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Roberts Mountain Complex Wild Horse Gather Environmental Assessment NV062-EA07-120

**Roberts Mountain, Whistler Mountain and portions of the Fish Creek
Wild Horse Herd Management Areas**



Group of wild horses near Mud Springs, Roberts Mountain HMA, June 2006.

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1. Background Information

The purpose of this Environmental Assessment (EA) is to evaluate the impacts associated with completion of a wild horse gather within the Roberts Mountain Complex to achieve the established Appropriate Management Levels (AMLs). The Roberts Mountain Complex includes the Roberts Mountain and Whistler Herd Management Areas (HMAs) administered by the Battle Mountain Field Office (BMFO). A small portion of the Fish Creek HMA is also included within the Complex. The proposed gather area also includes adjacent areas of public land outside of HMA boundaries.

Description of the proposed gather area

The Roberts Mountain HMA is located 30 miles northwest of Eureka, Nevada in Eureka County west of Highway 278. The HMA consists of 99,990 acres and is 17 miles long by 10 miles wide. The HMA shares the eastern boundary with the Whistler Mountain HMA.

The Whistler Mountain HMA is located 10 miles northwest of Eureka, Nevada in Eureka County. The eastern boundary of the HMA lies along Highway 278. The HMA consists of 43,247 acres and is 16 miles long and 7 miles wide.

A portion of the Fish Creek HMA exists north of U.S. Highway 50, and would be included within the gather area. 19,300 acres or 7.6% of the HMA is located within the area known as Kobeh (pronounced Kō-bē) Valley, and is west of the Whistler Mountain HMA, and south of the Roberts Mountain HMA.

The gather area would include portions of the Roberts Mountain, Three Bars, Romano, and Lucky C Allotments. Areas outside of the HMA boundaries within the Santa Fe Ferguson, and JD Allotments would also be included. The entire gather area encompasses approximately 428,516 acres.

Few physical boundaries exist between the HMAs to restrict regular interchange and movement, therefore the area is managed as a Complex. Refer to Map 1-3 for HMA boundaries, livestock grazing allotments and proposed gather area.

Appropriate Management Level (AML)

The Appropriate Management Level (AML) for the Roberts Mountain HMA was established through Final Multiple Use Decisions (FMUDs) issued by the BMFO October 1994 for the Roberts Mountain and Three Bars Allotments. The Whistler Mountain and Fish Creek HMA AMLs were established through the Fish Creek Complex FMUD issued September 2004 by the BMFO.

Refer to the following table, which displays the AMLs and estimated populations by HMA.

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Table 1. Established AML by HMA and Allotment

HMA	Allotment	Decision	AML (wild horses)	2007 Estimated Population ¹
Roberts Mountain	Roberts Mountain	FMUD 1994	92	437
	Three-Bars	FMUD 1994	58	
Whistler Mountain	Lucky C	FMUD 2004	2-4	33
	Romano	FMUD 2004	12-20	
Fish Creek	Lucky C	FMUD 2004	6-10	0-20
Total			170-184	470-490

The AMLs established through FMUDs 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 range². The AMLs were also determined to be the levels, which would provide for viable populations within the capacity of the habitat to provide forage and water. AMLs were established following the collection, analysis, and interpretation of many years worth of monitoring data, which included precipitation, use pattern mapping, trend, production, census/inventory and carrying capacity analysis.

In the case of the Whistler Mountain and Fish Creek HMAs, AML ranges were established in which 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 an anticipated 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).

1.1. Purpose and Need for Action

The purpose of the Proposed Action is to prevent degradation to the range by conducting a wild horse gather to achieve the established AMLs, and prevent them from being exceeded before the next wild horse gather is scheduled. The purpose is also to remove wild horses from horse-free areas outside of HMA boundaries, collect information on herd characteristics, determine herd health, and maintain a healthy and viable wild horse population. The purpose and need of this EA is not to modify or increase wild horse AMLs, or evaluate or modify livestock uses within the HMAs.

As indicated in Table 1 above, the 2007 population for the Complex is estimated to be 490 wild horses, which exceeds the established AML range of 170-184 wild horses.

The AMLs for the Whistler Mountain HMA and the included portion of the Fish Creek HMA have not been implemented/achieved since the AMLs were established in September 2004.

Since establishment of AML, the Roberts Mountain HMA has been gathered twice, in summer 1995 and summer 2001.

Appendix D details monitoring data collected and assessed within the Roberts Mountain HMA in 2006. Utilization, vegetation, climate, census/distribution, and actual use data was assessed, and the

1. 2007 populations are based on the results from the March 2005 helicopter census and estimated 17.5% average annual increase.
2. Refer to the documents at Section 1.4.
3. U.S. Department of the Interior, Internal Board of Land Appeals (IBLA), Animal Protection Institute (API).

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AMLs within the Complex determined to be valid, with no adjustment to AMLs warranted at this time. The AMLs will be addressed as additional monitoring data becomes available, and future Rangeland Health Assessments are completed to assess the use of these areas by wild horses, livestock, and wildlife.

Through the interdisciplinary evaluation process and analysis of monitoring data, it was determined that when wild horse populations exceed the established AML, utilization levels exceed management objectives, leading to over-utilization of rangeland vegetation and degradation of the rangeland resources.

The current population of wild horses in the Complex is greater than the established AMLs and an excess population of wild horses exists. The proposed wild horse gather is needed to remove approximately 306-320 excess wild horses in order to achieve the established AMLs, protect the range from degradation by wild horses, and prevent emergency circumstances for wild horses. Wild horses are also residing outside of HMA boundaries within the Santa Fe Ferguson, Three-Bars, JD and Roberts Mountain Allotments in areas which have not been established for management of wild horses. These wild horses need to be removed from these areas to prevent overuse of the rangeland.

1.2. Issues

Prior to completion of this Environmental Assessment, a scoping letter dated March 15, 2007 was mailed to the interested public list for the area encompassed by the Roberts Mountain Complex. Responses were received from Katie Fite of Western Watersheds Project, and Cindy McDonald. Periodic conversations with three of the grazing permittees have identified issues as well. The following issues would be addressed within this EA.

- ◆ Wild horse population growth rates have allowed the population to increase rapidly since the last Roberts Mountain HMA gather in 2001.
- ◆ Many wild horses are existing outside of HMA boundaries where they are not identified for management.
- ◆ Current populations of wild horses exceed the established AMLs.
- ◆ Water is lacking within Whistler Mountain HMA and Kobeh Valley, which has resulted in wild horses entering private land to access water, and the need for emergency removal in 2001.
- ◆ Herd disruption and loss of genetic viability.
- ◆ Disruption of herd dynamics and social structures through release of higher percentages of studs to mares.
- ◆ Distance that wild horses are herded to the traps in relation to terrain.
- ◆ Safety and well-being of wild horses once captured, sorting, availability of water.

1.3. Conformance with Existing Land Use Plans

The Proposed Action is in conformance with the Shoshone-Eureka Resource Area 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.

1.4. 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 (emphasis added).*

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 (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". (emphasis added).

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

CFR 4700.06 Policy.

- 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 Removal of excess animals from public lands.

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

- a. *Old, sick, or lame animals shall be destroyed in accordance with subpart 4730 of this title;*
- b. *Additional excess animals for which an adoption demand by qualified individuals exists shall be humanely captured and made available for private maintenance in accordance with subpart 4750 of this title; . . .*

The gather of wild horses within the Roberts Mountain HMA has been analyzed previously in the *Roberts Mountain Herd Management Area, Maintenance Wild Horse Gather Environmental Assessment EA#:* NV 062-EA-01-17, issued by the Battle Mountain Field Office February 2001. This EA was prepared for a wild horse gather that took place in July 2001. This EA involved a thorough analysis of the potential impacts associated with a proposed wild horse gather within this HMA. This

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EA tiers to EA # NV 062-EA-01-17, and will not include analysis, which has already been discussed adequately in the previous EA.

Additionally, the Fish Creek and Whistler HMA were evaluated within the documents listed below in the process of establishing AML for these EAs. This EA tiers to these existing documents and will incorporate relevant portions of the EAs, Evaluations, Final Multiple Use Decisions (FMUDs) by reference, where applicable. The use of the WinEquus population model has also been discussed in length in the identified Callaghan Gather Plan.

- ◆ *Fish Creek Complex Final Multiple Use Decision, September, 2004,*
- ◆ *Fish Creek Complex Evaluation and Rangeland Health Assessment, EA #NV062-EA04-69, August, 2004,*
- ◆ *Fish Creek Complex Evaluation and Rangeland Health Assessment, June, 2004,*
- *Roberts Mountain Herd Management Area, Maintenance Wild Horse Gather Environmental Assessment EA#: NV 062-EA-01-17, February 2001,*
- ◆ *Callaghan Herd Management Area Wild Horse Gather Plan and Environmental Assessment # NV062-02-41, May, 2002,*
- ◆ *Area Manager's Final Multiple Use Decision for the Three Bars Allotment, October 1994,*
- ◆ *Area Manager's Final Multiple Use Decision for the Roberts Mountain Allotment, October 1994.*

The Proposed Action is also consistent with the following:

- ◆ *Wild Horse Objectives for the Fish Creek Complex (Appendix A),*
- ◆ *Standards and Guidelines for Rangeland Health as developed by the Northeastern Great Basin RAC (Appendix A),*
- ◆ *Management Guidelines for Sage Grouse and Sagebrush Ecosystems In Nevada (BLM, 2000),*
- ◆ *Guidelines to Manage Sage Grouse Populations and Their Habitats (Connelly et. al. 2000) also known as the Western Association of Fish and Wildlife Agencies (WAFAWA) Guidelines for Sage Grouse Management,*
- ◆ *Wild Horse Revised Nevada Tactical Plan (BLM, 2001),*
- ◆ *Strategic Plan for Management of Wild Horses and Burros on Public Lands (BLM, 1992).*

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. Through scoping additional with the interested public additional alternatives were identified. The following alternatives will be analyzed:

- ***Proposed Action: Gather Whistler Mountain and Fish Creek HMAs to low range of AML, and gather Roberts Mountain HMA below AML, releasing 60% studs, and 40% mares.***
- ***Alternative 1: No Action Alternative (No Wild Horse Gather)***

The Proposed Action was developed to achieve the established AMLs, remove excess animals from the range, prevent further deterioration to the range, and ensure the long-term success of the wild horses within the Complex. Modification of sex ratios of released studs and mares would be analyzed to assess the effectiveness of slowing population growth for the Complex.

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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 provided as a basis for comparison with the Proposed Action, and to assess the affects of not conducting a gather at this time.

2.1. Proposed Action

The BMFO proposes to complete a wild horse gather to achieve the established AMLs in accordance with this EA, Wild Horse Gather Plan, and Standard Operating Procedures.

- Helicopter census flight of the Complex would be conducted prior to the gather to obtain current population size and distribution of the wild horses.
- Gather operations would be conducted in accordance with the Gather Plan and Standard Operating Procedures (Appendix A).
- Animals selected for release back to the Complex would be transported to within the HMA boundary as near to an available water source as transportation allows.
- Excess wild horses removed from the range would be transported to BLM wild horse and burro facilities to be prepared for the National Wild Horse and Burro Adoption Program or for long-term holding.
- The gather would be accomplished by helicopter drive trapping and would not occur during peak foaling season (March 1-June 30). The Complex could be gathered during July 2007.
- Animals released could be identified by an implanted chip and freemark brand on the left hip.
- Blood would be drawn for genetics analysis as described in Appendix A.
- 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.

Under the Proposed Action, wild horses would be captured through helicopter drive trapping and helicopter-assisted roping according to the Gather Plan and SOPs identified in Appendix A. Wild horses released back into the Complex could be implanted with an electronic chip and corresponding freemarked brand on the hip for future identification from the ground and during future census flights and gathers. The purpose would be to further understanding of future wild horse movement patterns throughout the Complex.

Wild horse and burro specialists would avoid selection of release animals that would favor certain age groups (such as all older animals), and chose release animals that are comprised of diverse age groups, while adhering to the National Selective Removal Policy to the extent possible (refer to Wild Horse Gather Plan). It is anticipated that most wild horses 0-4 years of age would be removed from the Complex; however, some younger horses could be released if they exhibit desirable traits. Most mares ages 6-9, and studs ages 4-9 would be released. Most older mares and studs 10-20 years of age and all animals 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 minimum 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 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 are too young to be weaned.

The desired sex ratio of the post gather population would be 60% studs and 40% mares within the Complex. This would involve the release of approximately 48-62 studs and 32-42 mares. Following

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the gather, populations would increase until the next scheduled gather in approximately three to four years depending upon funding, population growth increases, and site-specific qualifiers. This alternative was identified through scoping as a means to slow the growth rates of the population.

Through the Proposed Action, the Whistler HMA would be gathered to a post gather population of 14 wild horses. All wild horses would be removed from Kobeh Valley and the Fish Creek HMA north of U.S. Highway 50 to allow for incidental use of the area, and prevent issues relating to the limited water and private property conflicts in the area.

The Proposed Action would involve removing excess wild horses to achieve a post gather population of 90 wild horses within the Roberts Mountain HMA. This would prevent the population from exceeding the AML (150) for 3-4 years. The 1994 FMUDs established a single AML for the allotments within the Roberts Mountain HMA through carrying capacity analysis. The AML represents the maximum population that would occur before utilization objectives would be exceeded. Therefore, in order to prevent overutilization of the range, and promote healthy rangelands, the Proposed Action would result in a post gather population below the AML.

The Proposed Action would also involve the removal of all wild horses located outside of HMA boundaries within the Santa Fe Ferguson, Three Bars, JD and Roberts Mountain Allotments.

The following table displays estimated populations, and gather and removal numbers for a summer 2007 gather of the Roberts Mountain Complex:

Table 2. Population, Gather Numbers –Roberts Mountain Complex

HMA	2007 Estimated Population	Summer 2007 Gather Numbers ⁴	Summer 2007 Removal Numbers ⁵	Estimate Un-gathered	Estimate Release Proposed Action	Post gather Population Proposed Action
Roberts Mountain	437	415	347	22	68	90
Whistler Mountain	33	31	17	2	12	14
Fish Creek (north)	0-20	0-20	0-20	0	0	0
Outside HMA	0-50	0-50	0-50	0	0	0
Totals	470-540	446-516	364-434	24	80	104

2.2. Alternative 1: No Action Alternative (No Wild Horse Gather)

Under the No Action Alternative, a wild horse gather would not be conducted within the Roberts Mountain 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 470 wild horses would continue to increase at an estimated rate of 17-25% annually. The AML of 170-184 wild horses would continue to be exceeded.

4. Estimated gather numbers are based on 95% gather efficiency. Actual gather efficiency may be lower due to wild horse behavior, tree cover/terrain, and determinations made by the COR at the time of the gather.

5. Removal numbers are the excess wild horses that need to be removed from the range.

2.3. Alternatives Considered but Eliminated from Detailed Analysis

2.3.1. Implement Fertility Control

This Alternative would have involved treating 100% of the mares released into the Roberts Mountain and Whistler HMAs with an immunocontraceptive vaccine, Porcine Zona Pellucidae (PZP), for fertility control research. Approximately 40 mares would be treated.

This alternative was analyzed through the WinEquus Population Model (refer to Appendix C), to determine potential affects to the population size as a result of fertility control with the release of 50% mares and 50% studs. The simulation was run for a post gather population of 14 wild horses within the Whistler Mountain HMA, and 90 horses within the Roberts Mountain HMA. The model analysis indicated that the affect to population size within 6 years would be minimal, and results were similar to other alternatives. In fact, the average population sizes in 6 years differed by only 2-9 wild horses from the Proposed Action. Though the model indicated lower growth rates for fertility control than for the Proposed Action, the numbers of horses that would need to be gathered and removed through fertility control in 6 years was slightly higher than the results obtained through modeling the proposed action.

Summer implementation of fertility control has not shown to be as effective as winter application. During summer gathers, it is often difficult to achieve 100% capture of mares within the HMAs due to high elevation, tree cover etc. Therefore, a number of mares usually exist within the HMA that would not have been inoculated with fertility control. Particularly in small herds where only 30-40 mares would be released, fertility control research is often not practical.

Due to the limited effect that fertility control would have on the overall size and growth of the population, and increased numbers of wild horses to gather and remove within 6 years, this alternative was not considered further.

Data would be collected during the proposed gather and blood drawn for genetics testing. Analysis of this data and completion of a Herd Management Area Plan (HMAP) in future years may result in reconsideration of fertility control research of this herd implemented in future gathers. More information about the population modeling completed for this EA is detailed in Appendix C.

2.3.2. Release of 50% studs and 50% mares

Under this alternative, wild horses would have been gathered to the low AML for Whistler HMA, and to 90 wild horses for Roberts Mountain HMA. The objective would be to release 50% mares and 50% studs. This alternative was put through the WinEquus population model, with similar results to other alternatives. Results indicated slightly higher population sizes, numbers gathered, released, and population rates when compared to the Proposed Action (release of 60% studs). Because the results were so similar, this alternative was not brought forward for analysis. Refer to Appendix C for results of the population modeling for this simulation.

2.3.3. Gathering Roberts Mountain HMA to AML

This alternative would involve the post gather population within the Roberts Mountain HMA of 150 wild horses, the number established through the 1994 FMUD. The other HMAs would be gathered in accordance with the Proposed Action, and 60% studs would be released after the gather. Through the carrying capacity analysis completed for the Roberts Mountain and Three Bars Allotment Evaluations, the AML was established as the level of wild horse use that would achieve the desired utilization objectives and prevent damage to rangeland and riparian areas within the allotments. Wild horse use above this AML would result in utilization objectives being exceeded. Review of

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monitoring data shows that rangeland within the HMA is not in good condition. It has been determined that the existing AML is valid. A post-gather population size at the upper level of the AML would result in AML being exceeded following the next foaling season (spring 2008), which would result in further damage and overuse to the rangeland, as well as potential water shortages in drought years.

This alternative was simulated through the WinEquus Population Model. When compared to the other alternatives analyzed in the model, results indicate average populations 127% of the Proposed Action. Numbers of wild horses needing to be removed within 6 years was also substantially higher, and a larger percentage of the trials indicated higher number of gathers needed in 4 years. The typical trial population figures obtained through the model reflects the AML of 150 not being maintained, and populations ranging from 194-272 between 2009 and 2013, with an overall average of 229, which is 153% of the established AML.

“We interpret the term AML within the context of the statute to mean 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).

Allowing the population to exceed AML and continue to exceed AML would not be consistent with proper range management, and would not promote a thriving natural ecological balance within the Complex. For these reasons, this alternative did not receive further consideration in this document.

2.3.4. Remove or Reduce Livestock within the HMAs

This alternative was identified through scoping, and would involve no removal of wild horses and removal or reduction of livestock within the HMAs. This alternative was not brought forward for analysis because it is not consistent with the purpose and need, inconsistent with the Shoshone Eureka Resource Area, Resource Management Plan objectives, and inconsistent with multiple use management.

The Whistler Mountain and Fish Creek HMAs were recently evaluated for rangeland health (2004), and conformance with the Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines. This process 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 objectives) were analyzed within an EA, and finalized within a FMUD following public comment (see Section 1.4). This analysis resulted in a 40% reduction of Animal Unit Months (AUMs) for livestock within the Lucky C Allotment, and an adjustment to 57% of the historic preference for the Romano Allotment.

The Roberts Mountain and Three Bars Allotments have not been assessed for Rangeland Health. The BMFO plans to complete monitoring, public coordination, and completion of Rangeland Health Assessments in the next few years to evaluate current management practices for conformance with allotment specific objectives and Standards for Rangeland Health.

Multiple Use Evaluations were completed for Both the Roberts Mountain and Three Bars Allotments in 1994. Through the evaluation of data, carrying capacity analysis and issuance of a FMUD, active livestock preference was reduced by 27 and 20% respectively for these allotments.

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Any changes to wild horse or livestock management would need to be evaluated in a comprehensive manner taking into consideration all users of the area and the habitat for wildlife. Following this comprehensive evaluation, the BMFO would determine if changes (increases or decreases) to the AML are needed. The process would also determine if changes in livestock are needed.

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.

2.3.5. Partial Wild Horse Gather

This alternative was identified through scoping, and would involve a partial gather of the Complex, leaving wild horses un-captured in some areas. The objective for this alternative would be to leave undisturbed band structure in some areas to further the understanding of gathers on bands and population dynamics.

This alternative was not carried forward for full analysis for several reasons. During typical gather operations, as many as 30-50 wild horses could remain un-captured. It is also typical for bands with small foals or bands that are long distances from the trap to be left un-captured. The post gather population identified under the Proposed Action is 104 wild horses, which is 22% of the total estimated population within the Roberts Mountain and Whistler HMAs. Many of the released wild horses would re-group with familiar horses. Other groupings would be new herd relationships, which could benefit genetic variability throughout the Complex.

An alternative that would leave a larger portion of the population un-captured would have several consequences, including the need to remove and ship additional older horses in order to achieve the AMLs. During gathers where the objective is to capture 80-95% of the existing population, the BLM has the ability to remove and ship most horses that would be adoptable, while still releasing a wide range of ages.

Another consequence would be the lost opportunity to collect genetic blood samples on released animals, and lost opportunities to select and return the healthiest animals with desirable traits. BLM staff would also not be able to estimate the remaining age structure of the herd.

It is a common occurrence that during gathers, the easiest horses are always captured first, which primarily includes mares, and larger horses. Older studs are often the most difficult to gather, and the last ones to be captured. The effect of leaving a larger number of wild horses un-captured could result in skewed age structures and less desirable traits in the HMA.

In the future, as BLM is able to be on a regular gather cycle, it may be possible that during gathers, only a few animals would need to be removed to achieve the AMLs. In these cases, only a portion of the HMA would need to be gathered, and the majority of the wild horses would remain undisturbed.

2.3.6. Capture through Bait or Water Trapping

This alternative would involve the completion of the gather of the Roberts Mountain Complex using either bait trapping or water trapping methods. This alternative was not selected due to the nature of the vegetation and water resources within the Complex, in relation to the underlying principles of these methods.

Bait and water trapping involves the construction of a trap, and baiting the wild horses into the trap with the use of hay or water. Specialized one-way gates are often used to prevent the

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animals from leaving the trap once inside. Bait and water trapping methods are usually only effective in areas where water and forage is lacking, resulting in high motivation for wild horses to enter the trap to access them. These types of situations may occur during drought emergencies. 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 Roberts Mountain Complex, forage and water is not absent and emergency conditions do not exist. Forage and waters are available throughout the Complex. Wild horses would not be sufficiently motivated to enter a trap through these methods. Additionally, the Complex is large, and involves 470-490 wild horses distributed across 428,000 acres. The purpose and need would not be met through these gather methods. For these reasons, water and bait trapping methods were not considered further for the gather of the Roberts Mountain Complex.

The use of helicopter to gather wild horses is well established. The method is safe, humane, and effective. The contract pilots are very experienced and skilled at safely moving wild horses through all types of terrain. Additionally, BLM staff is on-site at all times to observe the gather, monitor animal health, and coordinate the gather activities with the contractor. This method can be utilized to capture large numbers of wild horses throughout large areas with few injuries and minimal death loss. During most gathers, wild horse death resulting from the helicopter capture method occurs in less than one percent of the horses captured. Refer to Appendix A for more information about helicopter gather methods.

3. Affected Environment and Environmental Consequences

Resources listed in the following table, including the fifteen critical elements whose review is mandated by law or regulation, have been reviewed for the Proposed Action and Alternative. Discussion of expected impacts to affected resources follows the table. Direct impacts are those that result from the actual gather and removal of wild horses from the Roberts Mountain Complex. Indirect impacts are those impacts that occur once the excess animals are removed.

