At this time, a thorough inventory for noxious weeds, invasive species has been completed along roadsides, through major drainages, scattered spring sites and disturbed areas throughout the Callaghan Complex. State of Nevada designated noxious weeds, of varying infestation size, found

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in the area includes: white-top (*Cardaria draba*), perennial pepperweed (*Lepidium latifolium*), various thistle species, Russian knapweed (*Acroptilon repens*), and salt cedar (*Tamarix spp.*). Invasive and non-native species identified in the area includes cheatgrass (*Bromus tectorum*) and halogeton (*Halogeton glomeratus*).

Noxious weeds and invasive species are spread by people, equipment, animals and by natural processes, such as wind and water erosion. The potential for increased weed infestations rises proportionally with increased cultural activities such as road maintenance, grazing and recreational use, primarily off-highway vehicle (OHV) use. Noxious weeds, invasive and non-native species typically establish and infest disturbed sites, high traffic areas and water ways. Any surface disturbance activity can create a potential environment for noxious weeds and invasive species.

Environmental Consequences

Proposed Action and Alternative 1 and 2:

The strategy for noxious weed management is to, “prevent and control the spread of noxious weeds through local and regional cooperative efforts...to ensure maintenance and restoration of healthy ecosystems on BLM managed lands”. Noxious weed control would be based on a program of “prevention, education, early detection and rapid response (control) of small infestations.”

Direct impacts of the proposed wild horse gather may result in the spread of existing populations of noxious weeds, invasive or non-native species. However, the spread or establishment of new noxious weed, invasive species infestations are not likely to occur during winter when plants are dormant. Regardless, precautions would be taken prior to setting up trap sites and holding facilities to avoid areas where noxious weeds, invasive or non-native species exist to lessen the chance of spread. The Contracting Officers Representative (COR), Project Inspector (PI), or other qualified specialist would examine proposed holding facilities and traps sites prior to construction to determine if noxious weeds were present. If noxious weeds were found, a different location would be selected.

Temporary trap sites and holding facilities would be selected in previously disturbed areas such as gravel pits. Areas disturbed specifically by gather operations would be monitored, re-vegetated (if appropriate), and treated for potential new infestations of non-native invasive plants as a result of gather operations. Refer to BMD’s Integrated Weed Management Plan, Noxious Weed Prevention Schedule and Best Management Practices recommended by the BMD Weed Management Specialist, available upon request.

Indirect Impacts of the Proposed Action would be related to wild horse population size as it affects ground disturbance and rangeland health. Noxious weeds, invasive and non-native species can increase with overuse of the range by grazing animals or through surface disturbance. Maintenance of healthy populations of native perennial plant species minimizes the establishment of noxious weeds, invasive and non-native species. It is expected that implementation of the proposed wild horse gather and achievement of the established AMLs would result in improved condition of native rangeland and riparian areas throughout the Callaghan Complex. As a result, the risk of spread by noxious weeds and invasive species across the Callaghan Complex would be reduced.

The Proposed Action would result in the best opportunity to improve rangeland condition and reduce spread of noxious weeds. Through application of fertility control, population growth rates could be reduced by as much as 17%. Slower increases in the population size after the proposed gather would benefit rangeland health more so than Alternative 1, which could reduce growth rates by as much as 9.3% or Alternative 2 which would maintain normal growth rates. A reduction of animals utilizing the range would result in a lesser amount of disturbance to soils, and reduced potential for spread of noxious weeds. Average population sizes between 2010 and 2015 would be lowest under the Proposed Action and would best maintain the population within the established AML ranges. Alternative 1 would express the next lowest average population size, followed by

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Alternative 2. Average population sizes under Alternatives 1 and 2 would likely not be maintained within the AML ranges according to the WinEquus population modeling. Refer to the population modeling discussion located in Section 3.7 of the EA, and detailed in Appendix D.

No Action Alternative (No Wild Horse Gather):

Under the No Action Alternative, a gather would not occur, and soil disturbance and potential spread of noxious weeds through a gather operation would not occur. The existing populations would continue to increase at an average of 17-20% and could reach substantial numbers in excess of the established AMLs. According to the WinEquus population modeling, within 6 years populations could reach 1,712% of the upper range of the AMLs. Native rangeland resources would continue to be subjected to an overpopulation of wild horses, resulting in heavy and severe utilization and trampling of the vegetation. Areas that are currently in low ecological status or disturbed would continue to be vulnerable to noxious weed and invasive species infestation. Current infestations of noxious weeds, invasive and non-native species would be expected to increase. Wild horse impacts to vegetation resources would increase as the population increases over time, resulting in growing opportunities for invasion and spread of noxious weeds and invasive species.

3.3. Livestock Management

Affected Environment

The Callaghan Complex involves multiple livestock grazing allotments. All of these allotments have been evaluated for multiple uses or for Rangeland Health, with subsequent decisions requiring livestock adjustments and implementation of livestock management systems. The following table displays the allotments by HMA, along with the date of the evaluations and assessments (refer to Appendix E for these documents).

Table 4: Allotments and decision history within the Callaghan Complex

HMA	ALLOTMENT	ACTIVITY
Callaghan	Austin	Permit Renewal 2007 Evaluation (1994), FMUD (1995)
	Grass Valley	Rangeland Health Assessment (2002), FMUD (2002)
	Simpson Park	Rangeland Health Assessment (2005), FMUD (2005)
Bald Mountain	Carico Lake	Rangeland Health Assessment (2005), FMUD (2005)
Rocky Hills	Grass Valley	See above
	JD	Rangeland Health Assessment (2003), FMUD (2004)
South Shoshone	Austin	See above
Outside HMA	Grass Valley	NA - outside of designated HMA
	Underwood	
	Simpson Park	
	Dry Creek	
	Santa Fe Ferguson	
	Three Bars	

The purpose of this section is to assess the potential direct, and indirect effects to livestock management within the various grazing allotments. The information presented here is to supply the reader with a general background of the history and degree of livestock use that occurs within the HMAs being considered for gathering. Please refer to Map 2, which displays the allotment boundaries in the Complex.

Portions of five grazing allotments are located within the Callaghan Complex. Between 6-33% of the various allotments fall within the boundaries of the HMAs proposed for gathering. Each allotment is comprised of a several pastures or unfenced use areas. Use areas do not correlate to HMA boundaries. Information about the use areas and portions of use areas located within the

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HMA's are located by allotment. Due to terrain and permitted season of use, the number of AUMs allocated to livestock within the HMA's varies greatly. The following tables display the composition of the HMA's and allotments in the Complex.

Table 5: Herd Management Area Composition

HMA	ALLOTMENT	ACREAGES	% OF THE HMA
Callaghan	Grass Valley	65,057	42
	Austin	79,966	51
	Simpson Park	10,979	7
	Total	156,002	100
Rocky Hills	Grass Valley	33,321	40
	JD	50,676	60
	Total	83,997	100
Bald Mountain	Carico Lake	139,878	100
South Shoshone	Austin	14,440	11
	Carico Lake	118,659	89
	Total	133,099	100

The following table displays the portions of the involved allotments that are comprised of HMA's or non-HMA areas.

Table 6: HMA and Non-HMA Area within Allotments

ALLOTMENT	HMA	ACRES	% OF ALLOTMENT
Grass Valley	Callaghan	65,057	23%
	Rocky Hills	34,118	12%
	Non-HMA	189,418	66%
	Total	288,593	100%
Austin	Callaghan	79,966	33%
	South Shoshone	14,440	6%
	Non-HMA	150,775	61%
	Total	245,181	100%
JD	Rocky Hills	50,676	35%
	Non-HMA	95,269	65%
	Total	145,945	100%
Carico Lake	Bald Mountain	139,878	23%
	South Shoshone	118,659	20%
	Non-HMA	340,767	57%
	Total	599,304	100%

Grass Valley Allotment

The Grass Valley Allotment comprises 42% of the Callaghan HMA. This allotment also contains 40% of the Rocky Hills HMA. Of the total allotment acreage, only 35% is within one of the two HMA's, the other 66% is non-HMA, private land, or seedings/pastures. The Grass Valley Allotment currently has six grazing permittees, three of which hold livestock permits within portions of the two HMA's. Within the Grass Valley Allotment, portions of two livestock use areas are within the Callaghan HMA. The following table displays this information:

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Table 7: Grass Valley Allotment Use Areas – Callaghan HMA

USE AREA	ACREAGE OF USE AREA WITHIN THE HMA	% USE AREA WITHIN THE HMA
Callaghan Mountain	46,674	88
Cowboy Flat	14,527	37
Total Allotment	65,057	23

The most recent Rangeland Health Assessment completed for this allotment resulted in issuance of an FMUD in spring, 2002. Changes in season of use were implemented, but no livestock reductions made due to reductions that took place during a permit transfer in 1995 of 3,807 AUMs⁷. The current permit for these two pastures is 6,500 AUMs for cattle. The period of use is from March 1-August 15 for both use areas.

Since the 2002 FMUD, the overall use by the permittee for this portion of the allotment has been 17-58% of the permitted use. Some years, the actual use was not reported by pasture. Most recently, the actual use for these pastures has been 0 and 22% for the Callaghan Mountain use area in 2006 and 2007, and 38 and 15% for the Cowboy Flat use area for the same years. The 2008 bill reflects 46% of the permit for Callaghan Mountain, and 21% of the permit for Cowboy Flat. The current permittee has not been using all of the permitted numbers in these pastures due to the condition of the range and lack of quality forage.

The Grass Valley Allotment comprises the western 40% of the Rocky Hills HMA. This area was also subject to the 2002 FMUD. Two permittees hold livestock permits for this area. Portions of 4 use areas are present within the HMA. The following table displays the information:

Table 8: Grass Valley Allotment Use Areas – Rocky Hills HMA

USE AREA	ACREAGE OF USE AREA WITHIN THE HMA	% USE AREA WITHIN THE HMA
Native Mountain	13,971	100
Native Valley	16,367	38
Upper McClusky	2,226	32
JD	1,554	80
Total Allotment	34,118	12

The permitted use for these areas is 4,013 AUMs. In the 2002 FMUD, changes in season of use were made and reductions to the JD use area of 108 AUMs. Reductions in permitted use within the other pastures were not made due to reductions of 1,574 AUMs during permit transfers in 1994. The Mountain and McClusky use areas are used in the spring through mid-summer with the Valley area used from mid-summer through the end of January. The JD area is used in conjunction with use by the permittee on the JD allotment.

Since the 2002 FMUD, the actual use for these use areas has ranged from 56-86% of the permitted use. The 2008 bill reflects 94% for these use areas, however that much use may not occur, and actual use will not be submitted until the end of the grazing year.

Austin Allotment

The Austin Allotment is nearly 250,000 acres in size and is comprised of many use areas, pastures, and seedings. 51% of the Callaghan HMA and 11% if the South Shoshone HMA are within the allotment. Of the total allotment acreage, 39% is within one of the two HMAs. The remaining land area consists of seedings, native range, and private pastures outside of the HMA boundaries.

7. 43 CFR 4100.0-5 defines Animal Unit Month (AUM) as the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month (which equates to 5 sheep).

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Within the Callaghan HMA, portions of four use areas exist. The following table displays the information:

Table 9: Austin Allotment Use Areas – Callaghan HMA

USE AREA	ACREAGE OF USE AREA WITHIN THE HMA	% USE AREA WITHIN THE HMA
Mountain	58,190	93
Upper Italian	4,010	100
Middle Italian	2,519	100
Elkhorn	8,368	68
Allotment Totals	79,966	33

A few other use areas exist within the HMA boundary and comprise less than 4% of the HMA. This allotment currently has three permittees, which hold permits for both sheep and cattle. Prior to 2006, two other permittees used the allotment as well. Those permits were transferred to one of the existing permittees in 2006.

The last multiple use evaluation for this allotment culminated in the issuance of an FMUD in 1995. The current permit reflects 55% of the historic preference for the entire allotment. Monitoring and administration has continued, and a permit renewal completed in 2007. This consisted of a data summary, environmental assessment and issuance of a FONSI and the *Final Decision, Austin Complex Permit Renewal*, (October 2007). The outcome of this process was that use areas were modified, seasons of use changed, and the overall management for the allotment modified.

Within the use areas identified in the above table, 2,277 AUMs are permitted for cattle and sheep. Actual use by cattle has been 13-35% of the permitted use since 2003. The 2008 bill reflects 79% of the permit. The actual use reported for sheep during the same time frame was 66-100% of the permit, with 73% reflected for the 2008 bill. Stringent removal dates are in place for the Mountain, and Italian use areas. The Mountain pasture may be used for 60 days maximum, with removal by July 15. The Italian use areas require all livestock removal by July 15 as well.

One permittee utilizes the portion of the allotment which corresponds with the southern tip of the South Shoshone HMA. The Cedar’s Pasture is fenced from the rest of the allotment, and 82% or 14,450 acres of the pasture exists within the HMA. This area is permitted for 914 AUMs of sheep and cattle through winter and spring.

JD Allotment

Portions of the JD allotment comprise the eastern 60% of the Rocky Hills HMA. Only 35% of the allotment is within the HMA, with the remaining 65% comprised of native range, seedings, and pastures outside of the HMA boundaries. Within the HMA, portions of three use areas exist, which allow for 4,278 AUMs of use by cattle. The information is displayed in the following table:

Table 10: JD Allotment Use Areas – Rocky Hills HMA

USE AREA	ACREAGE OF USE AREA WITHIN THE HMA	% USE AREA WITHIN THE HMA
Trail Canyon	19,697	77
Rocky Hills	30,131	99
Tonkin*	7,315	100
Total Allotment	50,676	35

* The Tonkin use area is actually within the Rocky Hills use area.

The most recent Rangeland Health Assessment and FMUD was completed in 2004. At that time, the existing permitted use of 8,200 AUMs was retained. The permit had been reduced by 4,561 AUMs in 1997 during a permit transfer, and is currently 9,856 AUMs less than the original historic preference. Also in the 2004 FMUD, use areas were defined, and a management system

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implemented for cattle. The period of use for the above identified use areas is spring/early summer for the Tonkin Summit area, mid-late summer for the Rocky Hills area, and fall/winter for the lower elevation Trail Canyon area. Since the 2004 FMUD, actual use for the allotment as a whole has been 69-93%, with the actual use within the above identified use areas averaging 86% of the permitted use. The permittee applied for 100% of the permit in 2008, but may not use all of the AUMs. Actual use will not be reported until the end of the grazing year.

Simpson Park Allotment

Only 7% of the Callaghan HMA is located within the Simpson Park Allotment. The northern portion of the Hickison Burro HMA is also located within this allotment. Of the total acreage of the allotment, 48% is within one of the two HMAs. The Callaghan HMA includes 99% of the Willow Barton Pasture, which is currently permitted for 1,196 AUMs of cattle and sheep for two permittees. The Simpson Park Allotment was evaluated in 2005, which resulted in an FMUD and a 43% reduction in permitted use of 2,596 AUMs within the allotment. The outcome of this decision was also the identification of specific use areas, and implementation of a grazing management system. The use period is within May and June. Actual use reported by the permittees since the FMUD has been 0-100%.

Carico Lake Allotment

The Bald Mountain HMA is located in the eastern portion of the Carico Lake Allotment, and comprises 23% of the allotment. The remainder of the South Shoshone HMA is also in this allotment. The MLFO completed a wild horse gather in the Carico Lake Allotment portion of the South Shoshone HMA January 2008. The Bald Mountain HMA was originally planned to be gathered with the South Shoshone HMA. National gather priorities caused it to be delayed and be completed with the Callaghan HMA. The analysis for this HMA was completed within the *South Shoshone Complex Wild Horse Gather EA NV062-07-104*, (April 2007), which details the livestock affected environment, and recent changes that occurred through an FMUD in 2005. The permitted use for this areas was reduced by 26% in the 2005 FMUD. Other changes involved changes to season of use, establishment of use areas and implementation of restrictions to use of riparian areas. Please refer to that document for more information. The Toiyabe Flat and Toiyabe Mountain use areas are within the HMA. Permitted use in these use areas total 5,401 AUMs of cattle and sheep. The 2007 actual use reflected 42% of the permitted use for cattle and 25% permitted use for sheep.

Environmental Consequences

Proposed Action and Alternative 1 and 2:

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

The most notable effects of achieving the established wild horse AMLs within these allotments would be indirect beneficial impacts through improving the quality and quantity of forage available throughout the Complex. The effects of wild horse populations on livestock, wildlife, and vegetation resources are largely functions of dietary and spatial overlap between species. In some cases wild horses utilize rangeland that livestock do not, in other cases, a 1:1 relationship exists. Additionally, most livestock permits do not allow for year-round use of the allotments, whereas wild horses inhabit these areas on a continual basis.

Managing wild horses within the established AML ranges, would promote a thriving natural ecological balance between wild horses and other resource values, and improved rangeland health. Additionally, reducing the overpopulation would prevent wild horses from aggressively chasing livestock from water sources, as has been reported in recent years for some allotments within the Complex.

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The differences in the effects of the action alternatives to livestock would be through the growth rates and subsequent population sizes. The WinEquus population modeling indicated that Proposed Action with implementation of fertility control could result in lower average populations in all HMAs. Should another gather not occur within 5 years, the population size under the Proposed Action would not exceed the AML to the degree that it would without fertility control (Alternative 2) under the Most Typical Trial. Modification of sex ratios in Alternative 1 would result in population figures in between the Proposed Action and Alternative 2 according to the modeling. Under Alternative 3, (Gather Only), the average population size in 7 years and the average growth rates would be the highest of all Action Alternatives according to the model. Refer to the Population Modeling Discussion in Section 3.7 for more information.

No Action Alternative (No Wild Horse Gather)

Without the achievement of AML, wild horse populations would continue to increase and exceed the capacity of the habitat to provide forage and water. Populations would increase at an estimated 17-20% per year. The Most Typical Trial simulated through the population model suggests that by 2015, populations in the Complex could reach 504 wild horses within the Rocky Hills HMA and 4,927 wild horses within the Bald Mountain and Callaghan HMAs combined.

Uncontrolled overpopulations of wild horses would result in continued degradation of plant communities and loss of key forage species. Winter range would be most affected, and would reflect continued reductions in the frequency and production of quality forage species. Erosion and increase of invasive species would be congruent with reduced ecological condition. The outcome would be reduced forage availability to wildlife, livestock, and wild horses, which could cause future reductions in the permitted livestock levels in these grazing allotments.

3.4. Rangeland Vegetation Resources (Forest and Rangeland)

Affected Environment

The vegetation resources within the Callaghan Complex have been described in detail within the Rangeland Health Assessments and Evaluations completed for the Austin, Grass Valley, JD, Simpson Park and Carico Lake Allotments, and the past Wild Horse Gather EA/Gather Plans completed for Callaghan, South Shoshone, Bald Mountain, and Rocky Hills HMAs. These documents are identified in Appendix E. This section will provide overview of the vegetation communities and discuss the status of the vegetation resources since AML was established or since the last gather completed. For more information about the vegetation within this area, refer to the Natural Resource Conservation Service (NRCS), Nevada Ecological Site Descriptions for Major Land Resource Areas (MLRAs) 24, 25, 26, 28B, and 29.

The vegetation resources within the Complex as a whole are dictated by geologic and climatologic factors within the Great Basin, which determine what type of plant communities can be sustained. Climate is characterized by warm, dry summers and cold winters. Mean average temperatures range from 45 to 48 degrees F. The area receives an annual average 70-75% of maximum possible sunshine and pan evaporation averages 48 to 50 inches per year.

Many of the valley bottoms within the Complex receive just 5-8 inches of annual precipitation, and support some of the lowest forage production. Low, poorly drained elevations and lower alluvial fans support salt tolerant vegetation and salt desert shrub communities interspersed with Wyoming big sagebrush plant communities. These sites are typically not highly productive and will support less than 450 lbs/acre of vegetation in a normal year, with only 25% of that comprised of grasses. Because of the low elevation, these sites have often been heavily utilized in winter months.

Mid elevations and alluvial fans support 8-14 inches of annual precipitation, but vary widely across the Complex due to aspect, soils, and general steepness of the terrain. Wyoming big sage, low sage and black sage communities are common throughout the lower and middle elevations of the Complex consisting of rolling hills, alluvial fans, and benches. These sites are generally more

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productive, and located on well-drained and deeper soils. Wyoming big sage sites should produce 600 lbs/acre of annual vegetation in normal years, with 55% comprised of deep rooted perennial key grasses such as Indian ricegrass, Thurber's Needlegrass and bluebunch wheatgrass. These sites should also support a diverse forb component important to many species of wildlife.

Cheatgrass, an annual non-native species, is prevalent in the vegetative communities located within 5,000-7,000 feet elevation. Pinyon-Juniper woodlands are also common at mid elevations. These communities vary in the amount of understory grasses that are available due to the density of the trees and the soil composition. In general, wild horses do not prefer thickly timbered areas, but may frequently use open Pinyon-Juniper and individual trees for shade in summer or shelter in winter. Because of the position on the landscape, these middle elevations are sometimes used throughout the year by wildlife, livestock, and wild horses. Lower elevations provide important winter habitat where snow depth does not deter use.

The highest elevation mountainous areas vary greatly across all three HMAs. These areas may receive more than 14 inches of precipitation annually. In many cases, the higher elevations provide important summer habitat for wild horses, and support higher production of forage and water than lower elevations. The highest elevations vary widely in species composition and vegetation production potential. Large expanses of the Complex consist of mountain ridges and steeper slopes, cut by perennial or ephemeral drainages. Annual, above ground vegetation production in normal years varies from 250 lbs/acre for mountain ridges to a potential of 1,700 lbs/acre on loamy slopes receiving more than 14 inches of precipitation annually.

The headwaters of many important streams originate as springs in the higher elevations. These areas may support quaking aspen or willow vegetation, which is important wildlife habitat. Other common vegetation types include mountain big sagebrush, low sagebrush, black sagebrush, curl leaf mountain mahogany, and meadows. Important wildlife browse species such as snowberry and serviceberry are also present in various amounts. Understory grass composition varies and in addition to grass species cited above, may include mountain brome, productive needlegrasses, bluegrasses and fescues.

Since 1999, 82 fires have burned approximately 100,000 acres within the Callaghan Complex. Over half of the fires were controlled at less than 10 acres. The average size was approximately 1,000 acres, with the largest being the 1999 Trail Canyon Fire which was a total of 55,000 acres in size. Other large fires included the 2007 Elephant Head Fire, which reached 28,094 acres, the 2007 Carico Fire at 3,282 acres, and the 2000 Berndt Fire, which burned 2,840 acres.

The larger fires have received emergency stabilization and rehabilitation treatments, which mostly included seeding of native and non-native vegetation species. Livestock closures were implemented where deemed necessary and some of the fires have been fenced to keep livestock and wild horses out of the burned areas until recovered. Success of the rehab and seeding of these areas has been mixed from complete failure to total success. Failed rehab has occurred when inadequate precipitation was received to germinate seed, or when implemented on marginal sites with low potential. Success has been reflected by moderate production of native or non-native grass, forb, and shrub species, and has been more prevalent where fires did not burn intensely and where annual precipitation levels and soil conditions were ideal.

Monitoring within the HMAs in the Complex has been ongoing. Refer to the *Carico Lake Allotment Rangeland Health Assessment*, (July, 2005) for the most recent information pertaining to the Bald Mountain HMA. Recent monitoring was completed within the Austin Allotment in 2006 and 2007 in preparation for the *2007 Austin Complex Monitoring Report*, (July, 2007) *Austin Complex EA NV-062-07-83*, and *Final Decision, Austin Complex Permit Renewal*, (October 2007). Monitoring has been conducted within the Callaghan and Rocky Hills HMAs as recently as 2008 to document wild horse habitat condition. Refer to the monitoring summary and photos for these HMAs in Appendix F.

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Within the Callaghan HMA, most low and mid-elevation salt desert shrub and Wyoming big sage sites are in poor ecological condition and lack the proper perennial key species in the understory. In some cases, perennial grasses are missing completely from the understory and have been replaced by cheatgrass or invasive species such as halogeton and mustard. Production of forage species is well below the potential for these sites. In some cases, perennial grasses comprise 1-5% of the plant community and produce 5-10 lbs/acre. Historic over use by both livestock and wild horses has contributed to the degradation of these areas, as they have been important low elevation winter grazing areas. Because low elevation sites are key winter habitat for wild horses, they are one of the primary limiting factors to the Callaghan and Bald Mountain HMAs.

Livestock and wild horse use for the majority of the upper elevations is determined through monitoring of riparian and wetland areas. However, monitoring of the mid and upper elevations has determined that key perennial grasses are limited or are present at levels below the potential. These areas do not support desired plant communities. Fortunately, many of these areas receive the moderate to high precipitation, which increases the potential for improvement in the future with proper management. Many of the higher elevations are utilized primarily by wild horses and by sheep that are trailed through the mountainous areas.

MLFO staff have documented heavy and severe utilization by wild horses within the Callaghan and Bald Mountain HMAs. This has included not only grass species, but also heavy use of riparian vegetation and mountain browse species such as serviceberry, mountain mahogany, Mormon-tea, and snowberry, and has affected regeneration of these plant communities. Monitoring indicates that some improvement has been occurring within the Austin Allotment since the 1995 FMUD, which was primarily due to the substantial reduction of permitted livestock within the allotment as well as wild horse gathers in 1997 and 2002. Key forage species are present in mid and high elevation plant communities, and have the potential for future improvement with proper use. However, wild horses are currently utilizing these areas heavily and impacting the vegetation through utilization and trampling.

The Rocky Hills HMA is one of the smallest administered through the MLFO. This HMA also has a unique history from the others in that wildfires in 1999 burned nearly 40,000 acres or 47% of the HMA. As a result, most of the wild horses were removed and the area closed to livestock to allow the burned rangeland to recover. Various species of native and introduced perennial grasses, forbs, and shrubs were seeded to the burned areas. The areas were re-opened to livestock and wild horses in 2002, and 74 mares and studs returned to the HMA that had been held in a contract facility since 1999. Additionally, the FMUD issued in 2004 implemented changes for livestock within the JD allotment including the establishment of use areas and changes to season of use.

As a result, the vegetation within the Rocky Hills HMA is comprised of rehabbed burned areas, naturally recovered burned areas and native unburned areas in mixed ecological condition. Many of the rehabbed areas currently support heavy production of crested wheatgrass and forage kochia among other native and non-native perennial species. Some areas did not rehab well and support mixed cheatgrass, mustard, and other undesirable annuals. Ecological condition of native unburned vegetation varies within the HMA depending upon historic use levels by wild horses and livestock, and by annual precipitation levels and soils.

Many of the lower elevations support diminished populations of key perennial grasses in the understory; however, the key species are still present in these communities providing a source for future improvements. These sites are primarily salt desert shrub and black sagebrush sites. Wyoming big sagebrush is one of the common vegetation types in the middle elevations, dissected by communities of Pinyon Juniper and by perennial and ephemeral drainages. These areas reflect mixed ecological condition depending upon distance to water, which has influenced use by wild horses and cattle.

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Monitoring throughout the Complex has shown that wild horses are contributing to downward trend of the native vegetation in the uplands and riparian areas, affecting habitat that is important to wildlife such as mule deer, Pronghorn and sage grouse, as well as permitted sheep and cattle. This is most prevalent within the Callaghan and Bald Mountain HMAs, and least prevalent in the Rocky Hills HMA. Within the Grass Valley, JD, Simpson Park, and Carico Lake Allotments, wild horses have been identified as causal factors or significant causal factors for not meeting the Resource Advisory Council (RAC) Standards for Rangeland Health. In the case of most of these determinations, the failure to meet standards was due to historic as well as current wild horse use.

Livestock adjustments have been implemented within all of the allotments within the Complex, consisting of reductions in permitted use, and establishment of grazing systems designed to prevent improper use of the range and foster improvement of vegetation resources. Through Final Multiple Use Decisions or during livestock permit transfers, livestock permitted use has been reduced up to 55% from historical allocations. Wild horse AMLs have also been established in order to prevent overuse by year round populations of wild horses and promote long term improvement and stability of habitat. Though gathers have been completed within the Callaghan HMA, the AML has not been maintained. Bald Mountain has not been gathered since 1981 and the AML established in 2005 never achieved. Rocky Hills has not been gathered since 1999, and is currently in excess of the AML established in 2004.

The precipitation patterns for central Nevada near the Callaghan Complex meet the definition for drought 4 years out of every 10. Within the past 13 years, the weather station nearest the Complex reported precipitation that met the definition of drought 46% of the years, or 1 out of every 2.16 years. From 2002-2007 (since the last Callaghan HMA gather), the average precipitation received has been 85% of the 36-year period of record average. This data is available in Appendix F. Because of the inherent low precipitation levels received in the Great Basin and the frequency of drought occurrence, vegetation recovery from past grazing abuse or wildfire can be very slow. Improvement can be further impeded and can even be precluded should these areas continue to receive continuous over use by wild horses.

Environmental Consequences

Proposed Action, and Alternative 1 and 2:

Disturbance would occur to native vegetation in and around temporary trap sites and holding facilities due to the use of vehicles and concentration of horses in an isolated area (less than 1 acre). Trap sites and holding facility locations are usually selected in areas easily accessible to livestock trailers and standard equipment, often utilizing roads, gravel pits or other previously disturbed sites. Based on typical wild horse gather operations, it is estimated that approximately 8-10 trap-sites and 1-2 sets of holding corrals would be needed within the Complex.

Wild horses affect vegetation through grazing, or actual utilization of the above ground forage, and through trampling or trailing. In general, wild horses disperse throughout the landscape and are not as apt to congregate in some areas as livestock sometimes do, and typically utilize steeper terrain. As populations grow, wild horses are able to disperse less, and forced to either move to less desirable habitats or use the rangeland more densely. As this occurs, utilization levels increase, and repeat utilization of specific plants occur. Utilization of key forage plants during the critical growth period in the spring becomes more widespread. Higher levels and less desirable timing of use compounded by drought conditions culminate in downward trends, and loss of deep rooted, productive perennial grasses and forage species from the plant community. High density of wild horses within an HMA also results in destructive trailing through vegetation. Soils are loosened and erode away from the bases of plants exposing the root zone and reducing water holding capacity, which eventually can cause the plant to die. Upland and riparian vegetation receives physical damage by hooves as wild horses move through areas to find forage or water. Trailing can result in a large loss of vegetation in an area, and accelerated erosion especially on slopes.

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Through the Multiple Use Decision process, it was determined that the Appropriate Management Level of wild horses would result in utilization levels consistent with multiple use objectives. Achievement of AML would be expected to improve vegetation resources by reducing concentrated, year round grazing, trailing and trampling by an overpopulation of wild horses. Maintaining the wild horse populations at proper levels would also promote increased vegetative ground cover, forage availability, vegetation density, plant vigor, seed production, and seedling establishment, over current conditions. The Action Alternatives should also benefit mountain browse, riparian and aspen communities. Improved distribution of wild horses, reduced utilization levels, and improved rangeland health would contribute to significant progress being made towards the Standards for Rangeland Health and Allotment Specific Objectives.

Impacts to the vegetation resources would be similar under all Action Alternatives. Increased benefits could be realized with implementation of fertility control under the Proposed Action. Growth rates could be reduced 8.5-10.2% for Rocky Hills, 6.2-10.1% for Callaghan, and 9.0-17% for Callaghan and Bald Mountain HMAs combined. Reduced population sizes would result, which would provide a larger opportunity for rangeland improvement. The Average Population Size would be more likely to be maintained within the established AMLs under this Alternative. Alternative 1 would also result in reduced growth rates and population sizes, but not to the degree as the Proposed Action.

Alternative 2 does not incorporate any methods to slow population growth and would thus result in the population increasing to exceed AMLs sooner than under the Proposed Action or Alternative 1. If a follow-up gather was not scheduled soon enough, excess wild horses could begin negatively affecting vegetation resources, preventing further improvement from occurring.

No Action Alternative (No Wild Horse Gather)

The current levels of wild horses in the Bald Mountain, Rocky Hills, and Callaghan HMAs are impacting vegetation resources through utilization during critical growth period, repeated utilization and trailing and trampling. Many of the RAC Standards for Rangeland Health are not being met throughout the HMAs, and wild horses have been identified as causal and significant causal factors for non-attainment of the Standards.

Under the No Action Alternative, wild horses would continue to increase in population size beyond the capacity of the habitat to provide water and forage. According to the population modeling, within 6 years, the populations could exceed 250-1,712% of the established AMLs. Heavy and severe use of upland, riparian, and mountain browse vegetation resources by wild horses would occur, resulting in further depletion of native plant communities and susceptibility to invasive species. Severe trailing and trampling would continue and increase. Key forage species would be lost within the plant communities, along with reductions in production of remaining species. Continued downward trends and reductions in ecological condition would be expected. The outcome would be reduced forage availability to wildlife, livestock, and wild horses. Significant progress towards attainment of RAC Standards for Rangeland Health would not occur.

3.5. Riparian-Wetland Resources and Water Quality

Affected Environment

Riparian-wetland areas adjacent to surface waters are the most productive and important ecosystems found on public lands. These areas play an integral role in restoring and maintaining the chemical, physical, and biological integrity of the nation's water resources. They stabilize water supplies, and buffer effects of floods and droughts. Functioning riparian-wetland areas provide many values, including recreation, fish and wildlife, water supply, cultural, historic and economic.

MLFO staff completed Proper Functioning Condition (PFC) assessments for riparian and wetland areas on lotic (streams) and lentic sites (springs) within the Austin, Grass Valley, Simpson Park,

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Carico Lake, and JD Allotments between 2000 and 2006. Direct field observation of feces and hoof prints are a primary means of differentiating animal use. Livestock and wild horse utilization of riparian and wetland areas for food, water and shelter have collectively affected the functioning condition. Riparian areas in the Callaghan and Bald Mountain HMAs have been heavily to severely affected by wild horses through trampling, compaction and utilization of riparian vegetation. Wild horse use has contributed to bank shearing, cutting, hummocking, loss of riparian vegetation, compaction, and soil erosion.

In most cases, wild horses visit water sources briefly. The exception may include large open springs or meadow complexes. High wild horse population and density of animals in relation to limited water sources results in degradation of riparian and wetland habitat. Wild horses utilized lotic and lentic sites differently because of inherent social behaviors. Wild horses tend to move quickly away from lotic sites to avoid dangerous encounters with other horses or predators. Lentic sites have a valley landform that is wider and more capable of viewing further distances. These sites deteriorate faster with long duration and concentrated use. Wild horses impact riparian and wetland sites through hoof action which causes compaction, bank shear, erosion, and hummocking, resulting in drainage of subsurface water, channelization and shrinkage (and loss) of the riparian zone. Through utilization of riparian vegetation, wild horses cause downward trends in riparian health. In addition to potential physical impacts to riparian areas, dominant studs can physically exclude other wildlife and livestock species.

Callaghan HMA

The Callaghan HMA has a total of 73.8 miles of streams/creeks (lotic) and 58.2 acres of springs/meadows (lentic) that were assessed as riparian and wetland ecosystems. PFC Assessment was conducted in the Austin, Simpson Park and Grass Valley Allotments during 2006, 2003 and 2000, respectively. Tables located in Appendix G identify the lotic distance and lentic area, along with percentages classified as proper functioning condition, functional at risk with an upward trend, functional at risk with non-apparent trend, functional at risk with downward trend and non-functioning. Of the lotic areas assessed, 19.3% were functioning properly, 71.8% functioning at risk, and 9% non-functioning. Lentic areas in the Callaghan HMA were 51.6% functioning properly, 32.2% functioning at risk and 16.2% non-functioning.

Riparian and wetland areas adjacent to lentic sites within the Callaghan HMA were in better condition than lotic sites. During field assessments, hoof damage was noted as the influential impact on the condition of these areas. Soil compaction, stream bank shear, and severing of riparian vegetative roots have been identified as deteriorating the physical landform. This negatively influences the interaction of surface water and riparian-wetland plants. Once these impacts have occurred, the trend follows a loss in proper channel dimension (width/depth), profile (gradient) and pattern (sinuosity) to adjust with the changes in stream power from sediment and water. The reach is then in non-equilibrium and the channel begins to incise vertically. Incision typically occurs until the stream bottom comes into contact with bedrock. Downcutting may cause a drop in the water table, thereby allowing upland species a competitive advantage.

Riparian health and functionality of the creeks in the Austin Allotment have long been a primary concern of the BLM and Nevada Department of Wildlife. Most of Iowa Creek, and Hall Creek are deeply incised. Sediment loading is high, and although there has been some improvement to these systems, they are still at high risk of continued incision in response to high flow events. Degraded upland range condition contributes to overland flow and sediment loading.

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Left: Iowa Creek. Right: Hall Creek. May 2008.

Census flights in 2005 indicate Iowa and Hall watersheds are receiving higher use by wild horses. PFC assessments in lentic systems in both Iowa and Hall Creek watersheds indicate a higher percentage of riparian and wetland area in functioning at risk with a downward trend ranking. Data collected for these areas documented trails to the water source minimizing riparian and wetland area, upland plants

encroaching and horse sign. The Rosebush Creek watershed also has a moderate to high horse population utilizing riparian and wetland resources.

Rocky Hills HMA

Rocky Hills HMA has a total of 10.9 miles of streams/creeks (lotic) and 15.5 acres of springs/meadows (lentic) that were assessed as riparian and wetland ecosystems. PFC was conducted in the Grass Valley and JD Allotments during 2000 and 2001, respectively. Tables in Appendix G detail the land area and percentages of the functioning condition. Of the lotic areas assessed, 39% were functioning properly, 59% were functioning at risk, and 0.9% were non-functioning. Lentic sites in the Rocky Hills HMA assessed at 39% functioning properly, 79.1% functioning at risk and 0.8% non functioning.

