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## 1.0 BACKGROUND INFORMATION

### 1.1 INTRODUCTION

The Wild Free-Roaming Horse and Burro Act (Act) of 1971, as amended, (Public Law 92-195) directs the federal government to manage wild horses and burros as an integral part of the natural system of the public lands under the principle of multiple use. The Secretary of the Interior was ordered to “*manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands.*” The implementing regulations for the Act are found in the Code of Federal Regulations (CFR) 4700, including the establishment of herd management areas with consideration of the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and other management constraints (CFR 4710.3-1). Herd Areas in the Ely District were based on where horses were found in 1971. Herd management areas (HMAs) are areas within the Herd Area where management for wild horses is a designated land use. In some instances, two or more HMAs are managed as a complex because the population moves freely between HMAs. The HMAs were established in the 1970s – 1980s with public involvement through the land use planning process, and HMA boundaries can only be changed through a land use plan amendment. A total of 24 HMAs have been established in the Ely District.

The BLM Ely Field Office (EFO) has already established Appropriate Management Levels (AMLs) for 13 of the 24 HMAs (Figure 1 and Appendix A). This accounts for 3.88 million acres of the 5.05 million acres, or 77 percent of the total area of HMAs in the Ely District. Total AML set for these 13 HMAs is 1,896 wild horses. The 13 HMAs for which AML has been established were the priority HMAs where resource values and resource issues were high. The remaining 11 HMAs are areas where habitat suitability for wild horses and the ability to manage wild horses in a “*thriving natural ecological balance on the public lands*” are the primary concerns. Most of these areas are either in the Mojave Desert (southern desert) or northern desert, where water sources are limited and unpredictable and the vegetation is ephemeral in nature, varying widely among years with respect to the amount and timing of precipitation. Developed waters that are maintained by the permittee are not always available when livestock are not present. The extreme climate, especially harsh temperatures in the summer and large variability in the forage base from year to year create animal humanity issues as well as resource issues. Also of concern is the unmanaged grazing by wild horses outside of the HMAs.

The AMLs on the HMAs for which AML have been set were established through the allotment evaluation and Multiple Use Decision (MUD) process. The allotment evaluation and MUD process sets the AML on that portion of the HMA that occurs within the allotment. The AML for the entire HMA is set when all allotments in the HMA have been evaluated. The evaluation is based on monitoring data. In allotments where livestock, big game, and wild horses graze in common, the data is used to determine if failure to reach allotment objectives is due to any one of the grazers or a combination of the grazers.

Figure 1: Location Map – Ely District HMAs

Ely District boundary, HMAs, major towns, roads, etc.

Adjustments in existing numbers, season of use, or other range management practices are used to address the issue, depending on whether the action is directed at livestock, big game, or wild horses. The monitoring is continued to determine if implementation of the action has resulted in improvement.

The Interior Board of Land Appeals (IBLA) issued a consolidated decision (IBLA 88-591, 88-648, and 88-679) that wild horse herd size must be set based on monitoring data, not for administrative convenience. This Environmental Assessment (EA) provides the analysis for setting the AMLs for the remaining 11 HMAs and re-evaluation of the AML for Miller Flat HMA. This EA differs from the allotment evaluation/MUD process by combining the analysis into one document, rather than individual allotment evaluations. However, the monitoring data available for each allotment within each HMA considered has been used to establish the AML and in the subsequent environmental analysis. Therefore, the process used is in conformance with the IBLA decision.

The establishment of AML includes combining several concepts. An HMA must have all of the seasonal habitat needs of the herd within its boundaries. If wild horses must leave the HMA to obtain resources for survival, then the wild horses are either moving into non-HMA areas (i.e., areas where wild horses are not a designated land use), or moving into other HMAs. The HMA must also be capable of providing for a viable population<sup>1</sup>. The calculation of a viable population is complex and has specific data requirements, but a population of 50 breeding adults is considered the minimum (Coates-Markle 2000 and Singer et al., no date) for use when the specific data required to calculate a viable population estimate are not available. This equates to approximately 75 total wild horses (including foals and yearlings). Establishing the AML that is below the viable population level increases the risk that the population will face extinction due to deterministic (i.e., systematic) and stochastic (i.e., random) factors. In addition, the AML must be within the capacity of the rangeland to support wild horses in a “*thriving natural ecological balance on the public lands*” with respect to other land uses. Establishing the AML at a level that is too high increases the risk of poor wild horse health and resource degradation.

## 1.2 NEED FOR THE PROPOSED ACTION

The need for the Proposed Action is to achieve rangeland health by managing wild horses as self-sustaining, viable populations of healthy animals in balance with other uses and the productive capacity of their habitats. This is indicated by healthy rangelands “*that provide sufficient quantities and quality of forage and water to sustain appropriate management level on a yearlong basis within a herd management area*” and by wild horses “*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 condition definitions). In addition, the AML must be established to allow BLM to gather excess wild horses under the Revised Tactical Plan (BLM 2001) and to develop population management plans for each HMA

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<sup>1</sup> A viable population is defined as one that is capable of maintaining itself without significant manipulation over an agreed upon time frame with an agreed upon degree of probability (i.e., certitude). The time frame and degree of certitude are partly a matter of human choice and partly a matter of biological reality.

### **1.3 RELATIONSHIP TO PLANNING**

Public lands are managed under the Federal Land Policy and Management Act of 1976 (FLPMA). The FLPMA emphasizes that the public lands are to be managed to protect the quality of scenic, ecological, environmental, and archeological values; to preserve and protect public lands in their natural condition; to provide feed and habitat for wildlife and livestock; and to provide for outdoor recreation. The FLPMA also stresses harmonious and coordinated management of the resources without permanent impairment of the environment.