Table 3. Critical Elements Check List

CRITICAL ELEMENTS	Present	Affected	Rationale
ACECs	NO	NA	Resource is not present.
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.
Cultural	YES	NO	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	NA	The Proposed action or alternatives would have no effect on minority or low-income populations.
Floodplains	NO	NA	Resource is not present.
Waste (Hazardous or Solid)	NO	NA	Not Present.

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CRITICAL ELEMENTS	Present	Affected	Rationale
Invasive, Non-Native Species	YES	YES	Discussed below.
Native American Cultural Concerns	YES	NO	There are no known Native American concerns.
Migratory Birds	YES	YES	Discussed below under Wildlife.
Prime or Unique Farmlands	NO	NA	Resource not present.
Riparian-Wetland Zones	YES	YES	Discussed in detail below.
Special Status Plant and Animal Species	YES	YES	Discussed below under Wildlife.
Water Quality	YES	YES	Discussed below under Riparian-Wetland.
Wild and Scenic Rivers	NO	NA	Resource is not present.
Wilderness	NO	NO	Resource is not present.

Table 4. Other Resources Check List

OTHER RESOURCES	Present	Affected	Rationale
Fire Management	YES	NO	Resource is not affected by the proposed action or alternatives.
Forestry and Woodland	YES	NO	Resource is not affected by the proposed action or alternatives.
Land Use Authorizations	YES	NO	Resource is not affected by the proposed action or alternatives.
Livestock Management	YES	YES	Discussed below.
Minerals	YES	NO	Resource is not affected by the proposed action or alternatives.
Paleontology	YES	NO	Resource is not affected by the proposed action or alternatives.
Rangeland Vegetation Resources	YES	YES	Discussed below.
Recreation	YES	NO	Resource is not affected by the proposed action or alternatives.
Socioeconomics	YES	NO	Resource is not affected by the proposed action or alternatives.
Soils	YES	YES	Discussed below.
Visual Resources	YES	NO	Resource is not affected by the proposed action or alternatives.
Wild Horse and Burros	YES	YES	Discussed below.
Wildlife	YES	YES	Discussed below.
Wilderness Study Area	YES	NO	Traps or holding facilities would not be constructed within the boundaries of the Wilderness Study Areas.

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The Affected Environment for the Roberts Mountain HMA was fully described in the *Roberts Mountain Herd Management Area, Maintenance Wild Horse Gather Environmental Assessment EA#: NV 062-EA-01-17, February 2001*. Additionally, the Affected Environment for the Whistler Mountain and Fish Creek HMAs was fully described in the Fish Creek Complex documents detailed in Section 1.4.

Likewise, the Environmental Consequences for completion of a wild horse gather were detailed within EA #NV 062-EA-01-17. This document adequately described the potential direct impacts and many of the indirect impacts associated with a wild horse gather.

3.1. Cultural Resources (and Paleontology)

Affected Environment

The Roberts Mountain Complex is located near the town of Eureka, and cultural resources in the area are related to the settlement of the area, early ranching and mining activity and prehistoric sites covering at least 10,000 years of prehistory.

Cultural resources and paleontology are considered within the context of multiple-use. All proposed actions are evaluated for their potential impacts to cultural resources and paleontology, and modifications or mitigation measures implemented to avoid conflicts.

Environmental Consequences

Proposed Action:

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 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.

Potential benefits through the proposed gather would include reduced disturbance to springs, which are where archeological resources are often found. It is expected that through the Proposed Action, that disturbance to springs and riparian areas as a result of an overpopulation of wild horses would decrease, thus reducing potential impacts to cultural resources by wild horses at these locations.

No Action Alternative (No Wild Horse Gather):

Impacts to cultural resources would be expected to continue at the same level as in the past, which could include trampling of soils and cultural resources near springs and other water sources. Impacts to cultural resources could increase as the wild horse population increases. According to the population modeling, within 6 years, the populations could exceed 800% of the established AMLs.

3.2. Livestock Management

Affected Environment

The Roberts Mountain HMA contains portions of the Three Bars and Roberts Mountain Allotments. The following table displays information about the permitted use, and proportions associated with the HMA.

Table 5. Livestock use within the Roberts Mountain HMA

Allotment	Livestock Type	Permitted Animal Unit Months (AUMs) ⁶	% of HMA comprised by the Allotments	% of Allotment Within the HMA	% of Allotment outside of HMAs
Roberts Mountain	Cattle	7,316	64%	38%	62%
	Sheep	2,310			
Three Bars	Cattle	4,111	36%	46%	54%
	Sheep	1,729			
Totals		15,466	100%	--	--

The permitted livestock use for the Roberts Mountain HMA represents 89.56% of the total AUMs allocated between wild horses and livestock in the 1994 FMUDs for these allotments. This allocation was based on carrying capacity analysis completed through the Roberts Mountain and Three Bars Allotment Evaluations completed in 1994. Through the FMUD and subsequent settlement agreements, livestock active preference was reduced by 20% and 27% for the Three Bars and Roberts Mountain Allotments respectively. Additionally, grazing systems were implemented, and recommendations and terms and conditions identified to protect important wildlife habitat.

Total actual use reported for the Roberts Mountain Allotment between 2001-2006 (since the last wild horse gather) has ranged from 13-102% of the permitted use, and averaged 63% through this period. Three Bars Allotment actual use has ranged from 35-102% during this period, and averaged 74% of permitted use. Both the Three Bars and Roberts Mountain Allotments are comprised of many pastures. As indicated in the above table, the portion of the allotments within the HMA ranges from 38-46%. Actual use reported within the HMAs ranged from 29-66% of the total actual use reported within the Three Bars Allotment, and 20-34% of the Roberts Mountain Allotment. Essentially, 40-80% of the use by livestock takes place in pastures outside of the HMA boundaries.

Rangeland Health Evaluations (RHAs) have not been completed for either of these grazing allotments. RHAs will be completed within both allotments in future years. At this time, the Standards for Rangeland Health would be assessed and changes to the livestock management system implemented if deemed necessary.

Throughout the Roberts Mountain HMA, livestock and wild horses are able to utilize the same habitat. Wild horses tend to travel farther from water, and may use some higher elevations than cattle in the summer months. Livestock however, can be controlled by herding, and through the use of

6. 43 CFR 4100.0-5 defines Animal Unit Month (AUM) as the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month (which equates to 5 sheep).

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wells operated by the permittee. Due to the limited water availability and other management considerations, the Coils and Nichols Pastures within the Kobeh Valley portion of the Roberts Mountain HMA have not been utilized extensively by livestock since the last gather. In fact, these areas have consistently been utilized to a greater degree by wild horses than by livestock.

The following table displays information pertaining to the allotments within the Fish Creek and Whistler Mountain HMAs.

Table 6, Livestock use within the Whistler Mountain and Fish Creek HMAs

Allotment	Livestock Type	Permitted Animal Unit Months	% of HMA comprised by the Allotments	% of Allotment within the HMA	% of Allotment outside of HMAs
Lucky C	Cattle	3,054	Fish Creek 7.6%	17%	72%
			Whistler Mtn. 28%	11%	
Romano	Cattle	2,887	Whistler Mtn. 72%	32%	68%
Total		5,941	--	--	--

In 2004, a comprehensive Rangeland Health Assessment was completed for the Fish Creek Complex, which includes these allotments, in addition to others south of U.S. Highway 50 associated with the remaining portion of the Fish Creek HMA. The analysis of the data resulted in the conclusions that several RAC Standards for Rangeland Health and RPS allotment specific objectives were not being met throughout the Complex, and that changes in livestock use were needed in addition to establishing and achieving AML for wild horses within the Fish Creek and Whistler Mountain HMAs. As a result, livestock management systems were implemented for the all of the allotments, which included changes in season of use and changes to permitted use.

Carrying capacity analysis was completed for all allotments within the Fish Creek Complex, using utilization data and actual use for wild horses and livestock. Through the FMUD issued in September 2004, the permitted livestock use for the Lucky C Allotment was reduced by 40%, to 3,054 AUMs and management system developed to avoid use during the critical growth periods.

Through the FMUD, the Romano Allotment active preference received an increase of 825 AUMs that had been placed into voluntary non-use in the 1990's through a transfer. The historic preference for the allotment was 5,079 AUMs. The 2004 FMUD, established the permitted use at 2,887 AUMs.

The allocation of total AUMs to livestock through the carrying capacity analysis and FMUD was 95% and 92% for the Lucky C and Romano Allotments respectively. Since the 2004 FMUD, billed use for the Lucky C Allotment was 100% of the permitted total. Actual use reported for the Romano Allotment in 2005 was 2,324 AUMs.

Within these allotments, wild horse and livestock use can exhibit 100% overlap. As with the Roberts Mountain and Three Bars Allotments, livestock use can be controlled through the use of wells and other water sources. Wild horses utilize the allotments in relation to climate, forage quality and water needs through the year.

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Environmental Consequences

Proposed Action:

It is not anticipated that the proposed action would have any negative impacts to the livestock operations within the allotments associated with the Complex. There is a remote possibility that temporary disturbances would occur to sheep or cattle grazing within the allotments if livestock were present at the time the wild horse removal operations were completed.

The effects of wild horse populations on livestock, wildlife, and vegetation resources are largely functions of dietary and spatial overlap between species. Within the Roberts Mountain, Fish Creek, and Whistler Mountain HMAs, there is the potential for a large degree of overlap between use by wild horses and livestock. Implementation of the Proposed Action would indirectly impact livestock operations by improving the quality and quantity of forage available through achievement of the established AMLs.

Gathering the Roberts Mountain HMA to a level below AML, and releasing a larger proportion of studs would slow the growth rates of the herd, and prevent the AML from being exceeded in 3-4 years. Utilization by wild horses would not exceed objectives, which would promote improved rangeland health.

No Action Alternative (No Wild Horse Gather)

Without the achievement of AMLs, wild horse populations would continue to increase and exceed the capacity of the habitat to provide forage and water. Within 6 years, the populations could exceed 800% of the established AMLs without completion of a wild horse gather. Uncontrolled increases in the wild horse populations would result in heavy and severe use of vegetation resources leading to further degradation of plant communities and susceptibility of invasive species to degraded rangeland. It is expected that high populations of wild horses would result in continued downward trends of key perennial species and deterioration of ecological condition. This would result in poor soil stability, reduced production levels, and reduced forage availability to wildlife, livestock, and wild horses.

3.3. Rangeland Vegetation Resources

Affected Environment

The Rangeland Vegetation Resource has been further described within the EA#: NV 062-EA-01-17, and the documents identified in Section 1.4.

3.3.1. Vegetation and Climate

The average climate for the Complex is characterized by hot, dry summers and cold winters exhibiting precipitation ranging from 6-10 inches in the valley floors, 8-14 inches on the alluvial fans and from 12-20 inches in the mountains. Elevations range from 5,800-10,000 feet. The Roberts Mountain and Whistler HMAs are comprised of Kobeh Valley, the far west portion of Diamond Valley, Roberts Mountain, Mt. Hope, and Whistler Mountain. The portion of the Fish Creek HMA within the Complex consists of Lone Mountain and surrounding portions of Kobeh Valley.

Wyoming big sagebrush is the primary vegetation community in Kobeh Valley, and comprises the largest portion of all of the HMAs. Other vegetation consists of greasewood and grass dominated ecological sites associated with the Coils Creek and Slough Creek drainages. Black sagebrush is extensive on foothills of Whistler Mountain and Lone Mountain. Pinyon/juniper is prominent throughout the higher elevations of Roberts Mountain HMA, Whistler Mountain HMA, and the Lone Mountain area of the Fish Creek HMA.

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The precipitation patterns for central Nevada near the Roberts Mountain Complex meet the definition for drought 3-4 years out of every 10. For the period of record, these stations recorded below average precipitation received 55-74% of the years, and met the definition of drought conditions 29-46% of the years.

Precipitation levels three weather stations in the proximity of the proposed gather area indicate below average precipitation since the last Roberts Mountain HMA gather in 2001 (six years), and since the AML was established in 1994 (thirteen years). Drought conditions were encountered 3-5 years since AML was established and 2-3 years since the last gather according to the data for the three stations. Refer to Appendix D for more detailed information about the precipitation received in the area, and the effects of drought.

Low annual precipitation levels and drought are issues throughout the Roberts Mountain Complex. Low precipitation and drought have affected current health and recovery of the rangeland vegetation from past over use by wild horses and livestock. It has reduced the availability of forage to livestock, wildlife, and wild horses. During periods of drought, it becomes even more important to prevent overgrazing of perennial plants. A significant impact of drought on rangelands is a severe reduction in herbage production. Not only is less production of forage available for animals, but heavy use can harm or kill the plants.

Throughout the Roberts Mountain, Fish Creek, and Whistler Mountain HMAs, vegetation condition varies widely; however, much of the upland vegetation has been degraded to some degree through historic and past use by wild horses and livestock. There have not been any large wild fires within the Roberts Mountain Complex.

Through the Three Bars and Roberts Mountain Evaluations (1994) and the Fish Creek Complex Rangeland Health Assessment (2004), carrying capacity analysis was completed from utilization data to determine the levels of use that should occur within these areas to ensure that allotment and HMA objectives were met.

3.3.2. Roberts Mountain HMA

The AMLs for Roberts Mountain and Three Bars Allotments were carefully determined to ensure that utilization objectives would not be exceeded. In order to maintain utilization levels below objectives, and prevent rangeland degradation it is important that AML be achieved, and not exceeded. Through the evaluation of available census/distribution data, vegetation condition information, actual use, climate information and utilization data, it was determined that AML established for the Roberts Mountain HMA is valid, and no adjustments are required at this time. Refer to Appendix D for more information.

Through carrying capacity analysis and allocation of AUMs the 1994 Roberts Mountain and Three Bars FMUDs, wild horses were allocated approximately 10% of the total AUMs for wild horses and livestock. The AML of 150 wild horses for the HMA equates to 1,800 AUMs. Since the last gather in 2001, the population of wild horses within the HMA has averaged 259 wild horses, and AUMs between 2002-2007 have averaged 3,360 annually. Total livestock AUMs between 2001-2006 for both Roberts Mountain and Three Bars Allotments averaged 10,018 AUMs per year with an approximate average of 3,260 AUMs being used in the portions of the allotments within the HMA.

Though wild horse allocation is only 10% of the total AUMs allocated, the average use since the last gather has been 25% of the allotment wide average, and 51% of the average AUMs used within the

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HMA. The importance of this relationship is that livestock have not made substantial use of the areas within the HMA, and livestock use has been below permitted levels allotment wide. In 2006, utilization within the HMA ranged from 22.5-46%. If livestock use had occurred at permitted levels within the HMA, utilization levels would have far exceeded objectives, and harm to the rangeland vegetation would have occurred.

Through the Three Bars and Roberts Mountain Evaluations completed in 1994, condition of rangeland vegetation and important wildlife habitat was analyzed. Critical areas identified for sage grouse include numerous strutting and brood rearing areas, with particularly high values in the north end of the Coils Pasture, lower Roberts Creek, and the north end of Kobeh Valley. Riparian vegetation in the Cottonwood, Horse and Basin Pastures, and upper Roberts, Vinini, and Henderson drainages also provides important brood rearing habitat.

Big Game Habitat Conditions were rated mostly Poor and Fair with some areas Low/Good to Good. Critical habitat ratings for Sage Grouse habitat were low, and habitat considered to be in poor condition due to lacking forb component, and low understory density and diversity.

Utilization objectives for rangeland and important wildlife habitat are identified in the Rangeland Program Summary (RPS) for the Roberts Mountain and Three Bars Allotments. These objectives include

- Utilization not to exceed 50% on key species by seed dissemination, and 60% by end of grazing year.
- Utilization not to exceed 35% on sedges and grasses in fenced riparian pastures, with residual stubble height of 4-6”.
- Utilization of unfenced riparian habitat not to exceed 50% on key species.
- Utilization of key browse not to exceed 50% of current years growth on terrestrial big game habitat.

Within the Roberts Mountain HMA, the Coils Pasture has historically been used predominately by wild horses. Sheep and cattle make occasional use of the area. Wild horses also utilize the Nichols Pasture, drifting back and forth through Kobeh Valley. Water is limiting within Kobeh Valley.

Prior to 2006, there were 23 key areas within the Roberts Mountain and Three Bars Allotments. Of these only 2 were located within the Roberts Mountain HMA accessible to wild horses. Two others located north of HMA boundaries have likely been used by wild horses in the past, and possibly future. Because few key areas exist within the Roberts Mountain HMA to monitor wild horse habitat, monitoring was completed during the spring 2006 to establish additional key areas. Three new key areas were established in Kobeh Valley, which receives year round use by wild horses and represents the largest portion of the HMA.

Utilization studies and Apparent Trend evaluations were completed at seven locations within the valley, and Nested Frequency studies were completed at the three new Key Management Areas in order to collect baseline data and monitor future trend within the Roberts Mountain HMA. Line Intercept and Apparent Trend were also completed at the new key areas.

Species monitored for utilization included Indian ricegrass, bottlebrush squirreltail, needle and thread, and Sandberg’s bluegrass. Utilization studies determined use on last year’s growth of perennial grasses from 22.5% to 46%. It was determined through the 2006 monitoring that the primary use of Kobeh Valley in the Three Bars and Roberts Mountain Allotments had been by wild horses.

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Antelope and rabbits also use the area. Livestock sign was minimal, and determined to be very old. This is consistent with recent and historic use patterns by wild horses within the two allotments.

In general, the valley bottoms within Roberts Mountain and Three Bars Allotments are not in good condition. The vegetation within the valley consists of the Loamy 8-10" precipitation zone (p.z.) Wyoming big sage community that should support an understory of perennial grasses. Throughout the valley, vegetation communities are characterized by a lack of perennial key grass species in the understory. In many locations, extensive amounts of bare ground exist between shrubs, and perennial grasses are sparse or caged in shrubs. Hedging of shrubs (rabbitbrush) was also noted in some areas. Apparent trend throughout Kobeh Valley ranged from Not Apparent/Down to Stable/Up. Several sites were noted as being so degraded that sufficient perennial grasses were unavailable to record utilization.

Some signs of improvement were noted in few locations as indicated by perennial grass species that were beginning to re-vegetate the large interspaces between shrubs.

The Loamy 8-10" p.z. range site should support 600 lbs/acre of vegetation in a normal year, and 400 lbs/acre in an unfavorable precipitation year. Production was estimated to be 250-300 lbs/acre and significantly below normal for perennial grasses and forbs. According to the Range Site Description, vegetative composition for the ecological site at Potential Natural Community is 50% Grasses, 5% Forbs, and 45% Shrubs. At two key areas, the 2006 percent composition of perennial grasses was estimated to be less than 5%, (12-15 lbs/acre) with one key area estimated to be 15-25% (25-75 lbs/acre) composition. In all cases, the dominant component was composed of Wyoming big sagebrush, which exceeded the percent composition that should be present. Forbs were primarily lacking from the vegetation communities.

Some of the vegetation communities within Kobeh Valley are degraded to the degree that thresholds may have been reached, which could prevent improvement without manipulation of the range through seeding or other procedures. Battle Mountain Field Office Specialists indicate that in some areas, improvement since the 1980's has been minimal.

Refer to Appendix D for more information regarding the Utilization and Nested Frequency data collected in 2006. In future Rangeland Health Assessments, this data in addition to data collected throughout the remaining portions of the allotments, such as utilization studies, production data, actual use, wildlife studies, and riparian assessments would be analyzed and determinations made for adherence to Standards for Rangeland Health and conformance with the guidelines.

3.3.3. Fish Creek and Whistler Mountain HMAs

Through the Fish Creek Complex Rangeland Health Assessment, monitoring and baseline data was collected and assessed. It was determined that RAC Standard 3, Upland Sites, was not being met at most of the key areas in the Lucky C Allotment, and that significant progress was not occurring. Production data, cover data, frequency/trend data, precipitation, ecological status, photo documentation and field observations were used as a basis for this determination. Species composition, cover, and production were found to below what is expected to provide suitable 1.) feed, 2.) water, 3.) cover, 4.) living space, and 5.) maintain ecological processes, to meet the habitat requirements for animal species at each key areas that did not meet the standard. Historic abusive livestock grazing, current livestock grazing and current wild horse use were found to be the casual factors for non-attainment of the standard.

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Through the analysis of monitoring data for the Romano Allotment during completion of the Fish Creek Complex Rangeland Health Assessment in 2004, it was determined that RAC Standard 3 was being met at most of the key areas. For 5 of the key areas that did not meet the standard, historic abusive livestock grazing and wild horse use were found to be the primary casual factors.

Through the Fish Creek Complex Evaluation, new management objectives were developed for each allotment. These objectives included identification of key species, short-term and long-term objectives for utilization levels and desired plant community. Utilization objectives for each key area were identified, and most limit use to 50% on key species by the end of the grazing year.

The AML for the Whistler Mountain HMA and the northern portion of the Fish Creek HMA has not been achieved since it was established through the Fish Creek Complex FMUD in 2004. The AMLs were established to take into consideration limited water sources, year round habitat requirements of the wild horses and the movement patterns of wild horses between the Whistler Mountain Roberts Mountain, Fish Creek HMA, and Kobeh Valley.

Environmental Consequences

Proposed Action:

Direct impacts of the proposed action would include disturbance 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 6-8 trap-sites and 1-2 sets of holding corrals would be needed within the Complex.

Indirect impacts of the Proposed Action relate to the affects to vegetation resources as a result of reduced numbers and concentrations of wild horses within the HMA. During periods of drought, when limited waters are available, wild horses concentrate use within the locations of remaining waters, which can result in severe use, trailing, and complete degradation of the native perennial grasses. It is not until the forage has been denuded and the waters dried up that wild horse condition noticeably declines.

Achieving the AMLs within the Roberts Mountain and Whistler HMAs would prevent utilization objectives from being exceeded, reduce the amount of use during the critical growth period for perennial grasses, promote litter accumulation and increased cover of grasses, and protect perennial grasses from being over-utilized during drought conditions. The potential for competition among wild horses, wildlife, and livestock for forage would decrease. Reduced concentrations of wild horses would contribute to improved vegetation density, increased plant vigor, seed production, seedling establishment, and forage production over current conditions. In the long term, maintaining population levels at or below AML, would promote continued improvement of the vegetation resources throughout the HMA, resulting in upward trend and increased frequency of key species.

Gathering the Roberts Mountain HMA to a level below AML would reduce the average population on the range until the next gather is scheduled in 2-3 years. According to population modeling, average populations could be 30% lower than if the upper level of AML was implemented, thereby reducing the overall utilization of forage on the range. The release of a larger proportion of studs than mares would further slow the growth rates, which could be 21% lower than if a sex ratio of 50:50 was established.

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Within the Fish Creek and Whistler Mountain HMAs, populations of wild horses in excess of established AMLs are negatively affecting the rangeland resources. Implementing the AMLs established in the 2004 FMUD through the Proposed Action would ensure that allotment objectives are met and significant progress made towards achieving the RAC Standards for Rangeland Health.

No Action Alternative (No Wild Horse Gather)

Under the No Action Alternative, the wild horse population would continue to increase. According to the population modeling, within 6 years, the populations could reach 1,480 wild horses, or 800% of the established AMLs. In the short-term, should livestock use occur within the Roberts Mountain HMA at permitted levels, utilization objectives would be exceeded, resulting in downward trends, and further depletion of the perennial grass understory. In the long term, increased wild horse populations would continue to result in substantial overutilization and degradation of vegetation resources. Continued downward trends in key perennial species would be expected in conjunction with reductions in ecological condition and soil stability. Degraded areas would increase throughout the HMA. Vegetation would also experience reduced production resulting in reduced forage availability to wildlife, livestock, and wild horses. Inadequate forage would be available to sustain wild horses, livestock and wildlife, and critical sage grouse habitat would be further deteriorated or destroyed.