The majority of surface water features in Rocky Hills HMA occur in the JD Allotment. Riparian and wetland assessments indicated extensive hoof action due to heavy use by horses. Soil compaction, stream bank shear, and severing of riparian vegetative roots have reduced functionality of physical processes. With non-equilibrium conditions created in incised channels, a lowered water table has influenced riparian plant communities. Recent fires have exacerbated conditions with increased sediment sources and water concentrations from lack of infiltration. Hoof action was documented as disturbing the Cadet spring. Limited water availability has increased the use on this spring.

Bald Mountain Herd Management Areas

For a more in-depth discussion of the assessment of perennial waters of the Bald Mountain HMA refer to the Carico Lake Allotment Rangeland Health Assessment and Conformance Determination. Wild horses have and continue to degrade springs within the Bald Mountain HMA.

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Bald Mountain HMA, Dewey Dan Spring. Photos taken October 2007. Wild horses have impacted these sites as indicated by hoof tracks and substantial sign at these locations.

Standards and Guidelines for Nevada’s Northeastern Great Basin Area have been established by the Resource Advisory Council. Standard 2 establishes guidelines for water quality, riparian and wetland sites. Conformance Determinations were completed for the Grass Valley, Carico Lake, and JD Allotments in conjunction with the Rangeland Health Assessments. These determinations documented whether the Standards and Guidelines for Rangeland Health were being met.

For all of these allotments, historical and/or current heavy use by wild horses was identified as a causal factor or significant causal factor for Standard 2 not being met (livestock management was identified as well). It was also determined that wild horse herd management was not in conformance with the Standard 2 Guidelines. Livestock management changes have been implemented through issuance of FMUDs to reduce or eliminate hot season use of riparian and wetland areas in many of these allotments in order to make progress towards meeting Standard 2. However, wild horse populations have continued to grow in size and cause negative impacts to riparian areas. Refer to the documents identified in Appendix E for more information. Additional photos of springs and riparian areas in the Complex are located in Appendix B.

Environmental Consequences

Proposed Action, and Alternative 1 and 2:

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

Achievement of the established AMLs would ensure that wild horse populations are in balance with the forage and water availability, providing for optimal dispersion of wild horses across the landscape and reduction of impacts to riparian resources.

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The proposed gather would indirectly affect riparian-wetland areas and water quality. Achieving and maintaining the established AMLs, would allow riparian-wetland habitats to recover by reducing concentrated, use of these areas by wild horses. Short-term recovery of herbaceous riparian plants would colonize bare areas and begin to collect fine sediment, build root systems that would stabilize stream banks and define equilibrium channel dimension, pattern and profile. Regeneration of root masses would relieve compacted soils. Stabilizer riparian plants would provide long-term recovery, succeed colonizer species, and increase functionality in physical stream processes. This vegetation would dissipate energy with peakflows, capture bedload and aid in floodplain development. Yielding a proper functioning condition would improve water quality and ensure multiple values are available.

Among the Action Alternatives, differences in effects to Riparian Resources and Water Quality would be minimal; however, the Proposed Action would provide the best opportunity for riparian improvement and recovery. Fertility control could slow growth rates and population growth substantially and could result in average population sizes 18% lower in 6 years over Alternative 2 according to the WinEquus population modeling. Alternative 1 would result in similar, but smaller reductions to population size and growth compared to Alternative 2. Under Alternative 2, the upper level of AML would be reached or exceeded by the year 2012 or 2013. Implementing fertility control could extend that to the year 2013, 2014 or beyond. Lower density of animals across the landscape would reduce trampling and utilization of riparian resources.

No Action Alternative (No Wild Horse Gather)

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

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

The Most Typical Trial derived through the WinEquus population model indicates that by the year 2015, populations could reach 504 wild horses within the Rocky Hills HMA, and 4,927 within the Callaghan and Bald Mountain HMAs combined. Available water sources would not be adequate to support a population of this size. Populations this far in excess of established AMLs would have obvious detrimental and potentially irreparable impacts to riparian areas.

3.6. Soils

Affected Environment

Soils in the Callaghan Complex are typical of types found throughout the Great Basin and Nevada. The geophysical configuration of the gather area consists primarily of north-south trending mountain ranges with intervening valleys and playas. Most of Nevada's mountains were originally formed from either volcanism or related, plate tectonic processes. Soils within the Complex have been discussed in detail within the documents located in Appendix E, including Rangeland Health Assessments for the Carico Lake, Grass Valley, Simpson Park and JD Allotments, and the *Callaghan Herd Management Area Wild Horse Gather Plan and Environmental Assessment NV062-02-41*, (May, 2002). Also, refer to the NRCS Soil Surveys for Eureka and Lander Counties.

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Soil stability and susceptibility to erosion varies within the Complex depending upon many factors including rock or gravel content and steepness of slopes. Many of the soils within the Austin Allotment portion of the Callaghan HMA are dry and loose with low rock content. Slopes are also relatively steep in many locations, with large, deep drainages that support perennial streams. Monitoring in this allotment found that erosion is frequent and a common occurrence across the landscape. This is occurring on a large scale with channels being gouged out of slopes by water erosion, causing gullies and contributing significant sediment to the streams. On a smaller scale, wild horse trailing and trampling is causing wind and water erosion from around plant bases, which could lead to large scale erosion of soil and losses of vegetation and soil stability.

Soils within the Grass Valley portion of the Callaghan HMA are comprised of a higher composition of rock and gravel, and overall less productive soils. Trailing and erosion are not as apparent in this portion of the HMA, however compaction of soil between plants, and long term effects of hoof action to soils was noted during monitoring.

Soils within the Bald Mountain HMA are susceptible to erosion as evidenced by large gullies and movement of soil and rocks through drainages. Terrain is moderate within this HMA, with less frequent steep slopes than with the Callaghan HMA. High populations of wild horses have concentrated within portions of the HMA and have impacted upland and riparian soils.

Despite the extensive acreage burned in 1999, the Rocky Hills HMA does not show extreme erosion within the burned or unburned areas. Some erosion is occurring along drainages where adequate vegetation has not been maintained. Terrain throughout the HMA is fairly moderate and few severe slopes exist.

Environmental Consequences

Proposed Action, and Alternative 1 and 2:

Direct impacts such as soil displacement and compaction would occur at trap sites (less than 1 acre in size) during gather operations. Trap sites are ideally located in areas of previous disturbance, gravel pits or along roadsides. Procedures identified in the Gather Plan and SOPs (Appendix A) would be followed to minimize impacts to soils during gather operations. Based on typical gather operations, it is estimated that 8-10 trap-sites and 1-2 holding corrals would be necessary to complete the gather.

Achievement of AML and management of wild horses in balance with the capacity of the habitat would further result in improvements to vegetation communities, reduced trailing, and concentrations around water sources, promoting general improvements to soils throughout the Complex. Achievement of AML would help improve or maintain biological crusts, where present, due to reduced hoof action by wild horses.

Benefits to soils would be similar under all of the Action Alternatives resulting from lower concentrations of wild horses that could impact soils through trails, use of riparian areas and improved rangeland health. However, increased benefits could be realized under the Proposed Action or Alternative 1 which could result in 13.4-18% lower population after 6 years, and up to 17% lower growth rates than the Alternative 2.

No Action Alternative (No Wild Horse Gather)

Current soil disturbance trends would continue and worsen as wild horse populations continue to increase. Soils within the Austin Allotment portion of the Callaghan HMA and within Bald Mountain HMA would be most vulnerable to accelerated wind and water erosion. Without a gather to achieve the established AMLs, populations would increase at an estimated 17-20% per year, and could exceed 250-1,712% of the established AMLs within 6 years according to analysis through the WinEquus population model. Increased disturbance to soils through trailing and concentrated use on vegetation and water resources would result in increased soil erosion. Reduced

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ecological status would be indicated by lowered production and frequency of deep rooted perennial vegetation, reduced production of litter and reduced soil stability.

3.7. Wild Horses and Burros

Affected Environment

The purpose of this section is to summarize the potential direct and indirect effects to wild horses within the Callaghan Complex through implementation of the Proposed Action or Alternatives. Prior gathers have been completed within the Rocky Hills and Callaghan HMAs, and detailed *Affected Environment* and *Environmental Consequences* discussions included in those EA/Gather Plans. Additionally, the Bald Mountain HMA was analyzed within the *South Shoshone Complex Wild Horse Gather EA NV062-07-104* (April 2007), but due to changes to national gather priorities was postponed. The reader is referred to these documents as well as the Evaluations and Rangeland Health Assessments identified in Appendix E for more information. This section will provide current or recent information obtained during and since the last wild horse gathers that were completed. The analysis will focus on effects that could occur with implementation of the Proposed Action and Alternatives. Refer to Appendix B for expanded discussion, tables and charts pertaining to wild horse history and background in these HMAs.

The Callaghan HMA is located northeast of the town of Austin, Nevada and encompasses over 156,230 acres of public land. The HMA is approximately 27 miles long and 16 miles wide. The entire Callaghan HMA lies in Lander County at the north end of the Toiyabe Mountain Range.

The Bald Mountain HMA is approximately 139,879 acres in size, and covers an area that is 15 miles wide and 22 miles long. The southern boundary of the Carico Lake Allotment serves as the southern boundary of the HMA, which borders the Callaghan HMA to the south. The HMA is also in close proximity to the Rocky Hills HMA to the east, and South Shoshone HMA to the west.

The Rocky Hills Herd Management Area is located 54 miles southwest of Elko, Nevada in Eureka County, and encompasses 84,315 acres. The HMA is 15 miles wide, and 13 miles long and includes the Rocky Hills, and the northern portion of the Simpson Park Mountain Range. This HMA is in close proximity to the Bald Mountain, Callaghan, and Roberts Mountain HMAs, and mixing among the herds is likely.

The South Shoshone HMA covers 133,099 acres of the Shoshone Mountain Range. Approximately 11% of the HMA exists within the Austin Allotment south of the Bob Town Fence, which serves as the southern boundary of the Carico Lake Allotment. The area is known as the Cedars Pasture, and has an AML of zero wild horses established through Final Multiple Use Decision in 1995. Only the Cedar's Pasture portion of the HMA would be included in this proposed gather, as a gather of the remaining HMA was completed in January 2008.

The Simpson Park Mountain Range, for purposes of this EA, involves the range between the southern boundary of the Rocky Hills HMA and U.S. Highway 50 that is not designated as an HMA or as a Herd Area. This area is east of the Callaghan HMA, and west of Roberts Mountain HMA. Refer to Map 1-2 for an overview of the HMAs.

MLFO staff completed the most recent helicopter inventory of the proposed gather area in March 2008. Data collected during this flight was used to project the estimated 2008 post foaling and winter 2009 population figures. The MLFO applies an average annual rate of increase of 17.5% to estimate herd growth in years when census flights have not occurred with the exception of the Bald Mountain HMA in which 12% has been used in recent years. Population fluctuations between the Callaghan and Bald Mountain HMAs have caused issues with population estimation. Refer to Appendix B, which included more detailed discussion about movement patterns between the two HMAs. The following table displays the estimated populations and current AMLs for the gather

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area. The Shoshone HMA includes only the Cedar’s Pasture portion of the HMA with an AML of zero.

Table 11: Callaghan Complex Estimated Population and Gather Information

HMA	AML RANGE	EST. POPULATION ⁸	EST. GATHER NUMBER ⁹	EST. TO REMOVE	EST. TO RELEASE	EST. POST GATHER
Callaghan	134-237	982	933	848	85	134
Rocky Hills	86-143	166	158	80	78	86
Bald Mountain	129-215	607	577	481	96	129
South Shoshone	0	18	18	18	0	0
USFS (non-HMA)	0	13	13	13	0	0
Simpson Park Mountains (non-HMA)	0	40	40	40	0	0
Complex Total	349-595	1,826	1,739	1,480	259	349

The attached Wild Horse Gather Plan and Standard Operating Procedures (SOPs) located in Appendix A provides discussion of gather procedures, as well as photos of recent gather activities conducted by the MLFO. Appendix B provides information about the gather and census history, age structures and sex ratios of these HMAs.

Environmental Consequences

Effects Common to Proposed Action, and Alternative 1 and 2:

Impacts to wild horses under the Proposed Action and Alternative 1 and 2 would be both direct and indirect, occurring on both individuals and populations as a whole. These effects have been discussed in detail in previous wild horse gather EA/Gather plans, specifically the *Callaghan Herd Management Area Wild Horse Gather Plan and Environmental Assessment NV062-02-41*, (May, 2002) and the *South Shoshone Complex Wild Horse Gather EA NV062-07-104* (April, 2007). Please refer to those documents for additional detail.

The BLM has been actively conducting wild horse gathers since the mid 1970’s within the Battle Mountain District. Through this time, methods and procedures have been identified throughout the western states to minimize stress and impacts to wild horses during implementation of wild horse gathers. The SOPs outlined in Appendix A would be implemented to ensure a safe and humane gather occurred, minimizing potential stress and injury to wild horses. The peak foaling period for wild horses is March 1 to June 30, and gather activities are suspended during this time.

Over the past 30 years, various impacts to wild horses from wild horse gathers have been observed. Individual, direct impacts to wild horses include handling stress associated with the roundup, capture, sorting, animal handling, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. The horse is a very adaptable animal and would assimilate into the environment with new members quite easily. Observations made through completion of gathers shows that many of the wild horses captured acclimate quickly to the holding corral situation, becoming accustomed to water tanks and hay, as well as human presence.

8. Estimated population represents the population following 2008 foaling. The most recent census was conducted March 2008.

9. Estimated gather numbers based on ability to capture 95% of the population. Gather efficiency would be influenced by time of year, snow cover, and terrain.

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Accidental death or the need to humanely euthanize animals, as a direct result of gather activities is infrequent and averages less than one half to one percent of the wild horses gathered. 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 traps by the helicopter. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are not fatal and are treated with medical spray at the holding corrals until a veterinarian can examine the animal.

Most injuries are sustained once the horse has been captured and is either within the trap 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 move the horses into the large holding pens to settle in with hay and water. Injuries received during transport and sorting consist of superficial wounds of the rump, face, or legs. Despite precautions, occasionally a wild horse will rear up or make contact with panels hard enough to sustain a fatal neck break.

Indirect individual impacts are those impacts which occur to individual horses after the initial stress event, and may include spontaneous abortions in mares, and increased social displacement and conflict in studs. 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 with most older studs following sorting and release into the stud pen which lasts less than two minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises, which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual. Spontaneous abortion events among mares following capture is very rare.

Foals may be orphaned during gathers. This may occur due to:

- The mare rejects the foal. This occurs most often with young mothers or very young foals,
- The foal and mother become separated during sorting, and cannot be matched,
- The mare dies or must be humanely euthanized during the gather,
- The foal is ill, weak, or needs immediate special care that requires removal from the mother,
- The mother does not produce enough milk to support the foal.

Oftentimes, foals are gathered that were already orphans 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.

Summer gathers pose increased risk of heat stress; however, this can occur during any gather, especially in older or weaker animals. Adherence to the SOPs as well as the techniques utilized by the gather contractor minimize heat stress. Electrolytes are routinely administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal. Heat stress does not occur often, but if it does, death can result.

Winter gathers typically result in less stress to wild horses and are often the preferred time frame for gathers. The cold and snow does not affect horses during the gather to the degree that heat and dust would during summer gathers. Wild horses are able to travel farther and over terrain that is more difficult during winter gathers if snow does not cover the ground. Water intake requirements are less during winter months, making this timeframe less apt to cause distress from heat exhaustion. During summer months, horses may be travelling long distances between water and desired forage areas, and may be more easily dehydrated during gathers.

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Often, wild horses are located at the highest elevations during the summer months, and must travel over steep terrain to the trapsites. Dense tree cover further increases the difficulty of gathering wild horses during summer months. Wild horses are often located in lower elevations, in less steep terrain during winter gathers due to snow cover in the higher elevations. Subsequently, the horses are closer to the potential trapsites, and need to maneuver less difficult terrain in many cases. Snow cover can increase fatigue and stress during winter gathers. The helicopter pilot allows horses to travel slowly at their own pace. The Contractor may plow trails in the snow leading to the trapsites to make it easier for horses to travel to the trapsite.

During summer months, foals are typically small, and average 4 months old. Newborn foals are often gathered, and many foals are too young to wean. By fall and winter, most foals are of good body size, and can easily be weaned. Fall and winter time-frames are much less stressful to foals than summer gathers. Not only are young foals in summer months more prone to dehydration and complications from heat stress, the handling, sorting and transport is a stress to the young animals and increases the chance for them to be rejected by their mothers.

Through the capture and sorting process, wild horses are examined for health, injury and other defect. BLM Euthanasia Policy IM-2006-023 is used as a guide to determine if animals that meet the criteria and should be euthanized (refer to SOPs Appendix A). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses 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.

The wild horses that are not captured may be temporarily disturbed and move into another area during the gather operations. With exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened awareness of human presence.

As a result of lower density of wild horses across the HMAs, competition for resources would be reduced, allowing wild horses to utilize preferred, quality habitat. Confrontations between stallions would also become less frequent, as would fighting among bands at water sources. Achieving the AMLs and improving the overall health and fitness of wild horses could also increase foaling rates, and foaling survival rates over the current conditions. The end result could be increased herd growth over the next 4-5 years.

The primary effects to the wild horse population that would be directly related to this proposed gather would be to herd population dynamics, age structure or sex ratio, and subsequently to the growth rates and population size over time.

The National Selective Removal Criteria of selecting wild horses for release (Appendix A) would be followed to the extent possible, however it is expected that release and non-gathered animals would consist of all age groups except for weanlings, yearlings and most two-year olds. The Bald Mountain and Callaghan HMAs are expected to reflect normal age structures due to the lack of gather history, or other activities that would have influenced the age structure. Appendix B displays the estimated age structures. It is estimated that most horses released to the range within the Callaghan and Bald Mountain HMAs would be 5 years old or older, and that almost all horses 3 years old and older would be returned to the Rocky Hills HMA.

Herd shifts favoring older age horses (over 15 years) have been observed resulting in a favoring of studs over mares in some herds. Explanations include sex-based differences in reproductive stress

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(relative demand for individual contributions to reproduction) and biological stress (timing the most physically demanding period of the annual cycle).

The effects of successive removals on populations causing shifts in herd demographics favoring younger horses (under 15 years) would also have direct consequences on the population. These impacts are not thought of typically as adverse to a population. They include development of a population, which is expected to be more biologically fit, more reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

For more information regarding wild horse behavior, biology and population dynamics, the reader is referred to *Wild Horses of the Great Basin* (Berger, 1986) which describes the results of over 8,000 hours of observational data collected on the Granite Range wild horses through a five-year study.

It is not expected that genetic health would be impacted by the Proposed Action, or Alternatives 1 or 2. Smaller, isolated populations (< 200 total census size) are particularly vulnerable when the number of animals participating in breeding drops below a minimum needed level (Coates-Markle, 2000). 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).

Following the 2002 Callaghan HMA gather, blood samples from 52 released wild horses were analyzed for genetic variability by Dr. Gus Cothran at the Department of Veterinary Sciences, University of Kentucky. Conclusions of the genetic analysis were that the herd demonstrated high genetic variability and allelic diversity from a herd of mixed origins. There were no concerns expressed to the long-term genetic health of the herd. Genetic testing has not been completed for the Rocky Hills or Bald Mountain HMA, and samples would be collected during the proposed gather. It is expected that movement has occurred between Rocky Hills, Bald Mountain and Callaghan HMAs and that the herds are genetically diverse and healthy. Refer to Appendix B for more information about movement of wild horses in the Complex.

The MLFO could hold trapsite wild horse adoptions at the holding corrals associated with these gathers. Approximately 10 mares, studs and foals could be sorted into separate pens from the other horses. During the adoption event, bidding or lottery would be conducted for approved adopters to select animals. Animals would be frezemarked, vaccinated and have blood drawn for Coggins testing before being loaded into the adopter's stock trailer and transported to the new home.

The adopted horses would experience slightly increased stress which would not likely be any greater than if they were being sorted for transport to the BLM facilities, or for release to the range. If adopted, the animal would be restrained in a working chute for a short duration. Once adopted the animals would not face the stress of shipping to the BLM facilities and would go directly to their adoptive homes where they could receive individual attention and gentling. The experience by the BLM does not suggest that trapsite adoptions are in anyway harmful to the horses, and in fact, it appears that they acclimate, and gentle more quickly as they are able to bond with their new owners within days of being removed from the range rather than months or longer. The MLFO has conducted three successful adoption events in conjunction with wild horse gathers since 2001.

The primary benefit of achieving and maintaining the established AMLs within the HMAs would be to the health and sustainability of habitat attributes. Forage and water resources would be allowed to improve in quality and quantity. Improved range condition and increased forage availability would promote healthy viable, self-sustaining populations of wild horses able to achieve the genetic potential of the herd. Through maintenance of AML, RAC Standards for Healthy Wild Horses, and the Herd Management Area Objectives (Appendix A, B) would be achieved. A thriving natural ecological balance between wild horses and other resource values would be met throughout the Complex, and future deterioration of the range would be avoided.

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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.

Effects that differ between the Proposed Action, and Alternative 1 and 2:

Under the Proposed Action, the objective for the gather would include the application of fertility control to approximately 181 mares released back to the range (138 for Callaghan and Bald Mountain HMAs, 43 for Rocky Hills HMA), and maintaining a sex ratio of 50:50.

The procedures to be followed for the implementation of fertility control are detailed in Appendix C. Each released mare would receive a single-dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's own eggs, and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible, and to have no ill effects on ovarian function if the mare is not contracepted for more than three consecutive years.

This one-time application, 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 2009 (year 1). Winter inoculation efficacy is estimated to be 94% in year two (2010), 82% in year three (2011), and 68% in year four (2012). Normal fertility would return in 2013.

The injection would be controlled, handled, and administered by a trained BLM employee, researcher, or veterinarian. Mares receiving the inoculation would experience slightly increased stress levels from increased handling while being inoculated and freeze branded. There would be additional impact to animals at the isolated injection site following the administration of the fertility control vaccine. Injection site injury associated with fertility control treatments is extremely rare in treated mares, and may be related to experience of the administrator. Any direct impacts associated with fertility control would be minor in nature and of short duration. The mares would quickly recover once released back to the HMA.

Population wide indirect impacts are more difficult to quantify and would occur over time. A large percentage of mares would experience reductions in fertility. Recruitment of foals into the population would be substantially reduced over a three-year period. Up to 94% of the mares treated would not foal the second year following implementation of fertility control, and 82 and 68% of mares in the following two years. The potential multi-year reprieve from foaling would greatly increase overall health and fitness of the mares, as well as the health of the foals born after fertility returns.

Past application of fertility control has shown that mares reflect improvements to overall health and body condition even after fertility resumes. Subsequent observations of mares treated in 1998 within the fertility control within the Fish Creek HMA showed that many of the mares were larger than the others were, maintained higher body condition than untreated mares, and had large healthy foals.

Following resumption of fertility, the proportion of mares that conceive and foal could be increased (rebound effect) due to the increased fitness. Additionally, fertility control treatment could cause breeding and foaling seasons to become "out of sync" with foals born earlier or later in the year, or throughout the year. Research is continuing to document and quantify these effects.

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The indirect effect of fertility control would include the reduced need for a wild horse gather for several years. According to the population modeling (Appendix D), the application of fertility control could extend the need for a gather by 2 or more years (2013-2014) when compared a gather without implementation of fertility control. Wild horses would experience reduced stress and disruption to population dynamics as a result of less frequent gathers. Refer to the Population Modeling Summary below for additional information.

Fertility control application would allow the average population size to be maintained within the established AML ranges or slight above. Genetic health, long-term viability, and future reproductive success of mares within the herd would be sustained. Reduced growth rates and lower population sizes would also allow for improvements to range condition, which would have long-term benefits to wild horse habitat quality and contribute to the achievement and maintenance of a thriving natural ecological balance.

Alternative 1 would involve the release of wild horses to achieve a post gather population of 60% studs and 40% mares. Under this alternative band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, 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 studs, would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, lengthening of the time after birth when individual mares begin actively reproducing, and larger band sizes.

Modification of sex ratios for a post gather population favoring studs would also reduce growth rates and subsequent population size but not to the extent as fertility control according to the modeling. As a result, gather frequency could be reduced as well as the numbers of horses gathered and removed in future gathers when compared to Alternative 2.

Alternative 2 would not involve fertility control, and would result in a post gather sex ratio of 50:50. Mares would not undergo the additional stress of receiving fertility control injections or freeze branding. Mares would foal at normal rates until the next gather is scheduled.

The primary differences among the Action Alternatives would be to growth rates, and subsequent population sizes over the next 6-7 years or until another gather was scheduled. Refer to the discussion below and Appendix D for more detail.

Population Modeling Discussion

Two scenarios were put through the model to assess potential effects to the population by implementation of the Proposed Action and Alternatives. The model was run under a 3-year minimum gather interval, and a 5-year minimum gather interval. The summary results here pertain to the 3-year interval. The 5-year interval was most useful to see what the population size could be in relation to the AML if a gather were not scheduled until 5 years. That information is included below. Refer to Appendix D for the Summary of Population Modeling.

Of 50 trials over 6 years, the results of the model suggest that implementation of fertility control (Proposed Action) in conjunction with a gather could result in 3.4-18.0% smaller populations of wild horses than without fertility control (Alternative 2). The effects to population size were less apparent under the treatment involving a post gather sex ratio of 60:40 favoring studs (Alternative 1). The results of the modeling indicate potential population sizes 2.1-16.0% less by the year 2015 than a post gather population with a 50:50 sex ratio. The Rocky Hills HMA was modeled for Gather Only and Fertility Control with Gather. The 60:40 sex ratio treatment was not modeled for this HMA.

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The implementation of fertility control could reduce overall growth rates by 6.2-17% from normal rates expected without fertility control. Modifying the post gather population to favor studs indicated smaller reductions of 2.1-9.3% over normal rates.

One of the more important results of the modeling is the relative difference between the alternatives in the numbers of horses gathered and removed during the analysis period and the number of gathers that the model projects. In general, the Gather Only treatment (Alternative 2) would result in the population exceeding the AML in years 4 or 5 (2012-2013) after the proposed gather. Fertility Control (Proposed Action) implemented with the gather could extend that by one year (or more), and ensure an average wild horse population below the upper end of AML (should another gather occur in 3-4 years). A post-gather population favoring studs (Alternative 1) would likely result in a situation somewhere between these two treatments.

Application of fertility control simulated through the model suggests substantial reductions in the number of horses that could need to be gathered and removed by 2015. As many as 173-489 fewer horses could need to be gathered within the Complex between 2009-2015. Numbers removed could be 340-575 fewer. The 60:40 sex ratio treatment also reflected reduced gather and removal numbers over a 50:50 sex ratio, though not as dramatic as with fertility control. Fewer gathers and fewer horses removed from the range would benefit the wild horses by reducing disturbance through gathers.

The number of gathers simulated by the model were also reduced under the Fertility Control treatment compared to a Gather Only treatment. Gather with no fertility control or age-structure manipulation (Alternative 2) resulted in 56-100% of the trials reflecting not just one more gather in 6 years, but two. Fertility Control trials reflected 98-100% with one more gather and none with two gathers within 6 years. Again, the 60:40 sex ratio treatment gave results in the middle of the two, with 74-84% of the trials simulating just one more gather, and 16-26% of them reflecting two more gathers by 2015. The manipulation of sex-ratio or implementation of fertility control could decrease the gather frequency, which would result in reduced disturbance to wild horses and substantial monetary savings that could be used elsewhere throughout the BLM wild horse and burro program.

The current gather frequency within HMAs administered by the MLFO is 6-7 years due to national funding levels and gather priorities. For this reason, the model was run to factor in a 5 year minimum gather interval rather than the 3-year interval that is typically used for modeling by this office. The results of this analysis show that by the 6th year, a Gather Only scenario (Alternative 2) would result in population sizes 148-200% of the high range of the established Appropriate Management Levels. The implementation of Fertility Control (Proposed Action) could result in populations that are 124-138% of the high range of AML within 6 years, reducing the number of excess animals on the range before a gather could occur. Alternative 1 could result in populations that are 144-159% of AML.

The No Action Alternative was also simulated through the model for the Rocky Hills HMA, Callaghan HMA and the Callaghan and Bald Mountain HMAs combined. The data generated from this simulation is presented in Appendix D, and in tables located below. Within 6 years, the model suggests populations 250-1,712% of the established AML within the Complex.

The following tables display some useful comparisons of data derived from the modeling. Refer to Appendix D for more detailed information.

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Table 12a: Alternatives Comparison Rocky Hills HMA

Populations and Gathers	Fertility Control
Reduced growth rates through Fertility Control	↓8.5-10.2%
Reduced population size in 6 years due to Fertility Control	↓6.25-18.0%
Reduced numbers of animals gathered in 6 years	↓130-163 horses (31-48%)
Reduced numbers of animals removed in 6 years	↓73-110 horses (39-49%)

Table 12b: Alternatives Comparison Rocky Hills HMA

GATHER FREQUENCY /% AML RESULTS	GATHER ONLY	FERTILITY CONTROL
% of the trials reflecting one additional gather	100%	98%
% of the trials reflecting two additional gathers	0	0
5-year minimum gather interval - Most Typical Trial, % of AML in year 6 (2014)	177%	124%

Table 13a: Alternatives Comparison Callaghan HMA

Populations and Gathers	Fertility Control	60:40 sex ratio
Reduced growth rates from Gather Only treatment	↓6.2-10.1%	↓2.1-3.6%
Reduced population size in 6 years due to treatment	↓5.0-17.0%	↓2.1-16.0%
Reduced numbers of animals gathered in 6 years	↓43-95 (3.5-9.4%)	↓1-107 horses (0-9.3%)
Reduced numbers of animals removed in 6 years	↓83-126 (9.3-11.9%)	↓0-46 horses (0-8.5%)

Table 13b: Alternatives Comparison Callaghan HMA

GATHER FREQUENCY /% AML RESULTS	GATHER ONLY	FERTILITY CONTROL	60:40 sex ratio
% of the trials reflecting one additional gather	44%	98%	84%
% of the trials reflecting two additional gathers	56%	0	16%
5-year minimum gather interval - Most Typical Trial, % of AML in year 6 (2014)	148%	126%	144%

Table 14a: Alternatives Comparison Callaghan and Bald Mountain HMAs Combined

Populations and Gathers	Fertility Control	60:40 sex ratio
Reduced growth rates from Gather Only treatment	↓9.0-17.0%	↓6.3-9.3%
Reduced population size in 6 years due to treatment	↓3.4-14.8%	↓2.5-8.3%
Reduced numbers of animals gathered in 6 years	↓0-231 (+1.1- -9.6%)	↓107-239 (5.8-9.9%)
Reduced numbers of animals removed in 6 years	↓184-339 (12-17%)	↓109-220 horses (7.2-10.9)

Table 14b: Alternatives Comparison Callaghan and Bald Mountain HMAs Combined

GATHER FREQUENCY /% AML RESULTS	GATHER ONLY	FERTILITY CONTROL	60:40 sex ratio
% of the trials reflecting one additional gather	26%	100%	74%
% of the trials reflecting two additional gathers	74%	0	26%
5-year minimum gather interval -- Most Typical Trial, % of AML in year 6 (2014)	200%	138%	159%

No Action Alternative (No Wild Horse Gather)

Under the No Action alternative, AML would not be achieved within the HMAs and wild horses would not be removed from horse free areas outside of the boundaries of designated HMAs. There would be no active management to control the size of the population at this time, and wild horse populations would continue to increase at an average rate of 17-20% per year. A steady increase in the population size would result, which would inevitably exceed the carrying capacity of the

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habitat to support wild horses. The following table displays the range of population results obtained through the population modeling. Refer to Appendix D for more detail.

Table 15: No Action Alternative – Population Size and Percent of AML in 6 years

Rocky Hills	No Action Population Size Range in 6 years	166-626
	No Action % of AML in 6 years	250-437%
Callaghan HMA	No Action Population Size Range in 6 years	995-4,057
	No Action % of AML in 6 years	420-1,712%
Callaghan and Bald Mountain HMAs Combined	No Action Population Size Range in 6 years	1,591-6,420
	No Action % of AML in 6 years	354-1,420%

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

Wild horses are a long-lived species with documented 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%.

AML is the maximum population for which thriving natural ecological balance would be maintained and avoid deterioration of the rangeland. The increasing population of wild horses in excess of AML would compete for the available water and forage resources. Excessive utilization, trampling, and trailing by wild horses would degrade the vegetation, prevent improvement of range that is already in less than desirable or degraded condition and would not allow for sufficient availability of forage and water especially during drought years or severe winters. Winter range lacks abundant forage and in is generally in poor ecological condition in the Callaghan and Bald Mountain HMAs, and waters are limited within the Rocky Hills HMAs. Wild horses are already congregating in high densities within portions of these HMAs.

Uncontrolled increases in the wild horse population, depletion of forage and water resources and degradation of plant communities would result in decline of the body condition, and health of the wild horse population, ultimately resulting in catastrophic losses to the herd.

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

The BLM realizes that some members of the public advocate “letting nature take its course”, however allowing horses to die of dehydration and starvation would be inhumane treatment and clearly indicates that an overpopulation of horses exists in the HMAs. The Wild Free-Roaming Horses and Burros Act of 1971 mandates the Bureau to “*protect the range from the deterioration associated with overpopulation*”, “*remove excess animals from the range so as to achieve*

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appropriate management levels”, and “to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area”.

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

3.8. Wildlife (Including Threatened & Endangered Species, Sensitive Species, and Migratory Birds)

Affected Environment

Wildlife species found in the Complex include, mountain lion, coyote, bobcat, badger, long-tailed weasel, gray and kit foxes, black-tailed jackrabbit, cottontail rabbit, sage grouse and numerous birds, reptiles and small mammals (mice, voles, ground squirrels, chipmunks, kangaroo rats, woodrats, shrews, and gophers). Several bat species also inhabit the Complex.

Hoofed mammal species include mule deer and pronghorn antelope. Mule deer are the most common and numerous of these wild ungulates. Higher elevations of the Toiyabe and Simpson Park Ranges provide important mule deer summer range. The animals can be found wintering in the foothills of the Toiyabe Range. Modest, but growing numbers of pronghorn occupy the valley floors and lower benches of the mountains within the Callaghan Complex. Distribution of water is probably the most limiting factor for this species.

Migratory bird species utilize almost the entire Complex during some time of the year. Very common shrub nesting species include the sage thrasher, sage sparrow, Brewer’s sparrow, horned lark and meadow lark. The loggerhead shrike, common nighthawk, various wrens, warblers, larks and swallows are all common. Any ground clearing or other vegetation-disturbing action during the migratory bird nesting season (roughly, April through August) risks a violation of the Migratory Bird Treaty Act by destroying the eggs or young of common shrub-nesting birds such as the sage thrasher, sage sparrow, Brewer’s sparrow, horned lark and meadow lark.

Many migratory bird species are heavily dependent on healthy riparian systems. Seventy-seven bird species have been identified as either riparian-obligate or riparian-dependent in the western United States (Rich, 2002). Riparian under-story, mid-story, and canopy cover are requisite for a diverse migratory bird community. Woody components of the riparian systems, such as willows and cottonwoods are important habitat features. The Toiyabe Range and Simpson Park Mountains include important aspen habitats that support diverse bird communities. Species that nest in aspen communities include the northern goshawk, broad-tailed hummingbird, northern flicker, house wren, American robin, warbling vireo, yellow-rumped warbler, junco, western wood pewee, lazuli bunting, and western tanager.

Common reptilian wildlife in the Complex includes collared lizard, Great Basin fence lizard, northern sagebrush lizard, horned lizard, Great Basin whiptail, Great Basin gopher snake, and Great Basin rattlesnake.

Several streams of the Callaghan HMA (Iowa, Boone, Silver, and Hall Creeks) flowing from the western slope of the Toiyabe Mountains support modest trout fisheries, primarily introduced Brook trout.

No federally listed threatened or endangered species inhabit the Callaghan Complex. BLM protects by policy (see 6840 section of the BLM Manual), *special status* plant and animal species. The list includes certain species designated by the state of Nevada, as well as species designated as “sensitive” by the Nevada BLM State Director. Refer to Appendix J for the list of BLM Sensitive Species whose range or migration routes are known or believed to occur within the gather area.

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Sage grouse occupy most of the Callaghan Complex though populations seem to be experiencing long-term declines. The Callaghan Complex includes portions of the Toiyabe, Shoshone, and Three-Bars Sage Grouse Population Management Units (PMUs). Risks to these PMUs, are thought to include:

- reduction in brood rearing habitat due to erosion of stream channels (channelization),
- down-cutting and drying of meadows;
- a reduction in size of spring and seep sites due to the removal of vegetative cover and shade by ungulates;
- reduction of native perennial grasses necessary for nesting cover;
- reduction of native forbs for pre-egg laying and chick development; pinyon-juniper encroachment into big sagebrush sites;
- old, decadent big sagebrush stands;
- human disturbance;
- the loss of big sagebrush due to wildfire.