Failure to implement the AMLs for the northern portion of the Fish Creek HMA and Whistler HMA as identified in the 2004 FMUD would prevent progress being made towards RAC Standards for Rangeland Health, as well as causing utilization and vegetation objectives to not be met.

3.4. Invasive, Non-Native Species

Affected Environment

A complete inventory of the noxious and other invasive weed species has not been completed within the Roberts Mountain HMA. However, a low intensity inventory of noxious weeds was completed for the Roberts Mountain Wilderness Study Area (WSA) and immediately adjoining areas during the field season of 1999. Substantial infestations of short whitetop, musk and scotch thistle and Russian knapweed have been identified and mapped along roads, drainages, and adjacent areas in close proximity to the WSA. Invasive weeds typically establish in disturbed and high traffic areas. Any surface disturbance activity can create a potential environment for invasive species.

Environmental Consequences

Proposed Action:

The proposed wild horse gather may result in the direct spread of existing populations of invasive non-native species. Precautions would be taken prior to setting up trap sites and holding facilities to avoid areas where invasive non-native species exist to lessen the chance of invasion or 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.

Indirect impacts of the Proposed Action would be related to wild horse population size as it affects ground disturbance and rangeland health. Invasive 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 and communities minimizes the establishment of invasive non-native weeds. 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 Complex.

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No Action Alternative (No Wild Horse Gather):

Native rangeland resources would be subject to continued increases in the populations of wild horses, which would result in heavy and severe utilization of the vegetation. Rangeland vegetation that is currently in low ecological status or is disturbed would be vulnerable to invasive weeds. Current infestations of invasive weeds would be expected to spread and continue to increase as a result of continued degradation by wild horses. Wild horse impacts to vegetation resources would increase with increases in the population size over time, resulting in growing opportunities for invasion and spread of non-native, undesirable plant species.

3.5. Riparian-Wetland Resources and Water Quality

Affected Environment

The Riparian-Wetland Resources and Water Quality have been described within the EA#: NV 062-EA-01-17, and the documents identified in Section 1.4. Within the Roberts Mountain HMA, there are a number of perennial and ephemeral streams, which include Roberts, Rutabaga, and Henderson Creeks; and Meadow and Cottonwood Canyons. There are also abundant springs and seeps, most of which are located in the higher elevational zones above 6,000 feet. Proper Functioning Condition (PFC) evaluations were completed in 1997 for most of the perennial streams and springs within the HMA. These evaluations indicate that many of the reaches are either in “Functioning at Risk” or “Non-functioning” condition.

Cattle, sheep and to a lesser degree, wild horses have impacted the riparian areas through grazing and trampling of the banks. Wild horses are known to have negatively impacted Cottonwood Creek and Rutabaga Creek through heavy utilization and trampling. Wild horses outside of HMA boundaries are impacting riparian and meadow habitat in the Cottonwood, Meadow Creek and Jackass drainages that provide important brood rearing habitat for Sage Grouse. Mud Springs consists of a large water filled depression in the southern portion of Kobeh Valley that is the only water available to wild horses year round in Kobeh Valley, and can dry up completely during drought years, or under heavy use by wild horses. Water quality analysis has not been completed within the Roberts Mountain HMA.

Waters are scarce within the Whistler Mountain HMA and Kobeh Valley south to U.S. Highway 50, which includes the northern portion of the Fish Creek HMA. There are no perennial or ephemeral streams. Waters consist of a few low producing artesian wells, seeps, and depressions. When livestock are on the allotments, some wells are operated by the livestock permittee to provide water to cattle.

Two water sources exist within Kobeh Valley, that are associated with the northern portion of the Fish Creek HMA. However, there are no springs located within the HMA boundaries. Lone Mountain Spring was not accessed for functioning condition in 2000 due to lack of surface water. This spring/artesian well consists of a crater (150’ dia. by 2’ deep), and the riparian area had been all but eliminated due to use by livestock and wild horses.

Treasure Well is also an artesian well, and was rated as Non-Functional in 2000. It had been used by cattle, resulting in a loss of water through evaporation and an overall lack of riparian vegetative cover. Wild horses have been known to use this area.

RAC Standard 2, Riparian and Wetland Sites for Lucky C Allotment was rated as not applicable in conjunction with the Fish Creek Complex Rangeland Health Assessment due to the lack of sources.

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Within the Whistler Mountain HMA, three springs were rated for Functioning Condition. Trap Corral Spring was rated as Functional at Risk, trend not apparent, and it was noted that wild horse use had contributed to bare ground at the spring. Hash and Garden Springs were both rated Non-Functional. Garden Spring is not utilized frequently by wild horses; however, heavy wild horse use was noted at Hash Spring. There are no springs within the west side of the HMA in Kobeh Valley.

During the Rangeland Health Assessment completed in 2004, it was determined that RAC Standard 2, Riparian and Wetland Sites, was not being met and significant progress not being made within the Romano Allotment. It was also determined that wild horses (in addition to livestock), were significant causal factors for the Standard not being met.

The lack of water available within Kobeh Valley and limited water available within the western portion of the Whistler Mountain HMA has caused issues. In 2001, the removal of 28 wild horses from Kobeh Valley and the west portion of Whistler Mountain HMA was necessary due to lack of water. Wild horses were in poor condition, and would have died of dehydration if not removed. Since 2001, various numbers of wild horses have used the area, and have caused problems for a local landowner through breaching private property fences to access water. The AML established for these HMAs in 2004 was intended to take into consideration the lack of waters, and allow for incidental use in Kobeh Valley, and limited use in the Whistler Mountain HMA in association with the Roberts Mountain HMA.

Environmental Consequences

Proposed Action:

The proposed wild horse gather would not have any direct impacts to riparian wetland zones or water quality within the Complex because trap sites and holding corrals are not constructed near riparian areas.

The proposed gather would indirectly impact riparian wetland zones and water quality within the Roberts Mountain HMA through decreased utilization and trampling by wild horses in these sensitive areas, and removal of wild horses outside of HMA boundaries that are impacting riparian and meadow habitat. Achieving and maintaining the established AML, would promote improved riparian wetland areas. A post gather population of 90 wild horses within the HMA would prevent the AML of 150 from being exceeded until 2010 or 2011 when another gather could be scheduled. As a result, degradation of riparian areas from high populations of wild horses would be prevented. Lower concentrations of wild horses across the HMA would also reduce the amount of annual use on Mud Springs, resulting in increased availability of water through the year, and increased cover of riparian vegetation.

Within the Whistler Mountain HMA, the populations would be reduced to the low range of AML, and wild horses would be removed from the Fish Creek HMA, allowing for incidental use within the Kobeh Valley area. Wild horse populations would be in balance with available water, reducing impacts through trampling, and avoiding the need for emergency removals in the future. Incidents of wild horses breaching private fences to access water on private property would also be reduced or eliminated.

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 may result in degradation of water sources. Achievement of the established AMLs would ensure that wild horse populations do not exceed the forage and water availability, providing for optimal dispersion of wild horses and reduction of impacts to riparian resources. Achievement of

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AML would ensure that short and long-term objectives are met, and contribute to improvement of riparian resources.

No Action Alternative (No Wild Horse Gather)

Wild horse population size would continue to increase in excess of the established AML. According to population modeling analysis the population could exceed 1,480 wild horses within 6 years. Emergency removals would be required as the population exceeds the ability to be supported by the available waters. Use of riparian areas by this level of wild horses, would have obvious consequences to the condition of riparian resources within the Complex, and resulting quality of riparian habitat for wildlife. Downward trends would result from heavy utilization of riparian vegetation and browse, and trampling by wild horses. Riparian areas rated below PFC (Functional at Risk and Non-Functional) would not improve, and downward trends could continue.

Water quality throughout the Complex would continue to be affected by high populations of wild horses using the limited water sources throughout the Complex.

3.6. Soils

Affected Environment

Soils within the proposed gather area have been described within the EA#: NV 062-EA-01-17, and the documents identified in Section 1.4.

For more detailed information, please refer to the Soil Survey of Eureka County (1989) and the Soil Survey of Diamond Valley (1980) available through the Natural Resource Conservation Service (NRCS), formerly the Soil Conservation Service (SCS).

During the spring 2006 monitoring within the Roberts Mountain HMA, observations were documented regarding soil characteristics and soil movement. Throughout Kobeh Valley, the vegetation community is characterized by large interspaces of bare ground between shrubs. In rare cases fair to moderate amounts of litter was present, and perennial grasses were not frequently observed in the interspaces. Wind scoured depressions, desert pavement, and hard, compact cracked soil surfaces were observed throughout the valley. Some sites including Key Area RM-26 supported vigorous production of perennial grasses on sandy sites with abundant soil cover and litter present at the site. Slopes throughout Kobeh Valley are minimal, precluding large amounts of soil movement; however, some mounding of soil was apparent around shrub bases, as well as pedestalling of some grasses, primarily Sandberg bluegrass.

Soils throughout Kobeh Valley in the Lucky C Allotment, and within the Romano Allotment exhibit similar ranges of conditions as those documented within the Roberts Mountain HMA. This information is presented within the Fish Creek Complex documents identified in Section 1.4.

Environmental Consequences

Proposed Action:

Direct impacts such as soil displacement and compaction would occur at trap sites (less than 1 acre in size) during the construction phase and 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 6-8 trap-sites and 1-2 holding corrals would be necessary to complete the gather.

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Achievement of AMLs would further result in improved rangeland health, which in turn would increase frequency and production of perennial grasses and litter to protect soils from erosion. Reduced density of wild horses throughout the Complex would also result in reduced trailing, and concentrations around water sources. Achievement of AML would help improve or maintain biological crusts, where present, due to reduced hoof action by wild horses.

No Action Alternative (No Wild Horse Gather)

Without a gather to achieve the established AMLs, populations would increase at an estimated 17-25% per year. Within 6 years, the population could exceed 800% of the established AMLs according to analysis through the WinEquus population model. Downward trends of rangeland health would occur, resulting in reduced soil health. Increased disturbance to soils through trailing and concentrated use on vegetation and water resources would cause increased soil erosion, lowered production of deep-rooted perennial vegetation, reduced production of litter and reduced soil stability.

3.7. Wild Horses and Burros

Affected Environment

The Roberts Mountain HMA has been discussed in detail within EA# NV062-EA-01-17. Additionally, the Whistler Mountain and Fish Creek HMAs have been discussed within the Fish Creek Complex documents identified in Section 1.4

3.7.1. Description of HMA and Wild Horse Characteristics.

As previously described, the Roberts Mountain HMA is approximately 100,000 acres, and is comprised of portions of the Roberts Mountain (64%) and Three Bars (36%) Allotments. The Whistler Mountain HMA shares its western boundary with the Roberts Mountain HMA and is approximately 43,000 acres, comprised of portions of the Lucky C (28%) and the Romano Allotment (72%). The gather area includes Kobeh Valley and 19,300 acres of the northern portion (7.6%) of the Fish Creek HMA. Refer to Maps 1-3 which display HMA boundaries and other information. Appendix B also provides detailed background information about the HMAs.

The original Herd Area (HA) boundaries are limited to areas of the public lands identified as being habitat utilized by wild horses and/or burros at the time of the passage of the Wild Free-Roaming Horse and Burro Act of 1971. The Fish Creek HMA north of U.S. Highway 50 was originally known as the Kobeh Valley Herd Area, and identified as part of the Fish Creek and Whistler Mountain HMAs in the Shoshone Eureka Resource Management Plan (RMP) approved March 1986.

The Roberts Mountain HMA identified for long-term management of wild horse through the 1986 RMP is a smaller area than the Herd Area identified in 1971. The HMA encompasses lower elevation areas outside of the Roberts Mountain Wilderness Study Area, and reflects the area where most of the wild horses have been observed since 1971.

The initial planning numbers for wild horse management within these HMAs were originally designated within the 1988 Shoshone-Eureka Rangeland Program Summary (RPS). Following the 1994 Allotment Evaluations for Roberts Mountain and Three Bars Allotment, and the 2004 Rangeland Health Assessment for the Fish Creek Complex, the AMLs were established for these areas. The following table displays the RPS, AML, and current estimated populations for the HMAs within the Complex.

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Table 7. RPS, AML and Current Populations

HMA	Allotment	RPS Initial Planning Numbers	AML (horses)	AML Year	Current Population Estimates
Roberts Mountain	Three Bars	45 horses	58	1994 FMUD	437
	Roberts Mountain	82 horses	92	1994 FMUD	
Fish Creek	Lucky C ⁷	78 north and south of Hwy 50	6-10 North of Hwy 50	2004 FMUD	0-20
Whistler Mountain	Lucky C	8 horses	2-4		33
	Romano	20 horses	12-20	2004 FMUD	
Totals		233	170-184	--	470-490

Movement of wild horses between Roberts Mountain HMA, Kobeh Valley, and Whistler Mountain HMA has long been documented. The highway right-of-way fence on U.S. Highway 50 precludes movement of the wild horses in the northern portion of the Fish Creek HMA (in Kobeh Valley) with the portion of the HMA south of U.S. Highway 50. As a result, the northern portion of the Fish Creek HMA is managed as a Complex with the Roberts Mountain and Whistler Mountain HMAs, and census and gathers planned to take into account the year-round habitat needs for the wild horses and these inherent movement patterns. Though portions of the Lucky C, Three Bars, and Roberts Mountain Allotments are fenced, wild horses are able to move through unfenced portions and through open gates, to take advantage of various areas of the Complex depending upon environmental conditions and habitat needs.

Wild horses of the Roberts Mountain HMA are some of the finest wild horses managed from the Battle Mountain Field Office with very good conformation, size, coloring and behavior characteristics. Wild horses within the Whistler Mountain HMA and Kobeh Valley are similar to those in the Roberts Mountain HMA. Since the 2001 gather, observations made of the wild horses throughout the year within the Complex indicate that they are healthy and in good body condition.

Refer to Appendix B for more information about the characteristics of the wild horses, additional photos and information about the wild horses released back to the range following the most recent gather completed in 2001.



February 2005, Roberts Mountain HMA.

7. The RPS included objectives for the Lucky C Allotment portion of the Fish Creek HMA (58,740 acres), which included portions both north and south of U.S. Highway 50. In the 2004 FMUD, AMLs were established for each portion of the HMA within the Lucky C Allotment. 19,300 acres or 7.6% of the Fish Creek HMA is north of the highway within the Lucky C Allotment.

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3.7.2. Recent Gather Activity

The last gather of the Roberts Mountain HMA was completed in July 2001. At the completion of the gather, 580 wild horses had been captured, and 131 wild horses released back to the HMA. Released horses included 29 foals with their mothers, 85 mares total, and 17 studs. Refer to Appendix B for age structure of animals gathered and released. The Whistler Mountain HMA has not had any planned gathers completed; however, in 2001, 28 water stressed wild horses were removed from the western portion of the HMA in Kobeh Valley in conjunction with the Roberts Mountain HMA gather. In 1994, wild horses were gathered from Kobeh Valley outside HMA boundaries in conjunction with a gather of the Fish Creek HMA.



Mares being held at the holding corrals prior to being released during the Roberts Mountain HMA gather in July, 2001.

3.7.3. Census, Distribution, and Current Population

Since the gather in 2001, one census flight was conducted of the Roberts Mountain and Whistler HMAs, and northern portion of the Fish Creek HMA in March 2005. During the flight, 20 wild horses were observed within the boundaries of the Whistler Mountain HMA, 11 within the boundaries of the Fish Creek HMA, and 274 wild horses within and outside of the boundaries of the Roberts Mountain HMA. The figures in Table 7 are based upon the 2005 census, and a typical rate of increase within the area (17.5% annually). Through analysis of the 2001 release data, and the 2005 census data, it is apparent that a larger number of wild horses were present in 2005 than would have been expected under normal rates of increase. This could be due to 1). more horses remained uncaptured within the HMA after the 2001 gather, thereby increasing the entire population size from 2001-2005, 2). reproduction rates as high as 27% or 3). a combination of both.

During the census and field monitoring, wild horses within the Roberts Mountain HMA have been distributed primarily within Kobeh Valley. Wild horses likely utilize the higher elevations more frequently during summer months, but do use the Kobeh Valley area throughout the Roberts Mountain HMA year round. Refer to Map 2, which displays the location of wild horses observed during the 2005 census flight. Because the 2005 census flight is recent, another census flight has not been scheduled to collect current information for analysis in this EA. A census flight would be conducted during June 2007 to obtain specific population and distribution data for the proposed gather.

As indicated in previous sections, water sources are limited within the Kobeh Valley portion of the Roberts Mountain HMA, and throughout the Whistler and Fish Creek HMAs. Water is the most limiting factor for management within these HMAs. Water becomes even more critical during years of drought conditions, which occur 3-4 years out of 10, especially in conjunction with high populations of wild horses.

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Wild horses within the Whistler Mountain HMA commonly utilize the Mt. Hope area in the spring months, and move into Roberts Mountain HMA and Kobeh Valley in other portions of the year. Wild horses move throughout Kobeh Valley and are not strongly associated with the actual Fish Creek HMA north of U.S. Highway 50, due to the absence of water sources.

Wild horses using the Whistler Mountain HMA, Fish Creek HMA, and Kobeh Valley in recent years have caused conflicts with local landowners by breaching fences and entering private land to access waters.

The estimated age structure of the 2007 wild horses was formulated by using the 2001 Roberts Mountain HMA release horse data, and simulation through the WinEquus population model from 2001 to 2007. The anticipated age structure during the 2007 proposed gather is available for review in Appendix B.

3.7.3. Genetic Considerations

Baseline genetic data was collected during the 2001 gather. Samples from 34 released wild horses were analyzed by Stormont Laboratories, Inc. of Woodland California. However, the same type of analysis was not completed as is currently being done by Dr. Gus Cothran of Texas A&M Equine Genetics Lab, and the data is not comparable. Dr. Cothran reviewed the 2001 genetics data, and was unable to formulate a conclusive summary of the genetic variability without further analysis. Dr. Cothran indicated that variability could be low, and that the herd could possess some Spanish genetic variants that are associated with North American breeds such as the Morgan, Saddlebred, and Quarter Horses (rare in the QH) because they all have some Spanish background themselves.

Blood would be drawn during the 2007 gather and analyzed by Dr. Cothran in order to provide a more detailed report on genetic variability. Following this analysis, BMFO would prepare a Herd Management Area Plan (HMAP) for the Complex, which would specifically address any genetic concerns that are discovered.

The wild horses of the Roberts Mountain HMA are able to mix to a limited degree with the Rocky Hills HMA. Prior to construction of the U.S. Highway 50 right-of-way fence in the mid 1980's, wild horses could mix with those of Fish Creek and North Monitor HMAs. Similarly, right-of-way fences built along SR 278 on the eastern boundary of Whistler Mountain HMA in the early 1990s, further prevented any mixing that may have been occurring with the Diamond HMA.



Wild horses selected for the traspate adoption during the Roberts Mountain HMA gather in July 2001.

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Refer to Appendix B for more information about the HMAs and wild horses within the proposed gather area. The attached Wild Horse Gather Plan and Standard Operating Procedures (SOPs) located in Appendix A provides complete, comprehensive gather procedures, as well as additional photos of recent gather activities conducted by the BMFO.

3.7.4. Wild Horse Survival and Reproduction

Wild horses have few natural predators, and generally, survival rates of horses are very high (exceeding 98%) for mature animals and lower for very young. This survivability declines again within the older age classes. Death loss due to predation by Mountain Lion or coyote would have minimal impacts to the overall population, and predation rates within the Complex are not known. Human related causes of death such as vehicle collisions or shootings have not been documented within the Complex within the past 10+ years. Population increases within the Complex do not indicate high levels of predation, and in fact, likely exceed the District average.

Reproductive success declines at some age as well; however, mares may reproduce well into their 20's. Mares captured during the 2001 Roberts Mountain HMA gather were examined to determine if they were lactating. 48% of the mares (mostly ages 3-20) were noted to be "wet" or lactating, indicating that they had a foal. 52% of the mares (primarily 1-2 years of age) were "dry" indicating that they did not have a foal. In fact, 59% of the mares ages 3-12 had foals, and 85% of the mares ages 13-20 had foals.

According to research conducted by Joel Berger on the Granite Range of Nevada in the early 1980's, many factors affect wild horse population dynamics, reproductive success, and overall success on the range through harsh winters and drought summers. Observations determined that maternal body weight/condition and band stability influenced gestation length. It was found that small and poorly conditioned mares had shorter gestation lengths, and lower foal production. The research determined that foals raised in better condition ranges suckled longer as foals, matured to puberty faster, and attained "critical body mass" sooner than those raised on poorer quality ranges. Berger states ". . . females that occupied better home-range areas produced more offspring; those offspring then suckled longer and grew faster. The data suggest that female reproductive success was affected more by access to and use of resources than it was by intra-band interactions."

Berger also determined that young horses dispersed from the natal band, finding that 97% of all females and males between the ages of 1-4 years of age moved away from their mother's band. In females, the attainment of puberty was the factor that influenced the dispersal. The result of this dispersal is dynamic movement of young horses between bands, and the prevention of daughter-father relationships or inbreeding. It was also found that males under 5 years of age generally failed to sire offspring, and were successful for relatively short periods of their lives compared with females. In Berger's study, mares between the ages of 2-22 produced foals, while for most stallions, average harem tenure was less than four years. As would be expected, body size appeared to influence stallion success.

Other factors that influence reproductive success and foal production included band stability. Regardless of age, mares from unstable bands had significantly lower reproductive success than those from stable bands. Band takeovers from new stallions also influenced reproduction, often resulting in abortions in mares that were less than 6 months pregnant.

Berger states "For any female the best route to maximize reproductive success over her lifetime would be to attain a large body size, remain in a stable band, and feed in a high quality home range.

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The road toward maximizing individual fitness is filled with complex interwoven, behavioral trade-offs.”

Berger also analyzed the inter-relationships of habitat quality, density of population and reproductive success per individual. He determined that the population expanded their range due to the effects of inter-specific competition stemming from a rapidly enlarging population. The following conclusions were derived from the research:

- Individuals from richer resource areas produced better than those from poorer regions.
- The lack of parity in reproductive success between females from good and medium to poor quality ranges indicates that substantial costs were incurred by inhabitants of lower quality ranges, despite lower densities there.
- A density dependant reduction in foal production occurred in good home ranges, yet mares from these areas were still more successful breeders than those from poorer ranges, even though densities at the former were higher.
- Within lower quality ranges, the relative parity of reproductive success over a multiple year period, suggests that individuals may be more apt to space themselves more widely to avoid competition for food resources when resources are less than the best.

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.

Environmental Consequences

Proposed Action:

Potential impacts of wild horse gathers to wild horses have been described in detail within EA# NV062-EA-01-17, completed for the 2001 Roberts Mountain wild horse gather. These impacts include the direct and indirect impacts to individuals and to the population as a whole from standard gather activities followed by release of the wild horses back to the range. Please refer to that document for more information.

Because the gather could take place in July, special precautions would be taken to avoid heat related stress, and would include the administration of electrolytes, cooling with water and avoidance of gathering during the hottest part of the day. However, a small percentage of wild horses could experience stress from heat and dry conditions in conjunction with the gather operation, and though typically rare, death could occur as a result. During summer gathers, foals are young (less than 6 months of age). Summer gather operations typically result in less than one percent of orphan foals, which must be placed with a qualified adopter for care. Once captured, wild horses have unlimited access to water at the holding corrals. Electrolyte is often added to the water to further prevent heat related problems.

The effect of removing wild horses from the population is expected to minimally impact herd population dynamics, age structure or sex ratio, as long as the selection criteria for the removal maintains the social structure and breeding integrity of the herd. The National Selective Removal Criteria of selecting wild horses for release (described in the Wild Horse Gather Plan, Appendix A) would be followed to the extent possible. The wild horses released in 2001 were comprised of diverse age grouping, and therefore, it is expected that wild horses captured during the proposed gather would represent all age groups.

It is anticipated that under the Proposed Action, that most mares 5 years and under would be removed from the range. Most mares ages 6-9 would be released back to the range, with approximately half of

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the mares ages 10-20 being released, and half removed. All mares older than 20 years of age would be released. It is also anticipated that most studs 3 years and younger would be removed, and all studs older than 4 years of age would be released back to the range in order to achieve the 60% studs proposed to be released. As a result, the post gather age structure of mares is estimated to be comprised of approximately 66% ages 6-9, 10% ages 10-14, and 24% ages 15-20+. Of the studs, the post gather estimated age structure would be comprised of approximately 85% ages 4-9, 8% ages 10-14, and 7% ages 15-20+. These percentages were derived from the estimated age structure existing at the time of the gather, and assumptions based on the animals that would be chosen for release.

Sex ratios of wild horse populations under natural conditions can range from 40:60 favoring mares to 40:60 favoring studs. In most cases, wild horses captured during BMFO gathers, ratios have averaged 50:50 to those slightly favoring mares. During wild horse gathers, it is not usually possible (or desirable) to capture 100% of all horses. Horses that remain on the range, evading capture are typically comprised of older studs. Therefore, an estimate of animals remaining, and the assumption that many are studs needs to be considered when assessing sex ratios of animals captured.

In populations where the proportion of studs is higher than normal ranges, 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. Under the Proposed Action, the effects of a sex ratio of 60:40 favoring studs would be slight, as the proposed sex ratio is not an extreme departure from normal age structure ranges. 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.

Conducting a wild horse gather within the Roberts Mountain Complex in accordance with the Proposed Action would disrupt band stability. As wild horses are released back to the range, mares and studs would re-group – either with animals that they were previously familiar with or in new relationships. Through the regrouping, some mares could abort foals, and stallions would possibly receive injuries from encounters with other stallions.

These affects would be short term in nature, and subside as new bands are formed. Any negative effects would be offset by reduced competition for space, forage, and water, increased animal body size, and improved reproductive success due to increased fitness and habitat quality. Through achieving the established AMLs, overall density of the population would be reduced, and demand for high quality range reduced. Less of the population would be forced to utilize lower quality portions of the HMAs.

As explained by Berger, many factors influence wild horse relationships, movement patterns, and overall success on the range. One of the most important goals for management of wild horses is the long-term success of healthy populations that can be sustained within the capacity of the habitat and are able to endure less than optimal conditions during bad winters and drought summers. Through the Proposed Action, rangeland health would improve, wild horse habitat quality would improve, and reproductive success for the Complex would increase.

It is not expected that genetic health would be impacted by the Proposed Action. 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).

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Blood samples from seven other HMAs managed by the BMFO have been evaluated for genetic data. The results of three of those areas have been received (the others are still being processed and will be received in the future). The results of the analysis indicate high genetic variability with no indication of inbreeding.

Population Modeling Discussion

To analyze the potential effects that could occur to the wild horse populations between the Proposed Action and the No Action Alternatives, the WinEquus wild horse population model was utilized. In order to formulate the Proposed Action, several other alternatives were analyzed, which were not carried forward for analysis in this EA. Information about the analysis of all alternatives and simulations is located in Appendix C.

Each simulation was modeled for 100 trials over 5 years. Results were obtained for minimum, average, and maximum population sizes, growth rates, gathers, and numbers of animals that could need to be gathered and removed through gathers. Data were also generated for the “typical trial” which is similar to the average of all 100 trials.

Table 9, Population Modeling Results for the Roberts Mountain Complex

Year	Proposed Action		No action
	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 – 2007/2008	0	470	470
Year 2 - 2009	0	143	523
Year 3 - 2010	0	172	575
Year 4 - 2011	69	198	714
Year 5 - 2012	21	134	853
Year 6 - 2013	5	144	1,027
100 Trial Avg.	--	160	678

Table 10, Average Growth Rate in 5 Years

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	4.6	10.5
10 th Percentile	9.5	14.9
25 th Percentile	12.4	17.2
Median Trial	14.7	18.9
75 th percentile	17.2	20.6
90 th percentile	19.9	22.5
Highest Trial	22.9	25.8

The model automatically increases the population for foaling in year 1. Since the proposed gathers are planned to occur in July, it was not desirable to allow the model to reflect the additional foals during the same year as the gather. Year 1 reflects the pre-gather population as currently estimated. The model was set to reflect an exact number rather than a random number to focus the potential

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effects of the alternatives on the population. Year 2 reflects the population estimates in 2009 following two foaling seasons. Refer to Appendix C for detailed information about the Population Modeling.

No Action Alternative (No Wild Horse Gather)

Under the No Action alternative, AML would not be achieved within the Complex and wild horses would not be removed from horse free areas outside of the boundaries of designated HMAs. There would be no active management to control the size of the population at this time, and wild horse populations would continue to increase at an average rate of 17-25% per year. This alternative would result in a steady increase in wild horse numbers, which would greatly exceed the carrying capacity of the habitat to support wild horses.

Of 100 trials simulated through the population model, the most typical trial reflected a population in excess of 1,027 wild horses within the Complex after 6 years. These figures represent 800% of the established AMLs for these HMAs. The results of the modeling for the No Action Alternative are also displayed in Appendix C.

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. Water would become limiting especially within the Whistler Mountain HMA and Kobeh Valley, necessitating an emergency gather to be conducted. Precipitation received during the winter 2006/2007 has been minimal, and many areas across the District are very dry. Drought conditions could result in the need for an emergency gather as early as summer 2007.

Additionally, excessive utilization by wild horses would impede vegetation recovery, and would not allow for sufficient availability of forage especially during drought years. 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, which would be a function of the available forage and water and the degradation of the habitat.

Significant loss of the wild horses in the HMAs due to starvation and disease would have obvious consequences to the long-term viability to the herd. Irreparable damage to the resources, which would include primarily vegetative, soil and riparian resources, would have obvious impacts to the future of the Roberts Mountain 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.

The No Action Alternative would not be acceptable to the BLM nor most members of the public and would violate the Wild Free-Roaming Horses and Burros Act, Federal Regulations, BLM policy and Resource Advisory Council Standards and Guidelines. 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 appropriate management levels*”, and “*to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area*”.

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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 and Endangered Species, Migratory Birds and Sensitive Species)

Affected Environment

Wildlife, Migratory Birds, Sensitive Species, and Threatened and Endangered species that may inhabit the proposed gather area have been described in detail within the EA# NV062-EA-01-17 and the Fish Creek Complex documents identified in Section 1.4.

The Three Bars and Roberts Mountain Allotments include habitat critical to Sage Grouse and mule deer. There are many Sage Grouse strutting-nesting areas within the Three Bars Allotment, and extensive brood-rearing areas. The highest values are in the north end of Coils Pasture and in Horse and Basin Pastures (outside of the HMA). Birds mate and nest in the lower elevation areas and rear broods in the highland meadow and riparian areas in Horse and Basin Pastures. Some brood Rearing use is made of higher meadow and riparian areas in Cottonwood Pasture. Kobeh Valley is considered likely wintering grounds.

Several strutting and nesting grounds also exist within the Roberts Mountain Allotment, mostly located on the lower Roberts Creek and in the north end of Kobeh Valley. Primary brood-rearing areas for sage grouse are located in the upper Roberts, Vinini, Henderson, Red Canyon and Cottonwood drainages.

Mule deer migrate through the area, and winter in portions of the Roberts Mountain and Three Bars Allotments that are located on the outskirts or outside of the HMA boundaries. Critical summer range includes the headwaters of most of the drainages within the Complex. The area is also utilized by Pronghorn throughout Kobeh Valley, and black sage communities throughout the foothills of Lone Mountain and Whistler Mountain.

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.

Environmental Consequences

Proposed Action:

Removing wild horses from the 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 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 Gather Plan/Standard Operating Procedures in Appendix A for avoidance measures would be utilized to minimize impacts to Sage Grouse and Ferruginous hawk.

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Wildlife and wildlife habitat would be indirectly affected by the Proposed Action as it pertains to resulting improvements in resource health from current management. Reduction of the current wild horse population 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 the quantity and quality of forage available to wildlife and decrease competition for water sources. Riparian areas and aspen stands within the Complex provide vital habitat to wildlife. Habitat conditions in riparian areas, aspen stands, and uplands are expected to 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 as well as most other wildlife species.

No Action Alternative (No Wild Horse Gather)

Within the Complex, rangeland vegetation currently receiving heavy, critical growth period or repeated use by wild horses would continue to be impacted.

Through the analysis of potential population increases through the WinEquus population model, it was determined that within 6 years, populations could exceed 1,027 wild horses within the Complex. Wild horse populations would exceed the capacity of the habitat, resulting in heavy and severe use of vegetation resources. Important habitat utilized by Sage Grouse would be impacted by wild horses, in addition to riparian area, aspen communities, and meadow complexes valuable to many species of wildlife. Throughout the Complex, and horse free areas, downward trends in key perennial species would be expected in conjunction with reductions in ecological condition. As this occurs, vegetation would also experience reduced production levels resulting in reduced forage availability to wildlife, livestock, and wild horses, and reduced soil stability. Further degradation would be likely, and could be irreversible if the proposed gather does not occur to achieve the AMLs and thriving natural ecological balance.

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.

4.1. Past, Present, and Reasonably Foreseeable Actions

The past, present, and reasonably foreseeable future actions applicable to the assessment area are identified in the following table:

Table 11. Past, Present and Reasonably Foreseeable Actions within the Roberts Mountain Complex

Project -- Name or Description	Status (x)		
	Past	Present	Future
Rangeland Health Assessments and resulting adjustments to permitted livestock use.			x
Livestock grazing	x	x	x
Wildfire suppression	x		x

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Project -- Name or Description	Status (x)		
	Past	Present	Future
Wildfire rehabilitation/vegetation rehabilitation			x
Electrical transmission lines, communication sites, road construction	x	x	x
Wild Horse Gathers	x	x	x
Mining and Mineral Exploration	x	x	x
Geothermal exploration			x
Recreation, hunting and Off Highway Vehicle (OHV) use	x	x	x
Spring development (fencing water sources)/Well Drilling	x	x	x
Woodcutting, pine nut harvesting	x	x	x
Invasive weed inventory/treatments	x	x	x
Wildland Urban Interface Fuels Reduction Projects		x	x
Wild Horse AML adjustments (increase or decrease)	x		x
Wild Horse management decisions and Herd Management Area Plans	x	x	x
Wild Horse Fertility Control Research			x
Wild Horse relocation/herd augmentation			x

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

4.2. Affected Resources

Resources that were assessed for cumulative impacts include the following:

- o Livestock Management
- o Rangeland Vegetation Resources
- o Water Quality, Wetland and Riparian Resources
- o Soils
- o Wild Horses
- o Wildlife, Sensitive Species and Migratory Birds

4.3. Cumulative Impacts

According to the 1994 BLM *Guidelines for assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and proper management 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.

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The Cumulative Effects Study Area for this analysis is the proposed gather area (Map 2-3), which includes the Roberts Mountain HMA, Whistler HMA, Kobeh Valley and the portion of the Fish Creek HMA north of U.S. Highway 50, and areas outside of the HMA boundaries within the Three Bars, Roberts Mountain, Santa Fe Ferguson and JD Allotments.

For purposes of this analysis each potential affected resource has been discussed below in terms of past, present and reasonably foreseeable future actions which have or will have an affect in conjunction with the Proposed Action and the No Action Alternative. The time frame for the analysis extends from 1971, when the Wild Free Roaming Horses and Burros Act was passed, to 2017, ten years past the proposed gather which is the maximum time frame to consider reasonably foreseeable actions within this analysis.

4.3.1. Livestock Management

In 1994, BLM completed an Evaluation of the Roberts Mountain and Three Bars Allotments. The Final Multiple Use Decision (FMUD) included the establishment of grazing systems and reduced active livestock preference by 20 and 27% for the Three Bars and Roberts Mountain Allotments respectively. The Fish Creek Complex Rangeland Health Assessment, and FMUD were completed in 2004, which also adjusted livestock use and established grazing systems. The FMUD implemented a 40% reduction in active preference on the Lucky C Allotment, and an increase of 825 AUMs for the Romano Allotment. A Rangeland Health Assessment will be completed in future years for the Roberts Mountain and Three Bars Allotments. Data will be analyzed, and management recommendations developed for livestock management where Standards for Rangeland Health are not currently being met. Decisions could include increases or decreases in permitted livestock, and changes in season of use. Future adjustments to livestock management would further improve the grazing management system.

Livestock management within the Complex has been affected by mining and exploration activity through the affects to soils and vegetation removal/modification. Mining and exploration have occurred throughout the past, and are ongoing within the project area. Expired, pending, and active mining notices account for approximately 55 acres of disturbance. Exploration through drilling has disturbed multiple small sites less than 1 acre in size throughout the Complex. These activities have the affect of removing vegetation, and disturbing soil, which can incrementally impact forage for livestock. The Atlas-Gold Bar mine was active for about 15 years between 1980-1995, and encompassed approximately 1200 acres of public land within the Three Bars Allotment, and involved approximately 70 acres of exploration.

Future development of the Mt. Hope Molybdenum Mine has the potential to affect over 16,000 acres within the Roberts Mountain and Romano Allotments. Other minor impacts to livestock management could include recreation and use by OHVs that is likely to increase in the future due to increasing populations in the Eureka area. Rangeland Seedings are currently proposed within Kobeh Valley in the Lucky C Allotment. These improvements along with fencing and water developments could result in substantial improvements to livestock management in the area.

In conjunction with past, present and foreseeable actions, the Proposed Action is expected to contribute to improved rangeland health within the project area. As future wild horse decisions are implemented and future gathers conducted to achieve the AML, these effects are expected to continue

The No Action Alternative would not result in any long-term cumulative benefits to grazing management. Continued range deterioration and loss of water sources and riparian habitat in conjunction with any reasonably foreseeable projects or other management actions would not

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improve forage utilized by permitted livestock. Projects such as vegetation rehabilitation would not offset the further degradation caused by excess populations of wild horses. In the long term, the No Action Alternative could result in further reductions of livestock numbers or elimination of domestic livestock grazing within the project area.

4.3.2. Rangeland Vegetation Resources

Past actions that have affected vegetation within the project area primarily include livestock grazing, mining, and wild horse use. Other activities which may have and will continue to impact vegetation include recreation such as OHV use, mineral and geothermal exploration, wild land urban interface fuels reduction projects, grazing management decisions and wild horse gathers.

The Atlas-Gold Bar mine involves approximately 1200 acres of disturbance, which includes roads, pits, administrative sites and tailings. It is located within the western portion of the HMA, east of the Three Bars Ranch. This mine also involved approximately 70 acres of exploration. Substantial exploration is currently occurring within Kobeh Valley in the eastern portions of Lucky C and Roberts Mountain Allotments, which results in isolated and small areas of vegetation disturbance usually less than 1 acre in size.

Future development of the Mt. Hope Molybdenum Mine would de-vegetate thousands of acres of land within the eastern portion of the proposed gather area, for development of pits, administrative sites, and tailings and waste rock storage areas. Future OHV use may result in adverse impacts to vegetative communities. Other future activities could involve wildlife habitat enhancement projects, and prescribed burning to reduce fuels and potential risk of wildfire, although there are not currently plans for these activities within the HMA boundaries.

The Proposed Action would contribute to isolated areas of disturbed vegetation through the gather activities. In the long term, however, the achievement of AMLs in conjunction with past, present and future actions would contribute to improved vegetative resources through reduced utilization levels and upward trends. 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.

The No Action Alternative would allow continued degradation of vegetation by wild horses, which in the long term would cause native vegetation to be replaced by non-native plant species and annual plants. Improvements resulting from livestock management decisions could be negated. Past impacts would not be offset, and downward trends would occur.

4.3.3. Water Quality/Wetlands and Riparian Resources

Water quality and riparian health have historically been impacted by water development projects, and use by livestock and wild horses. Some riparian areas may have also been impacted by recreational users, and historical mining and exploration activities. In the future, livestock grazing and wild horse use would likely be the primary impacts to water quality and riparian health, in addition to construction of riparian exclosures, recreation, and increases in OHV use. Future development of the Mt. Hope Molybdenum Mine and associated wells and pipelines could affect water availability at the springs within Kobeh Valley.

Achievement of AMLs within the Roberts Mountain and Whistler HMAs in conjunction with the past, present and future actions would lead to improvement in water quality and progress towards proper functioning condition. Future wild horse gathers to maintain AMLs would further improve riparian health.

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Accordingly, long-term impacts of the No Action Alternative would be further degradation of riparian areas that is already occurring, with reduced water quality and quantity available as these areas are excessively utilized by increasing wild horse populations. This would have the effect of negating any improvements that could have been realized by past or future actions.

4.3.4. Soils

Historically, soils within the Complex have been impacted by mineral exploration and development, road building, wild horse gathers, and OHV/Recreation. These activities will continue and possibly increase into the future throughout the Complex. Wild horse and livestock use have also affected soils through utilization of vegetation and trails, which has increased susceptibility to erosion and affected rangeland health.

Exploration within Kobeh Valley is resulting in numerous, isolated and small areas of soil disturbance. Expired, pending, and active mining notices account for approximately 50 acres of disturbance within the Complex. Atlas –Gold Bar Mine was active for about 15 years in the 1980's and 1990's, accounting for over 1200 total acres of soil disturbance. Future development of the Mt. Hope Molybdenum mine would also have impacts to soils, as pits and tailings and waste rock storage areas are developed, and, roads constructed and mining activities implemented. The potential disturbance to soils could be several thousand acres.

When combined with past, present and reasonably foreseeable actions, the proposed wild horse gather would contribute minor amounts of soil disturbance within the Complex, which would likely be offset by improvements to rangeland health that should result from attainment of the AMLs.

Continued degradation of vegetation by wild horses would occur under the No Action alternative, with resultant disturbance to soils and increased soil instability and erosion. Improvements resulting from livestock management decisions could be negated. Other ongoing and future activities would continue to contribute to soil disturbance as well, resulting in overall increases in soil disturbance through the Complex.

4.3.5. Wild Horses and Burros

Wild horses have existed within the Roberts Mountain and Whistler Mountain HMAs since prior to the passage of the Wild Free Roaming Horses and Burros Act in 1971.

The largest influence to wild horses since the passage of the Act in 1971 has been the completion of wild horse gathers within the Complex. Through BLM gathers, approximately 955 wild horses were removed from the range between 1987 and 2001. Roberts Mountain HMA has been gathered three times. In 1987, 120 wild horses were gathered and removed, and no wild horses released. In 1995, 344 wild horses were captured, and 108 wild horses 10 years old and older were released. This gather was conducted under BLM policy, which required that only horses under 9 years of age be shipped to facilities for inclusion into the adoption program. In 2001, policy changed, allowing increased flexibility to remove older animals, and select younger animals for release to the range. During this gather, 580 wild horses were captured, and 131 wild horses released, consisting of 85 mares, 29 foals, and 17 studs.

In 2001, 28 water stressed wild horses were removed from the Whistler Mountain HMA and Kobeh Valley in conjunction with the Roberts Mountain HMA gather.

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The Kobeh Valley area, outside of the Fish Creek HMA boundaries was gathered in 1994, and included the capture of 129 wild horses and release of 27 wild horses over the age of 10 years old back to the area.

The age selection criteria requiring the release of older horses has influenced the age structure through the years, resulting in a higher proportion of horses older than 15, an increased proportion of the population between 0-5 years of age, and a decreased proportion of 10-14 year old horses than a normal population would exhibit. However, the deviations have been minimal, and have not been extreme departures from natural age structures.

Other past activities, which may have affected wild horses within these HMAs, include livestock grazing and adjustments to permitted use, water developments and fencing, and OHV use through the impacts on vegetation condition and availability, as well as water quality and quantity. The Falcon-Gonder 24K Powerline transverses the Whistler Mountain and Roberts Mountain HMAs on the east side of Kobeh Valley. The construction of the power-line caused temporary and minor disturbances to wild horses. Field and census observations indicate that the power-line is not affecting distribution or herd movement.

The Atlas-Gold Bar Mine operated within the western portion of the HMA for approximately 15 years in the 1980's and 1990's. This mine encompasses 1200 acres of public land within the HMA, and an additional 70 acres of exploration. Reclamation of the area is ongoing. Mineral exploration activities have had temporary and isolated impacts to the wild horses, and are increasing within the Kobeh Valley portion of the HMA. Wild horses have also been influenced by hunters and recreationalists.

Future activities could include adjustments to livestock grazing levels or season of use, wildland urban interface/fuels reduction projects, vegetation rehabilitation projects, water developments and spring exclosures, seedings, increased OHV/recreation use. Continued mining exploration and development, and geothermal exploration could also impact wild horses. The future development of the Mt. Hope Molybdenum Mine in the northern portion of the Whistler Mountain HMA and eastern portion of Roberts Mountain HMA could have large impacts to wild horses. The mine itself could consume up to 16,000 acres, which equates to nearly 20% of the Whistler Mountain HMA and 8% of the Roberts Mountain HMA. Potential pipelines in Kobeh Valley could cause disturbance to wild horses, and reduce water availability at remaining sources. In conjunction with road building, fencing, and other foreseeable actions, the overall affects could be reduced habitat for wild horses and fragmentation of that habitat. These activities would have cumulative impacts to forage quality and quantity, and water availability. Several of these activities could also 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.

Future wild horse gathers would have impacts to population size and herd distribution, and would have the affect of further improvements to rangeland health and wild horse habitat. Gathers affect the population structure and band stability, for a short duration after gathers. Age selection criteria that requires certain age groups be removed or released could also affect the population dynamics and structure of the herd. Partial gathers could be completed in the future, which would leave a large portion of the HMA undisturbed.

In the future, a Herd Management Area Plan would be completed for the Roberts Mountain, Fish Creek, and Whistler Mountain HMAs, which could involve the establishment of management objectives, and analysis of various management plans such as fertility control or manipulation of sex ratios. When the Shoshone-Eureka Resource Management Plan is revised, HMA boundaries could be

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increased or decreased, and management objectives further defined for management within these herds.

Cumulative effects of the Proposed Action in conjunction with the past, present and reasonably foreseeable actions, would include disruption to wild horse bands and herd dynamics, and changes to distribution in the HMAs. However, effects would also include improvement of habitat quality for the wild horses within the Complex, which would contribute to long-term health of the wild horses as indicated by improved body condition, increased body size, healthier foals, and herd sustainability through drought years. 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.

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 be as apparent, despite the implementation of any other activities, which may have resulted in benefits to the rangeland resource. 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 result in the need to permanently remove all wild horses and burros from one or both of these HMAs, or to reduce AMLs in future decisions.

4.3.6. Wildlife (Including Threatened & Endangered Species, Special Status Species, and Migratory Birds)

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, mining, exploration and recreation and hunting. Past mining activity from the Atlas-Gold Bar mine has affected wildlife through disturbance of migration patterns, and foraging areas. Past and current livestock adjustments and grazing systems promote improved habitat for wildlife.

A number of other ongoing and foreseeable human activities in the area, most notably current exploration activities and future development of Mt. Hope Molybdenum Mine, could result in adverse conditions that cumulatively affect wildlife, special status species, and migratory birds. These activities result in loss of habitat and disruption of movement patterns.