Pygmy rabbits are North America's smallest rabbits, and the only rabbits that commonly construct their own burrows, usually in stands of tall, dense sagebrush in locations with deep, loose soils. Pygmies are patchily distributed throughout most of the Great Basin. Though locally common, these animals have apparently never been generally abundant during historical times, and may have undergone serious population declines, habitat and population fragmentation, and local extinction in recent decades. Pygmy rabbits are sagebrush obligates and their decline is probably closely related to loss and degradation of sagebrush habitats. Very little is known about population dynamics of this species. Pygmy rabbits are known to inhabit the Austin allotment, and likely inhabit other areas within the Callaghan Complex.

Several bat sensitive species are common in the Complex, especially in association with old mine workings, as well as natural caves and crevices. Most bats depend on riparian areas both as a source of drinking water and reliable source of insect prey. The greatest bat activity normally occurs near wet meadows and other riparian areas.

For more detailed information about the wildlife in the Complex and wildlife habitat condition and needs, please refer to the Evaluations and Rangeland Health Assessments completed for the allotments in the Complex, listed in Appendix E. A list of Sensitive Species which could occur on public lands administered by the MLFO is located in Appendix H.

Environmental Consequences

Proposed Action and Alternative 1 and 2:

Completing a wild horse gather within the Callaghan Complex would have minimal, short-term direct impacts to wildlife. Some wildlife present in or near trap sites or holding facilities could be temporarily displaced. The possibility exists that special status plant and animal species could be disturbed during the gather activities. However, trap sites would typically be located in areas that have previously been disturbed (i.e. gravel pits), and for short periods of time (1-3 days). Should it be determined necessary by a qualified biologist, trap sites would be inventoried prior to selection to determine the presence of sensitive species. If potential impacts could not be mitigated, these areas would be avoided.

Gather activities would not conflict with nesting periods for most bird species. Refer to the SOPs in Appendix A for avoidance measures would be utilized to minimize impacts to Sage Grouse and Ferruginous hawk.

Wildlife and wildlife habitat would be indirectly affected by the proposed gather as it pertains to resulting improvements in resource health from current management. Reduction of the current wild horse populations and achievement of the established AMLs provides the best opportunity for conservation, protection, and preservation of identified species and their habitats. Implementing the proposed gather within the Complex would reduce utilization on key forage species, improving

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the quantity and quality of forage available to wildlife and decrease competition for water sources. Habitat conditions in riparian areas, aspen stands, and uplands would improve to the benefit of most wildlife, migratory birds, and special status species, including sage grouse. Management for healthy rangelands and achievement of RAC Standards would benefit sensitive species such as sage grouse and pygmy rabbits as well as most other wildlife species. Benefits to wildlife could be greatest under the Proposed Action, which could result in reduced growth rates and lower population levels of wild horses over time when compared to Alternative 1 and 2.

No Action Alternative (No Wild Horse Gather)

Through the analysis of potential population increases through the WinEquus population model, it was determined that within 6 years, Maximum Population Sizes could reach 626, and 6,420 wild horses within the Rocky Hills and combined Callaghan and Bald Mountain HMAs respectively.

Within the Complex, rangeland vegetation currently receiving heavy, critical growth period or repeated use by wild horses, would continue to be impacted, and short-term allotment specific objectives would not be achieved.

Continued degradation of important wildlife habitat by an overpopulation of wild horses would result. Downward trends within vegetation communities and riparian areas would be expected in conjunction with reductions in ecological condition. Consequences would involve reduced production levels of key forage species, reduced forage availability to wildlife, and reduced habitat quality. Wild horses are already impacting important habitat utilized by sage grouse, in addition to riparian area, aspen communities, and meadow complexes valuable to many species of wildlife. Further degradation could be irreversible if the proposed gather does not occur to achieve the AMLs and achieve thriving natural ecological balance. Decline of wildlife species would be congruent upon the decline of habitat.

4. Cumulative Impact Analysis

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

The Cumulative Effects Study Area (CESA) for this project is the proposed gather area boundary displayed on Maps 1 and 2, which includes the Bald Mountain, Callaghan and Rocky Hills HMAs, and areas outside of HMA boundaries. The time period for the analysis is from the passage of the Wild Free-Roaming Horses and Burros Act of 1971 to 2019, ten years past the proposed gather which is a reasonable time frame to consider potential future actions within this analysis.

4.1. Affected Resources

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

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

For purposes of this analysis, each potential affected resource is discussed below in terms of past, present and reasonably foreseeable future actions which have or would have an effect in conjunction with the Proposed Action, Alternative 1 and 2; and the No Action Alternative. These effects may be beneficial or negative, and differ among the Alternatives including the No Action Alternative.

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4.2. Past, Present, and Reasonably Foreseeable Actions

Past actions, which have affected these resources within the CESA, primarily include livestock grazing and wild horse use. Other actions have included mining, woodcutting, wildfire rehabilitation, mining, and mineral and geothermal exploration. These actions are currently ongoing. Future actions could include mining and geothermal exploration and development, power line construction, solar, wind or other “green” energy production, livestock adjustments, wild horse AML adjustments, wild horse fertility control research, modification of wild horse sex ratios, herd augmentation, and wild horse removals.

The MLFO would analyze any future proposed projects within the Complex in an appropriate environmental analysis document following site specific planning. Future project planning would also include public involvement. The following discussions further detail the past, present and reasonably foreseeable actions by HMA.

4.2.1. Callaghan HMA

The 1995 FMUD for the Austin Allotment made substantial reductions (11,222 AUMs) to the existing livestock permit, and established AML for wild horses. In 2007, the Final Decision for the Austin Complex Permit Renewal made changes to season of use and the management system for livestock. In 1995, livestock reductions (3,807 AUMs) were implemented for the Grass Valley Allotment through a permit transfer. The 2002 Rangeland Health Assessment FMUD made further changes to season of use and the management system for wildlife, as well as establishing the AML for the Grass Valley portion of the Rocky Hills and Callaghan HMAs. The 2005 FMUD for the Simpson Park Allotment reduced the permit by 2,596 AUMS as well as establishing use areas and grazing management systems.

Gathers have been conducted within the Callaghan HMA in 1987, 1997 and 2002 in which 2,376 wild horses have been removed from the range. The 1987 gather involved a gate cut of 480 wild horses. The 1997 gather resulted in the removal of 1,074 wild horses, and release of animals 10 years and older back to the HMA. In 2002, the selective removal policy allowed a range of ages to be released back to the HMA after 822 were removed from the range. Numerous wildfires have burned within the HMA since 1999. Rehabilitation work has included reseeding and fencing. Geothermal exploration is currently ongoing just outside of the HMA boundaries in Grass Valley. Future actions could include development of a geothermal power plant at this location.

4.2.2. Bald Mountain HMA

The 2005 FMUD resulted in substantial changes to livestock grazing within the Carico Lake Allotment, which included reductions to permitted use¹⁰ and changes of season of use. The FMUD also established the AML for wild horses. The only gather to be completed in this HMA was in 1981, at which time, 364 wild horses were removed. Since then, the population has been influenced by gathers completed in the neighboring Callaghan and Rocky Hills HMAs. Several small wildfires have burned within the HMA since 1999. Geothermal exploration is currently ongoing inside the HMA at Hot Springs Point. Future actions could include development of this site into a geothermal power plant. The Cortez Gold mining operation is located to the north and northeast of the HMA boundary. Operations are currently expanding, and exploration is widespread. Future actions could include creation or modification of haul roads within the HMA or mining development within the HMA.

4.2.3. Rocky Hills HMA

Livestock reductions were implemented in this allotment in the JD Allotment in 1997 through permit transfers (4,561 AUMs). The 2004 JD Allotment FMUD further modified the grazing system and seasons of use, as well as establishing AML for this portion of the HMA. The 2002

10. The 2005 FMUD reduced the C-Ranches permit by 3,525 AUMs (26%), and the Silver Creek Ranches permit by 316 AUMs (26%). Approximately 46% of C-Ranches permit is in the HMA.

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Grass Valley Allotment FMUD further reduced the permit by 108 AUMs. The HMA was partially gathered in 1997 with the Callaghan HMA when 335 wild horses were removed from the range. Animals 10 years and older were released back to the HMA. Following the 1999 trail canyon wildfire, an emergency gather was completed to remove 256 wild horses from the range. A selection of these animals was held at a contract facility until 2002 at which time 74 were returned to the range. Over 47% of this HMA burned in the Trail Canyon Wildfire. Subsequent Tonkin wildfires burned additional acreage. Emergency Stabilization and Rehabilitation efforts resulted in relatively high success of seedings throughout the burned areas. Also at this time, fences were constructed around the HMA boundary and around private lands, many of which enclosed water sources once used by wild horses. Mining exploration is widespread. The Tonkin Mine currently operates in the southern portion of the HMA. Future actions could include closure of that mine, and development of mining in other locations within the HMA.

4.2.4. Simpson Park Mountain Range

The Simpson Park Mountain Range itself is not designated as an HMA. The southern portion of the range near U.S. Highway 50 comprises the northern portion of the Hickison Burro HMA. This area has been fenced by right-of-way fences from the rest of the HMA and no longer supports burros. The area is too small to support a viable population. The area is not designated for use by wild horses, yet wild horses have moved into the area and established residency over the years from adjacent HMAs – Callaghan, Rocky Hills, and Roberts Mountain. Because the area is not an HMA, gathers have occurred to remove horses from the area. In 1993, 418 total animals were removed from the area, but 141 wild horses 10 years old or older released back to the adjacent Callaghan HMA due to the selective removal policy in place at the time. Many of these horses likely moved back to the Simpson Park Range. Another gather was completed in 1999, when 99 horses were removed from areas burned by the Trail Canyon wildfire. The most recent gather consisted of the removal of 218 wild horses in December 2005, followed by a trapsite adoption event in Eureka, NV in which 13 horses were adopted.

4.3. Cumulative Impacts

According to the 2004 BLM *Guidelines for Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health/wild horse habitat, impacts to wild horse populations through gathers, and long-term health and viability of wild horses within the established boundaries of an HMA.

Scoping for this project did not identify any need to exhaustively list individual past actions or analyze, compare, or describe the environmental effects of individual past actions in order to complete an analysis, which would be useful for illuminating, or predicting the effects of the proposed action.

4.3.1. Livestock Management

Proposed Action and Alternatives 1 and 2

The allotments within the Complex have sustained reductions of over 23,000 AUMs since 1995 through permit transfers and FMUDs. In addition to livestock management changes, the past wild horse gathers have helped to slow and stop resource damage and begin to reverse these trends in some locations. The proposed wild horse gather would be expected to further contribute to improved rangeland health. Through future livestock and wild horse decisions and future gathers conducted to achieve the AML, these benefits are expected to continue and result in cumulative improvements to the forage availability and therefore grazing management as well. Maintaining the AMLs would result in long-term upward trends within the vegetation communities and begin to offset some of the degradation of the past. Future livestock decisions could include increased permitted use as increased forage becomes available in the future. Other reasonably foreseeable

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actions may result in allotment acreage reductions due to mining or development. These would likely be small, and result in negligible AUM adjustments.

In the long term, the Proposed Action and Alternatives 1 and 2 would result in similar improvements to rangeland health and grazing management through reduced wild horse concentrations and improved rangeland condition. Improvement would be increased under the Proposed Action, which could result in reduced impacts to vegetation resources by excess populations of wild horses above the established AMLs.

No Action

The No Action Alternative would not result in long-term cumulative benefits to livestock management. Improvements realized from past livestock reductions, grazing management changes, and wild horse removals would be negated by continued overpopulations of wild horses. Cumulative and chronic loss of vegetation resources, and riparian habitat could eventually require reduction or elimination of livestock grazing in specific or widespread areas in the long-term. Mining, geothermal, or other development would cause disturbance to additional vegetation that could be utilized by livestock.

4.3.2. Vegetation and Soils

Impacts to vegetation resources within the project area have accumulated primarily from the direct and indirect effects of livestock and wild horse grazing. Historical livestock grazing and use by large concentrations of wild horses has contributed to current rangeland condition that does not reflect the potential natural community, and is not achieving RAC Standards for Rangeland Health. Livestock management changes and reductions since the early 1990's have and will continue to result in improvements to vegetation condition. The removal of over 4,000 wild horses in the Complex since 1987 has also benefitted vegetation and soils. Because the project area is characterized by very low precipitation levels and rugged terrain, vegetation is sparse in nature, and has required long time periods to recover from disturbance or degradation. Implementation of the proposed gather would result in cumulatively, slow improvement to rangeland health.

Proposed Action and Alternatives 1 and 2

The proposed gather would have very negligible direct effects, and would benefit vegetation and soils indirectly. No negative cumulative effects are expected.

The Proposed Action and Alternative 1 and 2 would contribute to isolated areas of disturbed vegetation and soils through the gather activities. In the long term, however, the achievement and maintenance of AML in conjunction with past grazing management changes, would contribute to improved vegetative resources and soil stability. The proposed gather and other foreseeable actions (including future wild horse gathers) would begin to offset past negative trends in habitat modification by allowing for attainment of rangeland health standards and allotment specific objectives. Mining and/or geothermal development could remove substantial acreages of vegetation resources and impact soils. This may or may not be offset by improvements to forage availability and forage quality elsewhere in the Complex.

In the long-term, the Proposed Action and Alternatives 1 and 2 would result in similar benefits to vegetation and soils through reduced wild horse concentrations and achievement of AML. Benefits to vegetation and soils would be greatest under the Proposed Action, which could result in reduced impacts to vegetation and soil resources by excess populations of wild horses above the established AMLs.

No Action

The No Action Alternative would allow continued degradation of vegetation by excess wild horses, which in the long-term would result in chronic and cumulative losses of the key forage species from the vegetation communities and diminished soil health. Improvements resulting from past livestock management reductions and changes to grazing management, as well as past wild horse gathers would be negated. Past impacts would not be offset, and downward trends would occur.

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Ongoing and future activities such as exploration and development would continue to contribute to soil disturbance, resulting in overall cumulative increases in soil and vegetation disturbance through the Complex.

4.3.3. Water and Riparian Resources

Water quality and riparian health have historically been impacted by water diversion projects, development of roads, and use by livestock and wild horses. Some riparian areas may have also been impacted by recreational users, and historic mining and exploration activities. Currently, many of the riparian areas within the project area are degraded and past and current wild horse use has been identified as one of the causal factors. Many streams and springs are not properly functioning. Past and current changes to livestock management have included changes in season of use to restrict or minimize use of these areas during critical times. These changes, in conjunction with the past livestock permit reductions, and removal of over 4,000 wild horses since 1987 has contributed to some improvements to riparian systems. In the future, livestock grazing and wild horse use would likely be the primary impacts to water quality and riparian health. Geothermal exploration and development within and near the Callaghan and Bald Mountain HMAs could reduce water availability over the long term.

Proposed Action and Alternatives 1 and 2

Achievement of AML within the Callaghan Complex HMAs in conjunction with the recent and past livestock grazing management decisions, would lead to improvement in water quality and progress towards proper functioning condition. Future wild horse gathers to maintain AML would further improve riparian health. Because the Proposed Action would result in reduced population growth and population sizes, it would offer the greatest opportunity for cumulative benefit to water and riparian resources, followed by Alternative 1 and 2.

No Action

Unrestricted use by wild horses would preclude improvements that could be possible. Long-term impacts would be further degradation of riparian areas due to excessive use by increasing wild horse populations. Benefits from other management actions, which could improve riparian and water resources would be negated. In the long term, springs and water sources would produce less, thus increasing the pressure on individual sites from animal use. Continued downward trends would lead to complete loss of functionality of many of the important streams and springs within the Complex

4.3.4. Wild Horses

Wild horses have existed within the Bald Mountain, Callaghan and Rocky Hills HMAs since prior to the passage of the Wild Free Roaming Horses and Burros Act in 1971. Herd Areas were established based on the presence of wild horses within these areas in 1971, and later designated as Herd Management Areas in the Shoshone-Eureka RMP (refer to Section 1.3). The current HMA boundaries are nearly identical to the original Herd Area boundaries.

The habitat within the project area is droughty, mountainous and characterized by variable types, ecological condition, and production of forage and water sources. Drought conditions occur within the Complex on average of 1 year out of 3.6 years (28%) according to climate data from the nearest weather station. Many of the plant communities receive only 5-8 inches of precipitation each year, which makes them subject to damage from over use and slow recovery time.

Several BLM wild horse gathers have been conducted within the Complex since 1987, which have involved the removal of over 4,000 wild horses from inside and outside of HMA boundaries within the Complex. However, long intervals between gathers have resulted in populations many times larger than the established AMLs, and as a result, the wild horses have been most impacted by their own population size. Fertility control has not been implemented during past gathers. Reductions in livestock use and changes in management since the mid 1990's, in addition to the wild horse gathers that have occurred have contributed to improvement of the habitat in some locations.

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Proposed Action and Alternatives 1 and 2

The proposed gather is not expected to have negative effects to genetic health of the horses within the Complex. Genetics analysis for the Callaghan HMA suggest a highly mixed herd and relatively high genetic variability.

In addition to past, current and future wild horse gathers, other future actions could have cumulative impacts to wild horse movement and over time could cause shifts in wild horse distribution, causing increased or decreased use of certain portions of the HMAs. Burned area rehabilitation fencing, power-line construction and mineral exploration, have likely contributed to fragmentation of the habitat and the use by wild horses through deterring movement throughout the areas, and hindering uniform distribution. The proposed gather, in conjunction with future human activity and development such as mining, solar, wind, or geothermal power generation could further restrict or deter movement within the HMAs, causing increased concentrations within portions of the HMAs. Experience has shown that the presence of quality habitat does not guarantee that it would be enjoyed by wild horses. Hot Springs Point on the east portion of the Bald Mountain HMA is currently being explored for geothermal resources. Future exploration and potential development could impact wild horse distribution in that portion of the HMA. Likewise, several operational mines within the Carico Lake Allotment and Rocky Hills HMA would continue to impact wild horse distribution patterns.

Through the proposed gather, wild horse bands and herd dynamics would be disrupted. Distribution of the wild horses within both HMAs may change from that of the past as wild horse concentrations are reduced, and competition is reduced for preferred forage areas and water sources.

The future may also involve further adjustments to the AMLs (increases or decreases), fertility control research, and future gathers to achieve AML within all HMAs. Should the genetic analysis of any of the HMAs indicate issues with genetic variability, specific removal or treatment protocols could be developed to address them. The objective for these actions would be for increased future herd health and thriving natural ecological balance within the herds in conjunction with other future actions.

In the long term, livestock decisions, AML adjustments, and future wild horse gathers would have the net effect of improvement of habitat quality for the wild horses within all HMAs, which would contribute to long-term health of the wild horses as indicated by improved body condition, healthier foals, and herd sustainability through drought or other environmental extremes. An overall lower population and density of wild horses across the landscape would allow increased recovery of native vegetation that is currently degraded, as well as reduce or eliminate further degradation. There are no indications that the proposed gather would result in cumulative negative effects to wild horses within these HMAs. Population modeling completed for all Alternatives did not suggest a population “crash” would occur, even when simulated for 10-20 years.

The herd’s distribution, movement, genetic variability, and overall health would be monitored in the future and assessed in Herd Management Area Plans. Fertility control and other methods to slow population growth rates could be addressed in the future within the HMAP and following comment from the interested public.

The Proposed Action could reduce growth rates of the population by 6.2-17% according to the WinEquus wild horse population model, and could reduce population sizes by as much as 18% over 6 years. As a result, this alternative could also result in decreased frequency of gathers, and fewer horses that would need to be gathered or removed from the HMA. Fewer gathers would reduce disturbance to individual animals and to the population as a whole, cumulatively contributing to increased band stability. This benefit would diminish with Alternative 1 and 2. A post gather population sex ratio of 60:40 favoring studs would not have cumulative effects to the

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health of the wild horses except to reduce foaling rates and population sizes over the next few years when compared to Alternative 2 which does not involve fertility control or sex ratio modification. Alternative 2 would see the fewest cumulative benefits to wild horse habitat, in that the AMLs would be exceeded sooner, and populations would exist above AMLs until a future gather was completed.

No Action

Under the No Action Alternative, the degradation of the habitat by excessive populations of wild horses within the Complex would continue into the long-term, and improvement to the range would not occur. Improvements that have resulted from or could continue to be generated from reductions in livestock use, changes in season of use, and other management changes would be negated by the damaging effects of a significant overpopulation of wild horses. Cumulative and chronic loss of habitat quality would impair the populations' ability to remain healthy and viable in the long-term. If the populations were to increase unchecked, eventually emergency removal would be necessary to prevent catastrophic death of the herds. Irreparable damage to the arid habitat could preclude the ranges ability to support a viable wild horse population. Future actions could involve permanent remove of all wild horses from one or all of these HMAs, or to reduce AMLs in future decisions.

4.3.5. Wildlife and Sensitive Species

Cumulative impacts to wildlife, migratory birds, special status species from past, present, foreseeable actions result primarily from impacts to vegetation, and the resulting habitat alteration. Impacts to habitats within the project area have accumulated primarily from the direct and indirect effects of livestock and wild horse grazing, and to a lesser degree mining, and exploration.

Proposed Action and Alternatives 1 and 2

Livestock decisions, riparian exclosures, wildlife guzzlers, and implementation of the proposed wild horse gather would contribute to rangeland improvement and thereby have a potentially beneficial effect on the wildlife habitat in the gather area. Improvements would be realized through reduced riparian utilization, reduced upland utilization, and reduced potential for direct competition between the introduced and native ungulates, as well as overall improvements to rangeland health and quality wildlife habitat.

In conjunction with past, present and future actions such as future wild horse gathers, adjustments to livestock grazing use, noxious weed treatment, and mineral/geothermal exploration and development, the proposed gather would result in cumulative, long term improvements to wildlife through enhanced water sources, riparian habitats, and forage and cover availability. The proposed gather and other foreseeable actions would begin to offset past negative trends in habitat modification by allowing for attainment of rangeland health standards and allotment specific objectives. These improvements could also help to offset habitat losses that could occur as a result of mining, geothermal development or other human activity in the Complex.

The Proposed Action, followed by Alternatives 1 and 2 would offer the best opportunity for long-term improvements to wildlife by maintaining the AML within the established ranges, and preventing an overpopulation of wild horses from negatively affecting wildlife habitat.

No Action

The No Action Alternative would not result in long-term cumulative benefits to any rangeland user. Uncontrolled increases in populations of wild horses across the Complex would result in continued damage to and loss of important wildlife habitat, including water sources, riparian habitat, and mountain browse vegetation. These losses in conjunction with any reasonably foreseeable projects or other management actions would not improve habitat for wildlife, sensitive species, or other values. Forage and cover would decline in quality and availability. Certain wildlife species (such as sage grouse) would be expected to decline in numbers within the Complex as ecological condition of the rangeland deteriorates. In conjunction with other human disturbances such as mining or energy development, cumulative loss of habitat would occur.

5. Suggested Monitoring

The BLM would continue to conduct the necessary monitoring to periodically evaluate the effects of livestock grazing and use by wild horses and wildlife, and determine if progress is being made in the attainment of multiple use objectives and Standards for Rangeland Health. Monitoring would be in accordance with BLM policy as outlined in the *Nevada Rangeland Monitoring Handbook* and other BLM technical references.

The MLFO would continue to plan for periodic census flights to monitor the growth and distribution of the wild horse populations within the HMAs. Should funding be available, inventory flights would be conducted in years 2-4 to monitor foaling percentages if fertility control was implemented under the Proposed Action. Vegetation monitoring to consist of utilization, trend, and other rangeland studies would continue to be completed.

6. Consultation, Coordination and List of Preparers

Prior to completion of this Environmental Assessment, a scoping letter dated April 24, 2008, was mailed to 62 individuals, organizations and State and Federal Agencies, which comprise the interested public list for the Callaghan Complex.

Responses were received from the Nevada Division of State Lands and the Nevada State Historic Preservation Office in support for the proposed wild horse gather. Additional responses were received from Animal Welfare Institute, Candace D. Oathout, and Cindy McDonald, involving comments, questions and recommended topics for analysis within the EA. Comments were also received from permittees Pauline Padilla, and Jim and John Filipinni during meetings pertaining to allotment administration and monitoring. These comments/concerns are summarized in Appendix I and were considered, and as appropriate, incorporated in the preparation of this environmental assessment.

Public hearings are held annually on a state-wide basis regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During these meetings, the public is given the opportunity to present new information and to voice any concerns regarding the use of these methods to capture wild horses (or burros).

The Nevada BLM State Office held a meeting on May 15, 2008; a total of 116 individuals commented. Of these, 1 was an oral comment, 4 were written comments, and the balance were emails. Specific concerns included: (1) the use of helicopters and motorized vehicles is inhumane and results in injury or death to significant numbers of wild horses and burros; (2) bait and/or water trapping or removal by horseback are more humane methods of removal; (3) misconduct by gather contractors or others must be immediately corrected; and (4) fertility control, including sterilization of stallions should be considered rather than removing excess animals. Some expressed the desire that nature be allowed to take its course and that animals be left to die of thirst or starvation in lieu of gathers.

This Environmental Assessment and Gather Plan is being sent to the interested public list for the gather area for review and comment. Comments received by October 15, 2008 would be incorporated into a final EA and Gather Plan, and issued to the interested public. The interested public list is included on page 55-56.

List of Preparers

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Callaghan Complex
Wild Horse Gather Environmental Assessment

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Interested Public

FIRST	LAST	ORGANIZATION
John	Filippini	C Ranches Inc
Paul J.	Spitler	Center for Biological Diversity
Brenda	Younkin	Stewardship Director, Conservation Research Center
George	Fennemore	Cortez Gold Mines
Todd	Chambers	O'Toole Ranches
Bernard	Carter	Doby George, LLC
Peter J. and Tom	Damele	Dry Creek Ranch
Bill	Hall	Ellison Ranching Co.
Jim	Baumann	Eureka County Dept. of Natural Resources
Carl	Slagowski	Eureka County Dept. of Natural Resources
Jerry	Todd	Eureka County Dept. of Natural Resources
John	Overton	Eureka County Dept. of Natural Resources
Ken	Conley	Eureka County Dept. of Natural Resources
Leo	Damele	Eureka County Dept. of Natural Resources
Jacob	Tibbets	Eureka County Dept. of Natural Resources
Jim	Etcheverry	Eureka Livestock
Henry	Filippini Jr.	Filippini Ranching Co.
Pete	Tomera	Julian Tomera Ranches Inc
Ray	Williams Jr.	Lander County PLUAC
Maurice Frank	Churchill	Duckwater Shoshone Tribe
Michael	Young	Chair ,Battle Mountain Band Council
Chairman		Lovelock Paiute Tribe
Mike	Marvel	Mike Marvel Ranching
Jim	Baumann	Chairman, Natural Resources Advisory Commission
Meghan	Wereley	Nevada Cattlemen's Association
Dave	Pulliam	Habitat Chief , Nevada Department of Wildlife
Mike	Podborny	Nevada Department of Wildlife
Steve	Foree	Nevada Department of Wildlife Eastern Region
Krista	Coulter	Nevada State Clearing House
Paul	Inchauspe	Silver Creek Ranch Inc.
Dallas	Smales	Summit Lake Paiute Tribe
Davis	Gonzales	Te-Moak Tribal Council
Pat	Stevens	Te-Moak Tribal Council
Ken and Russell	Conley	University Nevada Reno
Katie	Fite	Biodiversity Director,Western Watersheds Project
D.J.	Schubert	Animal Welfare Institute
Andrea	Lococo	Animal Welfare Institute
Bobbi	Royle	Wild Horse Spirit, Ltd
Richard	Sewing	National Mustang Association
Cathy	Barcomb	Nevada Commission for Preservation of Wild Horses

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FIRST	LAST	ORGANIZATION
Dawn	Lappin	Wild Horses Organized Assistance
Candace D.	Oathout	Citizens Against Recreational Eviction
Jack	Alexander III	Synergy Resource Solutions, INC.
Chairman		Winnemucca Colony
Dennis	Bill	Chair, Yomba Shoshone Tribe
Kenny	Smith	Yomba Shoshone Tribe
Teresa M.	Beck	Yomba Shoshone Tribe
Ralph	Young	Young Brothers
Chad and Rosie	Bliss	
Cindy	MacDonald	
Howard and Barbara	Wolf	
Jim and Ida	Gallagher	
Kenneth	Buckingham	
Mandy	McNitt	
Tom and Volina	Connolly	
Tommie G	Lancaster	
Vicki J.	Cohen	
American Horse Protection Assoc.		
Eureka County Commissioners		
Lander County Commissioners		
South Fork Band Council		
Timbisha Shoshone Tribe		
U.S. Fish and Wildlife Service		
US Forest Service Austin Ranger District		

Appendix A: Wild Horse Gather Plan and Standard Operating Procedures

I. Gather Plan

The purpose of the gather plan is to outline the methods and procedures for capturing approximately 1,700 wild horses from public lands administered by the Mount Lewis Field Office (MLFO). Achievement of the Appropriate Management Level (AML) would require the removal of approximately 1,480 wild horses and release of 259 wild horses back to the HMAs Herd management Areas (HMAs). A trap-site adoption event could also be scheduled to coincide with the gather activities (refer to Section G).

A. Gather Area

The gather area encompasses approximately 1,122,465 acres of public lands – 380,424 acres of HMA and 742,041 acres outside of designative HMAs. The gather areas include the Bald Mountain, Callaghan, Rocky Hills and a small portion of the South Shoshone HMA in addition to areas located adjacent to but outside of the HMA boundaries, which includes areas not designated for horse use. Refer to Map 1 and 2, which display the HMAs, grazing allotments and the gather area.

B. Administration of the Contract /Gather Operations

The National Wild Horse and Burro Gather Contract would be used to conduct the wild horse gather tentatively scheduled for fall/winter 2008/2009. BLM personnel would be responsible for overseeing the contract for the capture, care, aging, and temporary holding of wild horses from the capture area. BLM Wild Horse and Burro Specialists would be present during all aspects of the gather activities.

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

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

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

A veterinarian would be on-call for the duration of the gather to provide recommendations to Wild Horse and Burro Specialists for care and treatment of sick or injured wild horses. Consultation with the veterinarian may take place prior to the euthanasia of wild horses in accordance with Washington Office Instruction Memorandum (IM 2006-023). Refer to Part II for more information about the euthanasia policy.

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

C. General Overview of Wild Horse Gather Methods

The gather contractor supplies and transports all equipment needed to conduct a gather to a central location where Holding Corrals are constructed. These corrals consist of six or more pens constructed of heavy panels, with a central alleyway and working/squeeze chute in the center. Corral panels are covered with snow

fencing to keep animals calm, and water tanks located within the pens. The central alley and pen arrangement allows the BLM staff and the contractor to sort recently captured animals, separating animals to ship to the adoption facilities, animals to release, and mares and foals from studs to prevent fighting and injury. The pen arrangement allows the contractor to off-load wild horses from stock trailers into the pens, and facilitates the loading of the horses to be transported to facilities onto large straight deck trucks.

At various locations throughout the HMA, smaller sets of corrals are constructed called “traps”. The trap consists of a series of pens made out of panels, and “wings” made out of jute netting that funnel wild horses to the trap as they are captured. Once captured, the horses are loaded into stock trailers and transported to the central Holding Corrals for sorting. Horses may remain in the trap or on the stock trailer for no time at all, or up to an hour or more while other groups of horses are brought to the trap.

The contractor often utilizes a helicopter and pilot to conduct gathers. Use of a helicopter is humane, safe and effective. Methods for use of helicopter are well established, and the contract pilots very skilled. Wild horses are not as frightened of a helicopter as one would think, and BLM staff often document wild horses that run towards the helicopter when conducting census flights. Wild horses settle down once gathered and do not appear to be more than slightly annoyed by the helicopter.

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

Once near the trap, the contractor holds a “parada” horse at the mouth of the wings. As the pilot pushes the wild horses closer, the parada horse is released, who then runs into the trap, leading all of the wild horses with him. Crewmembers rush in to secure gates once the horses are within the corrals. During summer gathers, the crew often separates foals from adults at the trapsite so that they may be transported to the Holding Corrals separately and avoid being injured by adult horses. Foals may be loaded into a separate stock trailer where they can have shade, water, and electrolyte if necessary. Once unloaded at the Holding Corrals, foals are rejoined with the mothers, and monitored to ensure that all of the foals “join-up”. Often paint marks are applied to the foals and mothers to assist the contractor and BLM staff in identifying pairs.

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

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

The BLM staff makes the decision to ship the horse to adoption, or to release it back to the HMA, and paints corresponding markings on the withers, back or hips with livestock marking paint. Injuries are noted and

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

When the pens hold enough horses to transport to the BLM adoption facility, they are loaded into the straight deck trailers that hold 35-45 wild horses depending upon their size. The trailers have three compartments so that mares, studs and foals can be transported separately. It may require 3-6+ hours for the wild horses to arrive at the adoption facility. The MLFO typically ships horses to National Wild Horse and Burro Center at Palomino Valley near Sparks, Nevada; or may ship horses to the facility at Ridgecrest, California if needed.

The remaining wild horses stay in the Holding Corrals for several days until the gather is complete. Before the wild horses are released, hair is sampled for genetics testing, and fertility control vaccine administered (if planned for that gather). At the end of the gather, they are transported by the contractor and BLM staff to areas near water within the HMAs for release. Mares and studs are generally transported and released separately. The release activities are kept quiet and calm, especially when foals are involved, to ensure that the horses have a safe release, and are able to re-orient themselves quickly. If substantial foals are released with the mares, they may be left in a pen at the release site for several hours to acclimate and ensure a calm release.

D. Selection Criteria

Wild Horse and Burro Specialists would determine sex, age, color and assess animal health (pregnancy/parasite loading/physical condition), sort individuals as to age, size, sex, temperament and/or physical condition, and select horses or burros to be released back to the Complex. The National Selective Removal Policy, *Washington Office, IM 2005-206, Gather Policy and Selective Removal Criteria for Wild Horses* would be adhered to, to the extent possible, when selecting wild horses to be released back to the HMA and selecting wild horses to be removed. This policy includes the following guidelines:

Age Class -Five Years and Younger: Wild horses five years of age and younger should be the first priority for removal and placement into the national adoption program.

Age Class - Six to Fifteen Years Old: Wild horses six to fifteen years of age should be removed last and only if management goals and objectives for the herd cannot be achieved through the removal of younger animals.

Animals encountered during gather operations should be released if, in the opinion of the Authorized Officer, they may not tolerate the stress of transportation, preparation, and holding but would survive if released. Older animals in acceptable body condition with significant tooth loss and/or excessive tooth wear should also be released. Some situations, such as removals from private land, total removals, or emergency situations require exceptions to this.

Age Class Sixteen Years and Older: Wild horses aged sixteen years and older should not be removed from the range unless specific exceptions prevent them from being turned back and left on the range.

The wild horse and burro populations within the gather area would be managed as healthy, self-sustaining populations in balance with multiple uses and the productive capacity of their habitat. Objectives have been developed for the Bald Mountain, Callaghan and Rocky Hills HMAs. (refer to Appendix B). Data collected during the gather in conjunction with genetic analysis report will be incorporated into a Herd Management Area Plan (HMAP) in the future.

E. Northeastern Great Basin Resource Advisory Council (RAC) Standards for Rangeland Health

STANDARD 5: HEALTHY WILD HORSE AND BURRO POPULATIONS

Wild horses and burros exhibit characteristics of a healthy, productive, and diverse population. Age structure and sex ratios are appropriate to maintain the long term viability of the

population as a distinct group. Herd management areas are able to provide suitable feed, water, cover and living space for wild horses and burros and maintain historic patterns of habitat use.

As indicated by:

Healthy rangelands that provide sufficient quantities and quality of forage and water to sustain the appropriate management level on a year-long basis within a herd management area.

Wild horses and/or burros managed on a year-long basis for a condition class greater than or equal to five to allow them normal chances for survival in the winter (See glossary for equine body conditioning definitions).

Highly adoptable wild horses and burros that are readily available from herd management areas. Wild horse and burro herds that exhibit appropriate age structure and sex ratio for short and long term genetic and reproductive health.

GUIDELINES:

- 5.1 *Implement the objectives outlined in the Wild Free-Roaming Horses and Burros Tactical Plan for Nevada (May 1999).*
- 5.2 *Manage for wild horses and/or burros in herd management areas based on the capability of the HMA to provide suitable feed, water, cover and living space for all multiple uses.*
- 5.3 *Set appropriate Management Levels based on the most limiting habitat factor (e.g. available water, suitable forage, living space and cover) in the context of multiple use.*
- 5.4 *Manage herd management area populations to preserve and enhance physical and biological characteristics that are of historical significance to the herd.*
- 5.5 *Manage wild horse and burro herds for short and long term increases and to enhance adoptability by ensuring that wild horses and burros displaying desirable traits are preserved in the herd thus providing a reproductive base to increase highly adoptable horses and burros for future demands.*
- 5.6 *Identify and preserve historic traits and characteristics within the herd which have proven to be highly desirable by the adoption public to increase the long term availability of animals bearing these features.*
- 5.7 *Wild horse and burro selective removal criteria are modified on a per herd basis to correct deficiencies in population age and sex ratios which threaten short and long term genetic diversity and reproductive health.*

F. Data Collection

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

1) Hair Samples/Genetics Analysis

Hair samples would be collected and analyzed to establish genetic baseline data of wild horses (genetic diversity, historical origins, unique markers, and norms for the population). The samples would be collected from the breeding population of the horses selected for release into the Complex.