The Proposed Action would contribute to improved rangeland health and thereby have a potentially beneficial effect on the wildlife habitat in the gather area in the form of reduced riparian utilization, reduced upland utilization, and reduced potential for direct competition between the introduced and native ungulates, as well as overall improvements in rangeland health and quality wildlife habitat.

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. Long-term improvements to wildlife habitat could occur, including enhanced water sources, riparian habitats, and forage and cover availability. The Proposed Action would not be expected to contribute to cumulative impacts associated with impediments to movement.

The No Action Alternative would not result in any long-term cumulative benefits to any rangeland user. Uncontrolled increases in populations of wild horses across the Complex would result in continued deterioration of rangeland vegetation and important wildlife habitat, including loss of water

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sources and riparian habitat. These losses in conjunction with any reasonably foreseeable projects or other management actions would not improve habitat for wildlife, sensitive species, or other values.

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 BMFO would continue to plan for periodic census flights to monitor the growth and distribution of the wild horse populations within the HMAs. Vegetation monitoring consisting of utilization, frequency trend, production, and other rangeland studies would continue to be completed.

6. Consultation, Coordination and List of Preparers

Prior to completion of this EA, a scoping letter dated March 15, 2007 was mailed to the interested public list for the area encompassed by the Roberts Mountain Complex.

Comments to the scoping letter were received from Katie Fite of Western Watersheds Project, and Cindy McDonald. These comments were addressed in the EA. Refer to Section 6.3 for a summary of the comments received. Recommendations and comments have also been received through periodic communications with Jim Etcheverry, Kelly Hoekenga and Martin Etcheverry, permittees for allotments within the Complex.

This EA and Gather Plan is being sent to the interested public list for the gather area for review and comment. Comments received by June 16, 2007 would be incorporated into a final EA and Gather Plan, and issued to the interested public. The interested public list is included at Section 6.2.

6.1. List of Preparers

Duane Crimmins	Lead Natural Resource Spec./Wildlife Biologist/Riparian Spec.
Shawna Richardson	Project Lead/Wild Horse and Burro Specialist
Angelica Ordaz	Planning and Environmental Coordinator
Christopher Worthington	Planning and Environmental Coordinator
Mike Stamm	Wildlife Biologist
Cliff Merriman	Rangeland Management Specialist
Michele McDaniel	Range Team Lead
Joe Ratliff	Soils/Forestry/Water Quality/Invasive Weeds
Christopher Cook	Archeology
Gerald Dixon	Native American Coordinator

6.2. Interested Public List

The following list consists of the individuals that have requested to be on the mailing list for the Roberts Mountain, Fish Creek and Whistler HMAs, and the associated grazing allotments.

American Horse Protection Assoc.
Animal Welfare Institute, D.J. Schubert, Wildlife Biologist
Battle Mountain Band Council, Michael Young, Chair
Diamond Cattle Co., Martin Etcheverry
Duckwater Shoshone Tribe, Ruby Sam, Chair

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Eureka Livestock Co., Jim Etcheverry
 Larralde Sheep Co., Martin Larralde
 M W Cattle Co., John Colby
 National Mustang Association
 Natural Resources Advisory Commission, Jim Baumann, Chairman
 Nevada Commission for Preservation of Wild Horses, Cathy Barcomb
 Nevada Department of Wildlife Eastern Region, Steve Foree, Sup. Habitat Biologist
 Nevada State Clearing House, Krista Coulter
 Smith Creek Ranch Co., Ltd.
 South Fork Band Council
 Te-Moak Tribal Council, Davis Gonzales
 Western Shoshone Committee
 Western Shoshone Defense Project
 Western Watersheds Project, Katie Fite, Biodiversity Director
 Wild Horse Cattle CO., John Fraser
 Wild Horses Organized Assistance, Dawn Lappin
 Yomba Shoshone Tribe, Dennis Bill, Chair
 Chad & Rosie Bliss
 Cindy MacDonald
 David and Linda Woolfolk
 James Ithurralde
 Kenneth Buckingham
 Pam Scutt
 Roy and Mary Risi
 Thomas Gardner
 Vince Ferreira
 Kelly Hoekenga
 Jon Hutchings, Eureka County Department of Natural Resources
 Eureka County Commissioners

6.3. Summary of Comments Received through Scoping

The following table summarizes the comments received by (1) Katie Fite of Western Watersheds Project, and (2) Cindy McDonald. The Outcome column indicates how the comments were addressed.

Table 13, Comments received from May 2006 Scoping

	Comment	Outcome
1	Concerned about the failure of BLM to adjust cattle and sheep grazing numbers and use sufficiently to provide for the health of the public lands. Nevada BLM, instead, always reduces wild horse numbers while not proportionally addressing the serious adverse impacts of high stocking rates.	Not addressed – outside of the scope of the analysis
1	This Project encompasses a huge land area, a broad array of important and sensitive species habitats, and lands seriously and adversely impacted by domestic cattle and sheep use.	Addressed under Wildlife
1	An alarming Nevada BLM trend is the imposition of spurious ‘hazardous fuels’, “research” – akin to the same old cattle forage manipulation through fire, chemicals, cutting, chaining, or other measures that – that BLM seems to employ to clear the way for) in horse round ups. How many foreseeable vegetation manipulation or fuels projects may be expected here, and where are they located?	Not addressed – there are no hazardous fuels projects ongoing within the HMAs.
1	What are the full range of past, ongoing or foreseeable mining exploration and development, Oil and Gas exploration and development, and powerline or energy corridor or infrastructure, or other activities that may be occurring, or are foreseeable, here?	Addressed under cumulative impacts

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	Comment	Outcome
1	Portions of some of these allotments also recently burned. It appears that the horse removal may be at least partially aimed at trying to create more “forage” for shifted use of domestic cattle and sheep. Please provide a detailed analysis of all livestock use – including actual use for the past 20 years in all pastures of all allotments here.	Not addressed. Large fires have not burned within the Complex in the recent past.
1	Please identify all areas where livestock are facilitating spread of invasive species into HMAs. How is this affecting wildlife, wild horse and other important values here?	Partially addressed under Invasive, Non-native species
1	Please identify all land areas where livestock compete with horses for scarce waters, native vegetation, etc. How does livestock presence or management activities displace or disturb wild horse, and where are the problems greatest? As part of this process, we ask that you consider a range of alternatives, including reduction or removal of livestock from areas where conflicts are significant, or where adverse impacts may be occurring.	Addressed throughout.
1	We also ask that BLM analyze an alternative that examines NOT rounding up horses in some areas, but instead leaving an undisturbed band structure in some areas, in order to understand the deleterious effect of BLM’s removal strategies on horse bands, populations, and use of public lands.	Addressed Sect. 2.
1	We also ask that BLM consider a full range of alternatives, including a parallel reduction in livestock numbers to levels that reflect the average actual use.	Addressed Sect. 2.
1	Please provide full comparative data on the number of domestic livestock AUMs that will be present in all areas where horses are being removed.	Addressed Sect. 3.
2	The BLM, through site specific analysis, is failing to take into account the cumulative impacts of its decisions and actions on the National level of the remaining wild horses and burros or citizens of America . . . extreme overcrowding in containment centers, removal rates far exceeding adoption rates, funding being used to remove and contain wild horses and burros rather than rangeland monitoring or promotion of adoptions for the animals currently contained, billing the American taxpayer for removals and containment to increase public land resource utilization for private individuals and/or hunting revenue, increasing flammable vegetation due to lack of its reduction through wild horse and burro grazing that has contributed to unprecedented wildfires and habitat destruction, severe herd structure disruption, and loss of genetic viability within many of the remaining herds that is now threatening the long term and continued preservation of America’s mustangs and burros.	Not addressed, outside the scope of the analysis
2	The results of the experimental fertility control drugs, specifically PZP, that BLM has been studying in efforts to control populations and reduce the stress and financial impacts of removals and containment, are indicating that there are some potentially serious issues that need to be addressed.	Not addressed. This EA does not propose the use of Fertility Control.
2	Some BLM actions have returned higher percentages of stallions to mares thereby causing disruption in herd dynamics and social structures that result in excessive competition with stallions for the remaining mares, more injuries, and general anxiety and stress to the herds. Please include within the proposal the percentage of stallions to mares and hopefully, provide a return level that is more balanced with natural herd dynamics to prevent these consequences.	Addressed throughout.
2	Within gather and removal assessments, BLM consistently states that post-monitoring will be done to evaluate rangeland conditions after removals. Please include specific details of these monitoring efforts since the last removals as results may indicate that AML’s may need adjustment. This would include dates of monitored activities such as Blah Blah springs, measurements of sedges and grasses were on such and such date.	Addressed throughout
2	Also please include the total available forage within the affected HMA’s. Then provide the breakdown of how this forage allocation has been divided between all significant rangeland users. Such as, wild horses and burros are allotted 200 AUM’s, total livestock	Livestock and Wild Horse allocations are

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	Comment	Outcome
	grazing is issued 500 AUM's, and wildlife such as mule deer, pronghorn antelope, elk and/or bighorn sheep are allotted 300 AUM's. This will provide the public the opportunity to review the current multiple-use allocations and applications within the affected area of the proposal.	addressed in the EA.
2	Environmental assessments usually list wildlife in very general terms. While I am aware that a wide variety of species utilize public lands, some users provide significantly more impact to available forage and water than others. These include the above-mentioned species, mule deer, pronghorn antelope, elk and/or bighorn sheep. When assessing the wildlife within the affected area, please include current population numbers, projected or desired population levels of each species and the estimated resources requirements for these species as their populations have significant impacts on the available resources within the proposal area. Please also include any detrimental impacts noted from these species, if any, within the proposal.	Partially addressed. More detailed information regarding wildlife would be addressed in future Rangeland Health Assessments.
2	Please include the specific livestock allotments within the proposed area as well as AUM's for the allotments, the actual number of head this translates to, the estimated acreage of the allotments that is actually IN the HMA, and their season of use. It would also be very helpful if there are distinctions provided between the total AUM's of the allotments and how much of the allotment is actually in the HMA's. Adding this information will help the public properly evaluate the affected environment.	Addressed Sect. 3.
2	Please also include water source information and any monitoring done on this resource since the last removals. Again, this will help the public evaluate the proposal. The total number of springs, water developments and livestock allotment water sources within each SPECIFIC HMA would be appropriate in a document called an "environmental assessment".	Partially addressed in Sect. 3.
2	Currently, the wild horses are above AML and have been using what BLM states is more than what they have deemed "appropriate" resource utilization for the area. What if monitoring information reveals that higher populations are not impacting the resources? What if the current numbers are causing noted impacts but last year's levels did not?	Monitoring is addressed throughout the EA.
2	One of the main reasons that BLM spends so much time rounding up wild horses and have been looking for solutions to their population levels is the statement that wild horses and burros have no known natural predators. Yet, it seems to me that they have a very significant one, humans. I have come across a very substantial body of reports and eyewitness accounts of wild horse and burro deaths as a result of human activities. Some of these range from out and out murder by people who shoot them, and some of them have been more benign, such as getting hit by cars on highways. I have also heard of many instances from people who are involved in herds that foals are born with physical defects, horses getting abscesses from cuts that cause lameness and sometimes starvation, wounds from fights, or broken legs and such. I believe a proper assessment should include known population reductions due to humans, their activities, other natural predators, or environmental and physical factors that have reduced herd population. This information would be helpful to the public in evaluating population growth and factors that limit and control populations as well as any noted other natural predators impacts besides BLM's removals.	Addressed in the EA. Human caused death to wild horses is negligible to non-existent.
2	As for the round ups, the BLM has no known limits or requirements for the length or miles that wild horses can be run. The only regulation for wild horse removals is that the length is to be determined by the "authorized officer". Please include in the environmental assessment, your evaluation of the both the terrain (such as flat plains, steep and hilly, etc) within each HMA as well as your expert opinion of the miles each herd is expected to be driven.	Addressed in Appendix A.

**Roberts Mountain Complex
Wild Horse Gather Environmental Assessment**

Comment		Outcome
2	There have been several reports surfacing about the contractors BLM consistently not taking appropriate steps to ensure humane methods for running and holding wild horses during the gathers. These have included running them in excess of 10 or more miles over very difficult terrain at fast speed without breaks, running them straight into the trailers versus pens, not properly separating mares, foals and stallions, not providing water at the holding pens, and generally treating the animals with disrespect. These eyewitness accounts are not isolated and seem to be reported reasonably consistently from those round ups that the public has witnessed.	Addressed in Appendix A.
2	Please include within the assessment how the BLM plans to provide water to the animals after they have been gathered, as well as what measures they will provide for the separation of mares, foals and stallions, how many pens will be utilized during the operation and how long the animals are expected to stand in the trailers before transport.	Addressed in Appendix A.
2	Suggest that a proper assessment would include INDIVIDUAL numbers for each of the HMA's. While some individual numbers were included in this original scoping document, please continue to provide individual numbers for each HMA within the preliminary environmental assessment. Lumping total populations together makes it difficult to ascertain if one HMA may not be exceeding AML and are just being gathered for convenience versus necessity. Additionally, not providing information about the remaining populations of each HMA prevents accountability of BLM's actions within their proposals.	Addressed within the EA

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***Roberts Mountain Complex
Wild Horse Gather Environmental Assessment***

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Appendix A: Wild Horse Gather Plan and Standard Operating Procedures

Roberts Mountain Complex

I. Gather Plan

The purpose of the gather plan is to outline the methods and procedures for capturing approximately 446-516 wild horses from public lands administered by the Battle Mountain Field Office (BMFO). Achievement of the Appropriate Management Levels (AMLs) would require the removal of approximately 364-434 wild horses and release of 104 wild horses back to the HMAs. A trap-site adoption event could also be scheduled to coincide with the gather activities (refer to Section 1-H).

A. Gather Area

The gather area encompasses approximately 426,000 acres of public lands. The gather areas include the Roberts Mountain, Whistler Mountain, and portions of the Fish Creek HMA, as well as areas located adjacent to but outside of the HMA boundaries, which includes areas not designated for horse use. Refer to Map 1-3, 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 summer 2007. BLM personnel would be responsible for overseeing the contract for the capture, care, aging, and temporary holding of wild horses and burros from the capture area. BLM Wild Horse and Burro Specialists of the BMFO would be present during all aspects of the gather activities.

Prior to the start of the contract, BLM plans to conduct an aerial census of the gather area to obtain current wild horse population and distribution data within the gather area.

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.

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 utilizes a helicopter 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.

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 2-10 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 is modified to account for summer temperatures, animals in weakened condition, young foals, or older/lame animals.

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 ages the horses while held in the chute, and the BLM staff documents age, color, body condition and lactation status of the horse. 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 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 horses can be kept separate on the truck. It may require 3-6 hours for the wild horses to arrive at the adoption facility. The BMFO typically ships horses to Palomino Valley Corrals 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, blood is drawn 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. Roberts Mountain Complex Gather Plan

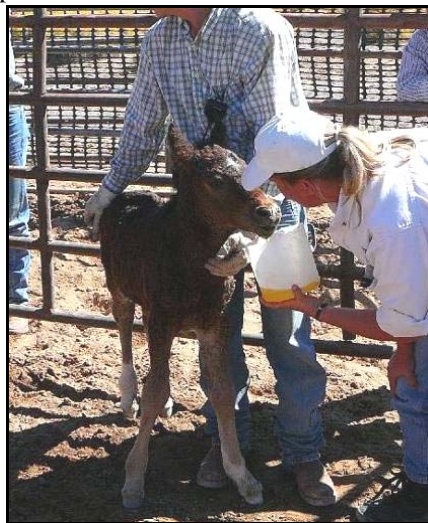
It is estimated that between 6 and 8 trapsites and 1 to 2 sets of central holding corrals would be necessary to complete the gather. Ideally, trap sites would be established in areas of previous soil or vegetation disturbance (such as gravel pits, roads etc.), to avoid impacts to unaltered vegetation and soils. A cultural resources investigation would be conducted prior to the construction of traps and temporary holding facilities. Refer to the SOPs, Part II 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 would 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 is 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.

During a summer gather, electrolytes would be added to the water and made available to the wild horses in the holding corrals. Electrolytes help alleviate heat stress.



Wild Horse Specialist gives electrolytes to a foal during the Silver Peak Gather in summer 2006

E. 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 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.

F. Wild Horse Management Objectives

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 were developed for the Whistler Mountain HMA as part of the Fish Creek Complex Rangeland Health Assessment and Final Multiple Use Decision in 2004. Similar management objectives have not been developed for the Roberts Mountain HMA. Data collected during the gather in conjunction with genetic analysis report will be incorporated into a Herd Management Area Plan (HMAP) in the future. The following details the current objectives for this area:

WILD HORSE OBJECTIVES FOR THE FISH CREEK COMPLEX

- **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 are proposed:**
 - Improve the forage component of wild horse habitat. Emphasize improving habitat as indicated by achieving desired plant community objectives within the HMA.
 - Manage the portion of the Fish Creek HMA north of U.S. Highway 50 as a complex with Whistler Mountain and Roberts Mountain HMAs since the wild horses move freely between these areas.
 - Manage the Fish Creek HMA south of U.S. Highway 50 as a complex with the Sevenmile HMA since the wild horses move freely between these areas.
 - Manage the Fish Creek and Whistler HMA AML 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 historical documented annual rates of increase between gather cycles as determined through inventory monitoring.
 - 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.
 - Manage the Fish Creek and Whistler Mountain HMAs population to preserve and enhance physical and biological characteristics that are of historical significance to the herd: these traits include:
 - Colors, which include the historic colors of the herd.
 - Fish Creek HMA: primarily roan colorations in addition to the typical colors associated with wild horses such as brown, black, palomino and bay.

- Whistler Mountain HMA: Colors similar to those of Roberts Mountain HMA such as buckskin, palomino, chestnut and dun
 - Fish Creek HMA: Curly characteristics of the hair coat.
- Maintain sex ratios and age structures, which will allow for the continued physical, reproductive and genetic health of the Fish Creek and Whistler Mountain HMAs.
- 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.
- Preserve the characteristic wild free-roaming behavior of wild horses within the Fish Creek and Whistler Mountain 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.

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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:

- Implement the objectives outlined in the Wild Free-Roaming Horses and Burros Tactical Plan for Nevada (May 1999).
- 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.
- Set appropriate Management Levels based on the most limiting habitat factor (eg. available water, suitable forage, living space and cover) in the context of multiple use.
- Manage herd management area populations to preserve and enhance physical and biological

characteristics that are of historical significance to the herd.

- 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.
- 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.
- 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.

G. Data Collection

Wild Horse and Burro 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) Blood Samples/Genetics Analysis

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

A minimum sample size of 25 blood samples would be collected for horses selected for release. A sample is defined as the collective blood for an individual animal (two tubes per horse). Blood would be drawn 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.

The blood test would examine 29 systems (17 typing and 12 DNA). The data would be compared to similar data from both domestic and other wild horse populations. The primary value of this initial data is a baseline against which future samples can be compared to identify genetic drift and any narrowing diversity through inbreeding. Blood samples would be sent to Dr. Gus Cothran of the Texas A&M University for analysis. A veterinarian or other qualified personnel would draw blood.

Blood samples may be taken for the purposes of furthering genetic ancestry studies and incorporation into the Herd Management Area Plans (HMAPs) or Population Management Plans (PMPs) which will be developed for each HMA.



APHIS Veterinarian Katie Blunk and Vet Student Patti Mussells draw blood from a wild horse for genetics testing during the Fish Creek Complex Gather, summer 2005.

2) Herd Health and Viability Data Collection

Data related to age, sex, color, overall health, pregnancy, or nursing status would be collected 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

Color and size of the animals would be recorded. 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. A representative population of wild horses depicting historical and desired characteristics would be selected for release.

4) Condition Class

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

H. Trapsite Wild horse Adoption

Interest has been received from the public for an adoption to be planned in conjunction with this proposed gather. 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 BMFO 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. Applications for adoption would be accepted by the BMFO until the day of the planned event. BMFO would 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.

II. Standard Operating Procedures for Wild Horse Gathers

The following procedures for gathering and handling wild horses and burros apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations would be conducted in conformance with the Wild Horse and Burro Aviation Management Handbook (March 2000).

Prior to any gathering operation, the BLM would complete a pre-capture evaluation of existing conditions in the gather area(s), which would include animal condition, 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 gather operations. If it is determined that capture efforts necessitate the services of a veterinarian, one would be obtained before 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 would be located to reduce the likelihood of undue injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites will be located on or near existing roads.



Trap set up on the road in Moore's Station during the Fish Creek Complex gather January, 2006.

The following procedures and stipulations would be followed to ensure the welfare, safety and humane treatment of wild horses and burros in accordance with the provisions of 43 CFR §4700, and safety of the public and government personnel.

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

1) Helicopter Drive Trapping

The Helicopter Drive Trapping method employed for wild horse capture operations requires that horses (or burros) be herded to a trap of portable panels and occasionally to ropers who, after roping the animal, will bring it to the trap or to a stock trailer for transport to the trap. Gathering would be conducted by using agency personnel or contractors experienced in the humane capture and handling of wild horses (or burros). The trap is constructed of portable steel panels consisting of round pipe. Wings are constructed from the ends of the panel trap to aid in funneling horses into the trap. The wings are constructed of natural jute, (or similar netting which will not injure a horse), which is hung on either trees or long steel posts. This type of wing forms a very effective visual barrier to the horses that they typically will not run through. When the trap is ready for use, a helicopter moves horses toward the trap and into the wings.

The following stipulations apply:

- 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 BLM. Under no circumstances shall animals be tied down for more than one hour.
- b) The Contractor shall assure that bands remain together, and that foals shall not be left behind and orphaned.
- c) Domestic saddle horses may be used as a pilot (i.e. parada) horse to lead the wild horses into the trap. Individual ground hazers may also be used to assist in the gather.

2) Helicopter Assisted Roping

This capture method involves utilizing a helicopter to herd wild horses or burros to ropers. The following stipulations apply:

- a) Under no circumstances shall animals be tied down for more than one hour.
- b) Roping shall be performed in such a manner that bands will remain together. Foals shall not be left behind or orphaned.
- c) Wild horses roped may be led to the trap or may be loaded into stock trailers in the field and transported to the trap or holding corrals.



*The Contractor and crew guide a wild stud to the Stock trailer after roping it.
Fish Creek Complex gather, summer 2005.*

3) Bait Trapping

This capture method involves utilizing bait (water or feed) to lure wild horses or burros into a temporary trap. The following stipulations apply:

- a) Finger gates shall not be constructed of materials that may be injurious to animals such as; “T” posts, sharpened willows, etc.
- b) All trigger and/or trip gate devices must be approved by the BLM prior to capture of animals.
- c) Traps shall be checked a minimum of once every 10 hours.

B. Trapping and Care

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

- 1) All trap and holding facility locations must be approved by the BLM prior to construction. The Contractor may also be required to change or move trap locations as determined by the BLM.
- 2) All traps and holding facilities not located on public land must have prior written approval of the land owner. Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary clearances (archaeological, T&E, etc.).
- 3) The rate of movement and distance the animals travel shall not exceed limitations set by the BLM, who will consider terrain, physical barriers, weather, condition of the animals, and other factors.



One of the sets of Holding Corrals used during the Fish Creek Complex gather in January 2006. These corrals were located at a gravel pit on Highway 6 east of Tonopah.

- 4) All traps, wings, and holding facilities shall be constructed, maintained and operated to handle 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 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 with plywood or like material.
 - 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 for burros and 1 foot to 6 feet for horses. The location of the government furnished portable restraining chute used to restrain, age, or to provide additional care for animals shall be placed in the runway in a manner as instructed by or in concurrence with the BLM.
 - 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, 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. Eight linear feet of this material shall be capable of being removed or let down to provide a viewing window.
 - e) All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
- 5) No fence modifications will be made without authorization from the BLM. The Contractor shall be responsible for restoration of any fence modification, which he has made.
- 6) 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.
- 7) Separate pens within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and/or injured animals, and strays 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 will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals selected to be released back into the wild. In areas requiring one or more trap sites, and when 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 for later segregation will be at the discretion of the BLM.

- 8) 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. Separate water troughs shall be provided at each pen where animals are being held. Water troughs shall be constructed of such material (e.g. rubber, galvanized metal with rolled edges, rubber over metal) so as to avoid injury to the animals. 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 2 pounds of hay per 100 pounds of estimated body weight per day.



Contractor's crew oversees loading preparations at the trap site. Simpson Park Mountains gather, December 2005.

- 9) It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
- 10) The contractor/BLM shall restrain sick or injured animals for medical treatment, if necessary. 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, and is in accordance with BLM policy as expressed in Washington Office Instructional Memorandum No. 2006-023.

Any captured horses that are found to have the following conditions may be considered for humane euthanasia:

- a) displays a hopeless prognosis for life;

- b) 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)
- c) would require continuous treatment for the relief of pain and suffering in a domestic setting;
- d) is incapable of maintaining a Henneke body condition score greater than two, in its present environment;
- e) 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;
- f) 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.

Additionally, if an animal suffers from any of the conditions listed above, but is not in acute pain, the Authorized Officer (or designee) has the authority to euthanize the animal in a humane manner after consulting with a veterinarian and notifying the district or field office manager of the decision. The Authorized Officer (or designee) will prepare a written statement documenting the advice of the veterinarian and the action taken and will promptly notify the state office and the Wild Horse and Burro National Program Office. Older wild horses and burros encountered during gather operations should be released if, in the opinion of the authorized officer, the animals would not tolerate the stress of transportation, adoption preparation, or holding, but may survive if returned to the range. This may include older animals with significant tooth loss that have a Henneke body condition score greater than two.

The Authorized Officer (or designee) will determine if injured animals must be euthanized and provide for euthanasia of such animals. The contractor/BLM may be required to dispose of the remains as directed by the Authorized Officer.

The remains of animals that die or must be euthanized as a result of any infectious, contagious, or parasitic disease will be disposed of by burial to a depth of at least 3 feet.

The remains of animals that must be euthanized as a result of age, injury, lameness, or non-contagious disease or illness will be disposed of by removing them from the capture site or holding corral and placing them in an inconspicuous location to minimize visual impacts. Remains will not be placed in drainages regardless of drainage size or downstream destination.

- 11)** Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the BLM 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 BLM. 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 BLM. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. 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 BLM.
- 12)** Branded or privately owned animals captured during gather operations will be handled in accordance with state estray laws and existing BLM policy.

C. 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 BLM 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 vehicle 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 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 at the minimum a 5 foot wide swinging gate. The use of double deck trailers is unacceptable and will 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 the trailer must be strong enough 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 BLM.
- 5) Floors of tractor-trailers, stock trailers, and the loading chute 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 BLM 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/adult horse (1.4 linear feet in an 8 foot wide trailer)
 - 8 square feet/adult burro (1.0 linear feet in an 8 foot wide trailer)
 - 6 square feet/horse foal (0.75 linear feet in an 8 foot wide trailer)
 - 4 square feet/burro foal (0.50 linear feet in an 8 foot wide trailer)
- 7) The BLM 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 BLM shall provide for any brand and/or inspection services required for the captured animals.
- 8) If the BLM determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

D. 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.



Typical trap site constructed on a road in the Lucky C Allotment. Note the wings made of jute, and location of corral panels. Fish Creek Complex gather, Summer, 2005.

- 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) When gathering wild horses from within Wilderness Study Areas (WSAs), applicable policy will be strictly adhered to. Only approved roads will be traveled on. A Wilderness Specialist or designee would be present to ensure that only inventoried ways or cherry stemmed roads are traveled on by vehicles within the WSA.
- 8) Every effort will be made to construct trap sites outside of WSA boundaries. Should the need arise to construct a trap site within a WSA to safely and effectively gather wild horses, the trap corrals would be built in the road. Wings of the trap, constructed of jute netting and steel posts may extend into the WSA. No motorized or mechanized equipment would be used to construct the wings of the trap, and all materials would be carried, constructed, and deconstructed by hand.

9) 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

E. Safety and Communications

- 1) The Contractor shall have the means to communicate with the BLM and all contractor personnel engaged in the capture of wild horses and burros 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.
- 2) 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 BLM, 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 BLM.
- 3) All accidents occurring during the performance of any delivery order shall be immediately reported to the BLM.
- 4) The Contractor must operate in compliance with all applicable Federal, State, and Local laws and regulations.
- 5) Fueling operations shall not take place within 1,000 feet of animals.



*Mares curiously observe the BLM staff at the Holding Corrals after being sorted.
Simpson Park Mountains gather, December 2005.*

F. Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations would be made available to the extent possible; however, the primary consideration will be to protect the health and welfare of the animals being gathered. 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 and burros held in a BLM facility. Only BLM or contractor personnel may enter the trap site or temporary holding facility corrals. The general public may not directly handle the animals at any time or for any reason during gather operations.

G. Responsibility and Lines of Communication

The Contracting Officer's Representative, and Project Inspectors from the Battle Mountain Field Office and Tonopah Field Station, will have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. All employees involved in the gathering operation will keep the best interest of the animals at the forefront at all times.



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

Appendix B: Wild Horse and HMA Background Information Roberts Mountain, Whistler Mountain, and Fish Creek HMAs

Roberts Mountain HMA

The Roberts Mountain HMA is located 30 miles northwest of Eureka, Nevada in Eureka County west of Highway 278. The HMA consists of 99,990 acres and is 17 miles long by 10 miles wide. The HMA shares the eastern boundary with the Whistler Mountain HMA.

AML for this HMA is 150 wild horses. Many of the horses in this HMA are distributed into the lower elevations of Kobeh Valley during both summer and winter. Several water sources appear to be key in influencing movement patterns. Wild horses also move back and forth into the Whistler Mountain HMA and outside of HMA boundaries in Kobeh Valley.

Wild horses travel throughout the Roberts Mountain HMA with little impediments to their movement. There are several pasture fences and drift fences throughout the two allotments included within the HMA, but the horses know where the fences are located and travel through open gates and around drift fences freely. During summer months, horses may move into the higher elevations and foothills that support pinyon pine and juniper, and contain many springs and ponds. During winter months, wild horses often move down to the lower elevations in the southern portion of the HMA as snow accumulates in the mountains. During the winter months, wild horses from the Roberts Mountain HMA have also been documented moving south out of the HMA into the northwest portion of Kobeh Valley, and joining with wild horses from the Whistler Mountain and Fish Creek HMAs.

Though there are numerous natural water sources for wild horses within the HMA, water in the southern portion of the Roberts Mountain HMA is limiting. As water availability changes due to changes in seasons or wells being used by permittees, the wild horses move throughout the HMA, north and south, and east and west. A primary water source used by horses in summer is Mud Springs, which is a water-filled depression that holds water until late summer depending upon the annual moisture, wild horse use and use by livestock.



Mud Springs, June 2006.

Whistler Mountain HMA

The Whistler Mountain HMA is located 10 miles northwest of Eureka, Nevada in Eureka County. The eastern boundary of the HMA lies along Highway 278. The HMA consists of 43,247 acres and is 16 miles long and 7 miles wide.

The Whistler Mountain HMA shares a western boundary with the Roberts Mountain HMA and wild horses frequently move between the two HMAs. Additionally, no fence exists on the western boundary of the HMA in Kobeh Valley, allowing wild horse movement into the valley. The AML for this HMA has been set as 14-24 wild horses. Water sources are limited within the Whistler Mountain HMA, which is likely one of the main reasons that wild horses do not use the HMA year round.

Prior to construction of the highway right-of-way fence on Highway 278 in the 1990's, wild horses were frequently killed by vehicles on the highway. Drought has been an issue within this HMA, as water is limited, especially on the west side of the HMA in Kobeh Valley.

The Whistler Mountain HMA was originally part of the Kobeh Valley Herd Area, which encompassed all of the northern portion of the Lucky C Allotment and the portion of the Romano Allotment west of State Route 278.

The AML for the Whistler Mountain HMAs was developed with consideration of the movement patterns of the wild horses to ensure that their year round needs are met, and that over utilization of the vegetation did not occur. AML was also set at a level to ensure that wild horses are successful in drought years when forage and water may be limited.

The west portion of the Whistler Mountain HMA has not supported large numbers of wild horses in the past, which may partially due to limited water sources and drift into other HMAs. Wild horses within the Whistler Mountain HMA use water sources both within and outside of the HMA boundaries. Wild horses have been documented at Lone Mountain Spring and Treasure Well, located in the Lucky C Allotment outside of the HMA boundary. The wild horses move outside of the HMA to the west into Kobeh Valley and intermingle with wild horses in and around the Fish Creek HMA. It is suspected that these animals are one group of animals that move throughout Kobeh Valley, in and out of Whistler Mountain, Fish Creek, and Roberts Mountain HMAs.



Lone Mountain Spring, 2000.



Treasure Well, 2000.

Trap Corral Spring, Hash Spring, and Railroad Spring have provided limited water in the southeastern portion of the Whistler Mountain HMA. Wild horses in the northern portion of the HMA have utilized water located at the Mount Hope and Garden Spring with limited access. Stinking Spring, located in the central portion of the HMA has been developed and may provide water year around.



Hash Springs, 2000

The wild horses using Whistler Mountain HMA and the Kobeh Valley area are strongly associated with the Roberts Mountain HMA. Fence-lines separate the Roberts Mountain, Romano, and Lucky C Allotments however, wild horses have found places to cross the fence-line, taking advantage of open gates, and are able to travel back and forth between the areas. The wild horses are well aware of the location of the gates within the HMA, as indicated by very well defined, conspicuous trails passing through them from one area to another.

Throughout the year, wild horses move back and forth into the Roberts Mountain HMA, as a result of changes in water supply, presence of livestock and changes in forage condition and climate. Field Office staff suspect movement west into the Roberts Mountain HMA to access water sources and cooler, higher elevations in the summer months. Wild horses have been known to frequent the Mt. Hope area in the early spring, and then leave the area, but may be year-round residents in certain years. In addition to the Mount Hope area, the census maps indicate that a portion of the wild horses have been observed on the east flank of Whistler Mountain.

Fish Creek HMA

The 19,300 acres of the Fish Creek HMA located north of U.S. Highway 50 was originally within the area identified as the Kobeh Valley Herd Area. This herd area was once recommended for identification as a HMA, but not carried forward into the 1986 Resource Management Plan. Instead, the present day boundaries of Fish Creek and Whistler HMAs were identified in the area that had been known as the Kobeh Valley Herd Area. There are no waters within the HMA boundary as designated, and habitat is characterized by pinyon juniper, black sage, Wyoming big sagebrush and sodic bottom vegetation types that are not highly productive.

Wild horses have historically moved through Kobeh Valley, including portions of the Fish Creek HMA, the Whistler Mountain HMA, and Roberts Mountain HMA. For these reasons, the 2004 Fish Creek Complex Rangeland Health Assessment resulted in recommendations to manage this portion of the Fish Creek HMA in conjunction with Kobeh Valley, Whistler Mountain HMA and Roberts Mountain HMA. Since U.S. Highway 50 has been fenced, movement between the remaining portion of the HMA south of the highway has been restricted.

The 2004 FMUD identified an AML for this area of 6-10 wild horses to account for incidental use that may occur within the area. The lack of reliable waters precludes the ability to manage this portion of the HMA for more than incidental use.

Wild Horse Characteristics

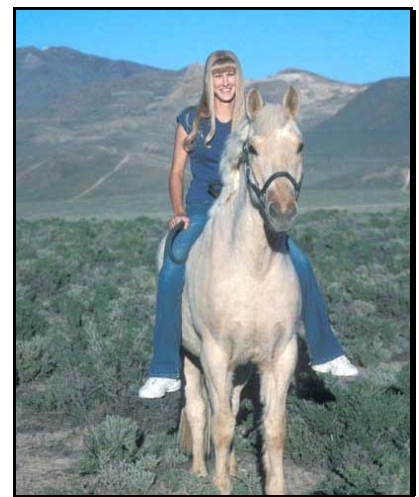
Wild horses of the Roberts Mountain HMA are some of the finest wild horses managed from the Battle Mountain Field Office. Size of the horses is typically larger than other wild horses, averaging 15 hands.

Conformation of the animals is very good, with well-muscled shoulders and hindquarters reflective of the working stock ancestry. Colors of the herds are diverse. During the 2001 gather, the predominant colors in addition to bay included buckskin, dun, chestnut, and palomino. Wild horses within the Whistler Mountain HMA and Kobeh Valley are similar to those in the Roberts Mountain HMA.



Wild horses in Kobeh Valley in between the Fish Creek and Whistler Mountain HMA boundaries, June 2006

During the 2001 gather, it was also noted by wild horse and burro staff that the mares within the HMA were exceptional and attentive mothers to the foals. Wild horses within the pens also appeared to have an unusual tolerance for human activity and were not as agitated as horses from other HMA have been observed to be. A trapsite adoption was held in conjunction with this gather. During the period that the BLM staff cared for the horses prior to the event, the wild horses gentled quickly and were able to be touched and hand fed through the fencing. They were curious and interested in the human activity. Reports from adopters of the 2001 Roberts Mountain HMA wild horses indicate that they have extraordinary demeanor, are quick to learn, intelligent and gentle easier than expected.



Wild horses adopted from the 2001 Roberts Mountain Trapsite Adoption

Census Data

The most recent census of the Whistler Mountain, Roberts Mountain, and northern portion of the Fish Creek HMA was conducted in March 2005.

Table 1, Whistler Mountain HMA 2005 Census Results

Whistler Mountain HMA, March 2005								
Allotment	Area	Inside HMA		Outside HMA		Totals		Grand Total
		Adult	Foal	Adult	Foal	Adult	Foal	
Lucky C	Roberts Mountain/Lucky C Allotment Boundary	20	0	0	0	20	0	20
Romano	NA	0	0	0	0	0	0	0
Total		20	0	0	0	20	0	20

Table 2, Fish Creek HMA 2005 Census Results

North Fish Creek HMA/Kobeh Valley, March 2005								
Allotment	Area	Inside HMA		Outside HMA		Totals		Grand Total
		Adult	Foal	Adult	Foal	Adult	Foal	
Lucky C	Northwest of Lone Mountain	11	0	0	0	11	0	11
Total		11	0	0	0	11	0	11

Table 3, Roberts Mountain HMA 2005 Census Results

Roberts Mountain HMA, March 2005								
Allotment	Area	Inside HMA		Outside HMA		Totals		Grand Total
		Adult	Foal	Adult	Foal	Adult	Foal	
Roberts Mountain	East of Roberts Creek Ranch	98	0	0	0	98	0	98
	West of Roberts Creek Ranch	33	1	0	0	33	1	34
	N. of Vinini Creek	0	0	6	0	6	0	6
	<i>Allotment Total</i>	<i>131</i>	<i>1</i>	<i>6</i>	<i>0</i>	<i>137</i>	<i>1</i>	<i>138</i>
Three Bars	Valley Flat	105	3	0	0	105	3	108
	Meadow Pasture	0	0	18	0	18	0	18
	Horse Pasture	0	0	10	0	10	0	10
	<i>Allotment Total</i>	<i>105</i>	<i>3</i>	<i>28</i>	<i>0</i>	<i>133</i>	<i>3</i>	<i>136</i>
Total		236	4	34	0	270	4	274

Bands size averaged 8 wild horses in the Roberts Mountain HMA, which is higher than the typical average of 6 experienced in the other areas censused in March 2005. In fact, bands were the largest observed, with observations ranging from single animals up to as many as 23. Average band size in the Whistler Mountain HMA was 5, and just one group of 11 wild horses was observed in the Fish Creek HMA.

The average annual rate of increase used for the Battle Mountain Field Office is 17.5%. In the case of the Roberts Mountain HMA, analysis of the release data from 2001 and the census information from 2005

indicates that reproductive rates were higher than average, which would have been expected with the increased proportion of mares released in 2001. It is also estimated that many more horses were uncaptured than estimated at the end of the gather in 2001, leaving more horses on the range.

Estimated Age Structure and Sex Ratios

Estimated age structure and sex ratio was compiled based on the information collected on the released wild horses during the 2001 wild horse gather, simulated to 2007 within the WinEquis Population Model and scaled to the estimated population of 470 wild horses. The following table displays this estimated age structure for the Complex.

Table 4. 2007 Estimated Age Structures and Sex Ratios – Roberts Mountain Complex Gather

Age	Totals	
	Males	Females
Foal	61	39
1	49	37
2	38	34
3	27	19
4	26	15
5	28	12
6	9	9
7	0	1
8	0	5
9	3	13
10-14	5	22
15-19	3	11
20+	1	3
Total	250	220

Gather History

Three gathers have been completed within the Roberts Mountain HMA. A gather was completed between August 11 and August 13, 1987, in which 120 wild horses were removed from within and outside of the HMA boundaries. The entire HMA was not gathered at this time, and the wild horses throughout the remainder of the HMA were left undisturbed.

The Roberts Mountain HMA was gathered between October 10 and October 18, 1995. During this gather, a total of 344 wild horses were captured, and 170 shipped to Palomino Valley Center. 108 wild horses 10 years old and older were released back to the HMA in accordance with the BLM selective removal criteria policy in place at the time.

The most recent gather of the Roberts Mountain HMA was conducted in July 2001. A total of 580 wild horses were captured between July 13-23, 2001. 131 mares, foals and studs were released back to the HMA at the end of the gather. The removal criteria policy in place in 2001 allowed more flexibility to release various ages of wild horses (refer to tables 5-6).

During the 2001 wild horse gather on the Roberts Mountain HMA, 28 wild horses were removed from the Lucky C Allotment/Whistler HMA due to the lack of sufficient water (drought emergency). At the time, it was also estimated that 60-80 wild horses may have moved into Roberts Mountain HMA from the adjacent Whistler Mountain HMA, and were gathered as part of the operation.

No other gathers of wild horses have been conducted within the Whistler Mountain HMA by the BLM. The population size has been influenced by gathers taking place in adjacent areas.

Within the portion of the Fish Creek HMA north of U.S. Highway 50, a gather was conducted in 1994 to remove wild horses from outside HMA boundaries. A total of 129 wild horses were captured, and 27 (> 10 years of age) released during this gather.

Table 5. Gather and Herd Color history

Color	1974 Inventory % of total	1987 Gather % of total	1995 Gather % of total	1995 released animals % of total	2001 Gather % of total	2001 Released animals % of total
Bay	40	40	36	36	40	37
Buckskin	7	32	11	15	17	16
Sorrel	16	9	19	16	13	9
Brown	-	5	4	5	6	7
Chestnut	-	4	3	4	8	11
Roan	-	3	5	4	4	4
Palomino	2	6	5	1	6	8
Appaloosa	6	1	1	1	-	-
Grullo	2	-	-	2	4	-
White	4	-	2	2	0	-
Gray	6	-	2	2	0.8	0.1
Black	16	-	7	4	2	0.1
Sevina	-	-	1	2	-	-
Dun	-	-	5	10	3	5
Cremelo	-	-	-	-	0.2	0.1
Albino	-	-	-	-	0.2	-

Slight variations in color documentation may have been caused by time of year, and skill and background of the various observers. Roan includes both red and blue roan animals observed. The 2001 gather included horses that were dark in color like bay, with dorsal stripe. Many of these may have been described as brown or bay, when they should have been described as dun.

Table 6, 2001 Gather results, numbers of animals captured and released.

Age	Captured			Released		
	Mare	Stud	Total	Mare	Stud	Total
0	52	41	93	15	14	29

Age	Captured			Released		
	Mare	Stud	Total	Mare	Stud	Total
1	20	24	44	1	0	1
2	46	38	84	6	0	6
3	48	43	91	16	5	21
4	19	25	44	10	3	13
5	19	17	36	10	1	11
6	9	13	22	4	1	5
7	8	10	18	3	2	5
8	9	6	15	4	1	5
9	5	5	10	4	0	4
10	6	5	11	4	0	4
11	7	12	19	4	0	4
12	6	9	15	4	1	5
13	3	4	7	2	1	3
14	1	5	6	1	1	2
15	2	7	9	2	1	3
16	3	2	5	2	0	2
17	1	0	1	1	0	1
18	5	3	8	2	0	2
19	1	0	1	1	0	1
20	14	17	31	4	0	4
21	0	0	0	--	--	--
22	0	1	1	--	--	--
23	1	0	1	--	--	--
24	0	0	0	--	--	--
25	2	4	6	--	--	--
30+	0	1	1	--	--	--
Totals	287	292	579	100	31	131

Table 7. Comparison of age groupings captured between 1987, 1995 and 2001 gather

Age Groups	1987 gather	1995 gather	2001 Gather	2001 Gather Release
0-5 years old	77.4%	56.8%	67.6%	62.1%
6-9 years old	15.7	11.1	11.2	14.4
10-14 years old	4.3	25.3	10	13.6

Age Groups	1987 gather	1995 gather	2001 Gather	2001 Gather Release
15-19 years old	2.6	5.9	4.3	6.8
20+	--	0.1	6.9	3.0

Table 8. Gather History Sex Ratios, Roberts Mountain HMA

Sex	1987 gather	1995 gather total ⁸	1995 gather, released animals	"Typical" sex ratio ⁹	2001 Gather Total	2001 Released ¹⁰
Male	33%	43%	46%	48%	50.3%	24%
Female	67%	57%	54%	52%	49.7%	76%

Gather Results Roberts Mountain HMA, 2001

<u>Category</u>	<u>Totals</u>	<u>%</u>
Mares	234	40
Studs	253	44
Foals	<u>93</u>	<u>16</u>
Totals	580	100

2001 Lactating Mare Analysis

Table 9. Wet and Dry based on total of 231 mares recorded

Age Groupings	# Wet	% Wet	# Dry	% Dry
1-2 yrs old	6	2.5	60	26
3-12	80	35	55	24
13-20	23	10	4	2
21-25	2	0.8	1	0.4

Summary:

Wet Mares: approximately 48% Most mares between 3 and 20 years old.

Dry Mares: approximately 52% Most dry mares 1-2 years of age (still fillies)

91% of the 1-2 year olds were dry

59% of the 3-12 year olds were wet

85% of the 13-20 year olds were wet

The 21-25 year olds comprised only 1.3% of the mares, but 66% of them were wet.

8. These figures do not include foals. This includes adult animals only.

9. 1997 Diamond Mountain HMA. Sample size 892.

10. These figures include 29 foals : 15 fillies and 14 colts.

Appendix C: 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 data on 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 Gather Plan/EA #NV062-EA02-41, June 2002.

Population modeling was completed the Complex as a whole, for the Proposed Action and No Action Alternative. Initial population age structure was developed based on the known ages of the horses released into the Roberts Mountain HMA following the last gather in 2001 (refer to Appendix B). 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.

These initial populations for the Complex were entered into the model and put through simulations that included manipulation of sex ratios between 50:50 and 60:40 favoring males, implementation of fertility control, gathering below AML for Roberts Mountain HMA, and gathering to the AML for the Roberts Mountain HMA. The No Action Alternative was simulated for “no management” (no gather). The simulations were run for 100 trials for five years. 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.