WHB Specialists would collect a minimum sample size of 25 hair samples from horses selected for release. Hair would be collected from both mares and studs in a ratio similar to the sex ratio released. Age would not be a defining factor in determining which animals to sample. Samples would be sent to Dr. Gus Cothran of the Texas A&M University for analysis.

2) Herd Health and Viability Data Collection

WHB Specialists would document information related to age, sex, color, overall health, pregnancy, or nursing status from each animal captured. The sex and age of each animal selected for release would be recorded during sorting procedures at the holding facility. An estimate of the number, sex and age of horses evading capture would also be recorded.

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

3) Characteristics

WHB Specialists would record color and size of the animals, and any characteristics as to type (similarities to domestic breeds) would be noted, if determined. The genetic analysis would provide a comparison of domestic breeds with the wild horses sampled. Any incidence of negative genetic traits (parrot mouth, club foot etc.) or other abnormalities would be noted as well. WHB Specialists would select a representative population of wild horses depicting historical and desired characteristics for release.

4) Condition Class

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

G. Trapsite Wild Horse Adoption

The public has expressed interest for an adoption to be planned in conjunction with this proposed gather. The Callaghan and Rocky Hills wild horses have been popular with adopters, and the MLFO would like to further promote these two herds in addition to the Bald Mountain HMA. Scheduling of an event would be contingent upon continued interest received, available budget, and personnel. A trapsite wild horse adoption would be completed in accordance with IM NV-2001-041, which outlines requirements for adoptions during gather operations.

Prior to the beginning of the gather, the MLFO would issue news releases and send flyers to previous adopters and the interested public announcing the proposed event. The event would also be posted on the National Wild Horse and Burro webpage. Coordination would take place with the gather contractor in advance to prevent conflicts. The MLFO would accept applications for until the day of the planned event, evaluate applications received by potential adopters, and determine qualification to adopt. Adopters that do not submit applications by the event date would not have first priority for selection of animals. A public or viewing day may be scheduled the day before or the day of the event. The event type (first-come, first-served, competitive or lottery) would be based upon the interest received from potential adopters.

BLM staff would freezemark, de-worm and vaccinate all wild horses adopted. A veterinarian would be on-site to draw blood for coggins testing and complete health certificates. Adopted wild horses would be brand inspected by a qualified brand inspector. BLM staff would halter and load wild horses into approved stock trailers, and follow-up with compliance inspections and assistance as needed after the event.

H. Euthanasia

The Authorized Office (or designee) will make decisions regarding euthanasia, in accordance with BLM policy as expressed in Washington Office Instructional Memorandum No. 2006-023. A veterinarian may be called to make a diagnosis and final determination. Euthanasia shall be done by the most humane method available. Authority for humane euthanasia of wild horses or burros is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Euthanasia of Wild Horses and Burros and Disposal of Remains. The following are excerpted from IM 2006-23:

A Bureau of Land Management (BLM) authorized officer may authorize the euthanasia of a wild horse or burro in field situations (includes free-roaming horses and burros encountered during gather operations) as well as short- and long-term wild horse and burro holding facilities with any of the following conditions:

- (1) Displays a hopeless prognosis for life;*
- (2) suffers from a chronic or incurable disease, injury or serious physical defect; (includes severe tooth loss or wear, severe club feet, and other severe acquired or congenital abnormalities)*
- (3) would require continuous treatment for the relief of pain and suffering in a domestic setting;*
- (4) is incapable of maintaining a Henneke body condition score greater than two, in its present environment;*
- (5) has an acute or chronic injury, physical defect or lameness that would not allow the animal to live and interact with other horses, keep up with its peers or exhibit behaviors which may be considered essential for an acceptable quality of life constantly or for the foreseeable future;*
- (6) suffers from an acute or chronic infectious disease where State or Federal animal health officials order the humane destruction of the animal as a disease control measure.*

There are three circumstances where the authority for euthanasia would be applied in a field situation:

(A) If an animal suffers from a condition as described in 1-6 above that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the authorized officer has the authority and the obligation to promptly euthanize the animal. If the animal is euthanized during a gather operation, the authorized officer will describe the animal's condition and report the action using the gather report in the comment section that summarizes gather operations (See attachment 1). If the euthanasia is performed during routine monitoring, the Field Manager will be notified of the incident as soon as practical after returning from the field.

(B) Older wild horses and burros encountered during gather operations should be released if, in the opinion of the authorized officer, the criteria described in 1-6 above for euthanasia do not apply, but the animals would not tolerate the stress of transportation, adoption preparation, or holding and may survive if returned to the range. This may include older animals with significant tooth wear or tooth loss that have a Henneke body condition score greater than two. However, if the authorized officer has inspected the animal's teeth and feels the animal's quality of life will suffer and include health problems due to dental abnormalities, significant tooth wear or tooth loss; the animal should be euthanized as an act of mercy.

(C) If an animal suffers from any of the conditions listed in 1-6 above, but is not in acute pain, the authorized officer has the authority to euthanize the animal in a humane manner. The authorized officer will prepare a written statement documenting the action taken, and notify the Field Manager and State Office Wild Horse and Burro (WH&B) Program Lead. If available, consultation and advice from a veterinarian is recommended, especially where significant numbers of wild horses or burros are involved.

I. Special Stipulations

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

- 2) Traps would be constructed so that no riparian vegetation is contained within them. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.
- 3) Gathers would not be conducted during peak foaling season which is March 1 to June 30 to reduce the chance of injury or stress to pregnant mares or mares with young foals.
- 4) The helicopter would avoid eagles and other raptors, and would not be flown repeatedly over any identified active raptor nests. No unnecessary flying would occur over big game on their winter ranges or active fawning/calving grounds during the period of use.
- 5) Standard operating procedures in the site establishment and construction of traps will avoid adverse impacts from trap sites, construction, or operation to wildlife species, including threatened, endangered, or sensitive species.
- 6) Archeological clearance by a BLM archaeologist or District Archeology Technician of trap sites, holding corrals, and areas of potential effects would occur prior to construction of trap sites and holding corrals. If cultural resources were encountered, those locations would not be utilized unless they could be modified to avoid impacts. Due to the inherent nature of wild horse gathers, trap sites and holding corrals would be identified just prior to use in the field. As a result, Cultural Resource staff would coordinate with Wild Horse and Burro personnel to inventory proposed locations as they are identified, and complete required documentation.
- 7) **Wildlife stipulations**
The following stipulations would be applied as appropriate.
 - a. Sage Grouse
 - i. Avoid active leks (strutting grounds) by 2 miles. March 1- May 15
 - ii. Avoid nesting and brood rearing areas (especially riparian areas where broods concentrate beginning usually in June) by 2 miles. April 1 – August 15
 - iii. Avoid sage grouse wintering areas by 2 miles while occupied. Most known wintering grounds in the Shoshone-Eureka Resource Area occur at high elevations and are not likely to be affected. Dates vary with severity of winter
 - iv. Minimize and mitigate disturbance to the vegetation in all known sage grouse habitat.
 - b. Ferruginous Hawk: Avoid active nests by 2 miles. March 15- July 1

II. Standard Operating Procedures for Wild Horse Gathers

Gathers would be conducted by utilizing contractors from the Wild Horse Gathers-Western States Contract, or BLM personnel. The following procedures for gathering and handling wild horses would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse Aviation Management Handbook* (March 2000).

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

Trap 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.

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

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

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

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

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

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

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

- e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.
4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or 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 capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.
7. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. An animal that is held at a temporary holding facility through the night, is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.
8. It is the responsibility of the Contractor to provide security to prevent loss, injury, or death of captured animals until delivery to final destination.
9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
10. Animals shall be transported to final their destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the COR/PI for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR/PI. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR/PI. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24 hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR.

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

1. Capture attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap. If the contractor selects this method the following applies:

- a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
 - b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
 - c. Traps shall be checked a minimum of once every 10 hours.
2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:
 - a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.
 - b. The contractor shall assure that foals shall not be left behind, and orphaned.
 3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor with the approval of the COR/PI selects this method the following applies:
 - a. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind, or orphaned.
 - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

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

animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

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

D. Safety and Communications

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

E. Site Clearances

Personnel working at gather sites will be advised of the illegality of collecting artifacts. Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary clearances (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist (or designee). Once archaeological

clearance has been obtained, the trap or temporary holding facility may be set up. Said clearance shall be arranged for by the COR, PI, or other BLM employees.

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

F. Animal Characteristics and Behavior

Releases of wild horses would be near available water. If the area is new to them, a short-term adjustment period may be required while the wild horses become familiar with the new area.

G. 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 or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

H. Responsibility and Lines of Communication

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. Shawna Richardson, Wild Horse and Burro Specialist would serve as the primary COR. Alternate COR and PI(s) would be selected prior to the start of the gather. Duane Crimmins, Supervisory Natural Resources Lead and Doug Furtado, Field Manager, Mount Lewis Field Office will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the gather operations will keep the best interests of the animals at the forefront at all times.

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

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

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

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

Photos

The following pages of photos are provided to show examples of the various aspects of wild horse gathers completed by the BLM, MLFO.



Young foal safely released with it's mother back to the Fish Creek HMA, February 2006.



Augusta Mountains Gather, November 2007. View of trap corrals and wings.



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



New Pass/Ravenswood Gather, November 2007. Mares settle in at the Holding Corrals and enjoy some hay.

New Pass/Ravenswood Gather, November 2007. The contractor and crew estimate the age of a horse in the chute.



New Pass/Ravenswood Gather, November 2007. The contractor gets ready to release the Parada horse (far left) as the helicopter pushes the horses closer to the trap.



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

New Pass/Ravenswood Gather, November 2007. Release of the horses back to the range at a water location within the HMA.



South Shoshone HMA Gather, January 2008. The helicopter (far left) pushes the horses closer to the trap built at a gravel pit.



South Shoshone HMA Gather, January 2008. The wild horses are funneled around the gravel pit and into the trap corrals.



South Shoshone HMA Gather, January 2008. Holding Corrals.



South Shoshone HMA Gather, January 2008. Release mares in the Holding Corrals on a foggy morning.



Roberts Mountain HMA Gather, January 2008. Studs offered at the Trap-Site Adoption.



Roberts Mountain HMA Gather, January 2008. Animals marked for potential release back to the range.



Roberts Mountain HMA Gather, January 2008. Release back to the range.

Appendix B: Wild Horse and HMA Background Information

The Callaghan, Rocky Hills, and Bald Mountain HMAs have varied backgrounds and histories. Much detail has already been discussed in the Rangeland Health Assessments, Evaluations and past wild horse gather EA/Gather Plans for these areas. Refer to the documents identified in Appendix E for more information.

1. Appropriate Management Level (AML)

The existing AMLs were established through Final Multiple Use Decisions issued between 1995-2005.

1.1. Bald Mountain HMA

An AML range of 129-215 was established for this HMA through the FMUD for the Carico Lake Allotment Rangeland Health Assessment, in 2005. A gather of the area has not yet occurred to achieve the established AML. The estimated 2008 population for this HMA is 607 wild horses. The population has shown fluctuations due to movement between the Bald Mountain and Callaghan HMAs. These fluctuations have occurred in response to previous gathers of the Callaghan HMA, and have likely been influenced by livestock grazing, environmental factors and population density.

1.2. Callaghan HMA

The 1995 FMUD for the Austin Allotment established the AML for this area as 35 wild horses. Following completion of the Grass Valley Rangeland Health Assessment, an FMUD issued June, 2002, established the AML for the Grass Valley Allotment portion as a range of 98-163, and established a range for both of these allotments as 120-198. The Simpson Park Rangeland Health Assessment FMUD (September 2005) finalized the AML for this portion of the HMA as a range of 14-39 wild horses, bringing the total AML for the Callaghan HMA to 134-237 wild horses. Gathers were completed in 1997 and 2002. Neither of these gathers involved the entire HMA.

1.3. Rocky Hills HMA

The western portion of the Rocky Hills HMA AML was established through the Grass Valley Rangeland Health Assessment FMUD (June 2002) as a range of 18-30 wild horses. In 2004, the JD Rangeland Health Assessment FMUD (September 2004) set a range for the remaining portion of the HMA as 68-113 for a total AML of 86-143 for the whole HMA. This HMA has not been gathered since 1999.

2. Historical and Background Information

The history of the Callaghan and Bald Mountain HMAs has been detailed within the *Callaghan Herd Management Area Wild Horse Gather Plan and Environmental Assessment # NV062-02-41*, (May, 2002), *Carico Lake Allotment Rangeland Health Assessment*, (July, 2005) and *South Shoshone Complex Wild Horse Gather EA NV062-07-104*, (April, 2007). Please refer to those documents for more information.

2.1. Rocky Hills HMA

The history of the Rocky Hills HMA is unique due to the characteristics of some of the horses, which can be traced back to Tom Dixon, accredited with introducing the Curly Horse to Nevada in the 1800's. Years later the Damale family observed and pursued the curly-haired horses found in the wild herds near their ranches.

The book entitled *The Damales and the American Curly Horse* by Dale Wooley, 1993, describes some of the history of the wild horses which recently populated the Rocky Hills HMA and Simpson Park Mountains. During the late 1800's, the family took an interest in the hardiness of the Curly horses observed on the harsh Nevada range, and began integrating them with their domestic stock. It was reported during the 1960's the Damale family released Percheron, Morgan, Thoroughbred,

Appaloosa, Shire, Belgian and Clydesdale in the vicinity of the JD and Tonkin Ranches. These horses were the source of the wild horses present today. Currently, wild horses within this HMA exhibit many of these characteristics, and several have curly hair coats as well.

Researchers at Texas A&M are studying the curly hair gene in wild and domestic horses to learn more about the trait. Currently, curly horses exist within the Rocky Hills HMA, have been observed within the Fish Creek HMA, and may be found in other herds. The Simpson Park Mountains is not a designated HMA, and all horses (including curly horses) were removed from the area in 2005.

The Rocky Hills HMA wild horses are large horses and display a unique variety of coloration. These horses may reach 16 hands or taller, and may reflect some draft horse traits such as heavy muscling, and large bone structure. In 2000, some of the Rocky Hills wild horses were offered in the 1st ever satellite downlink adoption event. The MLFO has received positive feedback about the size, coloring and disposition from those who have adopted wild horses from this HMA.

Movement can occur and has likely occurred between the Callaghan, Bald Mountain, and Rocky Hills HMAs. Some movement may occur into Roberts Mountain HMA. Water in the Rocky Hills HMA is somewhat limiting, and concentrated use occurs at Cadet Spring. Other sources available include a few springs and some perennial streams. Many water sources are located on private land and have been fenced.

2.2. 1999 Wild Fires

In August 1999, the Trail Canyon fire impacted the Rocky Hills HMA and an area inhabited by wild horses known as the Simpson Park Mountains. 39,759 acres or 47% of the Rocky Hills HMA burned.

An emergency gather was conducted in November 1999 to completely remove all wild horses within the HMA and place them in temporary holding facilities until rangeland conditions improved sufficiently to support the population. A total of 256 horses were removed and sent to Palomino Valley Center for entry into the adoption program and temporary holding. An estimated six horses still remained in the HMA post gather. The horses captured in the Rocky Hills HMA were relatively large in size, with some animals reaching 16 hands high. Several paint, curly and many appaloosa horses were captured, in addition to those that were brown, bay, black, red roan, buckskin, chestnut, and grulla (mouse colored). Many of the horses also exhibited draft horse characteristics.

BLM WHB Specialists selected horses exhibiting historical or desirable traits. These horses were separated and held in a temporary holding facility. All of these horses were freezemarked in the traditional way (left side of neck) and were freezemarked with a number on the left hip indicating which HMA the horse had originally been gathered from.

In October of 2002, the range conditions on the Rocky Hills HMA had improved sufficiently to allow the return of the horses. BLM WHB Specialists released thirty-seven mares and thirty-seven studs in two different locations within the HMA after being held temporarily at water sources. The horses selected for release back into the HMA represent a wide variety of colors including paints, buckskins, grullas, appaloosas, red roans, and duns, and were large in size. Three stallions strongly exhibiting the Curly traits were also released.

The total number of horses released back onto the HMA was 74. According to a February 2002 flight, 20 horses were observed in the HMA in the area of Geyser Creek and BLM staff estimated 95-98 horses existed within the HMA after the release.

2.3. Simpson Park Mountains

The geographic area known as the Simpson Park Mountains for purposes of this document involves the land area outside of HMA boundaries from U.S. Highway 50 north along the Simpson Park

Mountain Range to the lower tip of the Rocky Hills HMA. The Simpson Park Mountains is not and never has been designated as an HMA. The area involves portions of the Simpson Park, Dry Creek, Underwood, Grass Valley, Santa Fe Ferguson and Three Bars Allotments. The horses that have established residency along this mountain range have moved in from surrounding HMAs, or were the result of privately owned horses that either escaped or were turned loose. The Simpson Park allotment contains the northern portion of the Hickison Burro HMA. This portion of the HMA has been separated from the rest of the HMA by a highway right-of-way fence, and no longer supports burros. The HMA is not designated for management of wild horses.

Because this area is not an HMA, and due to the high wildlife values that need to be protected, the MLFO plans to continue to gather horses from the mountain range when gathers are planned in nearby HMAs. Gathers have occurred in the Simpson Park Mountains in 1993, 1999 and 2005. Refer to the gather information provided below. Despite the efficiency of the gather contractors, it is not possible to capture every horse during a gather. The goal is to continue to capture as many as possible each time, and eventually the horses will cease to exist in this area.

The March 2008 census flight located 13 wild horses throughout the range; however, field observations indicate that there may be as many as 40 wild horses in the vicinity of Bates Mountain.

3. Wild Horse Health

In general, the health of the wild horses within the Complex has been good, despite drought conditions and less than optimum habitat conditions. During census flights and field monitoring, most horses have averaged Henneke body condition 4-5 (moderately thin to moderate). Condition of the horses has varied through the years and through various seasons of the year. Spring, when snow is receding and green-up occurring, is a hard time of the year for wild horses, particularly pregnant or nursing mares. Thin horses are often observed during March helicopter census flights.

Bald Mountain HMA wild horses have reflected good body condition most years. Movement of horses into Callaghan HMA after gathers has likely helped maintain the health of the herd by moderating herd density. During the March 2008 census of the Bald Mountain HMA, horses were noted to be moderately thin, but in acceptable condition given the population size, severity of the past winter and time of year. Last year's foals appeared to be good size and condition. Some groups of horses were noted to be in good condition, and did not display signs of being thin. The number of newborn foals observed was what was expected for the time of year.

The Callaghan HMA horses have reflected the poorest conditions of the three HMAs. During the March 2001 census flight, many thin horses were noted, with ribs, backbone and hips accentuated. Little residual forage remained, and the population was many times in excess of the AML. During the subsequent gather in July 2002, the body condition of the horses captured was less than optimum, with many thin nursing mares observed. The overall size of the animals was smaller than anticipated, given the thoroughbred background of the herd, and the large size noted during the 1997 gather. During the March 2005 census flight, horses were moderately thin. The horses observed on the Austin Allotment side of the HMA were in better condition than the Bald Mountain HMA horses. Numerous thin horses were observed on the Grass Valley side of the HMA. Backbone and ribs were clearly visible from the air on many of these horses.

During the 1999 gather of the Rocky Hills HMA, the majority of the wild horses captured were in good (moderate) condition, and healthy. During the 2008 March census flight, most of the horses observed in the HMA were in acceptable condition. Only a few were noted as thin. Moderate to high grass availability was noted in the central portion of the HMA. Water is scarce, and heavy trailing was noted in the Denay Valley area to a ponded site outside of private property. Water and forage were also available in other portions of the HMA such as Indian Creek and within the Grass Valley Allotment, but no horses were using the area.

None of the horses within the Complex have suffered disease or other illnesses. Genetic defects should be minimal throughout the population.

4. Estimated Age Structure and Sex Ratios

Normal age structures for HMAs administered by the MLFO averages 50% studs and 50% mares. These figures fluctuate from ratios slightly favoring studs to those that slightly favor mares. Normal sex ratios among wild horse herds can range from 60:40 favoring studs to 40:60 favoring mares. Past gather activities, age structures and sex ratio modification influence sex ratios. Estimated age structures and sex ratios were compiled by various methods depending upon the gather history or lack thereof. Age structures of previously ungathered HMAs (such as Bald Mountain), were based on the age structure of the 1,358 horses captured during the 1997 Diamond Complex gather¹¹.

To derive the estimated Callaghan HMA population structure, the data from the 2002 released animals was compiled, and an estimated normal age structure applied to 51 animals that were assumed ungathered in 2002. This combined population was then simulated through the WinEquus Population model from 2003 through 2008. The Most Typical Trial population data was chosen and scaled to the estimated population of 995 animals (which includes the estimate on the USFS). This provided the Initial Population displayed in the table below for which the modeling treatments were applied.

Similarly, the estimated population structure for the Rocky Hills HMA was derived by compiling the age structure of the animals released in 2002 with the estimated number of wild horses remaining in the HMA that were assumed to reflect a normal age structure. This data was then simulated through the WinEquus Population model from 2003 through 2008. The Most Typical Trial population data was chosen and scaled to the estimated population of 166 animals. This provided the Initial Population displayed in the table below for which the modeling treatments were applied.

Table 1. 2008 Estimated Age Structures and Sex Ratios

AGE	BALD MOUNTAIN				CALLAGHAN				ROCKY HILLS			
	Females	Males	Total	%	Females	Males	Total	%	Females	Males	Total	%
Foal	59	55	114	19%	123	111	234	24%	15	21	36	22%
1	8	9	17	3%	50	59	109	11%	9	11	20	12%
2	50	30	80	13%	86	78	164	16%	12	11	23	14%
3	38	25	63	10%	57	79	136	14%	10	14	24	14%
4	29	26	55	9%	35	49	84	8%	7	9	16	10%
5	25	20	45	7%	39	46	85	9%	11	5	16	10%
6	18	9	27	4%	13	7	20	2%	1	1	2	1%
7	13	17	30	5%	3	1	4	0%	0	1	1	1%
8	16	10	26	4%	14	3	17	2%	1	1	2	1%
9	8	11	19	3%	15	7	22	2%	1	0	1	1%
10-14	32	41	73	12%	55	25	80	8%	9	1	10	6%
15-19	17	23	40	7%	24	10	34	3%	2	5	7	4%
20+	7	11	18	3%	0	6	6	1%	1	7	8	5%
Totals	320	287	607	100%	514	481	995¹²	100%	79	87	166	100%

11. This area had not previously been subjected to a gather and the age structure for this area is considered “typical” of ungathered or “natural” conditions within the HMAs managed by the MLFO.

12. The current estimated population of 995 wild horses includes approximately 13 wild horses observed outside of the HMA on USFS lands south of the HMA boundary.

5. Wild Horse Census

The most recent inventory flights of the Bald Mountain HMA, were completed in March 2005 and March 2008.

Table 2: Bald Mountain HMA Inventory

YEAR	MONTH	ADULTS	FOALS	TOTAL	FOAL%
1995	September	185	50	235	21%
1998	March	183	7	190	4%
2001	March	266	7	273	3%
2005	March	270	19	289	7%
2007	May	432	87	519	17%
2008	March	517	20	537	4%

The estimated population of adult animals in May 2007 was 338 wild horses based on the previous 2005 census flight and 12% annual rate of increase. The results from the 2007 and 2008 flights indicate that annual rates of increase are likely much higher, and that the movement of wild horses from the Callaghan HMA into the Bald Mountain HMA in recent years could be substantial. Gatherings of the Callaghan HMA were completed in February 1997 and July 2002.

Table 3: Callaghan HMA Removal and Inventory

YEAR	MONTH	ADULTS	FOALS	TOTAL	FOAL%
1995	September	1,312	235	1,547	15%
1997 - Removed	February	1,074			
1998	September	565	133	698	19%
2001	March	876	12	888	1.4%
2002 - Removed	July	822			17%
2002 - Post Gather Estimate	July	183	17	200	9%
2005	March	454	28	482	6%
2008	March	836	25	861	3%

During the March 2008 flight, 11 adults were observed on the USFS lands just south of the Callaghan HMA boundary. Thirteen wild horses were observed throughout the Simpson Park Mountains.

Table 4: Rocky Hills Removal and Inventory

YEAR	MONTH	ADULTS	FOALS	TOTAL	FOAL%
1998	September	155	27	172	16%
1999 - Removed	October	205	51	256	20%
2002 - Post Release Estimate	October	94	4	98	4%
2005	March	93	2	95	2%
2008	March	141	5	146	3%

6. Wild Horse Distribution

The distribution of the Bald Mountain HMA wild horses was discussed in detail within the *Carico Lake Allotment Rangeland Health Assessment*, (2005), and the *South Shoshone Complex Wild Horse Gather EA NV062-07-104*, (2007). Please refer to those documents for more information.

6.1. Callaghan HMA

Wild horses do not maintain an even distribution throughout the HMA. Census flights since the 2002 gather indicate distribution patterns similar to historic patterns. The Austin Allotment is dissected with many private land, pasture, and seeding fences which hinder wild horse movement. The horses are aware of the fence locations and are able to pass through them through gates left open

or breaks in the fence. Most of the wild horses are congregating in the northern portion of the HMA in the vicinity of Hall Creek, Boone Creek and Iowa Basin. In summer months, wild horses are located within the higher elevations and headwaters of these drainages. For the most part, water is plentiful within the HMA boundaries with springs, perennial streams, and developed water sources available. Water is not as plentiful outside of HMA boundaries, and wild horses have been noted moving far outside of the HMA boundaries to water at the Reese River, which does not carry water along its entire length during summer months.

In winter months, wild horses stay just below or inside of the snowline near Hall Creek and below Silver Creek, Alex Canyon and Bernd Canyon. Field monitoring conducted in 2008 suggests frequent use by wild horses outside of HMA boundaries. In fact, during the March 2008 census, MLFO staff observed 209 of 511 wild horses outside of HMA boundaries in the Austin Allotment. It was reported that a large number of wild horses spent part of the winter on private land due to lack of forage and water elsewhere. A small portion of the population exists in the southern portion of the HMA in the vicinity of Elkhorn and Cottonwood Canyons.

Within the Grass Valley Allotment portion of the Callaghan HMA, wild horse use has concentrated within the Corral Canyon and Cowboy Rest areas in the northern portion of the HMA. Though springs and small creeks are available, wild horse density in these areas is very high, and water sources are not as plentiful as they are on the Austin Allotment. Wild horses have been noted utilizing private sources for water in recent years. As with the Austin Allotment, most wild horses move into the high elevations during summer months. Field monitoring indicates that at least 40-100 wild horses are currently using low elevation rangeland in poor ecological condition outside of the HMA boundaries near Cowboy Rest. In winter months, wild horses move to lower elevations with the snowfall, utilizing foothills and the valley bottom outside of the HMA boundaries.

The Simpson Park Allotment comprises a very small portion of the Callaghan HMA. Within the past ten years, there have been relatively few horses observed within the boundary of the HMA. During the most recent flight in March 2008, MLFO staff observed 16 adult horses.

6.2. Rocky Hills HMA

The Rocky Hills HMA is a relatively small HMA. Lack of space has been further compounded by mining and exploration activity, fencing of private land and fire rehabilitation seedings, the 1999 Trail Canyon Wildfire, and wild horse gather, and then release of 74 horses back to the range three years later. The population has not been fully utilizing the HMA and distribution is uneven within the HMA. In recent years, few horses have been observed in the western portion, which consists of the Grass Valley Allotment. Large numbers of horses have congregated in large bands in the northeast portion of the HMA between Cadet Trough Spring and Denay Creek. It is likely that horses are not fully utilizing forage and water resources in the remaining HMA due to thick pinyon-juniper cover. Many waters were fenced after the 1999 wild fire that existed on private land, which may have also influenced use of the HMA. There are fences in the southern portion of the HMA that impede wild horse movement into the southern portion of the HMA south of Rooster Canyon, and in the vicinity of the Tonkin Mine.

7. Wild Horse Movement Patterns

The Bald Mountain and Callaghan HMAs share a common boundary, and although it is fenced, wild horses move back and forth between the HMAs. The degree of movement, (i.e. the number of animals that may move from one area into the other), is unknown, however fluctuations in inventory numbers over the years suggests that it could be substantial. Prior to construction of the Dead Ox Canyon allotment boundary fence in 1976 (the current boundary between the two HMAs), movement north and south along the Toiyabe Range was unrestricted. Historically and currently, mixing of wild horses near the boundary fence has been documented during census flights. Wild horses move through breaks in the fence or through open gates. These movement patterns account

for fluctuations in the Bald Mountain HMA population size following gathers that have taken place on Callaghan and Rocky Hills HMAs.

Gathers conducted in the Callaghan HMA in 1987, 1997 and 2002 have resulted in the removal of nearly 2,400 wild horses. Data from census flights indicates that populations numbers in the Bald Mountain HMA dropped in years following Callaghan HMA gathers, and it is believed that these horses temporarily or permanently emigrated into the Callaghan HMA when competition for resources was reduced, resulting in this type of compensatory distribution change.

Analysis of gather and inventory data since 1997 shows that The Bald Mountain HMA has averaged only 5.2% increase annually. The adjoining Callaghan HMA has averaged 43.5% annual increase since 2002 when the last gather was completed. The inventory data from Bald Mountain HMA indicates that the population is 200-300 wild horses below what it would be if the population had increased at the MLFO average of 17.5% since 2001. The data also indicates that the Callaghan HMA population is 400 wild horses in excess of what it would be with an average annual increase of 17.5% since the last gather in 2002. This comparison shows that the number of wild horses that have moved from Bald Mountain HMA to Callaghan HMA over the years is likely substantial. For these reasons, the areas will be managed as a Complex in the future for purposes of inventory and gathers.

Fences separate Grass Valley, Austin, and Simpson Park Allotments within the Callaghan HMA, however wild horse movement does occur most readily between Grass Valley and Austin Allotments in the northern portion of the HMA. Moderate terrain and lower elevations in this area may permit movement between these allotments and into the Bald Mountain HMA year-round.

Neither the Bald Mountain nor South Shoshone HMAs are fenced, and wild horse movement could occur. Historically, the majority of wild horses have been located within the HMA boundaries. Some wild horses move outside of the Bald Mountain HMA to the north and east.

Slight interchange likely occurs between the Rocky Hills HMA and the Roberts Mountain, Callaghan and Bald Mountain HMAs. Some Rocky Hills HMA wild horses gathered in 1999 and observed in the field since then exhibit pinto markings, which is consistent with the Callaghan HMA and to a lesser extent Bald Mountain HMA. Census data does not indicate that more than a few individuals per generation may be moving between the areas.

8. Wild Horse Gathers

8.1. Bald Mountain HMA

Only one documented gather has been conducted by the BLM within the Bald Mountain HMA. Between July 1981 and January 1982, a total of 364 wild horses were removed from the HMA through a wild horse gather contract.

8.2. Callaghan HMA

Gathers were completed within this HMA in 1987, 1997, and 2002. The most recent 2002 gather was the first complete gather of the entire HMA (with the exception of the Simpson Park Mountain Allotment portion), and the removal of 822 wild horses. The 1987 gather consisted of removal of 480 horses, in a "gate cut" in which a desired number of horses were captured and removed, and none selected for release. An estimated 700 horses remained after the gather. The 1997 gather resulted in the removal of 1,074 horses, and involved selective removal criteria in which horses ten years old or older were returned to the HMA. The gather was stopped before it was complete, and the preliminary AML was not achieved. Approximately 600 horses remained on the range after the gather.

In 2002, 967 horses were captured within the Austin and Grass Valley Allotment portions of the Callaghan HMA. An additional 47 horses were removed from the southern tip of the South Shoshone HMA within the Austin Allotment, which maintains an AML of zero. Of the total 1,014 captured, the following is a break out of the gather results:

Gather total	1,014	Died/Euthanized	5
Ship to PVC	855	Escape	2
Release	147	Orphans adopted	4
Branded/Domestic	5		

The following tables display the information for the 967 wild horses captured from the Callaghan HMA, and the 147 horses released/escaped, as well as the age structure for animals captured and released since 1987.

Table 5: Callaghan HMA Age Structure History

Age	Callaghan 1986 Captured %	Callaghan 1997 - Captured %	Callaghan 1997 - Released %	Callaghan 2002 Population Model Estimate (%) ¹³	Callaghan 2002 Actual gathered (%)	Callaghan 2002 Released %	Callaghan 2008 Population Model Estimate (%)
0	18	6	2	19.4	17.2	5.4	24%
1	13	15	--	14.2	8.4	1.3	11%
2	16	13	--	15.9	7.2	4.7	16%
3	9	12	--	13.6	17.2	10.0	14%
4	7	5	--	12.2	12.4	16.1	8%
5	3	5	--	4.1	8.9	10.1	9%
6	6	6	--	1.3	5.3	12.1	2%
7	5	5	--	1.9	3.2	11.4	0%
8	6	6	--	1.9	0.8	1.3	2%
9	3	2	0.3	1.9	4.6	14.8	2%
10	3	3	13	10-14= 2%	2.8	4.7	8%
11	--	1	3		1.8	4.0	
12	--	4	19		0.8	--	
13	3	0.07	0.3		0.1	--	
14	0.2	0.43	2		--	--	
15	3	7	31	15-19=2.2%	2.9	3.4	3%
16	--	0	--		0.1	--	
17	--	0.14	1		0.1	--	
18	0.2	0.21	1		0.9	--	
19	--	0	--		--	--	
20 +	3.1	6	27	20+=9.5%	5.0	0.7	1%
21		--	--	--	--	--	--
22		0.14	--	--	--	--	--
23		0.14	1	--	--	--	--
24		--	--	--	--	--	--
25		--	--	--	--	--	--
26+		0.21	1	--	--	--	--

13. The WinEquus Population Model displays age structure for these age groupings, and does not split out horses over 10 years of age by year.

Table 6: Callaghan HMA Age Group History

Age Groups	Callaghan Gather 1987(%)	Callaghan Gather 1997 (%)	Population Model 2002 Estimate (%)	Callaghan Gather 2002 (%)	Callaghan 2008 Population Model Estimate (%)
0-5 years old	67.3	56.1	79.4	71.6	82
6-9 years old	20.2	20.3	7.0	13.9	6
10 to 20+	12.4	23.5	13.7	14.5	12

Table 7: Callaghan HMA Sex Ratio History

Sex	1987 gather (%)	1997 gather (%)	1997 gather, released animals (%)	Callaghan 2002 Population Model Estimate (%)	Callaghan 2002 Capture (%)	Callaghan 2002 Release (%)
Male	41	48	57	48	49	44
Female	59	52	43	52	51	56

Table 8: 2002 Callaghan Color Patterns

COLOR	HMA TOTALS			
	TOTAL CAPTURE	%	TOTAL RELEASE	%
bay	364	37.9%	39	25.8%
brown	166	17.3%	19	12.6%
black	133	13.8%	15	9.9%
sorrel	169	17.6%	23	15.2%
black/white paint	8	0.8%	7	4.6%
bay/white paint	15	1.6%	11	7.3%
gray	7	0.7%	5	3.3%
red roan	35	3.6%	8	5.3%
strawberry roan	13	1.4%	4	2.7%
blue roan	9	0.9%	3	2%
chestnut	15	1.6%	3	2%
buckskin	5	0.5%	0	0.0%
palomino/paint	1	0.1%	1	0.7%
blue roan paint	2	0.2%	1	0.7%
brown/white paint	5	0.5%	3	2.0%
sorrel/white paint	6	0.6%	5	3.3%
dun	3	0.3%	1	0.7%
dun paint	1	0.1%	1	0.7%
appaloosa	1	0.1%	0	0.0%
grulla	3	0.3%	2	1.3%

8.3. Rocky Hills HMA

The Grass Valley allotment portion of the Rocky Hills HMA was gathered February 1997. At that time 447 horses were gathered from the area and 112 horses 10 years old and older released back to the HMA.

The most recent gather took place as a result of the Trail Canyon wildfire that burned through the Simpson Park Mountains and 47% of the Rocky Hills HMA during the summer of 1999. The following is a break out of the gather results:

Total captured	256	Brand Inspector Impound	1
Total shipped to PVC	251	Adopted orphans	2
Total euthanized/died	3	Released back to HMA	0
Est. remaining in HMA	6		

Table 9: Rocky Hills HMA Gather 1999

Category	Totals	%
Mares	96	37.5
Studs	109	42.6
Foals	51	19.9
Totals	256	100

Table 10: Rocky Hills HMA 1999 Color Patterns

COLOR	HMA TOTALS
	%
bay	32
brown	20
black	26
sorrel	6.3
pinto	3
gray	1.6
red roan	3
blue roan	0.8
chestnut	1
buckskin	0.8
appaloosa	6.3
white	0.8

Table 11: Rocky Hills HMA 2002 Release Ages

AGE	MARE	STUD	TOTAL
2		2	2
3			0
4	4		4
5	4	1	5
6	1	1	2
7			0
8	1	1	2
9		1	1
10		3	3
11	1	5	6
12		6	6
13	6	3	9
14	1		1

AGE	MARE	STUD	TOTAL
15	5	4	9
18	7	7	14
20			0
21			0
23	5	3	8
28	1		1
Total	36	37	73

Table 12: Rocky Hills HMA 2002 Release Age Structure

AGE CLASS	ROCKY HILLS RELEASE 2002 (%)	2008 POPULATION MODELING ESTIMATE (%)
Foal	0	22
1	0	12
2	3	14
3	0	14
4	5	10
5	7	10
6	3	1
7	0	1
8	3	1
9	1	1
10-14	34	6
15-19	32	4
20+	12	5

8.4. Simpson Park Mountains

A gather was conducted of this area in conjunction with the Callaghan HMA in 1993. A total of 559 wild horses were captured from outside of HMA boundaries within the Simpson Park Mountains. Due to the age selection criteria in place at the time, all horses older than 10 years of age (141) were released into the adjacent Callaghan HMA. It is assumed that many of them later returned to the Simpson Park Mountain Range.