Results of Population Modeling

The model was run for a period of five years from 2007/2008 to 2013, and gives output through 2013 (which is actually six years). These numbers are useful to make relative comparisons of the different alternatives,

and potential outcomes under different management options. The lowest, median and highest trial are displayed for each simulation completed. 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. The minimum population size in general 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 many cases that figure would not be exceeded during the six years of the simulations. Half of the trials were greater than the median and half of them less than the median.

The median and the various percentiles given in the tables are useful to interpret the data. For the minimum population sizes for example, half of the trials have a minimum less than the median of the minima and half have a minimum greater than the median of the minima. If the user was concerned about applying a management plan that kept the population above some level, because the population might be at risk of losing genetic diversity if it were below this level, then one might look at the 10th percentile of the minima, and argue that there was only a 10% probability that the population would fall below this size in x years, given the assumptions about population data, environmental stochasticity, and management that were used in the simulation.

Another example, would be to examine the percentile figures. Only 10% of the trials would have entailed gathering fewer animals than shown in the row of the table labeled "10th percentile", while 10% of the trials would have entailed gathering more than shown in the row labeled "90th percentile". In other words, 80% of the time one could expect to gather a number of horses between these 2 values, given the assumptions about survival probabilities, foaling rates, initial age-sex distribution, and management options made for a particular simulation

Time Series Graph (Spaghetti Graph) and Most Typical Trial

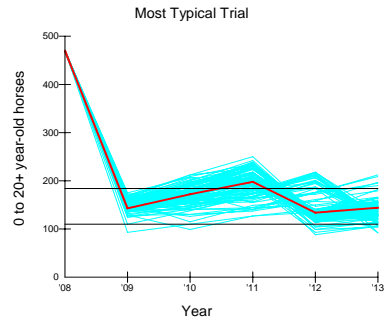
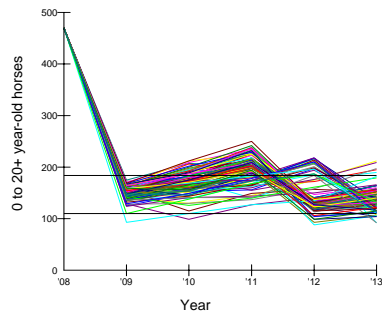
The Spaghetti Graph shows how population size changes over time for each trial. Each colored line represents one of the 100 trials for the simulations completed for each alternative. The two horizontal lines located in the graphs represent the threshold for gather (upper range of AML) and the target population size (low range of AML). The Most Typical Trial graph includes a red line, which represents what the model has chosen as the trial with the most typical results. This trial closely matches the average of all 100 trials. The most typical trial is useful for making comparisons between alternatives, and for predicting what would be the probable results of the action.

Table 1 – Typical Trial Populations for the Roberts Mountain Complex Modeling

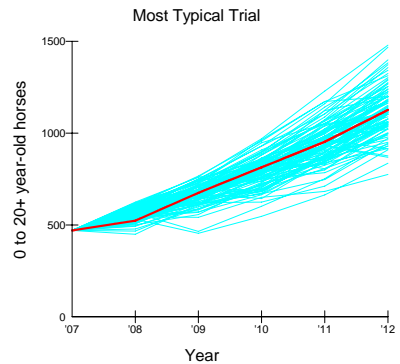
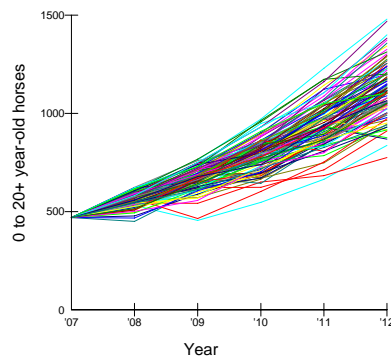
Year	Proposed Action		No action
	% of trials with a gather	Typical Trial Population	Typical Trial Population
Year 1 – 2007/2008	0%	470	470
Year 2 - 2009	0%	143	523
Year 3 - 2010	0%	172	575
Year 4 - 2011	69%	198	714
Year 5 - 2012	21%	134	853
Year 6 - 2013	5%	144	1027
100 Trial Avg.	--	160	678

Proposed Action

Population Size Spaghetti Graph and Most Typical Trial



No Action Alternative



Population Sizes

The following tables display the Minimum, Average and Maximum population sized obtained through the modeling

Table 2. Population Sizes in 6 years – Minimum

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	88	450
10 th Percentile	104	470
25 th Percentile	117	470
Median Trial	125	470
75 th percentile	131	470
90 th percentile	138	470
Highest Trial	156	470

Table 3. Population Sizes in 6 years – Average

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	186	584
10 th Percentile	202	688
25 th Percentile	208	720
Median Trial	212	758
75 th percentile	217	799
90 th percentile	220	850
Highest Trial	231	922

Table 4. Population Sizes in 6 years – Maximum

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	470	775
10 th Percentile	470	948
25 th Percentile	470	1,041
Median Trial	470	1,116
75 th percentile	470	1,200
90 th percentile	470	1,299
Highest Trial	470	1,480

The maximum population size expressed in the model results represents the pre-gather population, as the population would not advance beyond this due to future scheduled gathers.

Growth Rates

Table 5, Average Growth Rate in 5 Years

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	4.6	10.5
10 th Percentile	9.5	14.9
25 th Percentile	12.4	17.2
Median Trial	14.7	18.9
75 th percentile	17.2	20.6
90 th percentile	19.9	22.5
Highest Trial	22.9	25.8

Gathers and Removals

Table 6, Totals in 6 Years – Gathered

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	438	0
10 th Percentile	542	0
25 th Percentile	560	0
Median Trial	578	0
75 th percentile	599	0
90 th percentile	620	0
Highest Trial	646	0

Table 7, Totals in 6 Years -- Removed

Trial	Alternative	
	Proposed Action	No Action
Lowest Trial	328	0
10 th Percentile	397	0
25 th Percentile	406	0
Median Trial	415	0
75 th percentile	426	0
90 th percentile	438	0
Highest Trial	455	0

Alternatives Considered but removed from further consideration

Several of the alternatives considered were simulated through the model to compare potential outcomes as they relate to growth rates, population sizes, and animals gathered and removed from the range. These options include:

- Release 50% mares and studs, gathering to the low AML for Whistler Mountain HMA, and below AML for Roberts Mountain HMA.
- Release 60% studs and 40% mares, gathering to the low AML for Whistler Mountain HMA, and to the AML for Roberts Mountain HMA.
- Release 50% mares and studs, gathering to the low AML for Whistler Mountain HMA, and below AML for Roberts Mountain HMA, and implementing fertility control on released mares

The following tables display the results obtained through the model.

Table 8, Typical Trial Populations

Year	Typical Trial Population		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Year 1 – 2007/2008	470	470	470
Year 2 - 2009	157	212	158
Year3 – 2010	180	232	149
Year4 -- 2011	209	272	155
Year5 -- 2012	128	194	190
Year6 - 2013	145	219	135

Table 9, Percent Gathers

Year	%trials that gathers occur		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Year 1 – 2007/2008	0%	0%	0%
Year 2 - 2009	0%	0%	0%
Year3 – 2010	0%	0%	0%
Year4 -- 2011	79%	99%	13%
Year5 -- 2012	10%	0%	53%
Year6 - 2013	7%	0%	23%

The model results for release of 60% studs showed 10 fewer trials would result in a gather in year 4 than for the release of 50% studs. Under the 50:50 scenario, 96% of all trials resulted in two gathers within 6 years, and 95% resulted in 2 gathers under the 60:40 trial.

The alternative to gather to the AML of 150 for Roberts Mountain resulted in the model showing 99% of the trials having two gathers within 6 years.

Implementation of fertility control resulted in the fewest number of trials indicating a gather needed in year 4, and only 89% of the trials showing 2 gathers occurring in six years.

Table 10, Population Sizes in 6 years - Minimum

Trial	Population Sizes		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Lowest Trial	86	105	86
10 th Percentile	111	170	105
25 th Percentile	120	182	114
Median Trial	130	194	130
75 th percentile	138	206	137
90 th percentile	143	213	145
Highest Trial	153	223	159

Table 11, Population Sizes in 6 years - Average

Trial	Population Sizes		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Lowest Trial	189	206	176
10 th Percentile	204	254	197
25 th Percentile	210	260	205
Median Trial	218	270	211
75 th percentile	225	279	216
90 th percentile	230	287	222
Highest Trial	236	301	233

50:50, Low AML

In 6 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 86 and the highest was 470. In half the trials, the minimum population size in 6 years was less than 130 and the maximum was less than 470. The average population size across 6 years ranged from 189 to 236.

60:40, High AML

In 6 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 105 and the highest was 470. In half the trials, the minimum population size in 6 years was less than 194 and the maximum was less than 470. The average population size across 6 years ranged from 206 to 301.

50:50, Fertility Control, Low AML

In 6 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 86 and the highest was 470. In half the trials, the minimum population size in 6 years was less than 130 and the maximum was less than 470. The average population size across 6 years ranged from 176 to 233.

Table 12, Average Growth Rate in 5 Years

Trial	Growth Rates		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Lowest Trial	2.1	0.1	2.1
10 th Percentile	12.4	10.8	7.7
25 th Percentile	15.9	12.8	9.7
Median Trial	18.7	15.1	12.3
75 th percentile	21.7	17.9	15.3
90 th percentile	23.6	20.6	17.0
Highest Trial	27.5	25.1	20.9

Growth rates varied considerably with lows ranging from 0.1 to 2.1, and highs 20.9 to 27.5. The median trials reflected expected differences under each of the Alternatives. The lowest median growth rate was reflected for fertility control at 12.3%, which differed 6.4% from the no fertility control option.

Table 13, Totals in 6 Years -- Gathered

Trial	Totals Gathered		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Lowest Trial	438	440	438
10 th Percentile	533	552	439
25 th Percentile	569	598	606
Median Trial	588	628	618
75 th percentile	613	662	626
90 th percentile	633	700	637
Highest Trial	666	741	658

All options were similar for numbers of wild horses gathered in 6 years under the median trial. The 60:40, High AML option was the highest. Fertility control was second highest which likely reflects the need to gather more wild horses during gathers to administer the fertility control drug.

Table 14, Totals in 6 Years – Removed

Trial	Total Removed		
	50:50, Low AML	60:40, High AML	50:50, Fertility Control, Low AML
Lowest Trial	340	291	337
10 th Percentile	413	353	345
25 th Percentile	422	366	414
Median Trial	437	385	424
75 th percentile	454	406	436
90 th percentile	467	430	442
Highest Trial	495	460	467

The 60:40, High AML option reflected the lowest number of wild horses removed from gathers likely as a result of a higher release number. The remaining options were similar to each other, and to the Proposed Action.

For the fertility control option, number of mares treated ranged from 29 in the lowest trial to 70 in the highest trial.

The results for all simulations put through the model were very similar for total numbers gathers and removed in the median trial. Minimum, and average population sizes within 6 years were also very similar, with the median trials differing by less than 7 animals between an option to release a 50:50 sex ratio, the Proposed Action (60:40 sex ratio), and fertility control. The option to release a 60:40 sex ratio at the upper end of AML for the Roberts Mountain HMA reflected higher population sizes and growth rates than the Proposed Action or the fertility control option.

Population Modeling Summary

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

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

None of the alternatives indicate that a crash is likely to occur to the population. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely.

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

The implementation of fertility control when compared to the Proposed Action was indicated through the model to have very similar results for population sizes, and growth rates. Population sizes in 6 years only varied by less than ten animals, including the overall average of 100 trials which differed only by 2 wild horses. Growth rates obtained from the median trial were 2.4% lower for the implementation of fertility control, than with the release of 60% studs under the Proposed Action. Numbers of animals to be gathered and removed were higher for fertility control than the results obtained for the Proposed Action.

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

The natural variation reflected by the various model trial years appears to be more of an influence to the population size than fertility control or modification of sex ratios, as there are minimal differences within the population sizes and growth rates.

Appendix D: Roberts Mountain HMA Vegetation Monitoring Summary

General monitoring of the HMA was completed in April and May 2006 to select locations for new key areas. Utilization studies and Apparent Trend evaluations were completed at most locations along with photos and detailed notes. Between June 27 and 29, three key management areas were established within the southern portions of the Three Bars and Roberts Mountain HMAs. Nested Frequency studies were completed in order to collect baseline data and monitor future trend within the Roberts Mountain HMA.

Spring Conditions

In 2006, precipitation levels for March through June were below average. Overall, the weather stations reflected total precipitation received during this time that was 91%, 113%, and 41% of the period of record averages. Diamond Valley station reflected higher than average amounts for March and April, but only 11% of average in May and 85% of average in June. Beowawe station reflected similar patterns, with March and April nearly double the average, but May and June with only 26% of and 16% of average respectively. For this time period, the Eureka weather station reflected only 41% of average precipitation received, with all months reflecting below average precipitation except for April.

Precipitation (in inches) received for the Roberts Mountain HMA area, Spring 2006

Station	March	April	May	June	Total	Station Average
Diamond	1.32	1.40	0.15	0.61	3.48	3.82
Beowawe	0.74	1.27	1.14	0.77	5.12	4.53
Eureka	0.0	1.51	0.49	0.0	2.0	4.85

Utilization and Apparent Trend Data

Numerous stops were made throughout Kobeh Valley. Utilization and Apparent Trend were not completed at all areas. The following information details the utilization transects completed.

Three Bars Allotment, Stop 1 Utilization, May 10, 2006

Key Species	Utilization Summary	
	% Utilization	Utilization Category
Indian ricegrass	46%	moderate
Bottlebrush squirreltail	32%	light

Apparent trend rating was completed for this site, and determined to be not apparent to downward trend. Down indicators included disproportionate amount of intermediate and less desirable species, low vigor, browse species heavily browsed, variable ground cover, exposed soil, and wind scoured depressions.

Three Bars Allotment, Stop 2 Utilization, May 10, 2006

Key Species	Utilization Summary	
	% Utilization	Utilization Category
Indian ricegrass	44	moderate
Bottlebrush squirreltail	19.4	slight
Sandberg's bluegrass	24.7	light

Apparent trend was completed and resulted in a rating of Static to Upward Trend. Down indicators included disproportionate amount of intermediate and less desirable species, browse species heavily browsed, variable ground cover, exposed soil, and wind scoured depressions.

Roberts Mountain Allotment, Stop 1 Utilization, May 11, 2006

Key Species	Utilization Summary	
	% Utilization	Utilization Category
Indian ricegrass	26.7	light
Needle and Thread	26.7	light
Bottlebrush squirreltail	30.9	light

Apparent trend rating was completed for this location, and resulted in upward trend. No Down indicators were noted.

Roberts Mountain Allotment, Stop 3 Utilization, May 11, 2006

Key Species	Utilization Summary	
	% Utilization	Utilization Category
Indian ricegrass	30	light
Sandberg's bluegrass	22.5	light
Bottlebrush squirreltail	22.2	light

Apparent Trend was completed and resulted in a rating of stable to upward. Down indicators included some broken and exposed soil cover, and some surface erosion pavement.

May 16, 2006: Stop 2, Roberts Mountain Allotment. Depleted understory, unable to determine utilization. Apparent trend was completed and resulted in a rating of Stable to Downward trend. All indicators were Down, except for no detectable soil movement, exposure of plant roots, active gullies, or recent soil deposits.

May 16, 2006: Stop 3, Roberts Mountain/Three Bars Allotment. Perennial understory inadequate for utilization measurement. Apparent trend form was completed and resulted in a rating of Stable on a degraded site. Most indicators were down, but the site does not exhibit soil movement.

Roberts Mountain Allotment, Stop 4 Utilization, May 16, 2006

Key Species	Utilization Summary	
	% Utilization	Utilization Category
Indian ricegrass (last year's growth)	42.7	moderate
Bottlebrush squirreltail (last year's growth)	28.6	light
Indian ricegrass (current year's growth)	18.75	light
Bottlebrush squirreltail (current year's growth)	7.9	light

Apparent trend rating was stable to upward for the site. Down indicators included disproportionate amount of intermediates and least desirables, low vigor, hedging of browse, variable ground cover, exposed soil, erosion pavement, and wind scoured depressions.

Nested Frequency

Three new key areas were established within the Roberts Mountain HMA between June 27-29, 2006. All three key areas are located within the Loamy 8-10" p.z. range site, which should support Wyoming big sagebrush with an understory of Indian ricegrass and needle and thread with other perennial grasses, forbs and shrubs. Refer to the end of the document for a description of the range site, and composition of species that should be present on these sites. Nested Frequency, Frequency Cover, and Line Intercept Cover were documented. Apparent Trend evaluation was completed at two sites.

One year of baseline frequency data has been collected at this site; therefore, trend cannot be determined from the study. The data displayed indicates the presence of the various species at the site. The following table displays the percent frequency obtained for three nested frame sizes.

Transect: 20 transects, 10 quadrats; 200 plots total

Species	Nested Frequency Percent%								
	RM-24 Frame Size			RM-25 Frame Size			RM-26 Frame Size		
	5"	15"	30"	5"	15"	30"	5"	15"	30"
Grasses									
Indian ricegrass	3	7	15	0.5	2	7	1.5	6	15.5
needleandthread	--	--	--	--	--	--	23	50.5	78.5
Thurber's needlegress	--	--	--	--	--	--	7.5	16.5	30.5
bottlebrush squirreltail	11.5	26	52	10.5	33.5	69	2.5	10.5	32
Sandberg bluegrass	14	34	65	15.5	46.5	84	26	53.5	77
sedge	--	--	--	--	--	--	10.5	28	46
Forbs									
prickly gilia	6	10	33.5	0	0.5	1	1	9.5	26
buckwheat	1	5	14	0	0.5	2	0.5	1	1.5
Phlox	1.5	3.5	9.5	0	0.5	0.5	0	0	1.5
daisy/composite	0	0.5	0.5	0	0.5	1.5	--	--	--
unknown	0	0	1.5	0	0	1.5	--	--	--
vetch	--	--	--	--	--	--	0	1	1.5
death camas	--	--	--	--	--	--	0.5	2	5.5
tapertip hawksbeard	--	--	--	--	--	--	0	0.5	1
biscuit root	--	--	--	--	--	--	0	0.5	0.5
Shrubs									
Wyoming big sagebrush	8.5	41.5	72	12.5	50	88.5	0.5	11	35.5
rabbitbrush	3	5.5	16	--	--	--	3.5	14.5	41
cactus	--	--	--	--	--	--	1	3	9

Species	Nested Frequency Percent%								
	RM-24 Frame Size			RM-25 Frame Size			RM-26 Frame Size		
	5"	15"	30"	5"	15"	30"	5"	15"	30"
Invaders									
cheatgrass	0	0	1.5	--	--	--	--	--	--
mustard	--	--	--	--	--	--	0	0	0.5

Cover/Line Intercept Data

Roberts Mountain HMA Frequency Cover Summary, 2006						
Cover Category	Key Areas					
	RM-24		RM-25		RM-26	
	#hits	% cover	#hits	% cover	#hits	% cover
Vegetative - basal	2	2.00%	2	2.00%	5	5.00%
Vegetative - canopy	20	20.00%	31	31.00%	23	23.00%
Litter	48	48.00%	49	49.00%	52	52.00%
Bare	34	34.00%	41	41.00%	27	27.00%
Rock	5	5.00%	7	7.00%	5	5.00%
Cryptogram	1	1.00%	5	5.00%	5	5.00%

Roberts Mountain HMA Line Intercept Shrub Cover Summary, 2006							
Key Area	Species	% Cover	Age Class				
			Seedling	Sapling	Mature	Decadent	Dead
RM-24	Wyoming big sage	29.75%	0	1	14	6	1
	Rabbitbrush	1.42%	0	0	1	0	1
RM-25	Wyoming big sage	41.42%	0	1	22	8	6
	Rabbitbrush	0.00%	--	--	--	--	--
RM-26	Wyoming big sage	24.58%	0	0	4	7	3
	Rabbitbrush	5.25%	0	0	3	2	0

Key Area RM-24

Key area RM-24 was established on the western side of the Roberts Mountain HMA, within the Three Bars Allotment. The area is utilized by wild horses as well as other wildlife, and cattle may not make heavy use of the area.



RM-24, Frequency Study General View

Key Area RM-25

This key area is located in the center of the Roberts Mountain HMA, Roberts Mountain Allotment, and middle of Kobeh Valley. Numerous wild horses (up to 30) were noted in the area during the monitoring. No sign of cattle were observed. Rabbits and crickets are using the site.

Apparent trend form was completed, and the rating undetermined. Down indicators included disproportionate amount of intermediate and less desirable species, exposed soil, pedestalled Sandberg's bluegrass (plant roots exposed), erosion pavement, and wind scoured depressions.



RM-25, Frequency Study General View

Key Area RM-26

RM-26 is located on the far east portion of the Roberts Mountain HMA within the Roberts Mountain Allotment. This site appears to be in better condition than RM-24 and 25, supporting increased production and frequency of key species appropriate to the site. This site is used readily by wild horses. The area is in close proximity to the Whistler Mountain HMA boundary, and 2 miles north of the Lucky C Allotment boundary.

At the time that the nested frequency study was completed, old and very old wild horse sign was noted. Crickets were on the site, and sign of rabbits noted eating cactus. Recent wild horse tracks were present through the area. Apparent trend rating was stable to up. No down indicators were selected.



RM-26, Frequency Study General View

Conclusions

Three key areas were established within the Kobeh Valley portion of the Roberts Mountain HMA in June 2006, and baseline nested frequency data collected. During the monitoring, Utilization and Apparent Trend data were also collected at numerous other locations throughout the valley, and vegetation conditions documented through field notes and photos.

Species monitored for utilization included Indian ricegrass, bottlebrush squirreltail, needle and thread, and Sandberg's bluegrass. Utilization studies determined use on last year's growth of perennial grasses from 22.5% to 46%. It was determined through the 2006 monitoring that the primary use of Kobeh Valley in the Three Bars and Roberts Mountain Allotments had been by wild horses. Antelope and rabbits also use the area. Livestock sign was minimal, and determined to be very old. This is consistent with recent and historic use patterns by wild horses within the two allotments.

In general, the valley bottoms within Roberts Mountain and Three Bars Allotments are not in good condition. The vegetation within the valley consists of the Loamy 8-10" precipitation zone Wyoming big sage community that should support an understory of perennial grasses. Throughout the valley, vegetation communities are characterized by a lack of perennial key grass species in the understory. In many locations, extensive amounts of bare ground exist between shrubs, and perennial grasses are sparse or caged in shrubs. Hedging of shrubs (rabbitbrush) was also noted in some areas. Apparent trend at these locations ranged from not apparent/down to stable/up. Several sites were noted as being so degraded that sufficient perennial grasses were unavailable to record utilization.

The Loamy 8-10" p.z. range site should support 600 lbs/acre of vegetation in a normal year, and 400 lbs/acre in an unfavorable precipitation year. Production studies were not completed in 2006. However, production was estimated to be 250-300 lbs/acre and significantly below normal for perennial grasses and forbs. Vegetative composition for the ecological site at Potential Natural Community is 50% Grasses, 5% Forbs and 45% Shrubs. At two key areas, the 2006 percent composition of perennial grasses was estimated to be less than 5%, (12-15 lbs/acre) with one key area estimated to be 15-25% composition (25-75 lbs/acre). In all cases, the dominant component was composed of Wyoming big sagebrush, which exceeded the percent composition that should be present. Forbs were primarily lacking from the vegetation communities.

Some of the vegetation communities within Kobeh Valley are degraded to the degree that thresholds may have been reached, which could prevent improvement without manipulation of the range through seeding or other procedure. Battle Mountain Field Office Specialists indicate that in some areas, improvement since the 1980's has been minimal. During the 2006 monitoring, signs of improvement were noted at some locations as indicated by perennial key grasses beginning to re-vegetate the large interspaces between shrubs.