In 1999, the Trail Canyon Fire burned extensive acreage along the Simpson Park Mountain Range. A gather was conducted in November 1999 in which 99 wild horses were removed from the area outside of HMA boundaries. Because a comprehensive flight of the entire Simpson Park Mountain Range had not been completed, it was unknown how many horses remained in other areas.

In 2005 a comprehensive gather was completed of the Simpson Park Mountain Range, removing 218 wild horses from outside of HMA boundaries. At the end of this gather, it was estimated that 12-20 horses remained, although the number could have been higher.

9. Population Growth Rates

Wild horse HMAs administered by the MLFO increase at an average of 17.5% each year. This figure takes into account mortality and foals born each year, but does not account for ingress or egress between HMAs. Variation from year to year is also the result of environmental influences such as drought or severe winters or particularly high moisture years and mild winters. It is also

suspected that population growth rates increase in the years following a gather as animals are subject to improved habitat conditions and reduced competition for forage, water, and space.

The three HMAs in the Complex pose unique circumstances in comparison to other HMAs administered by the MLFO. The Callaghan and Bald Mountain HMAs are contiguous, and although the boundary between them is fenced, movement does occur. These two HMAs have not been gathered together in the past. Callaghan HMA has been gathered numerous times since the mid 1980's. These gathers have reduced the population in the Callaghan HMA and have apparently resulted in compensatory changes in the Bald Mountain HMA population size.

Field office records from the early 1980's suggests an average rate of increase for the Bald Mountain HMA of 16%. Analysis of the census data between 1974 and 2005 suggests that during some periods of the history of the Bald Mountain HMA, herd increase may have averaged as little as 12.5%. During the May 2007 inventory flight, 17% of the animals observed were foals. The foaling season would not have been complete until later in June, so the foals born that year could have easily reached 18-19% of the population or higher. What has likely been the most significant influence to the Bald Mountain HMA population size is the gathers and removals of wild horses that have taken place in the Callaghan HMA.

Rocky Hills HMA on the other hand, has been manipulated through nearly complete removal of the population in 1999, then release of 74 horses in 2002. The wild horses released reflected older age groups with only 22% of them 9 years old or younger. Follow-up census flights in 2005 and 2008 suggest that the population has not increased at MLFO average levels. Two and a half years after the release, and two foaling seasons later in 2005, MLFO staff observed just 95 horses. Three years later, in March 2008, 146 were observed. The reduced growth rates of the population can likely be attributed to the "older" population, which, have been subject to higher mortality and lower foaling rates. In 2008, six years have passed since the release, and it is expected that the age structure is beginning to normalize.

10. Wild Horse Management Objectives

10.1. Bald Mountain HMA¹⁴

- **Key Species:** All key perennial species as identified in the Key Management Area Objectives for those key areas located within the HMAs
- In addition to those allotment specific short and long term objectives identified for each key area, the following management and monitoring objectives apply to the HMA:
 - Improve the forage component of wild horse habitat. Emphasize improving habitat as indicated by achieving desired plant community objectives within the HMA.
 - Manage the Bald Mountain and South Shoshone HMAs as a Complex with the Callaghan HMA for the purposes of census, evaluation and gathers to account for the inherent movement between the areas.
 - Manage the Bald Mountain and South Shoshone HMA population levels as a population range where the upper limit of the range is the level where the optimum number of wild horses can exist without causing resource degradation. The lower limit of the range would be based on the level to remain following a gather to allow for a normal gather cycle of 3-4 years.
 - Rangeland monitoring within the HMAs would be accomplished with the goal of obtaining data specific to areas utilized by wild horses that would be used to modify AML and propose future management actions.

14. Refer to the Carico Lake Allotment Rangeland Health Assessment. These objectives were developed for both the Bald Mountain and the South Shoshone HMAs.

- Manage the Bald Mountain and South Shoshone HMAs populations to preserve and enhance physical and biological characteristics that are of historical significance to the herd, which would include conformation, coloring and size.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health of the Bald Mountain and South Shoshone HMAs.
- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the HMAs during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- Preserve the characteristic wild free-roaming behavior of wild horses within the Bald Mountain and South Shoshone HMAs by limiting management actions that would prohibit wild horse access to portions of the HMAs or restrict historical patterns of use.
 - Where fences are needed within HMAs to meet other resources objectives, fences will be planned so as to not restrict movement patterns of wild horses. An example would be the construction of carefully planned drift fences, which allow wild horses to maintain historic patterns of use within the HMA. Fences built within the HMA will include posts with white tops to provide visual warning and prevent injury and death to wild horses.

10.2. Callaghan HMA¹⁵

- Manage the Callaghan HMA population to preserve and enhance physical and biological characteristics that are of historical significance to the herd: these traits include:
 - Traits of the founding horses of the herd which include Thoroughbred traits, large size and good confirmation.
 - Colors, which include the historic colors of the herd. These consist of bay, brown, and black, chestnuts, pintos (paints), roans, Appaloosas, grays, duns and grullos.
- Manage the Callaghan HMA wild horse herd for short and long-term increases and enhance adoptability by ensuring that wild horses displaying desirable traits are preserved in the herd thus providing a reproductive base to increase highly adoptable horses for future demands.
- Identify and preserve historic traits and characteristics within the Callaghan HMA, which have proven to be highly desirable by the adoption public to increase the long-term availability of animals bearing these features.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health of the Callaghan HMA.
- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the HMA during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- To manage the Callaghan HMA wild horse herd as a self-sustaining population of healthy animals in balance with other uses and the productive capacity of their habitat.

10.3. Rocky Hills HMA

Objectives have not previously been developed for this HMA. The objectives presented here would be incorporated into an HMAP in the future.

- Maintain the forage and water components of wild horse habitat. Emphasize habitat improvement and maintenance through achieving desired plant community objectives within the HMA. Encourage improved distribution and usage of existing water sources. Preserve and improve quality and health of riparian resources.
- Manage the HMA population levels as a population range where the upper limit of the range is the level represents the optimum number of wild horses that can exist without causing resource degradation. The

15. Refer to the 2002 Callaghan HMA Gather Plan/Environmental Assessment.

lower limit of the range would be based on the level to remain following a gather to allow normal gather cycle of 3-4 years.

- Rangeland monitoring within the HMAs would be accomplished with the goal of obtaining data specific to areas utilized by wild horses that would be used to modify AML and propose future management actions.
- Preserve the unique characteristics that are of historical significance to the herd:
 - Emphasize promotion and preservation of the curly trait, which is indicative of the horses' history with the Demale Ranch.
 - Maintain the diverse colorations of the herd including appaloosa, pinto, and roan.
 - Select for horses that reflect large body size, and good conformation and disposition.
 - Preserve these historic traits, which have proven to be highly desirable by the adoption public to increase the long-term availability of animals bearing these features.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive, and genetic health of the HMA.
- Preserve and maintain a healthy and viable wild horse population that will survive and be successful within the HMA during poor years when elements of the habitat are limiting due to severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences to the herd.
- Improve the characteristic wild free-roaming behavior of wild horses within the HMA by restricting fence construction within the HMA, and emphasizing removal of fences that are no longer needed.

Photos, Callaghan Complex wild horses and HMAs



Callaghan HMA Census, March 2008.



Callaghan HMA Census, March 2008, north western portion of HMA near Hall Creek.



Callaghan HMA Census, March 2008. Northeastern portion of HMA near Cowboy Rest/Corral Canyon.



Callaghan HMA Census, March 2008. Northern portion of HMA near Hall Creek/Iowa Creek.



Callaghan HMA Census, March 2008, northern portion of the HMA near Iowa Creek.



Rocky Hills HMA Census, March 2008. Wild horses watch as the helicopter flies overhead.



Rocky Hills HMA Census, March 2008. Trail Canyon Fire rehabilitation seedings, west portion of the HMA.



Rocky Hills HMA Census, March 2008. Misc. example of terrain and animal coloring.



Rocky Hills HMA Census, March 2008. Misc. terrain showing burned areas from 1999 Trail Canyon fire.

Appendix C: Procedures for Implementation of Fertility Control

The following management and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered by trained BLM personnel.
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 loaded on the end of a trocar (dry syringe with a metal rod) which is loaded into the jab-stick which then pushes the pellets into the breeding mares being returned to the range. The pellets and liquid are designed to release the PZP over time similar to a time release cold capsule.
3. Delivery of the vaccine would be as an intramuscular injection while the mares are restrained in a working chute. 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be loaded into the jab-stick for the second injection. With each injection, the liquid and pellets would be propelled into the left hindquarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.
4. All treated mares would be freeze-marked on the hip to enable researchers to positively identify the animals during the research project as part of the data collection phase.
5. At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years 2 through 4 by checking for presence/absence of foals. Flights are contingent upon funding through the Washington Office. The flight scheduled for year 4 will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.
6. A field data sheet will be used by the field applicators to record all the pertinent data relating to identification of the mare (including a photograph when possible), date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and HMA, etc. The original form with the data sheets will be forwarded to the authorized officer at National Program Office (NPO) in Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
7. 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 applied by HMA.

The field office will assure that treated mares do not enter the adoption market for three years following treatment. In the rare instance, due to unforeseen circumstance, treated mare(s) are removed from an HMA before three years has lapsed, they will be maintained in either a BLM facility or a BLM-contracted long term holding facility until expiration of the three year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three year holding period, the animal may be placed in the adoption program or sent to a long-term holding facility.



Preparation of the jab stick used to inject the time release PZP.



Freezebranding the identifying brand on the left hip of the mare in the chute.



Injecting the hip of the mare with the jabstick

Photos taken during the New Pass/Ravenswood HMA wild horse gather November 2007.

Appendix D: Summary of Population Modeling

Population Model Overview

The WinEquus Feral Horse Population Model, developed by Dr. Steven Jenkins at the University of Nevada at Reno was designed to assist wild horse and burro specialists evaluate various management plans and possible outcomes for management of wild horses that might be considered for a particular area. The population model is not applicable for burros. Windows version 1.40 of the model is accessible at www.equinox.unr.edu/homepage/jenkins.

The model uses average survival probabilities and foaling rates of horses to simulate population growth for up to 20 years. The model accounts for year-to-year variation in these demographic parameters by using a randomization process to select survival probabilities and foaling rates for each age class from a distribution of values based on these averages. This aspect of population dynamics is called environmental stochasticity, and reflects the fact that future environmental conditions that may affect horse populations cannot be known in advance. Therefore, each trial with the model will give a different pattern of population growth. Some trials may include mostly “good years”, when the population grows rapidly; other trials may include a series of several “bad” years in succession. The stochastic approach to population modeling uses repeated trials to project a **range of possible population trajectories** over a period of years, which is more realistic than predicting a single specific trajectory.

The model incorporates both selective removal and fertility control treatment as management strategies. A simulation may include no management, selective removal, fertility control treatment, or both removal and fertility control treatment. Wild horse and burro specialists can specify many different options for these management strategies such as the schedule of gathers for removal or fertility control treatment, the threshold population size which triggers a gather, the target population size following a removal, the ages and sexes of horses to be removed, and the effectiveness of fertility control treatment.

More detailed information regarding the model, the parameters used, and the interpretation of the data is available in the *Callaghan HMA Wild Horse Gather Plan/EA NV062-02-41*, (June 2002).

For the Callaghan Complex analysis, all simulations used the survival probabilities and foaling rates supplied with the WinEquus population model for the Garfield Flat HMA. Survival data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999. Foaling rate data was collected by M. Ashley and S. Jenkins at Garfield Flat, Nevada between 1993 and 1999.

Population modeling for the Bald Mountain HMA was completed and included in the *Shoshone Complex Wild Horse Gather EA07-104-09*, (2007). This analysis included Gather Only, Release of 60% Studs, No Gather, Fertility Control with Gather and Fertility Control Only. This modeling was based on an estimated population of 379 wild horses. Refer to that document for more information. The Population modeling was not repeated for this EA, however analysis was completed for the Callaghan and Bald Mountain HMAs combined, as this analysis had not previously been completed.

The model was run for 50 trials for a period of six years from 2009 through 2015. For each simulation, a series of graphs and tables were generated which included the “Most Typical” Trial, population sizes, growth rates, and gather numbers, and Minimum, Average, and Maximum population sizes. These numbers are useful to make relative comparisons of the different alternatives, and potential outcomes under different management options. This output, together with the time series and Most Typical Trial graphs are useful representations of the results of the program

in terms of assessing the effects of the management plan because it shows not only expected average results but also extreme results that might be possible.

In general, the Minimum Population Size reflects the numbers that would remain following the gather or a possible negative growth rate as a result of fertility control. The Maximum Population Size generally reflects the population that existed prior to the gather, and in most cases that figure would not be exceeded during the six years of the simulations. The Minimum, Average and Maximum population size tables include the starting populations that were entered into the model and are reflected for Year 1 of the model data. Half of the trials were greater than the median and half of them less than the median.

Two scenarios were analyzed through the model with four different treatments including the No Action Alternative. The model is usually run with the setting of 3-year minimum between gathers. At this time, 3 years may not be realistic and does not reflect the actual gather frequency that is taking place throughout BLM. Therefore, in addition to a 3-year minimum gather interval, the model was also run for a 5-year minimum gather interval to approximate what the population might look like under different treatments 5-6 years after a gather takes place. The treatments analyzed include :

- ✓ Fertility Control with Gather (Proposed Action)
- ✓ Release of 60% studs and 40% mares (Alternative 1)
- ✓ Gather Only (Alternative 2)
- ✓ No Gather/No Action (Alternative 3)

The application of fertility control should reduce growth rates, increase the time until the next gather is necessary, and reduce the number of animals that need to be gathered and removed from the range. The manipulation of the sex ratio to favor more studs than mares in the post gather population should also result in reduced growth rates of the population (over a Gather Only simulation). The population model generates standard tables that display this information for the various trials. Additionally, data generated for all ages, sexes, years and trials can be compiled into tables for comparison of average or Most Typical Trials. The “Spaghetti” and Most Typical Trial graphs are generated by the model. Each line on the graph represents a trial simulated by the model. With the exception of the “overall average”, all data in the following section were generated by the model. MLFO staff generated the “overall average” by averaging the six years of data over the 50 trials. Refer to the summary provided in Section 3.7 of this document. More detailed discussion is also available by contacting the MLFO.

Rocky Hills HMA, 3-year Minimum Gather Schedule

Table 1: Rocky Hills HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 - 2009	100	166	100	166	166
Year 2 - 2010	0	118	0	111	185
Year 3 - 2011	0	136	0	110	232
Year 4 - 2012	96	164	14	130	296
Year 5 - 2013	4	112	36	144	351
Year 6 - 2014	0	132	40	143	444
Year 7 - 2015	88	160	8	134	504
Overall Average	140		125		337

Table 2: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Minimum			
Lowest Trial	81	67	166
Median Trial	112	107	166
Highest Trial	128	130	166
Average			
Lowest Trial	128	105	263
Median Trial	143	132	306
Highest Trial	160	150	364
Maximum			
Lowest Trial	166	166	399
Median Trial	175	166	505
Highest Trial	200	188	626

Table 3: Average Growth Rate in 6 Years (%)

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Lowest Trial	14.7	4.5	15.4
Median Trial	22.2	13.7	20.4
Highest Trial	29.0	19.9	24.8

Table 4: Numbers Gathered and Removed in 7 Years

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Gathered			
Lowest Trial	292	151	0
Median Trial	424	294	0
Highest Trial	486	323	0
Removed			
Lowest Trial	148	75	0
Median Trial	228	132	0
Highest Trial	283	173	0

Rocky Hills HMA, 5-year Minimum Gather Schedule

Table 5: Rocky Hills HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 - 2009	100	166	100	166	166
Year 2 - 2010	0	117	0	116	185
Year 3 - 2011	0	141	0	111	232
Year 4 - 2012	0	169	0	122	296

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 5 - 2013	0	201	0	141	351
Year 6 - 2014	100	253	88	178	444
Year 7 - 2015	0	161	12	129	504
Overall Average	173		131		337

Table 6: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Minimum			
Lowest Trial	94	83	166
Median Trial	119	110	166
Highest Trial	133	133	166
Average			
Lowest Trial	140	115	263
Median Trial	173	134	306
Highest Trial	201	159	364
Maximum			
Lowest Trial	173	166	399
Median Trial	246	174	505
Highest Trial	314	219	626

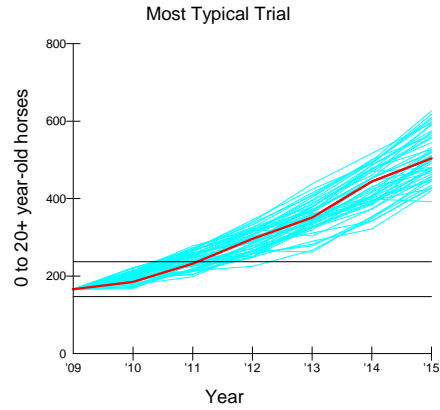
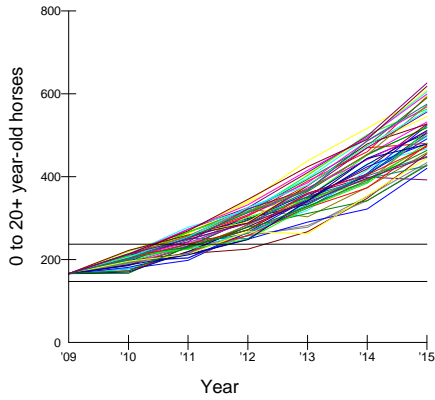
Table 7: Average Growth Rate in 6 Years (%)

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Lowest Trial	13.8	8.4	15.4
Median Trial	23.3	16.0	20.4
Highest Trial	29.7	24.1	24.8

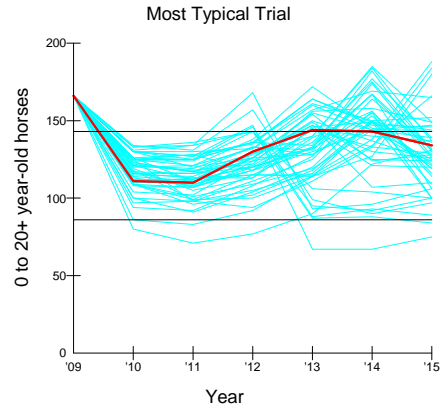
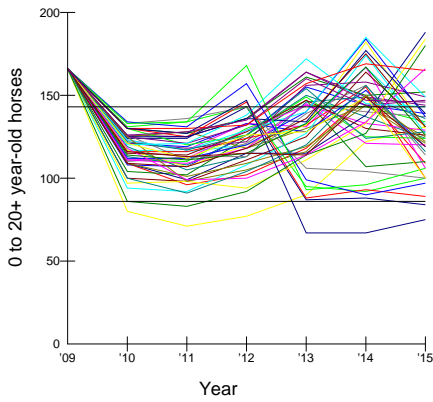
Table 8: Numbers Gathered and Removed in 7 Years

TRIAL	ALTERNATIVE		
	Gather Only	Fertility Control	No Action
Gathered			
Lowest Trial	313	282	0
Median Trial	379	310	0
Highest Trial	447	354	0
Removed			
Lowest Trial	146	126	0
Median Trial	192	149	0
Highest Trial	253	182	0

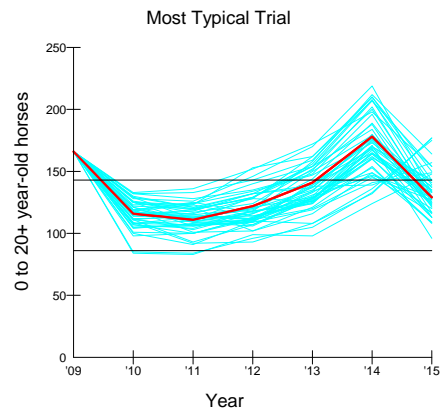
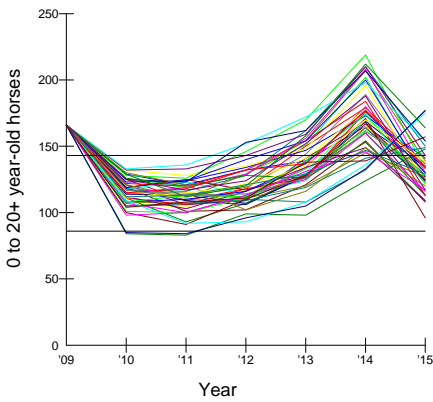
No Action Alternative – Spaghetti Graph and Most Typical Trial



Proposed Action (Fertility Control) -- Spaghetti Graph and Most Typical Trial

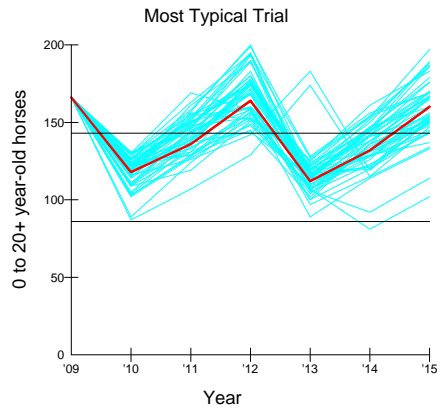
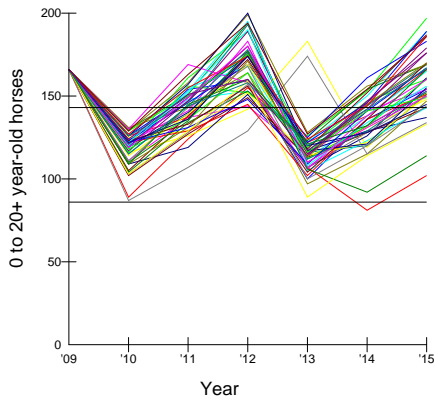


3-year Minimum Gather Interval

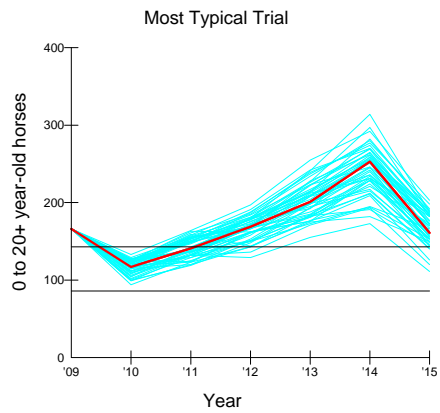
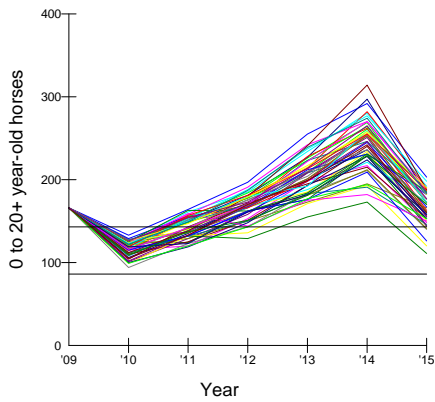


5-year Minimum Gather Interval

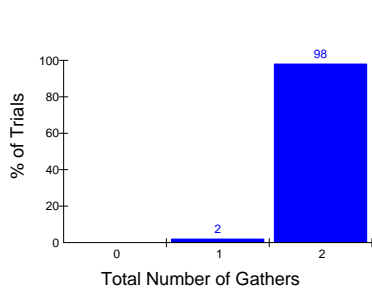
Alternative 2 (Gather Only) -- Spaghetti Graph and Most Typical Trial



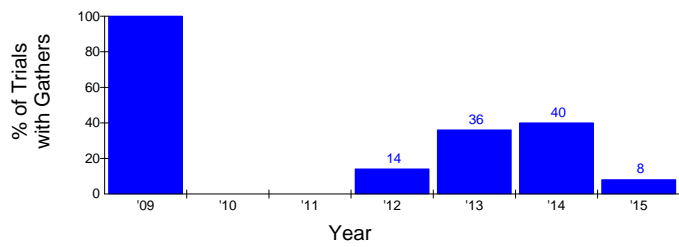
3-year Minimum Gather Interval



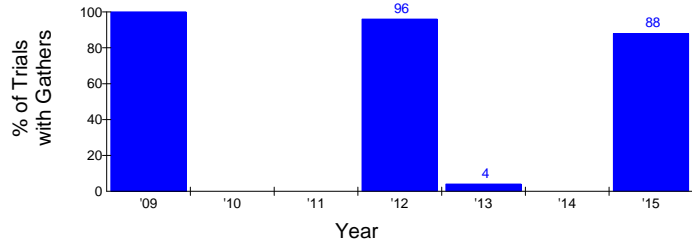
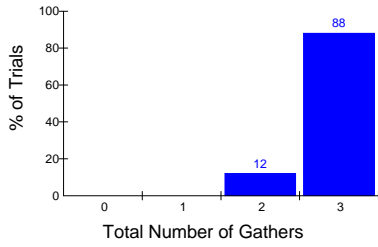
5-year Minimum Gather Interval



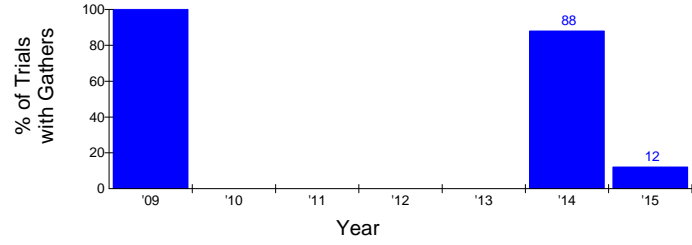
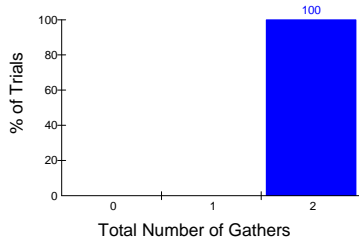
Gather Graphs



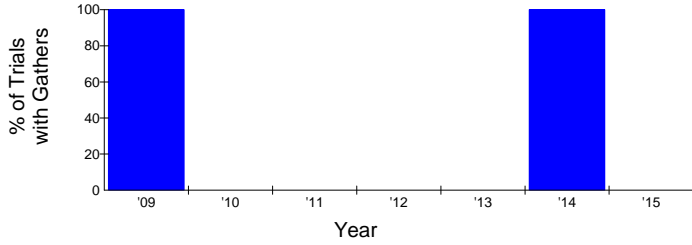
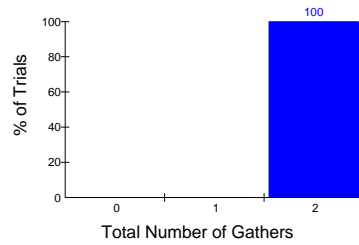
Proposed Action (Fertility Control) – 3-year Minimum Gather Interval



Alternative 2 (Gather Only) – 3-year Minimum Gather Interval



Proposed Action (Fertility Control) – 5-year Minimum Gather Interval



Alternative 2 (Gather Only) – 5-year Minimum Gather Interval

Callaghan HMA, 3-year Minimum Gather Schedule

Table 9: Callaghan HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 – 2009	100	995	100	995	100	995	9,95
Year 2 – 2010	0	193	0	183	0	165	1,147
Year 3 – 2011	0	221	0	174	0	207	1,454
Year 4 – 2012	88	274	18	202	56	249	1,755
Year 5 – 2013	12	182	40	238	34	181	2,046
Year 6 – 2014	0	206	30	186	10	196	2,621
Year 7 – 2015	56	229	10	174	16	233	3,231
Overall Average	219		196		206		2,064

Table 10: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Minimum				
Lowest Trial	132	109	111	995
Median Trial	170	164	168	995
Highest Trial	193	187	191	995
Average				
Lowest Trial	294	279	294	1,543
Median Trial	326	311	319	1,944
Highest Trial	351	330	335	2,171
Maximum				
Lowest Trial	995	995	995	2,438
Median Trial	995	995	995	3,232
Highest Trial	995	995	995	4,057

Table 11: Average Growth Rate (%) in 6 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Lowest Trial	12.9	6.7	10.8	16.1
Median Trial	19.6	12.1	16.8	21.7
Highest Trial	26.1	16.0	22.5	26.3

Table 12: Numbers Gathered and Removed in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Gathered				
Lowest Trial	1,012	917	1,011	0
Median Trial	1,146	1,146	1,039	0
Highest Trial	1,233	1,190	1,186	0
Removed				
Lowest Trial	870	787	863	0
Median Trial	973	882	890	0
Highest Trial	1,053	927	1,007	0

Callaghan HMA, 5-year Minimum Gather Schedule

Table 13: Callaghan HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 - 2009	100	995	100	995	100	995	995
Year 2 - 2010	0	189	0	185	0	174	1,147
Year 3 - 2011	0	225	0	190	0	212	1,454
Year 4 - 2012	0	269	0	209	0	254	1,755
Year 5 - 2013	0	296	0	242	0	299	2,046

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 6 - 2014	100	351	84	299	96	341	2,621
Year 7 - 2015	0	175	16	177	4	161	3,231
Overall Average	252		217		244		2,064

Table 14: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Minimum				
Lowest Trial	134	127	114	995
Median Trial	170	172	167	995
Highest Trial	192	209	189	995
Average				
Lowest Trial	306	294	304	1,543
Median Trial	357	328	351	1,944
Highest Trial	412	366	392	2,171
Maximum				
Lowest Trial	995	995	995	2,438
Median Trial	995	995	995	3,232
Highest Trial	995	995	995	4,057

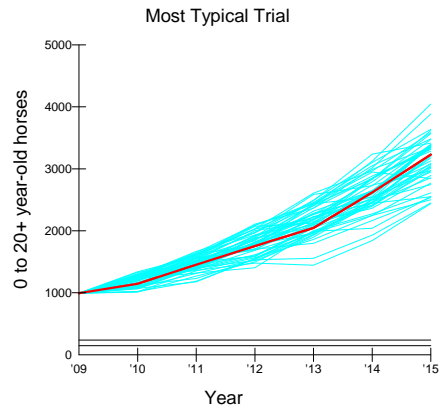
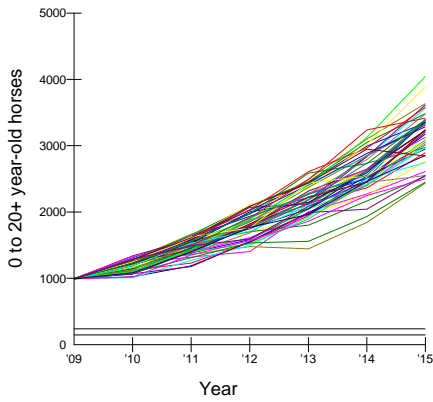
Table 15: Average Growth Rate in 6 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Lowest Trial	12.1	8.5	12.1	16.1
Median Trial	19.2	14.4	17.8	21.7
Highest Trial	27.0	21.9	26.0	26.3

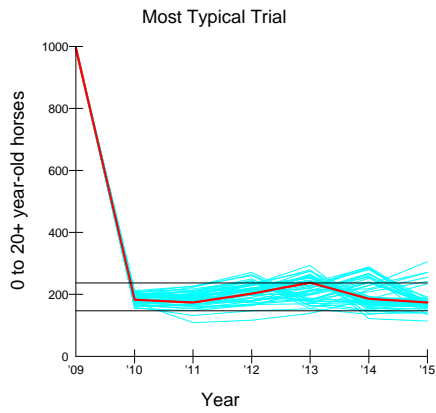
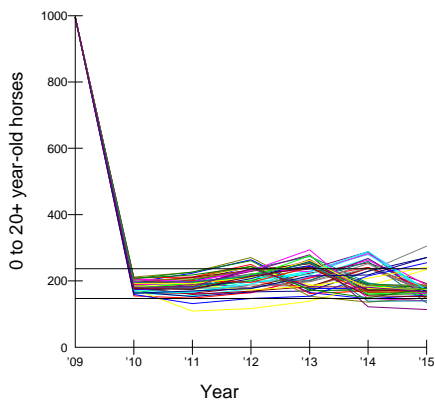
Table 16: Numbers Gathered and Removed in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Gathered				
Lowest Trial	1,020	1,130	1,026	0
Median Trial	1,138	1,170	1,120	0
Highest Trial	1,295	1,266	1,267	0
Removed				
Lowest Trial	875	867	877	0
Median Trial	978	911	961	0
Highest Trial	1,113	1,007	1,093	0

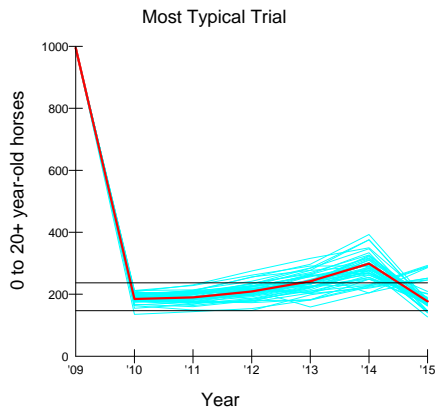
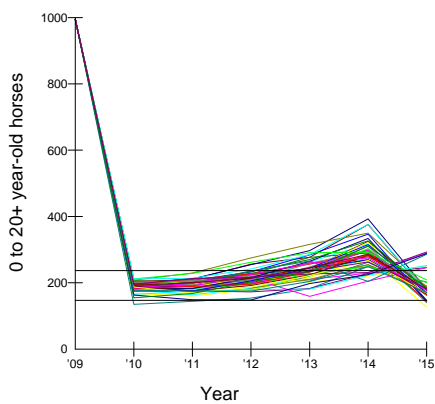
No Action – Spaghetti Graph and Most Typical Trial



Proposed Action (Fertility Control) – Spaghetti Graph and Most Typical Trial

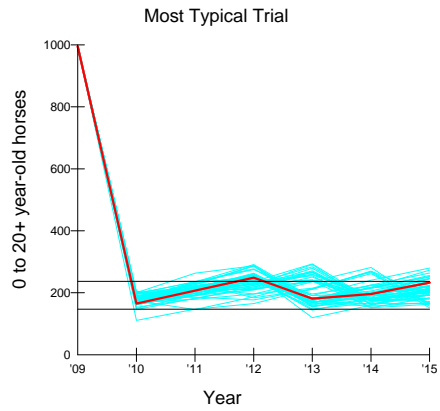
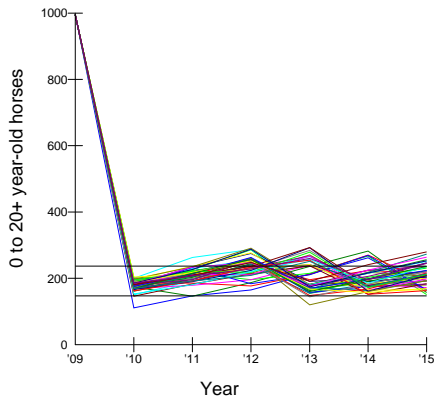


3-year Minimum Gather Interval

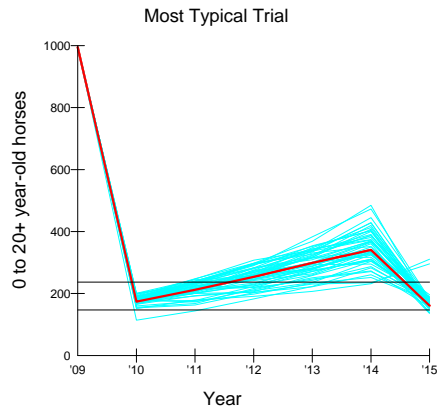
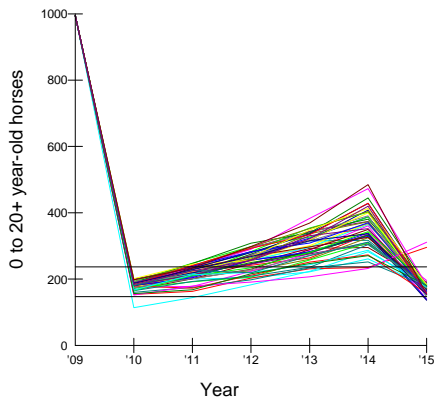


5-year Minimum Gather Interval

Alternative 1 (60:40 Sex Ratio) – Spaghetti Graph and Most Typical Trial

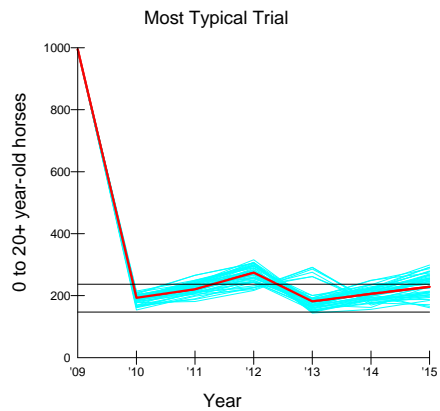
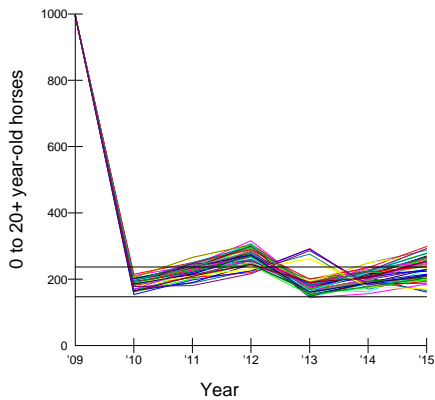