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 Level for the Roberts Mountain HMA is valid, and should not be adjusted at this time. The following summarizes the rationale for this determination.

- Drought occurs 3-4 years out of ten, and has occurred in 3-5 years since AML was established in 1994.
- Vegetation communities within Kobeh Valley are not reflective of the Potential Natural Community, and are not in good condition.
- Water is limiting within Kobeh Valley.
- Livestock make little use of Kobeh Valley, but could in the future if permitted numbers are used within the HMA.
- Wild horses use the Kobeh Valley portion of the HMA year round.
- Utilization levels by wild horses are currently meeting Rangeland Program Summary objectives within the valley.
- Should livestock use occur within Kobeh Valley, utilization objectives would be exceeded.

Monitoring of wild horse use throughout the HMA will continue into the future, and data assessed in conjunction with wildlife and livestock use when the RAC Standards for Rangeland Health are assessed for the Roberts Mountain and Three Bars Allotments.

Range Site Description

Ecological site: Loamy 8-10" P.Z (028BY010NV)

This site occurs on fan piedmonts, rock piedmonts, and low rolling hills. Slopes range from 2-50% with typical slopes of 4-15%. Elevations are 5000 to 6500 feet. Average annual precipitation is 8-10 inches. Mean annual air temperature is 45-50 degrees F. The average growing season is 100-120 days.

The soils in this site are moderately deep to deep, and well drained. The available water holding capacity varies with soil texture and soil depth, ranging from low to moderate. Surface soils are 3-10 inches thick and are moderately coarse to medium textured. Many soils are modified with a high volume of gravels, cobbles or stones throughout the profile. Runoff is medium. The potential for sheet and rill erosion is moderate to high depending on slope.

The Potential native vegetation is dominated by Wyoming big sagebrush, Indian ricegrass, and needleandthread. Other common species include bottlebrush squirreltail, Sandberg bluegrass, globemallow, rabbitbrush, and other shrubs. These sites commonly provide valuable forage for livestock, wild horses, and wildlife, as they are lower elevation, sites with mild slopes. Potential composition of the vegetation is 50% grasses, 5% forbs and 45% shrubs and trees. The site supports approximately 10-20% ground cover (basal and crown).

Production: Favorable years: 800 lbs/acre
Normal years: 600 lbs/acre
Unfavorable years: 400 lbs/acre

Where management results in abusive use, Wyoming big sagebrush, and Douglas rabbitbrush increase, while Indian ricegrass, and needle and thread decrease. Various annual species are likely to invade this site. Utah Juniper readily invades this site where it occurs adjacent to this woodland. When Utah juniper occupies this site, it competes with other species for available light, moisture, and nutrients. If Utah Juniper canopies are allowed to close, they can eliminate all understory vegetation

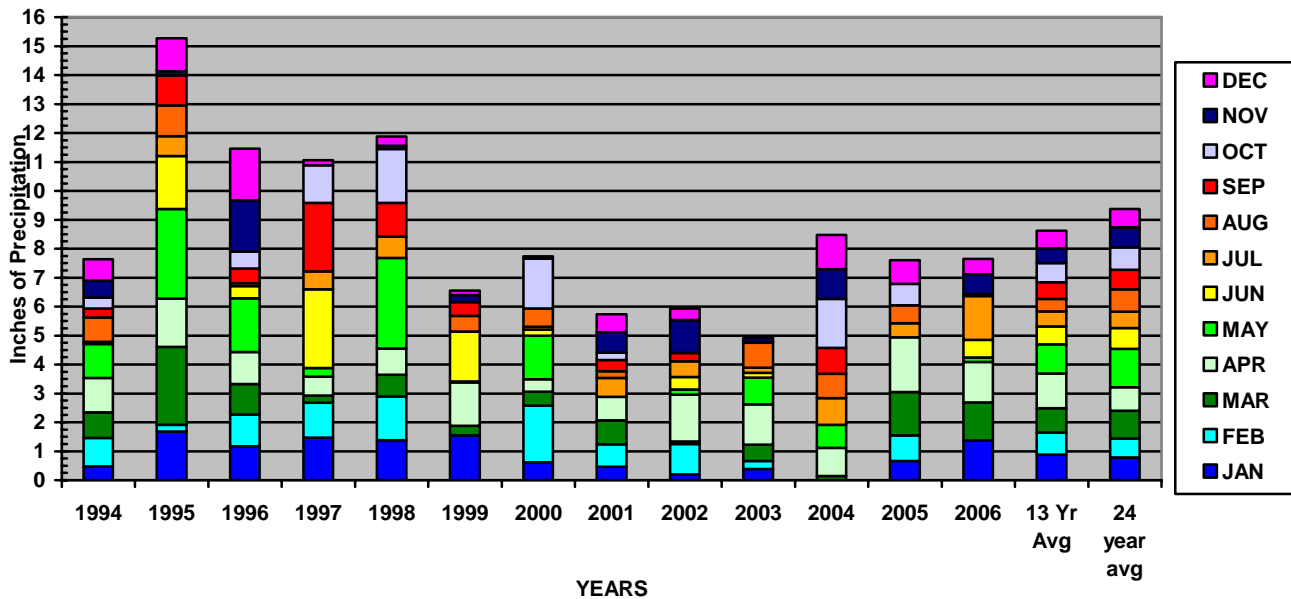
Loamy 8-10" P.Z (028B010N)

Common name	Symbol	Scientific name	Potential composition by weight
Grasses			
Indian ricegrass	ORHY	<i>Oryzopsis hymenoides</i>	20-30%
needleandthread	STCO	<i>Stipa Comata</i>	10-20%
bottlebrush squirreltail	SIHY	<i>Sitanion hystrix</i>	2-8%
Sandberg bluegrass	POA	<i>Poa secunda</i>	2-5%
Other perennial grasses Western wheatgrass Basin wildrye	AGSM, ELCI	<i>Agropyron smithii</i> <i>Elymus cinereus</i>	2-8%, not to exceed 3% of each or 8% aggregate
Forbs			
Globemallow	SPHAE	<i>Sphaeralcea</i>	2-5%
Other perennial forbs Phlox paintbrush	PHLOX, CASTI2	<i>Phlox, Castilleja</i>	2-5% not to exceed 2% of each or 5% aggregate
Shrubs			
Wyoming big sagebrush	ARTRW	<i>Artemisia tridentata wy</i>	25-35%
Rabbitbrush, rubber and douglas	CHVI8, CHNA2	<i>Chrysothamnus</i>	2-5%
Other shrubs and trees Fourwing saltbrush Nevada ephedra Spiny hopsage Utah juniper	ATCA2 EPNE JUOS GRSP	<i>Atriplex canescens</i> <i>Ephedra nevadensis</i> <i>Grayia spinosa</i> <i>Juniperus osteosperma</i>	5-10%, not to exceed 3% of each or 10% aggregate

USDA-SCS Technical Range Site Descriptions, MLRA 28B Central Nevada Basin and Range, Rev. 3/91.

Precipitation Data

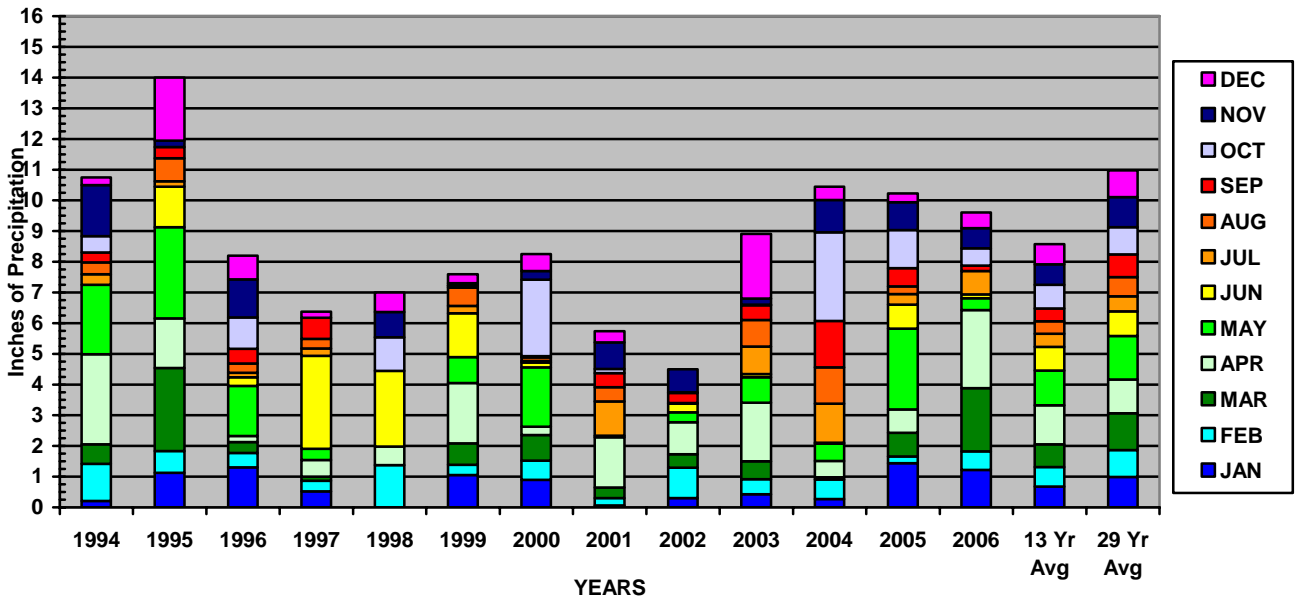
Diamond Valley USDA Weather Monitoring Station – Precipitation Data



YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1994	0.48	0.98	0.88	1.20	1.17	0.00	0.08	0.83	0.31	0.38	0.59	0.73	7.63
1995	1.68	0.23	2.70	1.67	3.09	1.83	0.69	1.06	1.04	0.00	0.14	1.14	15.27
1996	1.17	1.10	1.06	1.10	1.86	0.42	0.10	0.00	0.50	0.59	1.77	1.79	11.46
1997	1.47	1.20	0.26	0.65	0.30	2.72	0.61	0.00	2.37	1.30	0.00	0.18	11.06
1998	1.38	1.52	0.75	0.90	3.13	0.00	0.74	0.00	1.16	1.87	0.11	0.32	11.88
1999	1.55	0.00	0.33	1.50	0.03	1.73	0.00	0.54	0.47	0.00	0.25	0.15	6.55
2000	0.62	1.96	0.48	0.43	1.51	0.20	0.10	0.63	0.00	1.73	0.00	0.07	7.73
2001	0.46	0.78	0.83	0.81	0.00	0.00	0.66	0.23	0.39	0.25	0.71	0.61	5.73
2002	0.20	1.05	0.09	1.62	0.18	0.43	0.54	0.00	0.29	0.00	1.14	0.39	5.93
2003	0.39	0.27	0.57	1.39	0.93	0.16	0.18	0.86	0.03	0.00	0.15	0.00	4.93
2004	0.00	0.00	0.14	0.98	0.79	0.00	0.93	0.84	0.89	1.70	1.02	1.18	8.47
2005	0.66	0.89	1.50	1.89	0.00	0.00	0.49	0.61	0.00	0.74	0.00	0.82	7.60
2006	1.37	0.00	1.32	1.40	0.15	0.61	1.52	0.00	0.06	0.00	0.69	0.53	7.65
13 Yr Avg	0.88	0.77	0.84	1.20	1.01	0.62	0.51	0.43	0.58	0.66	0.51	0.61	8.61

The Diamond Valley Weather Station is located in the southern portion of the Romano allotment, east of State Route 278, approximately 10 miles north of Eureka. For the period of record 8/1/79 – 112/31/2006 the average total annual precipitation was 9.37 inches. Elevation of this weather station is 5,969 feet.

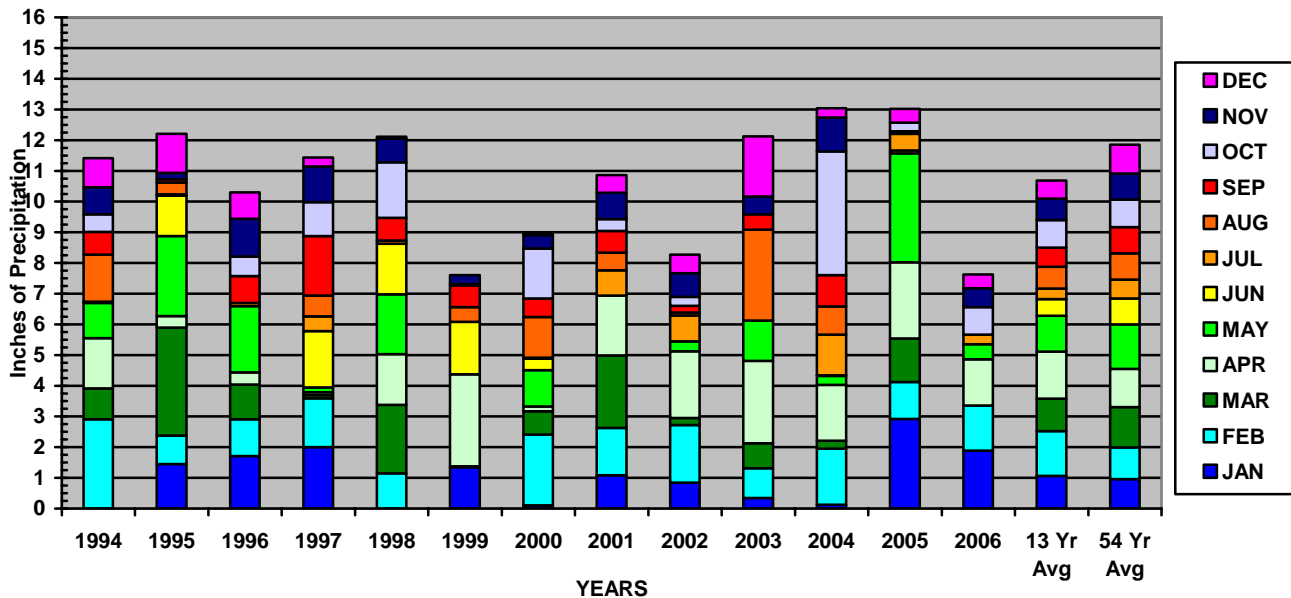
Beowawe, Univ. of Nevada Ranch USDA Weather Monitoring Station – Precipitation Data



YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1994	0.21	1.21	0.63	2.94	2.26	0.00	0.34	0.39	0.32	0.53	1.67	0.25	10.75
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
13 Yr Avg	0.68	0.63	0.74	1.27	1.14	0.77	0.43	0.40	0.42	0.77	0.67	0.65	8.58

The Beowawe U of N Ranch weather station is at 5,740 ft. elevation. The period of record from this weather station was from January 1972 to December 2006. The average annual precipitation received at this weather station was 10.98” through the period of record according to the Western Regional Climate Center website (wrcc@dri.edu).

Eureka USDA Weather Monitoring Station – Precipitation Data



YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1994	0.00	2.91	1.01	1.63	1.15	0.03	0.01	1.53	0.74	0.57	0.89	0.95	11.42
1995	1.45	0.92	3.53	0.37	2.61	1.32	0.04	0.38	0.11	0.00	0.21	1.27	12.21
1996	1.71	1.20	1.13	0.40	2.15	0.00	0.11	0.00	0.87	0.64	1.23	0.86	10.30
1997	2.00	1.59	0.11	0.09	0.16	1.83	0.48	0.68	1.94	1.10	1.17	0.29	11.44
1998	0.00	1.15	2.22	1.66	1.95	1.65	0.00	0.10	0.74	1.81	0.77	0.06	12.11
1999	1.34	0.03	0.00	3.01	0.00	1.70	0.00	0.48	0.71	0.04	0.29	0.00	7.60
2000	0.10	2.31	0.76	0.15	1.19	0.38	0.03	1.32	0.60	1.63	0.44	0.05	8.96
2001	1.08	1.55	2.36	1.95	0.00	0.00	0.82	0.57	0.71	0.39	0.86	0.57	10.86
2002	0.84	1.88	0.23	2.18	0.32	0.00	0.84	0.10	0.21	0.30	0.77	0.60	8.27
2003	0.34	0.97	0.82	2.68	1.31	0.00	0.00	2.96	0.50	0.00	0.59	1.95	12.12
2004	0.13	1.82	0.26	1.82	0.29	0.02	1.33	0.91	1.02	4.04	1.10	0.30	13.04
2005	2.92	1.21	1.41	2.48	3.55	0.10	0.54	0.08	0.00	0.28	0.00	0.45	13.02
2006	1.89	1.46	0.00	1.51	0.49	0.00	0.32	0.00	0.00	0.89	0.62	0.45	7.63
13 Yr Avg	1.06	1.46	1.06	1.53	1.17	0.54	0.35	0.70	0.63	0.90	0.69	0.60	10.69

The Eureka Weather Station is located just north of Eureka at 6538 feet elevation. For the period of record 10/1/1952– 12/31/2006, the average total annual precipitation was 11.85 inches.

Precipitation Data Analysis

Diamond Valley

For the period of record for the Diamond Valley weather station (1979-2006), 24 years of data were looked at. 15 years (63%) exhibited annual total precipitation less than the average (9.37 inches). Totals for 11 years (46%) were less than 75% of the average, which meets the definition of drought. This would equate to approximately 4 years out of every 10 exhibiting drought conditions.

Since the AML was established for the Roberts Mountain HMA in 1994, 4 years have received less than 75% of the average precipitation. Three of the years have occurred since the last gather in 2001. The six-year average since the gather is 71.70% of average, and ranged from 52.61% in 2003 to 90.39% in 2004. Since 2001, annual precipitation has not exceeded the average. In fact, the annual precipitation received has not exceeded the 24-year period of record average since 1998.

Beowawe

For the period of record for the weather station at the University of Reno Ranch near Beowawe (1972-2006), 31 years of data were looked at. 23 years (74%) exhibited annual total precipitation less than the average (10.99 inches). Totals for 9 years (29%) were less than 75% of the average, which meets the definition of drought. This would equate to approximately 3 years out of every 10 exhibiting drought conditions.

Since the AML was established for the Roberts Mountain HMA in 1994, 5 years have received less than 75% of the average precipitation. Two of the years have occurred since the last gather in 2001. The six-year average since the gather is 75.03% of average, and ranged from 40.98% in 2002 to 95.17% in 2004. Since 2001, annual precipitation has not exceeded the average. In fact, the annual precipitation received has not exceeded the 31-year period of record average since 1995.

Eureka

For the period of record for the Eureka weather station (1952-2006), 47 years of data were looked at. 26 years (55%) exhibited annual total precipitation less than the average (11.85 inches). Totals for 16 years (34%) were less than 75% of the average, which meets the definition of drought. This would equate to approximately 3-4 years out of every 10 exhibiting drought conditions.

Since the AML was established for the Roberts Mountain HMA in 1994, 3 years have received less than 75% of the average precipitation. Two of the years have occurred since the last gather in 2001. The six-year average since the gather is 91.34% of average, and ranged from 64.39% in 2006 to 110.01% in 2004. Since 2001, annual precipitation has exceeded the average in 3 out of 6 years.

Note: The Nevada Climate Summaries include notations of number of days per month that were missing data. All data is included in the above tables; however, for the purposed of calculating averages, those years in which several months were missing numerous days of data, were not included in the calculations.

Precipitation and Drought Summary

The three weather stations within the proximity of the Roberts Mountain Complex were analyzed for precipitation patterns in the gather area. Precipitation data were obtained through the Western Regional Climate Center, Nevada Climate Summaries (www.wrcc.dri.edu), and the National Climate Data Center (www.ncdc.noaa.gov).

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 patterns for central Nevada near the Roberts Mountain Complex meet the definition for drought 3-4 years out of every 10. For

the period of record, these stations recorded below average precipitation received 55-74% of the years, and met the definition of drought conditions 29-46% of the years.

Precipitation levels at all three weather stations indicate below average precipitation since the last Roberts Mountain HMA gather in 2001 (six years), and since the AML was established in 1994 (thirteen years). Drought conditions were encountered 3-5 years since AML was established and 2-3 years since the last gather according to the data for the three stations.

For two stations, average precipitation levels have not been reached in many years (1995 and 1998). Six-year averages for these stations since the Roberts Mountain gather in 2001 are 75.03 and 71.70% of the period of record averages. The Eureka station would represent higher elevation and increased precipitation levels. This station did achieve and exceed the period of record average for 5 of the 13 years since AML was established, yet the 13 year and 6 year average is 90.22 and 91.34% of the period of record average.

Precipitation patterns vary greatly, both for annual totals and through the year. The growing period for perennial grasses is a critical time for moisture to be received. Depending upon elevation, aspect and specific site conditions, perennial grasses will begin to green-up in March-April, and continue to grow and set seed until May-June. April and May would typically be the most important for growth of perennial grasses and forbs in central Nevada.

In 2006, precipitation levels for March through June were below average. Overall, weather stations reflected total precipitation received during this time that was 91%, 113%, and 41% of the period of record averages. Diamond Valley station reflected higher than average amounts for March and April, but only 11% of average in May and 85% of average in June. Beowawe (pronounced Bē-wā-wē) station reflected similar patterns, with March and April nearly double the average, but May and June with only 26% of and 16% of average respectively. For this time period, the Eureka weather station reflected only 41% of average precipitation received, with all months reflecting below average precipitation except for April.

Information obtained from the U.S. Drought Monitor (www.drought.unl.edu) for 2007 indicates current negative departures from average precipitation through most of Nevada. For the period of 4/23/06 through 4/22/07, the monitor indicates precipitation through the state at 25-70% of average. The three-month outlook identifies 33% below normal precipitation probability for northeastern Nevada. The U.S. Drought Monitor indicates moderate drought conditions through most of Nevada as of mid-April 2007, with severe drought indicated for western and southern Nevada. The National Weather Service Climate Prediction Center, U.S. Seasonal Drought Outlook indicates that Nevada will endure persistent or intensifying drought. It states that “prospects for significant drought relief across California, the Southwest, and the Great Basin are dim . . .”, and, “overall drought conditions will not improve significantly across most of the region”. For the last six-month period, the Eureka area is reflecting 84% of average precipitation.

During periods of drought, it becomes even more important to prevent overgrazing of perennial plants. A significant impact of drought on rangelands is a severe reduction in herbage production. Not only is less production of forage available for animals, but heavy use can harm or kill the plants.

The effect of drought on range plants is a function of both the intensity and duration of drought and the general health or vigor of the vegetation before the drought. Plants with healthy root systems and adequate carbohydrate reserves will fare much better during and after drought than plants that have been struggling to maintain themselves all along. During a drought year, these plants might have to rely on stored carbohydrates for as long as 9 to 10 months and have as little as 2 to 3 months to recharge reserves for the coming year (PNW 200, March 1980).

During drought, plant growth can be arrested before carbohydrates are replaced, or the replenishment period may be shorter than normal. Carbohydrates may not be fully restored and grasses enter a longer than normal dormant period with less than their full complement of energy. Heavy grazing, especially during the latter part of the growing season, hinders the accumulation of carbohydrates (PNW 200, March 1980).

Standard recommendations grazing management during drought periods include allowing grasses as much opportunity as possible to grow before the full impact of the drought arrives, and keeping use as light as feasible in order for plants to make maximum use of soil moisture.

Low annual precipitation levels and drought are issues throughout the Roberts Mountain Complex. Low precipitation and drought have affected current health and recovery of the rangeland vegetation from past over use by wild horses and livestock. It has reduced the availability of forage to livestock, wildlife, and wild horses.