3-year Minimum Gather Interval

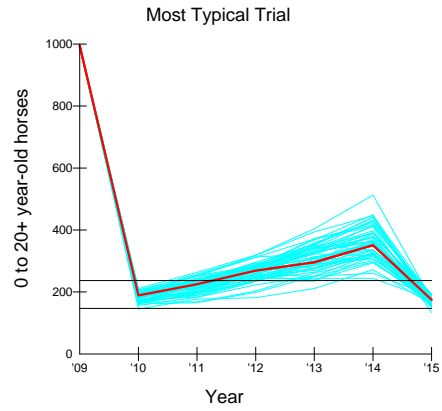
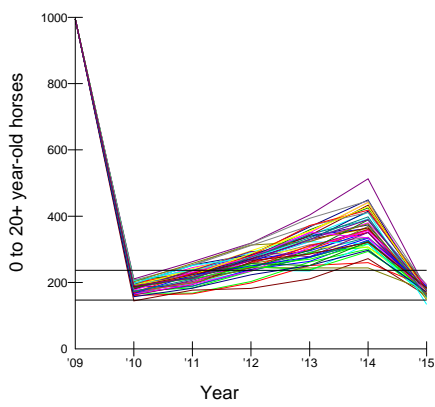


5-year Minimum Gather Interval

Alternative 2 (Gather Only) – Spaghetti Graph and Most Typical Trial

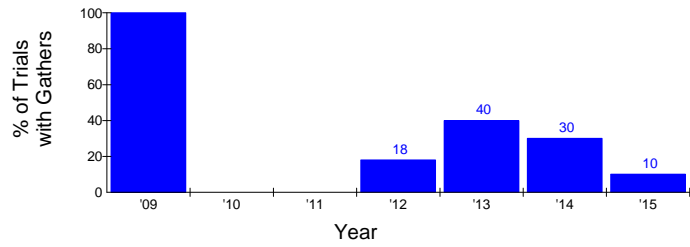
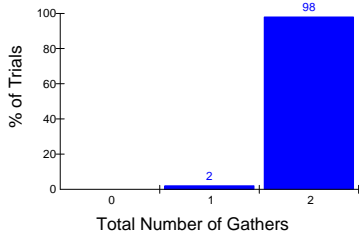


3-year Minimum Gather Interval

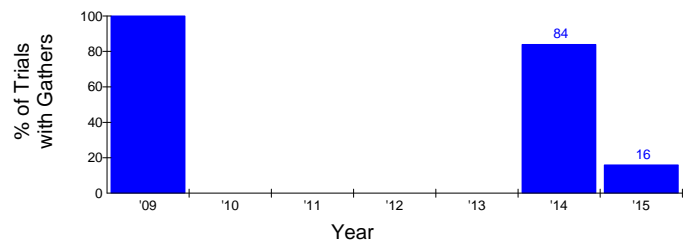
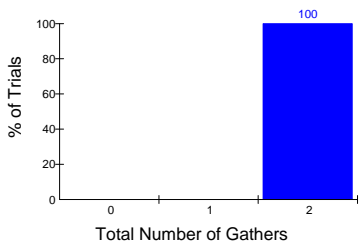


5-year Minimum Gather Interval

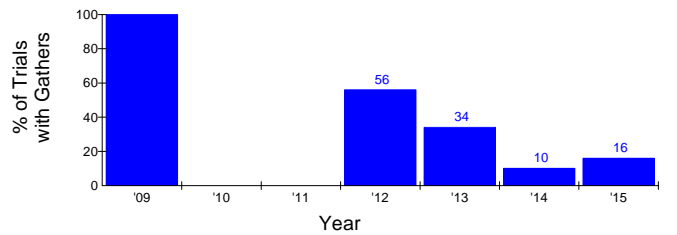
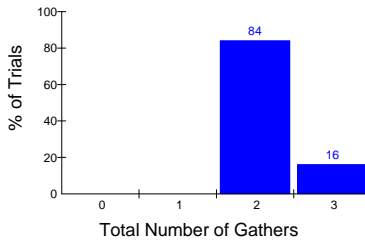
Gather Graphs



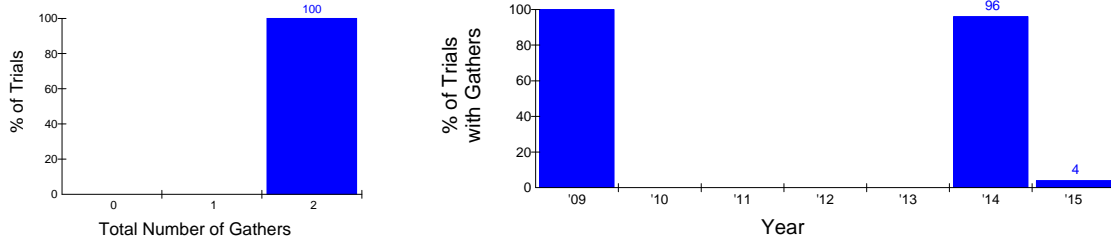
Proposed Action (Fertility Control) – 3-year Minimum Gather Interval



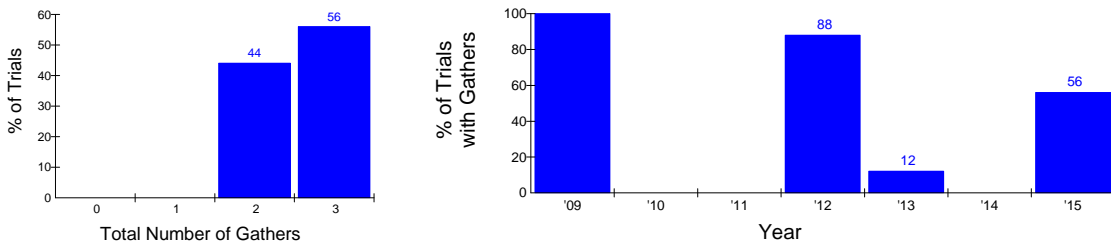
Proposed Action (Fertility Control) – 5-year Minimum Gather Interval



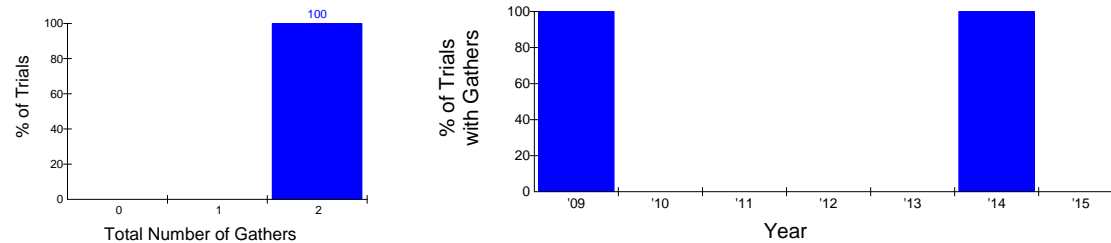
Alternative 1 (60:40 Sex Ratio) – 3-year Minimum Gather Interval



Alternative 1 (60:40 Sex Ratio) – 5-year Minimum Gather Interval



Alternative 2 (Gather Only) – 3-year Minimum Gather Interval



Alternative 2 (Gather Only) – 5-year Minimum Gather Interval

Bald Mountain and Callaghan HMAs – Combined Analysis

Because of the apparent substantial movement of the population between these two HMAs, all of the various modeling simulations were applied to the combined initial population data for Bald Mountain and Callaghan HMAs to demonstrate some of the potential affects to the entire metapopulation through the application of fertility control, manipulation of sex ratios, gather only and no gather.

Bald Mountain & Callaghan HMAs, 3-year Minimum Gather Schedule

Table 17: Callaghan HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 - 2009	100	1,602	100	1,602	100	1,602	1,602
Year 2 - 2010	0	402	0	436	0	384	2,179
Year 3 - 2011	0	461	0	459	0	488	2,507
Year 4 - 2012	100	582	56	479	94	529	2,925

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 5 – 2013	0	340	28	331	4	306	3,449
Year 6 – 2014	0	400	16	318	0	388	3,995
Year 7 – 2015	74	479	0	323	28	448	4,927
Overall Average	470		395		421		3,269

Table 18: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Minimum				
Lowest Trial	250	218	243	1,591
Median Trial	340	313	316	1,602
Highest Trial	386	370	361	1,602
Average				
Lowest Trial	557	538	543	2,519
Median Trial	633	569	592	3,054
Highest Trial	695	592	637	3,636
Maximum				
Lowest Trial	1,602	1,602	1,602	3,698
Median Trial	1,602	1,602	1,602	4,937
Highest Trial	1,602	1,602	1,602	6,420

Table 19: Average Growth Rate in 6 Years (%)

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Lowest Trial	13.4	4.4	6.5	15.0
Median Trial	22.0	9.5	15.7	20.6
Highest Trial	30.4	13.5	21.1	26.0

Table 20: Numbers Gathered and Removed in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Gathered				
Lowest Trial	1,759	1,828	1,657	0
Median Trial	2,084	1,878	1,790	0
Highest Trial	2,349	1,958	2,080	0
Removed				
Lowest Trial	1,412	1,314	1,330	0
Median Trial	1,682	1,360	1,424	0
Highest Trial	1,908	1,443	1,650	0

Bald Mountain & Callaghan HMAs, 5-year Minimum Gather Schedule

Table 21: Callaghan HMA Population Modeling Overview

YEAR	GATHER ONLY (ALTERNATIVE 2)		FERTILITY CONTROL (PROPOSED ACTION)		60:40 SEX RATIO (ALTERNATIVE 1)		NO ACTION
	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 - 2009	100	1602	100	1602	100	1602	1,602
Year 2 - 2010	0	454	0	439	0	409	2,179
Year 3 - 2011	0	525	0	422	0	460	2,507
Year 4 - 2012	0	636	0	459	0	496	2,925
Year 5 - 2013	0	730	0	535	0	609	3,449
Year 6 - 2014	100	906	100	628	100	719	3,995
Year 7 - 2015	0	361	0	337	0	313	4,927
Overall Average		595		479		512	3,269

Table 22: Minimum, Average, and Maximum Population Sizes in 7 Years

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Minimum				
Lowest Trial	242	242	254	1,591
Median Trial	346	340	315	1,602
Highest Trial	384	394	353	1,602
Average				
Lowest Trial	650	545	560	2,519
Median Trial	738	637	670	3,054
Highest Trial	852	719	750	3,636
Maximum				
Lowest Trial	1,602	1,602	1,602	3,698
Median Trial	1,602	1,602	1,602	4,937
Highest Trial	1,602	1,602	1,602	6,420

Table 23: Average Growth Rate in 6 Years (%)

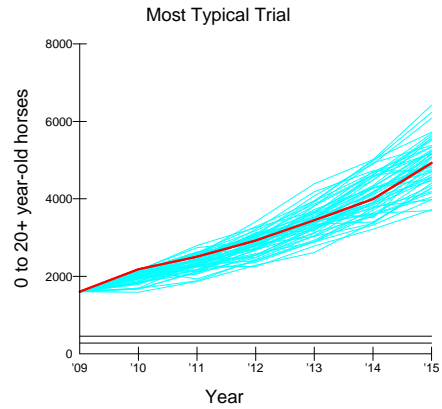
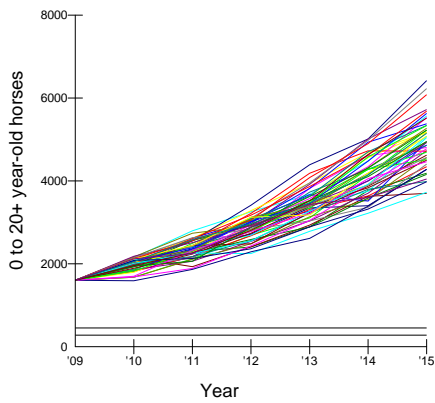
TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Lowest Trial	14.0	8.1	10.8	15.0
Median Trial	21.6	15.2	15.9	20.6
Highest Trial	29.8	21.2	21.6	26.0

Table 24: Numbers Gathered and Removed in 7 Years

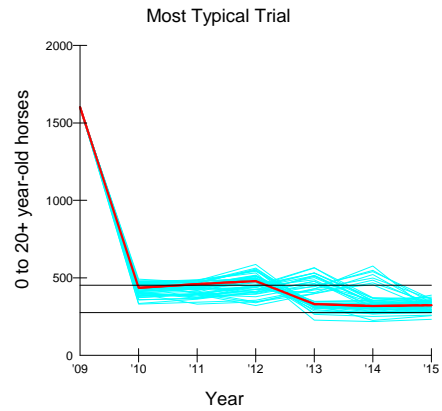
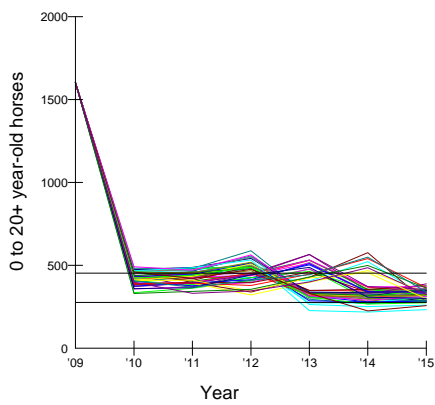
TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Gathered				
Lowest Trial	1,833	1,854	1,726	0
Median Trial	2,078	2,001	1,924	0
Highest Trial	2,410	2,179	2,171	0
Removed				

TRIAL	ALTERNATIVE			
	Gather Only	Fertility Control	60% Studs	No Action
Lowest Trial	1521	1337	1412	0
Median Trial	1706	1486	1576	0
Highest Trial	2011	1672	1791	0

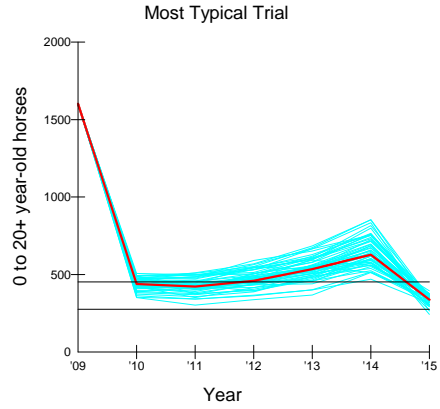
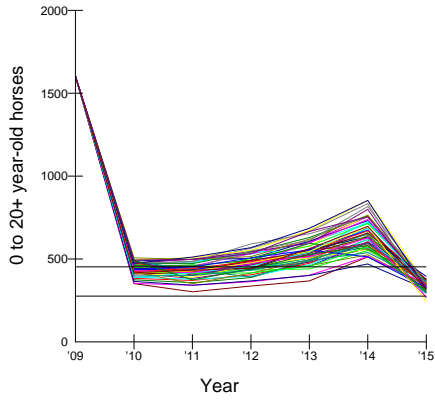
No Action – Spaghetti Graph and Most Typical Trial



Proposed Action (Fertility Control) -- Spaghetti Graph and Most Typical Trial

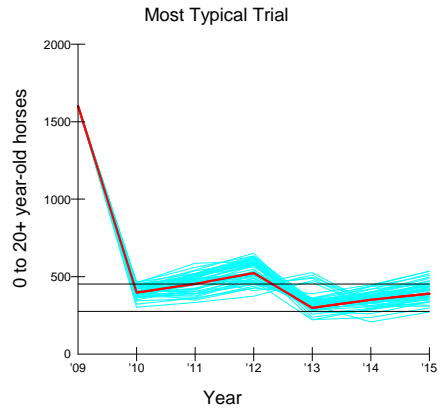
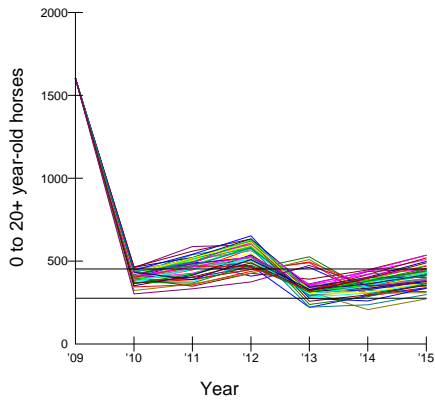


3-year Minimum Gather Interval

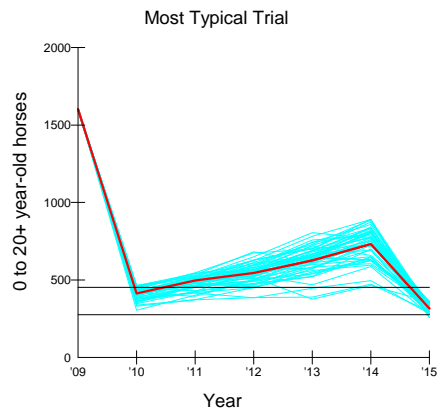
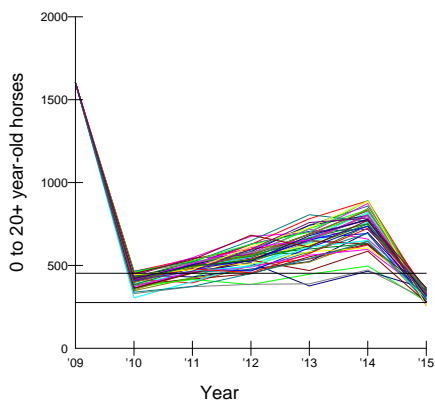


5-year Minimum Gather Interval

Alternative 1 (60:40 Sex Ratio) -- Spaghetti Graph and Most Typical Trial

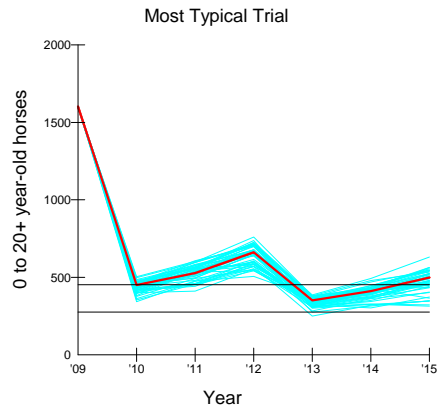
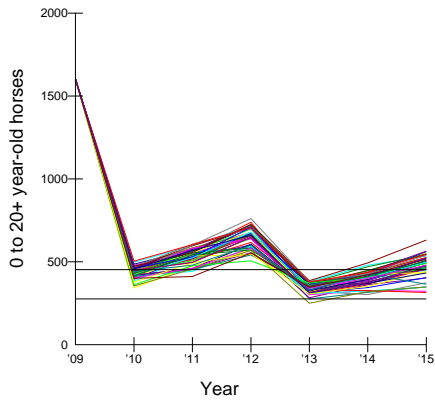


3-year Minimum Gather Interval

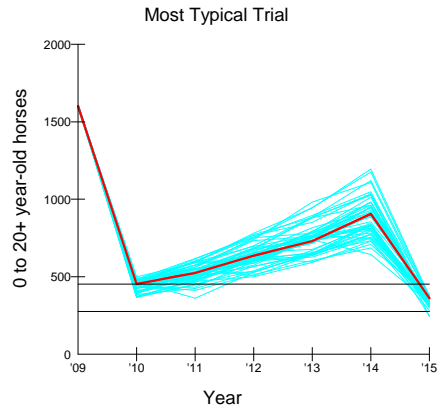
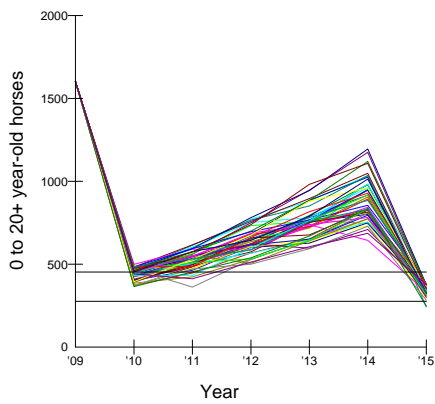


5-year Minimum Gather Interval

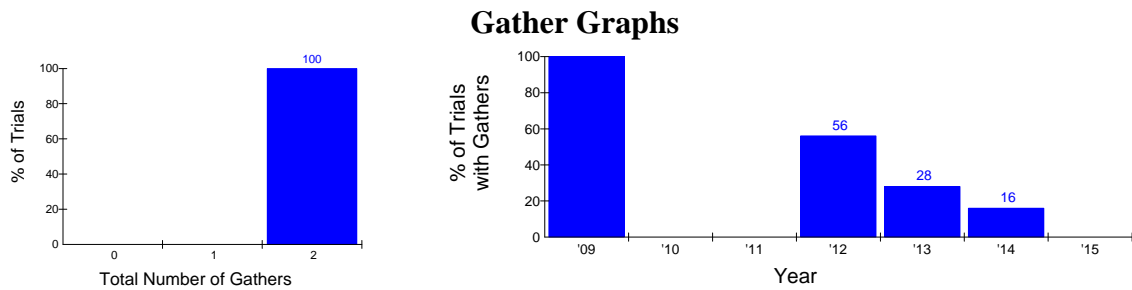
Alternative 2 (Gather Only) -- Spaghetti Graph and Most Typical Trial



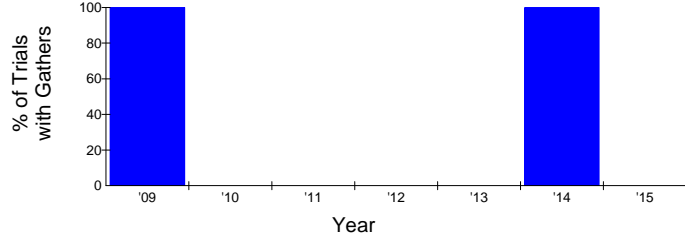
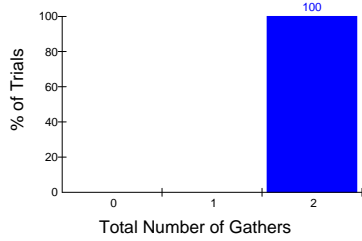
3-year Minimum Gather Interval



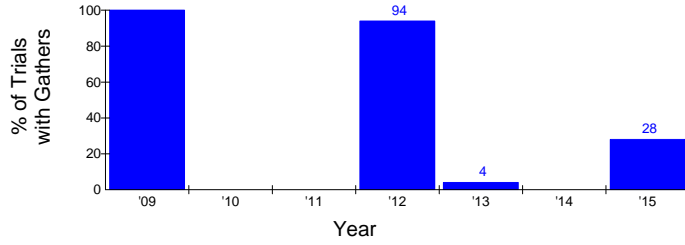
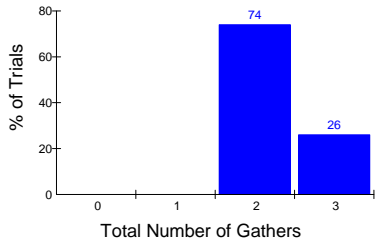
5-year Minimum Gather Interval



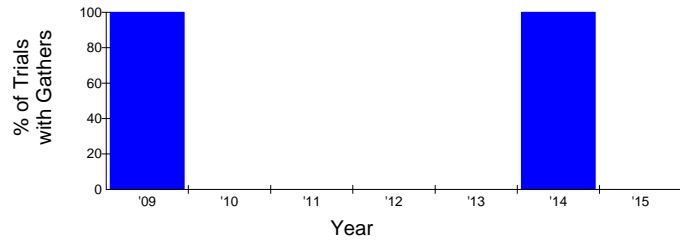
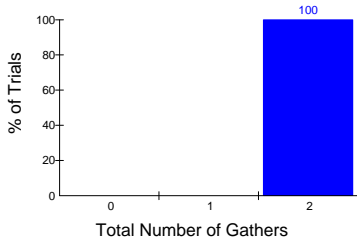
Proposed Action (Fertility Control) – 3-year Minimum Gather Interval



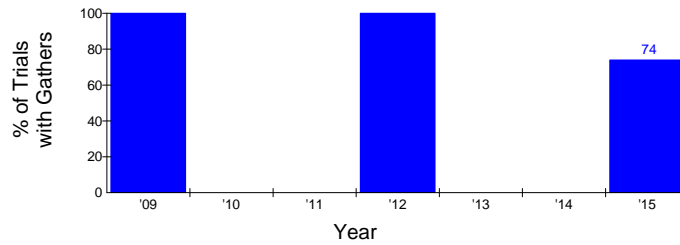
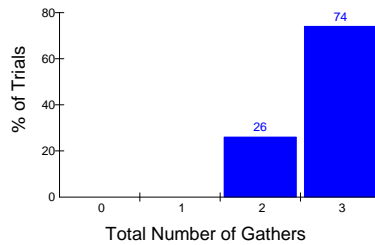
Proposed Action (Fertility Control) – 5-year Minimum Gather Interval



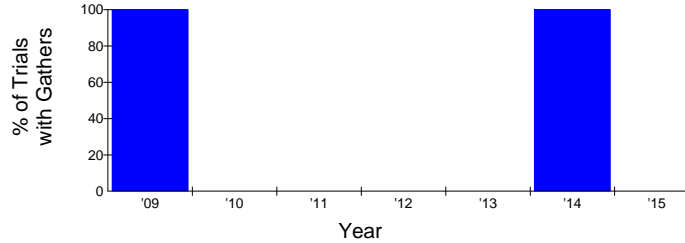
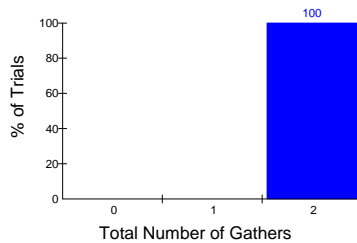
Alternative 1 (60:40 Sex Ratio) – 3-year Minimum Gather Interval



Alternative 1 (60:40 Sex Ratio) – 5-year Minimum Gather Interval



Alternative 2 (Gather Only) – 3-year Minimum Gather Interval



Alternative 2 (Gather Only) – 5-year Minimum Gather Interval

Population Modeling Summary

To summarize the results obtained by simulating the range of alternatives for the Callaghan Complex wild horse gather, the following questions can be addressed.

- **Do any of the Alternatives “crash” the population?**

Results of the modeling do not indicate that implementation of any of the alternatives would result in a crash of the population. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely. Even when the model was simulated with the same parameters for 10-20 years, none of the trials indicated a crash. It is not known if fertility control or age structure modification would be applied during future gathers. These long term management strategies would be identified and modeled in a HMAP in the future.

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

The results of the modeling suggest that implementation of fertility control (Proposed Action) when compared to Alternatives 1 or 2 could reduce population growth rates at much as 17%. The consequence would be smaller population sizes and average population sizes over the next 6 years, and substantial reductions in the number of animals that would need to be gathered and removed from the range to maintain AML. Gather frequency would also decrease, reducing the disturbance to individual animals and the population as a whole.

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

The model generated data for Average Population Size in 7 years which shows that the Proposed Action and implementation of fertility control could result in average population sizes that are 5-18% lower than for Alternative 2 (Gather Only). The model suggests that manipulation of sex ratios to favor studs (Alternative 1) would have less notable influence and may lower average population sizes by 2.1-16% over 7 years.

The overall averages for all 50 trials from 2010-2015 were also compiled. The Fertility Control simulation demonstrated the lowest averages which were generally within the established AML ranges when the model was run under a 3 year minimum gather interval. When the minimum gather interval was increased to 5 years, the Fertility Control treatment was the only one to maintain an overall average population size below the upper range of the established AML or slightly above it. The next lowest average population was derived from the simulation for a post gather population of 60% studs and 40% mares. The highest average population and the one that was the most in excess of the upper range of AML between 2010 and 2015 was the Gather Only treatment.

Appendix E: Evaluations, Assessments, Decisions, and Gather Documents

Carico Lake Allotment/Bald Mountain HMA

- ◆ Carico Lake Allotment Final Multiple Use Decision, September, 2005
- ◆ Carico Lake Allotment Rangeland Health Assessment, July, 2005
- ◆ Carico Lake Allotment Rangeland Health Assessment, EA #NV062-05-61, September, 2005
- ◆ Carico Lake Allotment Conformance Determination, September, 2005

Austin Allotment/Callaghan HMA

- ◆ Final Multiple Use Decision for the Austin Allotment, January 1995
- ◆ Final Austin Allotment Evaluation, May 1994
- ◆ 2007 Austin Complex Monitoring Report, July, 2007
- ◆ Austin Complex EA NV-062-07-83, August 2007
- ◆ Final Decision, Austin Complex Permit Renewal, October 2007

Grass Valley Allotment/Callaghan and Rocky Hills HMAs

- ◆ Final Multiple Use Decision for the Grass Valley Allotment, June, 2002
- ◆ Grass Valley Allotment Rangeland Health Assessment Data Summary, February 2002

JD Allotment/Rocky Hills HMA

- ◆ Final Multiple Use Decision for the JD Allotment, September 2004
- ◆ JD Allotment Rangeland Health Assessment Data Summary, August, 2003
- ◆ JD Allotment Evaluation EA NV062-EA04-07, August 2004

Simpson Park Allotment/Callaghan HMA (and Hickison Burro HMA)

- ◆ Final Multiple Use Decision Kingston and Simpson Park Allotments, September 30, 2005
- ◆ Simpson Park Complex Evaluation and Rangeland Health Assessment, July 2005

Wild Horse Gather Plan/EAs

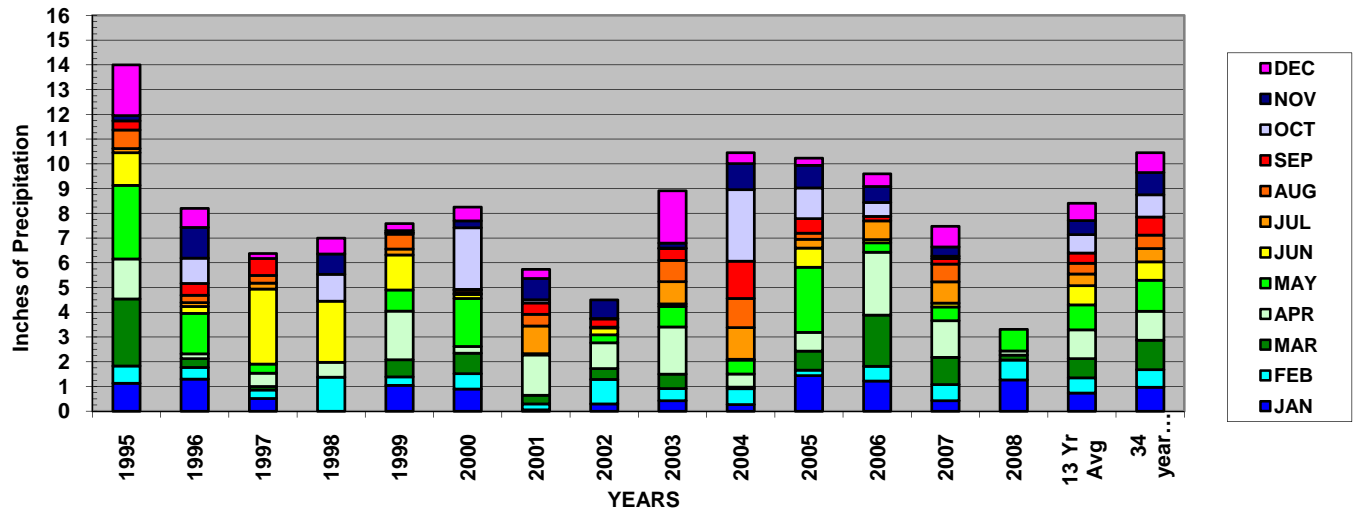
- 🐾 Burned Area Wild Horse Removal, Rocky Hills, New Pass/Ravenswood, Simpson Park Mountains, Environmental Assessment NV062-00-03, October, 1999
- 🐾 Callaghan Herd Management Area Wild Horse Gather Plan and Environmental Assessment NV062-02-41, May, 2002
- 🐾 Simpson Park Range Wild Horse Removal, September, 2005 Environmental Assessment NV062-04-35
- 🐾 South Shoshone Complex Wild Horse Gather Environmental Assessment NV062-07-104, April, 2007

Appendix F: Monitoring and Climate Information

May through July 2008, MLFO completed monitoring within the Callaghan and Rocky Hills HMAs to document range condition, wild horse use, wild horse locations, and water availability. The Bald Mountain HMA was addressed within the *Carico Lake Allotment Rangeland Health Assessment*, (July, 2005).

Precipitation data were compiled for the Beowawe, University of Nevada Ranch Weather Station, which is located near the Callaghan Complex. Precipitation data was available through May 2008, and was compiled for analysis. These precipitation levels only reflect those received at the collection point, and does not reflect variation across the Complex. Conditions at specific locations could deviate substantially from these presented here. This data demonstrates the extreme variability in precipitation received from year to year and month to month.

Beowawe, Univ. of Nevada Ranch USDA Weather Monitoring Station – Precipitation Data



Precipitation received by month – Beowawe, U of N Ranch

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1995	1.13	0.70	2.71	1.62	2.97	1.32	0.17	0.75	0.37	0.00	0.21	2.05	14.00
1996	1.30	0.47	0.36	0.19	1.64	0.28	0.15	0.30	0.48	1.02	1.24	0.77	8.20
1997	0.52	0.34	0.14	0.54	0.37	3.03	0.24	0.31	0.69	0.00	0.00	0.20	6.38
1998	0.00	1.38	0.00	0.60	0.00	2.47	0.00	0.00	0.00	1.09	0.82	0.64	7.00
1999	1.05	0.34	0.69	1.97	0.85	1.42	0.24	0.60	0.05	0.02	0.07	0.29	7.59
2000	0.90	0.62	0.83	0.27	1.94	0.16	0.05	0.12	0.04	2.49	0.28	0.55	8.25
2001	0.06	0.24	0.35	1.63	0.05	0.00	1.12	0.47	0.46	0.13	0.86	0.37	5.74
2002	0.30	0.99	0.44	1.04	0.32	0.28	0.03	0.00	0.33	0.02	0.75	0.00	4.50
2003	0.43	0.49	0.58	1.91	0.83	0.10	0.90	0.86	0.48	0.02	0.20	2.11	8.91
2004	0.27	0.64	0.07	0.53	0.56	0.03	1.28	1.18	1.51	2.89	1.05	0.44	10.45
2005	1.44	0.22	0.77	0.76	2.63	0.78	0.35	0.25	0.59	1.24	0.91	0.29	10.23
2006	1.22	0.60	2.07	2.54	0.38	0.13	0.76	0.00	0.18	0.56	0.65	0.51	9.60
2007	0.43	0.65	1.1	1.48	0.56	0.15	0.86	0.72	0.22	0.1	0.37	0.84	7.48
2008	1.27	0.8	0.2	0.17	0.87	0	0	0	0	0	0	0	2.07
13 Yr Avg	0.74	0.61	0.78	1.16	1.01	0.78	0.47	0.43	0.42	0.74	0.57	0.70	8.33
36 Year Avg	0.97	0.71	1.19	1.17	1.26	0.74	0.54	0.54	0.73	0.90	0.90	0.80	10.45

The Beowawe U of N Ranch weather station is at 5,740 ft. elevation. The period of record from this weather station was from September 1972 to January 1, 2008, with data available through May 2008. The average annual precipitation received at this weather station was 10.47” through the period of record according to the Western Regional Climate Center website (wrcc@dri.edu). This weather station also reports that the average total snowfall per year is 28.4 inches, with snow data reported from October through May.

Drought is a common occurrence in Nevada and the Great Basin, occurring 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).

The precipitation data from this weather station indicates that seven of the past 13 years (54%) have met the definition of drought. In 2008, data from January through May reflects 62% of the period of record average. Spring moisture is most critical to plant growth, followed by late summer or fall, which allows some re-growth and carbohydrate storage prior to winter. Drought conditions during the period of March through June can substantially reduce annual production of forage, as well as have detrimental effects to vegetation health, especially under heavy or repeated grazing. March through May 2008 – precipitation was far below the average, reflecting just 34% of the average. Despite this low recorded precipitation, the spring was frequented by numerous rain storms which provided timely moisture within the Complex.

With the exception of 2005, and 2006, all years since 2002 (the most recent Callaghan HMA gather and when Rocky Hills wild horses were released) reflected precipitation levels far below the period of record average for the period of March through June. The following table displays the results for both the critical spring growth period (March-June) and for the entire year as a whole.

Beowawe Weather Station -- Spring and Annual Precipitation

Year	March-June Precipitation (inches)	March-June % of 36 Year Average	12 Month % of 36 Year Average
2008	1.24	34%	62%
2007	3.29	75%	72%
2006	5.12	117%	92%
2005	4.94	113%	98%
2004	1.19	27%	100%
2003	3.42	78%	85%
2002	2.08	48%	43%

Interestingly, in 2004, July through November precipitation was far above average levels, with the data reflecting 117-321% in July through November despite below average levels during spring.

Since 2002, precipitation has averaged 8.87 inches annually corresponding to 85% of the period of record average. Of these 7 years, (2002-2008), 3 years met the definition of drought.

Callaghan HMA

Austin Allotment, Hall Creek Area

The condition of this portion of the HMA is highly variable. The valley floor supports Wyoming big sagebrush. Understory perennial grass species are lacking and consist of Sandberg bluegrass and bottlebrush squirreltail. Minimal forbs are present. Cheatgrass is also present in variable amounts. During the spring 2008 monitoring, grasses exhibited low vigor and low production. Sandberg bluegrass was pedestalled in the interspaces between shrubs, and soils are bare, compacted, or characterized by erosion pavement. These range sites are Loamy 8-10” precipitation zone (p.z.),

Natural Resources Conservation Service (NRCS) range site 24-005¹⁶. This plant community should produce 55% grasses, 5% forbs and 40% shrubs, for 600 lbs/acre in an average year. 240-300 lbs/acre on this site should consist of Thurber's needlegrass, with the remainder comprised of bluebunch wheatgrass, Indian ricegrass, and other perennial grasses. The key grass species are mostly gone from the plant community at the lower elevations. Production of perennial grasses in 2008 was estimated at 30-40 lbs/acre.



Representative low elevation site north of Hall Creek within the Austin Allotment. Note pedestalled Sandberg's bluegrass in the understory. May, 2008.

Through middle elevations (6200' elevation), along alluvial fans, and on foothills, production of grasses increases, and key species such as bluebunch wheatgrass, Thurber's needlegrass and Indian ricegrass are present, though in lower amounts than the potential for the site. These range sites are comprised of South Slope 12-16" p.z. (24-029), Claypan 12-14" p.z. (24-018), and Shallow Calcareous Loam or Shallow Calcareous Slope 8-10" p.z. (24-030, 28-016). The South Slope is the most productive site and should support 1,100 lbs/acre in normal years, with 440-550 lbs/acre consisting of bluebunch wheatgrass, in association with mountain brome, basin wildrye, Thurber's needlegrass and other perennial species. The middle elevations are highly variable, with

some sites producing an estimated 300 lbs/acre of perennial grasses, and others producing less than 50 lbs/acre. In many locations, perennial grasses are caged in shrubs, and no litter from previous year's growth exists within the interspaces of shrubs. Some sites support a variety of forbs in the understory, and some sites support large vigorous perennial grasses.

A spring in this area is heavily utilized by wild horses as it is one of the only water sources in the area. In the vicinity of the spring, hillsides were noted to support moderate production of perennial grasses such as Indian Ricegrass and bluebunch wheatgrass. Heavy trailing exists through the area. Some sign of sheep was noted, but no current or recent use by cattle. This unnamed spring is located at approximately 6,500' elevation. It exhibits heavy heaving and hummocking, and signs of shrinkage. White top is prevalent at the spring.

Wild horse trailing is common throughout the middle elevations, and soils are subject to erosion. Springs are limited within the HMA in the northern portion of the allotment. Additionally, wild horse concentrations are high in this part of the HMA, increasing competition, and use on these limited waters.

16. Refer to the Natural Resources Conservation Service Range Site Descriptions for Major Land Resource Areas 24 and 28B.

Within the higher elevations in the HMA (7100' elev.) at the northern portion of the Austin Allotment, the plant community is comprised of mostly Claypan 12-16" p.z. (24-027) and Mountain Ridge (24-016). The Claypan sites should produce 800 lbs/acre annually in normal years, with 60% in production of perennial grasses such as Idaho fescue and bluebunch wheatgrass. Mountain Ridge sites are not very productive and should consist of 250 lbs/acre during normal years, comprised of 45% grasses in association with dwarf sagebrush. Many of these sites are windswept, low



Un-named Spring, heavily utilized by wild horses in the area. May 2008.



Heavy trailing by wild horses near the un-named spring. May, 2008

productivity sites. Although Idaho fescue and Indian ricegrass were identified within the understory in some locations, most perennial grass observed consisted of Sandberg bluegrass, which was often pedestalled.

Hall Creek itself consists of a small creek with multi-branching headwater drainages, springs, and scattered Aspen stands. White top is prevalent in the bottom of the drainage, and signs of use by cattle, sheep, and horses. Upland slopes support scattered perennial grasses, whereas the bottoms are lacking perennial forage species. The portion of the HMA north of Hall Creek is often free of snow in winter. Large numbers of wild horses are observed in this location during winter and spring census flights. The very highest elevations of the Hall Creek headwaters join the headwaters of Boone Creek and Iowa Creek to the south. These areas are heavily utilized by wild horses in the summer and during light winters. As the headwaters all join near the same geographic location, the wild horses are able to easily travel throughout the drainages. Wild horses move south into these higher elevation drainages and slopes in summer months.

South of Hall Creek, foothills were examined for key area and monitoring potential. Variable range condition and forage production exists, ranging from nearly complete lack of perennial grasses in the understory to scattered Thurber's needlegrass. In some locations, rabbitbrush had been hedged. These areas appear to have been very heavily utilized by wild horses during the winter months as evidenced by large stud piles and apparent heavy utilization in the past.

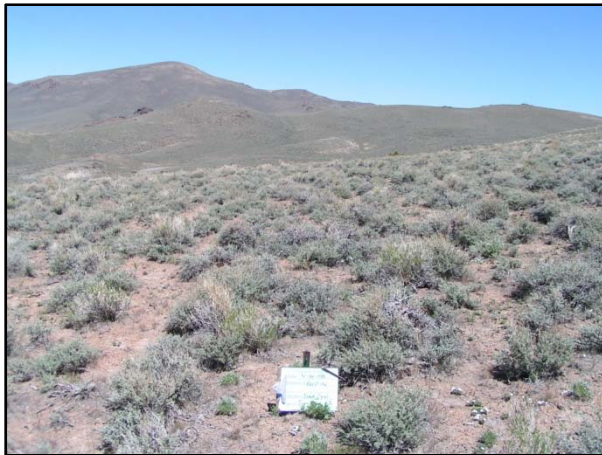
Austin Allotment -- Iowa Canyon Area and Central HMA

Iowa Canyon consists of perennial creek more than 5 miles long that joins with the headwaters of Hall Creek and Boone Creek. The creek flows year round, but has suffered long-term degradation from many factors to include historic livestock and historic and current wild horse grazing; and soils that are naturally erodible. Concerns for the riparian areas in this allotment were one of the reasons for the substantial reductions to livestock permitted use in the 1995 FMUD. Further management changes in the 2007 Decision were also based on riparian health, as well as other reasons. White top

is prevalent throughout the bottoms of Iowa Canyon. Uplands are variable throughout the Iowa Canyon basin depending upon aspect, slope and elevation. Denuded understories or understories comprised of pedestalled Sandberg bluegrass are common.

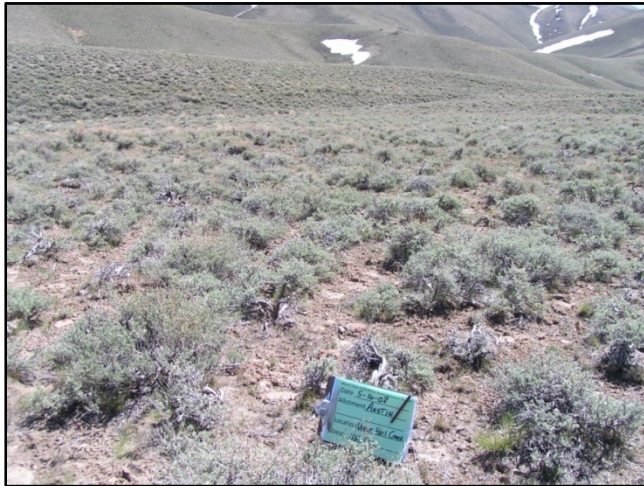
In the higher elevations of the basin, appropriate key perennial grass species are present, but at levels below the potential for the sites. Much of the area is comprised of the Claypan 10-12" p.z. (24-018), range site which would support 500 lbs/acre of annual above ground production in normal years. Vegetation composition should be 55% grasses, 10% forbs and 35% shrubs. Grasses should produce up to 275 lbs/acre and consist of Thurber's needlegrass, bluebunch wheatgrass, and other perennial grass species, in a low sagebrush plant community. These should be very diverse range sites. Many of the key species are missing from the plant community on sites with moderate to low slopes. Steeper slopes, and areas farther from water sources still support some of the key species.

A key area has been established at the upper elevations of Iowa Basin to monitor primarily wild horse habitat and use. This site does support some bluebunch wheatgrass, Thurber's needlegrass, bottlebrush squirreltail and an assortment of forbs in the understory. Many of the key grasses are caged within shrubs. The site is located on a 5-10% slope and is experiencing substantial erosion between the bases of grasses and shrubs. The site is heavily travelled by wild horses, and use of vegetation has been moderate to heavy. Production of perennial grasses was approximately 100 lbs/acre. With future maintenance of AML, this site should reflect marked improvement as indicated by increased frequency, vigor, and production of desirable perennial forage species and improved soil stability.



Iowa Basin Key Area. Frequency Transect overview (left), and examples of pedestalling and soil movement (right). May 16, 2008.

The headwaters of Hall Creek are characterized by substantial movement of horses through the area, and heavy utilization of perennial grasses. Pedestalling of grasses, soil movement between plants, and heavy trailing is frequent. Grass production is poor except where caged in shrubs. This location has also been selected as a key area to monitor wild horse habitat and use. The site is located on a north west facing slope consisting of a Claypan 10-12" p.z. (24-018), and is producing much less forage than the potential.



**Key Area, headwaters of the Hall Creek watershed.
June, 2008.**



**Upper elevations of the Austin Allotment near Mount
Callaghan. June 18, 2008**

West of the HMA boundary below Silver Creek, Boone Creek and Alex Canyon, frequent sign of wild horses was noted and large stud piles were prevalent. Range sites in the area are intermingled Loamy 5-8' p.z. (24-002) and variable Wyoming big sagebrush and low sagebrush sites. Throughout the lower elevations, condition of the understory is variable as well, ranging from the presence of limited Indian ricegrass to complete lack of perennial grasses. Rabbitbrush was noted to have been grazed last winter, and heavily in some cases. Wild horses have moved out of the HMA boundaries during winter to access forage.

Much of the central portion of the HMA in the Austin Allotment supports pinyon juniper vegetation. Some areas have productive grass understories, others support very minimal vegetation. Wild horses do not use these areas heavily. They may use the lower elevation wooded sites for shelter in the winter months.

The high elevations utilized during the summer months consist of drainages, slopes and ridges that exceed 10,000 feet elevation at the top of Mount Callaghan. In addition to other range sites previously mentioned, one of the more widespread sites in these elevations is Loamy Slope 14+ p.z. (24-032). This is one of the most productive range site within the Complex, and should support 1,500 lbs/acre of annual production in a normal year.

The plant community should support 55% composition of grasses including a variety of species such as mountain brome, needlegrasses, wheatgrasses, fescues and bluegrasses in a mountain big sagebrush understory. These sites currently do not produce the potential variety or production of forage identified for these sites in most locations. Vegetation is variable. Some of the mid slopes do support 200-300 lbs of perennial grasses among diverse forbs and mountain browse species. Higher elevations consist of wind swept ridges, and rocky terrain that supports low growing and low productive vegetation. With proper management, these sites would be expected to improve.

Callaghan HMA - Grass Valley Allotment

In general, the Grass Valley Allotment portion of the Callaghan HMA is much drier and less productive than the Austin Allotment. The area supports steeper slopes and drainages, and rocky terrain in many areas. Most of the population of wild horses has congregated near Skull Creek and the east face of Mount Callaghan, and within Cowboy Rest and Corral Canyon at the north end of the HMA. Most of the wild horses are located north of the Grass Valley Ranch, with few inhabiting the Callaghan Creek area.

The lower elevation range sites include Loamy 5-8" p.z. (24-002 and 28-017), Shallow Calcareous Loam 8-10" p.z. (28B-011) and Shallow Calcareous Slope 8-10" p.z. (28B-016). Mid elevations support variable sites intermingled with pinyon juniper vegetation, consisting of Loamy 8-10" p.z. (28B-010 and 24-005), Loamy Slope 12-14" p.z. (24-021), and Claypan 10-12" p.z., and 12-16" p.z. (24-018 and 027). The highest elevations are similar to those on the Austin Allotment portion of the HMA and include Mountain Ridge and Loamy 14+ range sites.

The lower elevation foothills and valley bottoms are primarily denuded, and support very little perennial grasses. Mid elevation Wyoming big sagebrush sites still support limited perennial grasses in the plant community. These sites should produce 600 lbs/acre of annual production with an understory consisting of 240-300 lbs/acre of Thurber's needlegrass. Understory production across the mid-elevations was estimated to vary from 10-100 lbs/acre.

Grass Valley Allotment -- Skull Creek

The Skull Creek drainage consists of two forks of perennial streams. Lowest elevations (6,000' elev.) are degraded and lack perennial key grasses. Mid elevations (6,440' elev.) support some Sandberg bluegrass which is pedestalled in many cases. Indian ricegrass was noted in limited quantities, as was Thurber's needlegrass. Production at one location was estimated to be less than 10 lbs/acre of grasses. The Claypan 12-16" p.z. (24-027) sites should produce 800 lbs/acre above ground forage annually in normal years, with 60% in production of perennial grasses such as Idaho fescue and bluebunch wheatgrass. Some soil movement and erosion pavement is evident.

Near the streams where dense shrubs exist, sign of wild horse use is minimal. Trailing throughout the Skull Creek area was frequent. However, throughout higher elevations on the east face of Mount Callaghan (7800' elev.), vegetation consisted of low growing vegetation on the ridges, and variable Wyoming big sagebrush/mountain browse and Mountain big sagebrush. Some key species were noted (such as Indian ricegrass) in the understory, however most sites were dominated by Sandberg bluegrass and cheatgrass. Serviceberry was not recently hedged severely, but were small in size and had been severely hedged in years past. The higher elevations are producing fewer species and lower production than the potential for these sites.



Skull Creek, June, 2008



Skull Creek area, June, 2008.



Trailing, south of Skull Creek, June 2008.



Upland site identified for new key area near Skull Creek. June 2008



Key Area, GV-13, near Skull Creek, June 2008



Example of production of Indian ricegrass at Key Area GV-13. June 2008.



Key Area GV-14 near north of Callaghan Creek. June 2008

The photos above were taken at two existing key areas established to monitor wild horse and livestock use in the Skull Creek/Callaghan Creek area. Wild horses may use these areas in winter

months. GV-13 is a Loamy 5-8" p.z. (24-002) range site, which supports bud sage and shadscale with an understory of perennial grasses. The site should produce 450 lbs/acre in a normal year, with 25% of that comprised of perennial grasses such as Indian ricegrass and bottlebrush squirreltail. The actual production of perennial grasses was estimated to be 25-30 lbs/acre, with Indian ricegrass only comprising an estimated 1% of the vegetative composition at the key area. GV-14 is located within a Loamy 8-10" p.z. (28B-10) site, represented by Wyoming big sagebrush with a perennial grass understory. This site should support 600 lbs/acre with 50% of the production in perennial grasses including Indian ricegrass, needleandthread, bottlebrush squirreltail and Sandberg bluegrass. At this time, grass production is limited and consists of bottlebrush squirrel tail and Sandberg bluegrass. The key grass species were not observed in the understory.

Grass Valley Allotment -- Cowboy Rest/Corral Canyon

Cowboy Rest is located between the Skull Creek drainage and the northern boundary of the HMA. Rosebush Creek and Cowboy Rest Creek are associated with the area. Rosebush Creek is a perennial stream for most of its length, and wild horses rely on it during summer months. As with other locations, upland rangeland vegetation composition and ecological condition is highly variable. Large expanses of the lower elevations are devoid of key forage or perennial species. Other sites appear to be in upward trend as indicated by presence of small key grass species and shrubs in the interspaces between larger shrubs and invasive annual weeds. The Wyoming big sagebrush sites in this area should produce 55% composition of grasses, 5% forbs and 40% shrubs, for 600 lbs/acre in an average year. 240-300 lbs/acre on this site should consist of Thurber's needlegrass, with the remainder comprised of bluebunch wheatgrass, Indian ricegrass and others. Within the few sites where Thurber's needlegrass or Indian ricegrass was observed, production of perennial grasses was estimated at 10-70 lbs/acre which is far below the potential of the sites.



Rosebush Creek. July 2008.



Spring between Corral Canyon and Cowboy Rest. July 2008.

Corral Canyon is located at the far north end of the HMA, just below the boundary fence with the Bald Mountain HMA. This area has historically been utilized by large numbers of wild horses. Water in the area is limiting, and consists of a few small springs. Overall, the condition of the range throughout the area is poor to very poor. The valley floor is nearly devoid of any perennial grasses, and is characterized by many deep, well-worn wild horse trails. Large numbers of wild horses move outside of the HMA boundary in this area, despite the poor habitat quality, which may be due to wild horse density and competition within the HMA itself.

Within the Corral Canyon basin, trailing is

frequent, and soils are often bare, compacted and reflecting erosion pavement. Understory grasses (where found) are often pedestalled. Much of the range site in this area consists of the Loamy 8-10" p.z. (28B-10), surrounded by a Loamy Slope 12-14" p.z. (24-21) range site. The sites should produce 600 lbs/acre in a normal year, comprised of Wyoming big sagebrush and an understory of Indian ricegrass, needle and thread, bottlebrush squirreltail and Sandberg bluegrass. Grasses should contribute 65% of the annual production of the site. Limited occurrence of perennial key grasses was noted throughout the area, with production of grasses estimated to be 5-25 lbs/acre. The existence of some key species indicates an opportunity for improvement with proper management of the area in the future.



Corral Canyon Basin. July 2008.



Corral Canyon upland range site – new key area. July 2008.

Poverty weed is common throughout the area, and dominates areas that may once have been comprised of wet meadows. The sites are now dry, and do not support riparian vegetation or perennial grass species.

Corral Spring is a small source at the lower end of the Corral Canyon basin. It does not produce very much water and likely dries out in most summers. The site is currently being utilized by wild horses, and many trails transect the area.



Corral Spring. July 2008.



Dry meadow, Corral Canyon Basin, July 2008.



Key Area GV-11. June 2008.



General photo of winter range area near Corral Canyon. July 2008.

Key area GV-11 is located within the north end of Grass Valley near Corral Canyon, and is within the Loamy 5-8" p.z. range site (refer to GV-13 above). The area is very denuded, and only a few small, unthrifty perennial grass plants were located (less than 1 lb/acre). The site is dominated by halogeton, mustard, Russian thistle and other annual species. Heavy trailing by wild horses was noted through the area. The valley bottom produces almost no usable forage for use during the winter months.

Rocky Hills HMA

Loamy 8-10" p.z. (28B-10, 24-005) range sites are common within the lower elevations of the HMA, supporting Wyoming big sagebrush with an understory of perennial grasses. These sites are interspersed with Loamy 5-8" p.z. (28B-017) sites, which are comprised of bud sage, shadscale and perennial grasses. Shallow Calcareous Loam 8-10" p.z. (28B-11) a black sagebrush site is also common. The middle elevations are dissected by communities of pinyon juniper and by perennial and ephemeral drainages. These areas reflect mixed ecological condition depending upon distance to water, which has influenced use by wild horses and cattle. Significant acreages burned in 1999 and now support crested wheatgrass, forage kochia, and other seeded and native species.

The key grass species that should be present throughout most of these sites is Indian ricegrass. Many of the lower elevations support diminished populations of key perennial grasses in the understory; however, the key species are still present in these communities providing a source for future improvements. Areas closest to water and on mild slopes support limited understories of perennial grasses, and many are dominated by less desirable perennial grasses such as Sandberg's bluegrass and bottlebrush squirreltail. Cheatgrass is also prevalent in many locations. Moderate slopes and areas several miles from water are generally located in higher precipitation zones, so are inherently more productive. Where heavy wild horse concentrations have occurred, the understories reflect minimal levels of perennial grasses, especially the key desirable species.

The higher elevations of the HMA that are not in pinyon juniper vegetation consist of Claypan 12-14" p.z. (28B-037), Mountain Ridge, (28B-041, and Loamy 10-12" p.z. (28B-007) range sites. Encroachment of pinyon and juniper is common throughout these sites, diminishing the potential for understory forage production. Many of these sites produce substantial understories of bluebunch wheatgrass and other species that may be producing as much as 200-300 lbs/acre. Unfortunately, wild horses are currently not making use of these areas due to heavy tree cover or other unknown reasons.

The Geyser Creek area has been and currently is heavily utilized by wild horses. Upland meadows are dry and do not support proper species composition or production. Other locations still produce moderate production of perennial grasses, and since the 2004 JD Allotment FMUD, it is likely that

improvement of the riparian areas and the uplands is occurring. Heavy use by wild horses is occurring in preferred locations, limiting the presence of key species in the understory. With proper management of wild horses, these locations would be expected to improve as well.



Cadet Spring Trough. This area burned in 1999. Note production of grasses and other species. The light colored vegetation is white top, an invasive noxious weed. June 2008.



Central portion of the HMA. Note grass production. Area not being utilized by wild horses. May 2008.



Geysers Creek area. Heavy wild horse presence in this part of the HMA. May 2008.



Geysers Creek. May, 2008.



Upper Headwaters of Geysers Creek. Springs are dry, and wild horse presence is high. May 2008.

The vegetation communities within the Rocky Hills HMA are currently adequate to support the wild horse AML range for the HMA. Severe winters that cause lower elevations to become covered with thick snow could cause forage shortages. Overall, however forage is not the limiting factor within the HMA. Waters are limited, and many historically used sources exist on private land and have been fenced. Few perennial streams exist, and many of the drainages go dry in summer. Additionally, some springs have gone dry due to heavy use compounded by years of drought conditions. Water and space are the limiting factors for this HMA.

Conclusions

The rangeland vegetation is highly variable throughout the Complex, and expresses a wide range of ecological condition due to the varied history of wildfire, and wild horse and livestock use. Unfortunately, much of the lower elevation rangeland important for winter habitat is denuded and lacks appropriate perennial key grass species. Many locations are dominated by annual invasive species, or exhibit large expanses of compact bare soil. Mid elevations receive higher levels of precipitation in general, and may not have been as heavily utilized by livestock in the past due to slopes or distance to water. Though many of these sites still support limited amounts of key perennial grasses and forbs, wild horse use is very high in some areas, and damage to the soils and vegetation through grazing and trampling is common. Upper elevations, though within the highest precipitation zones, often do not provide high production of usable forage due both to the terrain and substrate, as well as historical overuse by wild horses.

Not only does the rangeland vegetation not reflect the potential composition of diverse perennial species, but also substantially reduced production of forage as well. Many of the range sites within the Complex should produce a minimum of 240 lbs/acre of perennial grasses. Monitoring observations throughout 2008 found that many sites produced just 10-20% of the potential.

Some of the lower elevation vegetation communities Grass Valley and Austin Allotments are degraded to the degree that thresholds may have been reached, which could prevent future improvement without manipulation of the range through seeding or other procedure. It is vital to protect the remaining resources and promote improvement of the habitat quality within these HMAs.

Based on the review of climate, utilization, actual use, vegetation condition, wild horse distribution, and evaluation of limiting factors, it has been determined that the current Appropriate Management Levels for the HMAs within the Callaghan Complex are valid, and should not be adjusted at this time. The following summarizes the rationale for this determination.

- Drought conditions have occurred an average of 28% of the precipitation years for the 36 year period of record or 1 out of every 3.6 years according to the Beowawe, University of Nevada Ranch Weather Station. Furthermore, the Complex has experienced drought conditions 6 years since 1995, or 1 of every 2.16 years.
- Many vegetation communities do not reflect proper frequency or production of perennial key forage species as compared to the Potential Natural Community.
- Wild horse habitat is at risk of further decline.
- AMLs have not been maintained in the Complex since they were established, and wild horse populations have been in excess of these AMLs.
- Key species are present within the plant communities, particularly at higher elevations, indicating that potential improvement is possible with proper wild horse management.
- HMAs are not being utilized uniformly.
- Winter range is limiting within the Bald Mountain and Callaghan HMAs.
- Water is limiting within the Rocky Hills HMA.

Because of the current condition of the rangeland and riparian resources within these HMAs, it will be very important to maintain the populations within the established AML ranges in order to minimize future over use of the resources, and promote improved habitat condition and population health.

Periodic monitoring of wild horse use throughout these HMAs will continue to include wild horse distribution, census, nested frequency, utilization and water availability/riparian condition. Nested frequency monitoring sites would be installed and read during the spring 2009 following the gather in order to establish baselines for future monitoring.

Should the AMLs be maintained, upward habitat trend should be observed throughout the HMAs. Genetics data, as well as data collected during the proposed gather and future monitoring data would be incorporated into an HMAP to outline long term management strategies for these HMAs. Future Rangeland Health Assessments completed for these allotments and HMAs will consider the use by wild horses, livestock and wildlife in addition to rangeland condition, and make appropriate changes to wild horse AMLs.

Appendix G: Riparian PFC Data

Callaghan HMA – Lotic Resources (Streams)

SITE NAME	RIPARIAN FUNCTIONAL CONDITION RATING					TOTAL MILES
	PFC	FAR-UP	FAR-NA	FAR-DN	NF	
Alex Canyon				2.0	0.3	2.2
Bernd Canyon	0.2			0.1		0.2
Boone Creek	3.1	0.3		0.6	0.5	4.5
Cottonwood Canyon		0.1		0.1		0.3
Elkhorn Canyon		0.1		0.6		0.7
Hall Creek		3.2		3.4		6.5
Iowa Creek	4.4	1.4	2.7	9.0	0.9	18.4
Italian Creek	1.9	2.4		0.7	0.9	5.9
Reese River	2.1	3.1		10.1		15.2
Barton Creek					0.8	0.8
Willow Creek	1.2		0.2			1.3
Callaghan Creek			1.5			1.5
Skull Creek	1.5	1.0	5.5			8
Rosebush				5		5
Cowboy Rest					3.3	3.3
Total Miles	14.2	11.6	9.9	31.4	6.6	73.8
% Miles	19.3%	15.8%	13.4%	42.6%	9%	100%

Callaghan HMA – Lentic Resources (Springs, Seeps, Meadows)

SITE NAME	RIPARIAN FUNCTIONAL CONDITION RATING					TOTAL ACRES
	PFC	FAR-UP	FAR-NA	FAR-DN	NF	
Alex Canyon		0.1		0.5		0.6
Bernd Canyon	2.7	0.01		1.9		4.6
Boone Creek	0.0	0.01		0.9		0.9
Cottonwood Canyon				0.01		0.01
Elkhorn Canyon				0.01		0.01
Hall Creek			0.2	1.7		1.9
Iowa Creek	0.1	0.7	0.7	1.5	0.2	3.2
Italian Creek		0.4		0.4		0.8
Reese River	38.7	2.2	5.3			46.2
Barton Creek				1.2	3.4	4.6
Willow Creek	1.2			0.3	0.3	1.7
Charles Canyon				0.5	1.5	2.0
Skull Creek				8.0		8.0
Rosebush					4.0	4.0
Cowboy Rest					4.0	4.0
Total Acres	42.6	3.4	6.2	17.0	13.3	82.6
% Acres	51.6%	4.1%	7.5%	20.6%	16.2%	100.0%

Rocky Hills HMA Lotic Resources (Streams)

SITE NAME	RIPARIAN FUNCTIONAL CONDITION RATING					TOTAL MILES
	PFC	FAR-UP	FAR-NA	FAR-DN	NF	
Indian Creek	0.9			0.04	0.1	1.1
Coils Creek	3.3					3.3
Denay Creek				1.2		1.2
McClusky Creek		1	4.3			5.3
Total Miles	4.2	1	4.3	1.24	0.1	10.9
% Miles	39%	9%	39%	11%	0.9%	100%

Rocky Hills HMA Lentic Resources (Springs, Seeps, Meadows)

SITE NAME	RIPARIAN FUNCTIONAL CONDITION RATING					TOTAL ACRES
	PFC	FAR-UP	FAR-NA	FAR-DN	NF	
Indian Complex	5.7		0.7	0.4	0.01	6.8
Rooster Complex	0.2			0.1	0.1	0.4
Black Complex			7			7
Coils Complex	0.08			0.7		0.7
Denay		0.02	0.44	0.04		0.5
Cadet Trough					0.02	0.02
Total Acres	6	0.02	8.1	1.24	0.13	15.5
% Acres	39%	0.1%	52%	27%	0.8%	100.0%

MAMMALS	
Scientific Name	Common Name
<i>Antrozous pallidus</i>	pallid bat
<i>Brachylagus idahoensis</i>	pygmy rabbit
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
<i>Eptesicus fuscus</i>	big brown bat
<i>Lasionycteris noctivagans</i>	silver-haired bat
<i>Myotis ciliolabrum</i>	small-footed myotis
<i>Myotis evotis</i>	long-eared myotis
<i>Myotis thysanodes</i>	fringed myotis
<i>Myotis volans</i>	long-legged myotis
<i>Pipistrellus heperus</i>	western pipestrelle
BIRDS	
Scientific Name	Common Name
<i>Accipiter gentilis</i>	Northern Goshawk
<i>Aquila chrysaetos</i>	Golden Eagle
<i>Asio flammeus</i>	Short-eared Owl
<i>Asio otus</i>	Long-eared Owl
<i>Athene cunicularia</i>	Burrowing Owl
<i>Baeolophus griseus</i>	Juniper Titmouse
<i>Buteo regalis</i>	Ferruginous Hawk
<i>Buteo swainsoni</i>	Swainson's Hawk
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse
<i>Falco mexicanus</i>	Prairie Falcon
<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay
<i>Haliaeetus leucocephalus</i>	Bald Eagle
<i>Icteria virens</i>	Yellow-breasted Chat
<i>Lanius ludovicianus</i>	Loggerhead Shrike
<i>Leucosticte atrata</i>	Black Rosy-Finch
<i>Melanerpes lewis</i>	Lewis's Woodpecker
<i>Numenius americanus</i>	Long-billed Curlew
<i>Oreortyx pictus</i>	Mountain quail
<i>Poocetes gramineus</i>	Vesper Sparrow
<i>Sphyrapicus nuchalis</i>	Red-naped Sapsucker
AMPHIBIANS	
None	None
FISH	
None	None
PLANTS	
<i>Asclepias eastwoodiana</i>	Eastwood milkweed
<i>Arabis falcifructa</i>	Elko rockcress
<i>Eriogonum anemophilum</i>	windloving buckwheat

Appendix I: Response to Public Comments

Prior to completion of this Environmental Assessment, a scoping letter dated April 24, 2008, was mailed to 62 individuals, organizations and State and Federal Agencies, which comprise the interested public list for the Callaghan Complex.

Responses were received from the Nevada Division of State Lands and the Nevada State Historic Preservation Office in support for the proposed wild horse gather. Additional responses were received from Animal Welfare Institute, Candace D. Oathout, and Cindy McDonald, involving comments, questions, and recommended topics for analysis within the EA. Comments were also received from permittees Pauline Padilla, and Jim and John Filipinni during meetings pertaining to allotment administration and monitoring.

No.	Commenter Name	Comment
Comment 1	Animal Welfare Institute (AWI)	The Draft EA must comprehensively analyze a reasonable range of alternatives, including, but not limited to, the use of fertility control, natural controls and a combination thereof, various round-Up schedules to maximize the efficacy of fertility control, reduction and/or elimination of livestock numbers, if necessary, to adequately protect the health, welfare and genetic viability of wild horses, and relocation of wild horses to other appropriate areas.
Response 1		This comment was addressed in Section 2 of the EA.
Comment 2	AWI	(Include) A description of the censusing methodology used by the BLM and the dates of all censuses referenced in the EA. Also, a discussion of how, when and by whom field inspections were conducted.
Response 2		Outside of the scope of this analysis. In addition to the information provided in the EA, census and monitoring information is located in the documents identified in Appendix E (specifically Rangeland Health Assessments (RHAs) and Evaluations). Census conducted in the Complex is discussed in Appendix B, Section 5. Recent monitoring activities are discussed in Section 3.4 of the EA and Appendix F.
Comment 3	AWI	(Include) An analysis of the accuracy and reliability of the Jenkins population model.
Response 3		Outside of the scope of this analysis. Refer to BLM Responses 42-48 below.
Comment 4	AWI	(Include) An analysis of the age and sex structure of wild horse herds in the designated HMAs within the Complex along with an analysis of what constitutes genetic viability of a herd and how the proposed and alternative actions will or will not ensure the genetic health and viability of the herd.
Response 4		This comment is incorporated into Issue 1, identified in Section 1.6. These items are addressed in the Environmental Consequences discussion of Sections 3.7of the EA, with additional data presented in Appendix B, Section 4.
Comment 5	AWI	(Include) The current health and condition of wild horses in each HMA within the Complex.
Response 5		This information is summarized in Appendix B, Section 3.
Comment 6	AWI	(Include) The actual, not estimated, recruitment rates for wild horses in each HMA within the Complex for the last 10 years.
Response 6		Census data is available in Appendix B, Section 5. The MLFO utilizes the best available data to estimate annual rates of increase. Highly accurate, specific data is not available for HMAs without intensive, long duration research, the means of which to collect is currently unavailable at this time.
Comment 7	AWI	(Include) The results of the last three censuses conducted for each HMA within the Complex; the dates and results of the last three gather and removal operations in terms

No.	Commenter Name	Comment
		of numbers of animals planned for gather, planned for removal, actually gathered and actually removed, along with a discussion of any discrepancy between planned and actual numbers.
Response 7		Refer to Appendix B, sections 5 and 8 for information regarding gather and census within the Callaghan Complex.
Comment 8	AWI	(Include) A discussion of what constitutes "desired" characteristics of each herd and how managing for these characteristics will impact the long term genetic viability and variability of the herds.
Response 8		This issue will be addressed in future completion of Herd Management Area Plans (HMAPs). Refer to Appendix B for information about wild horse characteristics and management objectives.
Comment 9	AWI	(Include) An analysis of compensatory reproduction in areas where ungulate populations are dramatically reduced.
Response 9		Specific data is not available to quantify compensatory reproduction following gathers. Refer to the impacts analysis in Section 3.7 of the EA.
Comment 10	AWI	(Include) A discussion of how pregnant mares and foals will be affected by removal operations and their subsequent transport and placement in holding facilities.
Response 10		This issue is incorporated in Issue 3 of the EA, identified in Section 1.6. This information is also addressed in the Env. Consequences discussion of Section 3.7.
Comment 11	AWI	(Include) A breakdown of the numbers of wild horses and estimates of wildlife numbers in the designated HMAs within the Complex at different times of the year along with an analysis of the habitat use for these various animals.
Response 11		Outside the scope of the analysis. This type of information was compiled during completion of several of the Rangeland Health Assessments (RHAs) and Evaluations identified in Appendix E.
Comment 12	AWI	(Include) A list of the grazing allotments in the Complex, the names of permittees and expiration dates of permits and leases.
Response 12		Outside the scope of the Analysis. Refer to Section 3.3 of the EA for information about livestock grazing within the Complex.
Comment 13	AWI	(Include) A description and analysis of actual and permitted, livestock use -- numbers, species, distribution, any permit/lease stipulations and schedule of use on the Complex throughout the year. Has "permitted" use been reduced in recent years? Has livestock actual use generally been less than permitted use in the grazing allotment(s) due to climatic, market or other variables? Charts indicating actual and permitted use for the last 20 years are needed to evaluate whether or not the proposed action and alternatives meet the regulatory mandate requiring the management of wild horses in "balance" with other users.
Response 13		Outside the scope of the Analysis. Refer to Section 3.3 of the EA for information about livestock grazing within the Complex. Livestock grazing management (and wild horse AML) decisions have been previously made through the documents identified in Appendix E. Thriving Natural Ecological Balance as identified within the Wild Free Roaming Horses and Burros Act does require that wild horse numbers on the range are equal to wildlife or livestock numbers. BLM determines the appropriate management level of wild horses and burros based on an ongoing program of monitoring forage condition, range usage, and an inventory of population numbers, etc. The appropriate management level is defined as the "optimum number" of wild horses (or burros) which results in a thriving natural ecological balance and avoids a deterioration of the range (refer to 109 IBLA 119 and <u>Dahl v. Clark</u> , supra at 592).

No.	Commenter Name	Comment
		In Nevada, appropriate management levels of wild horses and burros are generally determined through the multiple-use decision (MUD) process. This process begins with an evaluation of range conditions to assess whether or not management and stocking levels for livestock, wild horses and/or burros, and wildlife are achieving rangeland health objectives. If rangeland health objectives are not being met, changes in management or stocking levels are proposed. Proposed changes are analyzed in an environmental assessment and a proposed multiple-use decision (PMUD) is issued. Proposed decisions are subject to review and protest by parties affected by the proposal. BLM considers all protests filed, and then issues a final multiple-use decision (FMUD) which is subject to appeal.
Comment 14	AWI	(Include) A comparison of the AUM calculation for wild horses and livestock, along with a total for each HMA within the Complex and any overlapping grazing allotment(s). Also, a description of how habitat has, if at all, been artificially manipulated in the Complex and for what purpose - e.g., seedings, supplemental feeding, water hauling, fence construction, etc.?
Response 14		Outside the scope of the analysis. Refer to the RHAs and Evaluations identified in Appendix E for carrying capacity analysis that was completed when the AMLs were established.
Comment 15	AWI	(Include) A description of specific locations and conditions of watering points and which species (wild horses/burros, wildlife and livestock) utilize these points at various times of the year. Does water hauling for livestock use occur? To what extent has this affected livestock and wild horse distribution?
Response 15		Please refer to the Rangeland Health Assessments and Evaluations completed for the allotments within the Complex, identified in Appendix E. Water availability was assessed when AML was established. Condition and quantity of waters available to wild horses would be further assessed in HMAPs completed in future years.
Comment 16	AWI	(Include) A detailed discussion of wild horse movement patterns.
Response 16		This information is addressed in Section 6 and 7 of Appendix B.
Comment 17	AWI	(Include) A discussion of any interchange between wild horses in the designated HMAs inside the Complex and wild horses from other HMAs outside the Complex.
Response 17		This information is addressed in Section 2.1 of the EA and Sections 6 and 7 of Appendix B.
Comment 18	AWI	(Include) A discussion of the criteria used to arrive at populations targets for wild horses. Are the proposed AMLs based upon available forage after livestock and wildlife use had been calculated? If not, how were the proposed AMLs formulated?
Response 18		Outside the scope of the analysis. Refer to BLM Response 13 above. The AML decisions have already been made for these HMAs, and determined to remain valid at this time. Refer to the RHAs, Evaluations, and FMUDs identified in Appendix E for information about the AMLs and how they were established.
Comment 19	AWI	(include) An analysis of the methodology used and the information gathered from resource inventories and monitoring, including quantifiable data supporting any proposed action.
Response 19		Refer to Section 1.1, Purpose and Need, Section 3.4, 3.5, 3.6, 3.7, 3.8, Chapter 4, and Appendices B, E, and F.
Comment 20	AWI	(Include) An analysis of the extent to which fires or drought have impacted wild horses and their habitat.
Response 20		Refer to Section 3.4 of the EA and Appendix F.
Comment 21	AWI	(Include) An analysis of weather patterns and how climatic conditions have impacted wild horses and other wildlife in the area in terms of production of vegetation, water levels, winter kill, etc.

No.	Commenter Name	Comment
Response 21		Refer to Section 3.4 of the EA and Appendix F
Comment 22	AWI	(Include) A discussion of the beneficial effects of wild horses and burros on the functioning of ecosystems.
Response 22		Beneficial effects of wild horses on the functioning of ecosystems within the Callaghan Complex have not been documented. Refer to Sections 3.4, 3.5, 3.6, 3.7, 3.8, Chapter 4, and Appendices B, E, and F.
Comment 23	AWI	(Include) A discussion of any predator control activities on or in the vicinity of Complex.
Response 23		Outside the scope of the analysis.
Comment 24	AWI	(Include) A discussion of the impacts of hunting activity that takes place on Complex and environs.
Response 24		Outside the scope of the analysis.
Comment 25	AWI	(Include) An analysis of fertility control measures currently available and costs for the implementation thereof, including the timing of administration.
Response 25		This comment was incorporated into Issue 2 identified in Section 1.6 of the EA. Fertility control was addressed within the Proposed Action.
Comment 26	AWI	(Include) A discussion of proposed trap locations, both temporary and permanent, and the environmental impacts of both construction and operation of traps.
Response 26		Environmental impacts of construction and operation of traps is addressed throughout Chapter 3 of the EA, as well as Appendix A. Photos of trapsites utilized on other gathers are located in Appendix A. Trapsites are chosen after the gather begins and depend upon many factors including accessibility, animal health, climate, terrain, etc.
Comment 27	AWI	(Include) An analysis of the impacts of helicopter use on wild horses and other wildlife in herd management areas.
Response 27		This comment was incorporated into Issue 3 of Section 1.6 in the EA. The impacts of the proposed gather to wild horses and wildlife is addressed in Sections 3.7 and 3.8 of the EA.
Comment 28	AWI	(Include) A discussion of type of terrain to be covered and weather conditions during periods for round-ups.
Response 28		This information is addressed in Section 2.1, 3.7 of the EA, and Appendix A, Section I. C.
Comment 29	AWI	(Include) A detailed discussion of how wild horses are transported and treated in holding corrals and the impacts of such treatment on all horses.
Response 29		This information is addressed in Appendix A, and the Env. Consequences discussion of Section 3.7 of the EA.
Comment 30	AWI	(Include) A discussion of the current population of wild horses and burros in holding facilities and an assessment of short-term and long-term holding facility space at the projected time of removals. This should include a discussion of how the implementation of sale authority might impact any removed animals. To what degree has sale authority been used to date?
Response 30		<p>Outside the scope of this analysis. Information about the BLMs Wild Horse Sale Authority is available at: http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/sale_authority.html</p> <p>Additional information about the wild horse and burro program is available on the National Wild Horse and Burro Website at: http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro.html</p>
Comment 31	AWI	(Include) A detailed description of the screening methods used by adoption agents including copies of all application forms, etc.
Response 31		Outside the scope of this analysis. The application to adopt a wild horse or burro is available from any BLM office or on-line at :

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		<p>http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/adoption_of_wild_horses/adoption_application</p> <p>BLM Wild Horse and Burro Specialists review completed applications for adequacy prior to approval. Site visits may be made prior to approval if necessary. Applications may be approved on-site which is acceptable BLM practice.</p>
Comment 32	AWI	(Include) A discussion of how compliance with adoption requirements is monitored and enforced.
Response 32		Outside the scope of this analysis. Wild Horse and Burro Specialists complete inspections of adopted animals as deemed necessary. Issues/violations are corrected if present. Continued violation rarely occurs, and would result in repossession of the animal by BLM, and placement into another adoptive home.
Comment 33	AWI	(Include) An analysis of the timing of removals.
Response 33		This information is addressed in the Env. Consequences discussion of Section 3.7.
Comment 34	AWI	(Include) Monitoring data that indicate the condition and trends of ecosystem functioning and a quantitative analysis of all factors contributing to the condition and trends.
Response 34		Refer to the RHAs and Evaluations completed for the allotments within the Complex identified in Appendix E. Also refer to Section 3.4 and 3.5, and Appendix F of the EA
Comment 35	AWI	(Include) Maps that identify the wild horse movement patterns within the Complex, fences or other obstructions, grazing allotments, watering sites, wild horse and livestock distribution, trap sites, etc.
Response 35		A location map is all that is required for this EA. Future HMAPs may include additional maps. Two maps were provided in the EA.
Comment 36	AWI	(Include) A discussion of the impacts (direct, indirect and cumulative) of each alternative developed. Finally, the analysis should include appendices with other pertinent documents and maps needed for the public to offer informed comment.
Response 36		This comment was incorporated into Issue 2 and 3 identified in Section 1.6 of the EA. Refer to Chapters 3 and 4 of the EA for discussions of potential impacts to affected resources through completion of a wild horse gather, and differences that could exist between alternatives. Refer to Appendices A-H, and Maps 1-2.
Comment 37	Cindy McDonald	Please include whether AML has been established for populations over one year of age or if foals have been included in AML ranges that trigger gather cycles.
Response 37		Outside the scope of the analysis. Refer to the RHA and Evaluation documents identified in Appendix E. AMLs are generally established to indicate adult animals over 1 year of age. Most HMAs proposed for gathering by the MLFO are many times over AML before gathers are able to be scheduled due to Nevada State and National funding priorities, holding facility space etc.
Comment 38	C. McDonald	<p>. . . inflating populations and/or an invalid recruitment rate of 17.5% seems to still be an issue in population estimates for the Callaghan HMA. . . the projected population after the 2008 post-foaling season would only be 542, not 995 as BLM is now claiming exists in the HMA. This also fails to consider any reductions in reproduction rates that were a result of PZP injections after the last round up, results that seemed to severely escalate reproduction versus reducing it.</p> <p>So what is going on? Is the well-documented recruitment rate of 17.5% incorrect? Does PZP cause wild horses to triple their reproduction rates with no visible sign of slowing reproduction in any year? Why did BLM apply a reproduction rate of almost 36% to the last gather proposal? Why did populations escalate by 60% between 2004 and 2005?</p>
Response 38		Outside the scope of the analysis. Though Fertility Control was analyzed for Alternatives 1

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		<p>and 2 in the 2002 Gather Plan/Environmental Assessment; it was not implemented for the Callaghan HMA. None of the HMAs in the Callaghan Complex have ever been treated with fertility control.</p> <p>Annual rates of increase within wild horse herds fluctuate due to many, many factors including climate, winter severity, forage and water availability, animal density, wild horse gathers etc. The MLFO utilizes and average annual rate of increase of 17.5%, which accounts for annual reproduction and mortality. Actual rates of increase vary year to year. As additional gather and census data becomes available, the MLFO will be able to further fine tune these estimates for individual herds. These rates do not account for movement between HMAs. This average also does not account for higher number of wild horses than estimated that may remain in the HMA post gather.</p>
Comment 39	C. McDonald	Where are wild horses coming from causing increases to the Callaghan and Bald Mountain HMA population sizes?
Response 39		<p>Substantial movement into the Callaghan Complex from other HMAs is not occurring. The population has been increasing at certain rates within the Callaghan and Bald Mountain HMAs, and fluctuating back and forth between the HMAs through the years. The 2002-combined Callaghan and Bald Mountain population estimates following the 2002 Callaghan HMA gather was 513 wild horses. If that population had increased at an average rate of 17.5% per year between 2003-2008, the population would currently be estimated at 1,350 wild horses. Two census flights have taken place since 2002, and the current estimated population of the two HMAs based on that data is 1,589. The difference of 239 wild horses over 6 years could easily have occurred due to a higher annual rate of increase (due to increased range and animal health following the 2002 gather), or from additional horses remaining in the HMA beyond what was estimated in 2002. Data collected during the proposed gather and future census flights will help to pin down the movement and estimated annual rates of increase for this area.</p>
Comment 40	C. McDonald	. . . no wild horses are migrating IN to the Rocky Hills HMA nor does there seem to be much movement occurring outside the (Rocky Hills) HMA boundaries into other HMAs.
Response 40		Wild horse movement between HMAs was addressed in Sections 2.1 of the EA, and Sections 6 and 7 Appendix B.
Comment 41	C. McDonald	Several gathers have taken place near the Complex -- in Rocky Hills, New Pass/Ravenswood, Simpson Park Range, South Shoshone, Roberts Mountain. So what wild horses were left to migrate into the Bald Mountain or Callaghan HMAs to cause such a huge influx in currently reported populations?
Response 41		Refer to BLM response 39.
Comment 42	C. McDonald	. . .lack of verified accuracy regarding the Winn Equus Population Modeling software, which has fast become a foundational tool in analysis of management actions with little data to substantiate its actual effectiveness in relation to "real world" results.
Response 42		Outside of the scope of the analysis. Appendix B, Section 8 provides tables, which reflect 2002 estimated and actual gather data for the Callaghan HMA.
Comment 43	C. McDonald	<p>Pop modeling: 1. Inconsistent Application.</p> <p>. . . .wide range of projection fields that have been used on the wild horse removals ranging from 4 years to 20 years., and running the model for different lengths of time</p> <p>Recommendation: Utilize an analysis that fits that actual proposal being considered. If the objective is to maintain AML through a cyclic gather process of every 3, 4 or 5 years, run the model on the actual proposal to determine results. The additional inclusion of running a separate 20-year projection may be useful in determining the outcome of the</p>

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		proposals cumulative impacts but using it as a substitute for the actual proposal provides no data as to the appropriateness of the management actions and their implementation.
Response 43		Outside the scope of the analysis. The MLFO has attempted to apply parameters to the model that match the Proposed Action and Alternatives as closely as possible. Several scenarios were included to show what could occur with a 3-year minimum gather cycle and a 5-year minimum gather cycle. The model was run for 6 years. Future completion of HMAPs would include additional analysis and longer time frame for modeling.
Comment 44	C. McDonald	<p>Pop modeling 2: Unrelated Input</p> <p>HUGE variation by BLM personnel throughout the WHB Program in the numbers they use as their "starting base" in the Winn Equus trial runs</p> <p>Recommendation: Make sure starting population levels and all population inputs used in the analysis are in a REASONABLE RANGE of populations relative to the alternatives and proposed actions for a more accurate projection. There should also ALWAYS be an input used that is identical to the proposal. Such as, if the proposal is projecting on leaving 100 post-gather, at least one trial for each Alternative considered should include 100 as the starting population input.</p>
Response 44		<p>Outside the scope of the analysis. The WinEquus model has help files available for the various attributes that can be changed by the user, and explanation of how the model works. The help file documentation states the following about the starting population:</p> <p><i>Is initial population size exact?</i></p> <p><i>As discussed in the section about the AGE-SEX DISTRIBUTION, the initial distribution that you enter is considered to be an estimate of the numbers of horses in each age-sex class, not exact values for each age-sex class. This means that the sum of these values, which is the total population size, is also an estimate. Therefore, for each trial of a simulation, the program estimates a starting population size based on the assumption that the average sighting probability of horses in an aerial survey is about 90%. It then adjusts the numbers in each age-sex class proportionally so they sum to this total. As a result the starting population sizes for each trial are different from each other, and all are greater than the initial total implied by the age-sex distribution that you enter. If you wish to bypass this step and have the program use the initial age-sex distribution that you enter for all trials of a simulation without adjustments, then click Yes here.</i></p> <p>In order to more clearly reflect the differences between alternatives (treatments) rather than the inherent variation produced by the model, the MLFO has generally elected to set the initial population size as exact under the Advanced Options feature. The MLFO also carefully analyzes the estimated age structure and sex ratios produced by the model in order to set the removal parameters as close to what would likely occur on the gather as possible (for each alternative modeled).</p>
Comment 45	C. McDonald	<p>Pop modeling: 3. Cherry Picking</p> <p>BLM has "cherry picked", what graphs they include while omitting other pertinent graphs and/or information that is necessary to assess the impacts of the entire projected proposals as a whole.</p> <p>Recommendation: Include the full spectrum of trial runs used in each proposal AS RUN by the model itself without censoring data to lead the proposal to preformed conclusions.</p>

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Response 45		The MLFO has attempted to provide the most useful graphs and tables produced by the model in order to show the relative differences that could occur with implementation of the various alternatives. These graphs and tables are displayed in Appendix D. If there are other graphs or information that you find useful, please request these items specifically.
Comment 46	C. McDonald	<p>Pop modeling: 4. Results In Their Own Image</p> <p>BLM personnel creating their own graphs and inputs while claiming these are the results of the trial runsallows the opportunity for BLM personnel to skew data and inputs that may not be tied to the actual data used or the results of the trial runs.</p> <p>Recommendation: If BLM would like to include a chart of their own making to help clarify for easy comprehension, it should not be allowed to replace the full spectrum of trial runs usually included as an Appendix. It is essential that the trial runs as computed by the software be fully published so that the numbers can be compared and verified as accurate. The data provided in self-created graphs should also contain the full spectrum of information obtained from the trial runs, including the actual numbers used to conduct the projections.</p>
Response 46		Outside the scope of the analysis. Graphs and tables displayed in Appendix D were generated by the WinEquus model with the exception of the "overall average" which was calculated from the totals of all 50 trials for years 2010-1015, and averaged. This figure has been provided to provide general comparison of the average number of horses on the range that could result under the various alternatives through the years.
Comment 47	C. McDonald	<p>Pop modeling: 5. Complexes</p> <p>While is understandably a useful tool, to project meta-population results through alternatives, how accurate is this technique in terms of individual populations? Just because gathering an area for administrative convenience causes BLM to issue proposals as "Complexes" within a FO's jurisdiction, it does not necessarily accurately reflect the populations interactions as "one herd" or the accuracy of projecting outcomes based on HMAs that are not truly connected or interactive. There can be issues of fencing, roadways and topographical barriers that prevent any significant genetic interchange OR proposals may come up that BLM has no control over that radically alter herds migratory routes during the life of the projections that may cause the populations to crash through unforeseen actions. Also, until BLM can ascertain with some degree of certainty the AMOUNT of interchange between the HMA populations and use that as an input, combining total populations is relatively useless. Even if using inflated "Complex" numbers with unknown interchanges appeared to provide for viable herds, it does nothing for projecting outcomes of individual herds that may experience population "crashes" because they never really mixed in the first place.</p> <p>Recommendation: IF BLM wants to use trial runs to project "meta-population" projections as a useful tool under a Complex, they should ALSO be required to run to trial runs for each specific HMA as well, just in case something unforeseen happens or in case the migration and herd movement is less than expected. Research has revealed that very few of the HMAs gathered as a Complex have significant access to other HMAs so the actual usefulness of using trial runs in this manner in "real world" terms needs supporting data to substantiate its effectiveness before confidence can be placed in the current strategy of just considering "potential" as actual and viable. The fact that managers lack data on which herds are genetically isolated has also been cited and substantiated in the Strategic</p>

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		Research Plan (see pg. 35) and this fact needs to be appropriately incorporated in management strategies to ensure long-term viability and health in management actions and proposals.
Response 47		<p>Long-term health of the wild horses within the HMAs was incorporated into Issue 1, identified in Section 1.6 of the EA. Genetic health would be further analyzed following collection of hair samples during the proposed gather. This data would be incorporated into future completion of HMAPs for these HMAs.</p> <p>The Callaghan, Bald Mountain, and Rocky Hills HMAs are considered a Complex for purposes of this Gather Plan/EA not only because of the close proximity of the HMAs to each other but because of the known movement of animals between Bald Mountain and Callaghan HMAs, and suspected movement to the Rocky Hills HMA. In response to this comment, the data for the Callaghan and Bald Mountain HMAs was modeled both separately and combined in order to reflect the potential effects to the populations through implementation of the Alternatives. Because minimal, rather than substantial movement likely occurs with the Rocky Hills HMA (and because of its removal history), this HMA was modeled separately from the others.</p>
Comment 48	C. McDonald	<p>Pop modeling: 6. The Callaghan Complex</p> <p>These considerations and proper utilization of the population modeling trial runs is absolutely vital to determine if management actions being considered are appropriate for self-sustaining herds as the National Program Office has included the Callaghan HMA under a Complex umbrella for population management experiments through the addition of geldings as a non-breeding component to free roaming herds.</p> <p>In July 2006, BLM published a Draft paper examining this option titled, "Options for Managing a Non-Breeding Component within Self-Sustaining Herds of Wild Horses", which included the Callaghan HMA as part of the proposal. If BLM fails to properly input or assess their management actions through the Winn Equus Population Modeling Program so no supporting data can verify its effectiveness all the while continuing to insist that it inclusion is all that is necessary to justify their proposals, serious damage can be done to self-sustaining herds. Because BLM has already identified the Callaghan HMA for consideration in this latest round of population control techniques, it is imperative that BLM personnel accurately and consistently apply proper data and statistics when using trial runs to project outcomes and population crashes.</p> <p>The potential impacts to self-sustaining herds through improper application, inputs and parameters, especially when combined with fertility control drugs and/or the most recent consideration of including castrated stallions as a component of wild free-roaming herds, has potential to cause irreparable damage through inbreeding, population crashes and violations of federal law requiring BLM to manage herds in such a manner as to preserve them for future generations.</p>
Response 48		Gelding of stallions was not proposed within this EA. The document referenced was a briefing paper provided to the WHB Advisory Board. No action was taken by BLM on that proposal. Refer to Section 2.3.6 of the EA. The issue of self sustaining herds, effects of fertility control and potential of population crashes have been incorporated into Issues 1 and 2 identified in Section 1.6 of the EA.
Comment 49	C. McDonald	The issue of inflated populations being reported when wild horse populations may actually be considerably lower, as well as a recruitment rate that is being cited as "well-documented" but not actually occurring in the Callaghan and Bald Mountain HMAs is

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		providing additional concern.
Response 49		Refer to Response 38 above. The MLFO utilizes the best available data when estimating population size and growth. This includes census data and gather data, and analysis of historical trends.
Comment 50	C. McDonald	<p>In respects to the Population Modeling itself and the trial runs, the Callaghan HMAs recruitment rate is a “poster child” for the problems being outlined here regarding the verification of the programs actual relativity to “real world” applications.</p> <p>In the 2002 Callaghan wild horse gather plan, trial runs were conducted to determine the viability of wild horse management alternatives. Yet, the trial runs produced reproduction rates that exceeded the 17.5% cited as known to occur in the Callaghan HMA and ranged from 19% to as high as 24%. In other words, if the recruitment rate of 17.5% IS accurate, the population modeling software was not accurately projecting outcomes based on verifiable and historic recruitment results for the actual functioning wild horse populations in the HMA.</p>
Response 51		<p>Outside of the scope of the analysis. The WinEquus model produces trials that reflect series of good years and bad years, which produce the range of outcomes generated by the model. The model displays this data as the lowest, highest or median trials (and percentiles in between). Half of the values are above the median and half of the values below the median. The range of values produced by the model could occur in the “real world”. More commonly though, the extreme occurrences do not occur, and growth rates fall somewhere in the middle (which is why the Most Typical Trial is useful). When the total populations for all 50 trials were averaged, growth rates in the absence of fertility control or sex ratio modification were generally around 17%. The MLFO does not have extensive years of individual animal data necessary to compile survivability and foaling rates for individual herds.</p>
Comment 51	C. McDonald	<p>The same thing occurred when examining the Bald Mountain HMA, cited as having a reproduction rate of 12% (though also known to have a 13% rate in one year). Yet the Median average used to project population increases from the proposed action cited a 19.9% growth rate for the Proposed Action.</p> <p>Though BLM cited a 12% recruitment rate for both the South Shoshone and Bald Mountain HMAs, when running the trial runs, the Median Average that BLM used for the South Shoshone projected a growth rate of 21.5% while the Bald Mountain HMA was projected at a Median growth of 20.1% (the highest projecting over 31%) – both are far removed from the documented and asserted historical reproduction rates of these two HMAs and clearly reflect the ineffectiveness of the software in predicting outcomes if they are not in alignment with the actual real world results occurring in the actual populations.</p>
Response 51		<p>Outside of the scope of the analysis. Refer to Response 50 above. Population growth (and lack of) from 1974-2005 was analyzed within the Carico Lake Allotment Rangeland Health Assessment, July 2005, which led the MLFO staff to believe that the growth rate of the Bald Mountain HMA could be as low as 12%. Due to the amount of fluctuation that has occurred with the wild horses from the Callaghan and Bald Mountain HMAs, more accurate growth rates cannot be determined at this time. It may (or may not) be possible to calculate more accurate growth rates for these HMAs or the combined populations of these HMAs in the future, following a comprehensive gather and continued comprehensive census flights. Refer to Sections 6 and 7 of Appendix B for more discussion about movement of wild horses between these HMAs.</p>
Comment 52	C. McDonald	6. Additional Considerations

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		<p>Since its use is still fairly new, many of the initial gathers that began incorporating population projections took 3-4 years to go by before the accuracy of their application could be evaluated in each HMA or area. As a result, only recently has BLM had the opportunity to go back and verify, adjust, modify and evaluate the effectiveness of its application in relation to site-specific proposals. Because of such wide variations used by BLM personnel in different FO's on different proposals over these crucial years, the issuance of many of them as "Complexes" and the instances where only partial data was entered, the BLM has missed a great opportunity to have acquired 3-4 years of data to now evaluate and perhaps modify the software and/or their management actions based on current real world results. BLM should develop a consistent policy regarding its use with the goal in mind of being able to use these trial runs later to analyze the effectiveness of the proposals. As it stands, because of BLM not developing a consistent policy of application, all potential data and projections are still relatively useless in terms of analysis and subsequent modifications if needed.</p> <p>It would behoove BLM and the WH&B Program to address these issues on a broad basis so that the usefulness of the Winn Equus software can be assured with confidence. Incorporating these recommendations would help assure both BLM and the public that the statistics and data backs up the actual usefulness of the trial runs in "real world" applications so projected outcomes can be assessed fairly and confidently for healthy, sustainable herds.</p>
Response 52		<p>Outside the scope of this analysis. The MLFO does compile gather data to derive age structures and sex ratios of gathered and released horses for comparison to pre-gather estimates and future analysis in Herd Management Plans. The original modeling for the 2002 Callaghan HMA wild horse gather was run for 5 years for a regular gather interval of 5 years. The Average Population Size in 5 years derived by the model for Alternative 4 (Gather to high range of AML, no fertility control), was 552-895 horses. Following a March 2005 census, the post foaling population estimate for the Callaghan HMA was 533 wild horses.</p>
Comment 53	C. McDonald	<p>Helicopter Removals:</p> <p>Controversy as efficiency over humane considerations for wild horse (helicopter) removals. Especially during drought conditions where dust is suspected as causing severe respiratory ailments and wild horses in weakened conditions may be overly stressed. (BLM) failure to provide specifics relative to individual gather proposals must be addressed. General standards acceptable for overall guidance, site-specific standards for each gather proposal should be incorporated and the authorized officers assessment of the gather area prior to gather operations publicly posted so that the standards and impacts are clearly analyzed and defined in relation to the proposal areas environment.</p> <p>BLMs Standard Operating Procedures are too vague. There needs to be some general specific humane standards and rules that must be established for all gather activities as well as legal consequences for contractors or personnel that violate these basic humane standards.</p> <p>General standards (should) include limits on distances such as "No wild horse or burro shall be driven more than 5 miles per day", limits on temperatures such as, "No wild horse or burro shall be driven when temperatures exceed 100 degrees or fall below 32 degrees fahrenheit."</p>

No.	Commenter Name	Comment
		Please include specific SOP's relative to the gather proposal area that incorporate the requested specific information for public review as determined to be appropriate by the authorized officer for this specific proposal.
Response 53		<p>The concern for animal safety and humane treatment was incorporated into Issues 2 and 3 identified in Section 1.6 of the EA. Qualified BLM Wild Horse and Burro Specialists and Project Inspectors are present at the trapsites and holding corrals at all times that wild horses are being captured, transported, or sorted. The primary concern of both the BLM staff and the Contractor is for the health and safety of the wild horses. Adequate requirements are currently identified within the National Gather Contract, and within the SOPs (Appendix A) to ensure safety and humane treatment. Despite public perception, violations by gather contractors or their personnel do not occur. The public is welcome to attend gathers to view animal condition and behavior relative to the capture operations.</p> <p>Due to the variability of terrain, climate, animal condition etc, across all HMAs, specific restrictions are not included in policy or SOPs. The BLM Wild Horse and Burro Specialist coordinates with the Contractor on a daily basis to assess conditions and needs to modify gather procedures. These procedures are adapted due to the specific conditions and combinations of conditions present at the specific gather location. Please refer to Sections 2.1, 3.7 and Appendix A of the EA.</p>
Comment 54	C. McDonald	A realistic and reasonable assessment of using water-trapping methods within the proposal area should be included as an alternative or a combination of water-trapping and helicopter removals. Failure to include a sincere plan and alternative that provides for removal methods and mitigation measures that will reduce stress on potentially already highly stressed populations due to inadequate resource availability as a result of known drought conditions will constitute nothing less than animal abuse by BLM through negligence and willful malfeasance by approving methods that promote suffering and potential injuries and/or deaths to wild horse populations placed within their care.
Response 54		This comment was addressed in Section 2.3.5 of the EA. Potential impacts to wild horses through helicopter removals and humane treatment of wild horses were incorporated into Issues 3 and 4 of Section 1.6 of the EA. The impacts to horses that could result from helicopter gathering is discussed in Section 3.7 of the EA. Wild horse conditions would be monitored, and gather methods/procedures modified as necessary through the coordination of the BLM Wild Horse and Burro Specialist and the gather Contractor at the gather location. Use of helicopter to gather wild horses is safe and humane, and does not promote suffering, injury or death. Injury or death resulting from helicopter gathers is very minimal and averages less than 1 percent. The public is welcome to attend gathers to view the capture operation and animal health and well being.
Comment 55	C. McDonald	<p>Euthanasia:</p> <p>While it is understood that BLM has the authority to euthanize wild horses/burros due to specific health conditions, concern is growing as to the validity of BLMs assertions that it is necessary to euthanize X amount of wild horses/burros due to "unrelated" issues from helicopter driving methods. Conditions cited in prior removal operations that resulted in euthanasia of wild horses/burros include Henneke body class conditions of unacceptable ratings, deformities, prior injuries unrelated to helicopter driving methods, and age classifications determining a wild horse is no longer capable of surviving either in the wild or in captivity.</p> <p>It is suggested that BLM begin to actually document these conditions through photographic evidence that these euthanasia's are indeed warranted by the conditions</p>

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		<p>cited as well as providing evidence that these wild horse/burro deaths are indeed non-gather related. Please incorporate the stipulation that all euthanized wild horses will be photographed before and after euthanasia's and available for public inspection to determine the appropriateness of these management activities to public resources.</p> <p>A qualified veterinarian should be the only individual authorized to determine if a condition is untreatable and requires BLM to put a wild horse/burro down and this stipulation should also be incorporated within the removal proposals SOP's.</p>
Response 55		<p>BLM Wild Horse and Burro Specialists would follow existing Euthanasia Policy. WHB Specialists and Contractors are experienced at evaluating health and condition of wild horses during gathers. Euthanasia decisions are made after careful consideration of the animal's body condition, age, tooth wear, injuries, potential for suffering, habitat conditions and other issues that may be of a concern. Euthanasia decisions may also be made after monitoring the animal's condition and behavior in the Holding Corrals for several days. Consultation with Veterinarians may occur when needed. Current policy and BLM regulation does not require photographing wild horses identified for euthanasia. The public is welcome to attend gathers.</p>
Comment 56	C. McDonald	<p>Trapsite Adoptions:</p> <p>I expressed concerns, (for the proposal to do trapsite adoptions with gathers in 2007/2008) not only for conducting a Trapsite Adoption Event in the South Shoshone area but also for wild horses needing time to adjust to captivity. The BMFO response to my concerns stated: "that the wild horses adjusted quickly to the human presence, and were not overly affected by the recent gather . . . staff and the public were able to hand feed and pet many of the horses through the fences. . . .adopted horses quickly bonded with adopters, and were gentled and trained easily. . . .trapsite adoptions prevents the wild horses from having to be shipped 2-8 hours to a maintenance facility, mixed with new animals, sorted, freezemarked, vaccinated, and revaccinated . . . trapsite adoptions not only save the additional expense, but avoid additional handling stress activities are planned to minimize the stress to the wild horses and facilitate a pleasant transition to their new adoptive home".</p> <p>Yet according to the February 10th, 2004 Meeting Minutes of the National Wild Horse & Burro Advisory Board, these assurances and statements made by the BMFO are not entirely true as the minutes stated, "Analysis indicates newly captured animals need time to adjust to captivity."</p> <p>So which one of you is telling the truth? What documentation does either side have to support these statements? What is the official BLM policy on Trapsite Adoptions and when was it established? Please provide a copy of the Memo or Instructions that provides both authorization, criteria and policy of Trapsite Adoption events. Also, please list a trapsite adoption event as a separate alternative since impacts are being reported as significant enough between shipment and instant adoption that a review of this alternative adoption method qualifies it for a NEPA analysis.</p>

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Response 56		<p>Outside the scope of the Analysis. Refer to Section 2.3.4 for additional discussion about this alternative.</p> <p>The Meeting Minutes referenced by C. McDonald were taken out of context and do not apply to conducting adoptions with gathers. The document states:</p> <p><i>2. The National Wild Horse and Burro Advisory Board recommends that BLM survey facility managers and veterinarians to consider reducing the time in short-term facilities. Results of the survey should be coordinated with the requested cost benefit analysis. Dr. Jay Merriam will be the Board's liaison.</i></p> <p><i>BLM has reviewed vaccination protocols, worming, castration, coggins testing, timing of transportation to long term holding, and disease transmission risk. Changing practices to accommodate shipping directly from a trap site to long-term holding facilities would essentially involve transferring preparation of animals from short-term facilities to gather sites and to long-term holding facilities. This may create greater cost and risk to animal health. Analysis indicates newly captured animals need time to adjust to captivity. Shipping sooner than 45 to 60 days after capture and initial preparation may not be prudent</i></p> <p>These comments referred to preparing and shipping the wild horses to long term holding directly from the trapsite. In the case of trapsite adoptions, wild horses would go directly to adopter's homes where individual attention, care, and gentling would take place. The experience by the MLFO is that wild horses do not endure any additional stress through adoptions from the gather location, and adjust well to their new homes with little additional handling necessary.</p> <p>The MLFO follows Nevada BLM Instruction Memorandum No. NV-2001-041 <i>Guidelines for Adoption of Wild Horses and Burros During Gather Operations</i> (May 2001) when planning and conducting adoption events in conjunction with gathers. A copy of this IM will be e-mailed to you.</p> <p>The public is always welcome to attend the adoptions, and may accompany the BLM on follow-up compliance inspections.</p>
Comment 57	Candace D. Oathout:	<p>We find the flagrant disregard of this mandate (the Wild Free-Roaming Horse and Burro Act) by the BLM to be egregious and quite possibly illegal. The policy outlined by the current document is in direct conflict with 43 CFR 4710.5 (a) Closure to Live Stock Grazing which states: "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, the authorized officer may close appropriate areas of the public lands to grazing use by all or a particular kind of livestock."</p>
Response 57		<p>The proposed gather is consistent with the Wild Free Roaming Horses and Burros Act, Code of Federal Regulations and other BLM policy. Please refer to Sections 1.2, 1.3, 1.4 and 2.3.8 of the EA.</p>
Comment 58	C. Oathout:	<p>The proposal to reduce the wild horse population to not more than 595 head while permitting livestock grazing allotments for a total of 29,000 head of sheep and cattle clearly favors livestock grazing and fails to protect the wild horses from disease, injury or harassment.</p>
Response 58		<p>Outside the scope of the analysis. These decisions have already been made. Refer to</p>

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		Comment 13 above. Livestock use within the Complex does not total 29,000 head of cattle or sheep. Please refer to Section 3.3 of the EA for information about the livestock grazing within the proposed gather area. Appendix B further explains how/when the AMLs for wild horses were established. Refer to the documents identified in Appendix E for additional information.
Comment 59	C. Oathout:	Please state what justification the BLM is using to supersede federal law with regard to the management of wild horses on their designated ranges. Drastic reduction of this population of wild horses does not appear to be supported by scientific data.
Response 59		Refer to BLM Responses 13, 18, 19, 34, 57 and 58 above.
Comment 60	C. Oathout:	What monitoring has been done to determine the actual impact of these animals on the designated range? Please provide access to this information for public review.
Response 60		Refer to BLM Responses 13, 18, 19, 34, 57 and 58 above. Monitoring data collected within the HMAs as well as Rangeland Health Conformance Determinations are included within the documents identified in Appendix E. Additional information is located within Chapter 3 and Appendix F of the EA.
Comment 61	C. Oathout:	These animals fill a significant niche in modern ecosystems and deserve to be protected and preserved for their unique contributions to these ecosystems. Their behavior patterns are much more ecologically harmonious when compared with livestock. They selectively range widely across both rocky, steep, hilly terrain and lower flat riparian areas and meadows. They seek out watering sources but do not linger, preferring to seek highland grazing areas shunned by livestock. Indeed expansive removals of wild horse herds have had little appreciable impact on range quality either positive or negative. There is, however, one potentially positive impact that wild horses have that deserves to be mentioned. Due to the inherent nature of wild horse bands to roam over wide expanses their grazing impact can be quite beneficial in reducing the potential for wildland fires by reducing flammable vegetation.
Response 61		Outside of the scope of the analysis. Refer to Sections 1.1, 3.4, 3.5 and Appendix F of the EA.
Comment 62	C. Oathout:	We are distressed that the proposed gather is being planned for a time (fall/winter round up) which will greatly add to the stress and risk of injury to individual animals. It is appalling to contemplate these animals being run at distances of as much as five to ten miles in potentially bitterly cold weather. The callous disregard for these animals is incomprehensible when viewed through the lens of the concern shown for other wildlife.
Response 62		This comment was incorporated into Issues 3 and 4 of Section 1.6 in the EA. Also refer to the impacts analysis in Section 3.7 which specifically addresses these concerns. Winter and fall are actually better times of the year to gather wild horses. Wild horses have thick skin and heavy winter coats, and are acclimated to winter conditions. Cooler conditions reduce the risk of heat stress or dehydration. The public is welcome to attend gathers.
Comment 63	C. Oathout:	We have measures in place under the Endangered Species Act to protect critical habitat and prevent habitat fragmentation for a myriad of other species, but not for wild horses and burros. Please explain this selective enforcement of the land management and species conservation principles that have been established for multiple-use on our public lands.
Response 63		Outside the scope of the analysis. The proposed gather is consistent with applicable law, regulation, policy, and MLFO decisions issued to establish AML. Wild horse habitat attributes and limitations would be further analyzed in Herd Management Area Plans completed in future years. Wild horse habitat health was incorporated into Issue 3, identified in Section 1.6 of the EA.
Comment 64	C. Oathout:	What protocols will be used to ensure that this round up is conducted humanely? What

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		<p>assurances does the public have that there will be effective monitoring of the round up to avoid the inherent stress and potential injuries that can result from such an action in frigid temperatures and deep snow? How will the distance of travel and pace of travel be accessed to prevent undue harassment and injury to the horses being gathered? How long are the animals to be held without access to food and water? How far must they be transported?</p> <p>We find the current policies of the BLM to manage wild horse and burro populations for extinction is both morally and ethically wrong, in addition to being in violation of federal law i.e. the WFRH&BA. We therefore request that this proposed action be cancelled.</p>
Response 64		<p>This concern was incorporated into Issue 4 of Section 1.6 of the EA. This information is provided in Sections 2.1 of the EA, and Appendix A, which discuss how the gather would be conducted, and Standard Operating Procedures to ensure safe capture of horses. These methods have been developed and improved over 30 years of management of wild horses and burros. The health, safety, and well being of the wild horses captured is the highest priority on gathers (next to human safety). Gathers result in minimal death or injury, and wild horses recover quickly from the capture operation, settling in to the routine at the holding corrals with food and water. Photos are also available for review in Appendix A. The public is welcome to attend wild horse gathers to view the conditions and behavior of horses, and the actual capture operation.</p>