The Proposed Action is in conformance with BLM policies, plans, and programs. The Egan Resource Area Record of Decision (BLM 1987) for the Egan Resource Management Plan (RMP) states that *“future adjustments in wild horse numbers will be based on data provided through the rangeland monitoring program.”* The Proposed Action is also in conformance with of the Schell Management Framework Plan (MFP) (BLM 1983) and the Caliente MFP, as amended, (BLM 2000). The Mojave/Southern Great Basin Resource Advisory Council (RAC) Standards and Guidelines for Rangeland Health (M/S RAC Rangeland Standards) and the Northeastern Great Basin RAC Standards and Guidelines for Rangeland Health (NE RAC Rangeland Standards) state that BLM would manage for wild horses 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 AMLs *“based on the most limiting habitat factor (e.g., available water, suitable forage, living space and cover) in the context of multiple use”*, and that grazing management practices should be planned and implemented to provide for integrated use by domestic livestock and wildlife, as well as wild horses inside HMAs or consistent with land use plan objectives.

The Proposed Action is also consistent with local plans to the maximum extent possible. The *White Pine County Land Use Plan* (White Pine County 1998) policy for wild horse herd management is to manage *“at appropriate levels to be determined with public involvement and managed with consideration of the needs of wildlife species, livestock grazing, and ecological conditions of the herd management area.”* Lincoln County (Lincoln County 1997) and Nye County (Nye County 1985) land use plans also recognize the need to manage wild horses.

### **1.4 ISSUES**

The primary issues for establishing AML are to manage for healthy rangeland in conformance with the M/S RAC and NE RAC Standards and Guidelines and to manage wild horses to *“preserve and maintain a thriving ecological balance and multiple-use relationship”* (Act). Establishing AMLs is necessary for compliance with the Act, conformance with the BLM Revised Tactical Plan (BLM 2001), and achievement of the M/S RAC and NE RAC Rangeland Standards.

### **1.5 DECISION TO BE MADE**

The decision by the authorized officer will establish the initial AML for 11 HMAs and re-evaluation of AML for the Miller Flat HMA. Establishment of AMLs provides the framework for attaining and

maintaining appropriate numbers of wild horses within each HMA. Establishing AMLs is only one action toward the management objective to manage wild horses for thriving ecological balance.

The decision does not directly address multiple use conflicts; allotment monitoring and herd monitoring would be used to adjust livestock grazing and wild horse numbers in the future as related to resource conflicts. As stated above, the decision does not change HMA boundaries; setting AML or managing HMAs as complexes does not alter the boundary of the HMA. The HMA boundaries can only be modified through a land use plan amendment. The decision does not authorize removal of wild horses; wild horse gathers, including emergency gathers, are addressed in gather plans prepared with public review and input. The decision does not allocate forage to livestock; adjustments in wild horse, livestock, and big game numbers would continue to be based on allotment monitoring and the MUD process<sup>2</sup>, based on the Rangeland Standards.

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<sup>2</sup> EFO is currently initiating the update of the land use plan. The evaluation process of the HMA and allotments may be changed through the land use plan.

## 2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The Ely Field Office is striving to meet the first objective of the BLM Revised Tactical Plan for managing wild free-roaming horses. The action being analyzed in this EA is the establishment of AML on public lands administered by the BLM EFO for 11 existing HMAs and re-evaluation of the AML for the Miller Flat HMA (Table 1). Three alternatives and the No Action Alternative have been considered for meeting this objective and are carried through the analysis. The Alternative 1, Alternative 2, and Alternative 3 are presented as options for meeting this objective.

**Table 1**  
**Herd Management Areas for which Appropriate Management Levels of Wild Horses are to be Established, Ely Field Office, Nevada**

Herd Area Number	Herd Management Name	Total Acres	Censused Population		Wild horses Gathered Since Last Census		July 1, 2003 Population Estimate <sup>1</sup>
			Number	Date	Number	Date	
408	Jakes Wash	153,203	75	6/03	---	---	75
413	Moriah	53,878	176 <sup>2</sup>	6/03	---	---	176 <sup>2</sup>
514	Blue Nose Peak	84,442	0	3/01	---	---	12 <sup>3</sup>
515	Delamar Mountains	185,815	67	3/01	---	---	115
516	Clover Mountains	172,125	26	3/01	25	7/02	14
517	Clover Creek	33,175	14	3/01	---	---	24
518	Applewhite	30,484	0	3/01	---	---	14 <sup>3</sup>
519	Little Mountain	53,131	52	3/01	34	7/02	48
520	Miller Flat	91,301	37	3/01	50	7/02	4
521	Deer Lodge Canyon	108,160	77	3/01	24	8/02	103
522	Highland Peak	136,744	66	6/03	---	---	66
523	Rattlesnake	70,801	0	6/03	---	---	0
	<b>Subtotal</b>	1,173,259	---	---	133	---	651

<sup>1</sup>Estimates are based on the latest census, less any animals removed since the latest census, plus an average 20% annual rate of increase since the last census.

<sup>2</sup>Not included were 75 non-HMA Utah wild horses, but did include 44 non-HMA wild horses in Nevada.

<sup>3</sup>Based on ground observations since the last census; wild horses moving in from adjacent HMAs.

The following actions are common to all of the alternatives:

- Monitoring of rangeland health to assess the management of the multiple uses within each HMA.
- Adjustment of AMLs in the future based on monitoring data.
- Development of a wild horse population management plan (PMP) for each HMA with AML set above zero to identify management objectives and actions necessary to meet herd management objectives. The PMP would be used to establish monitoring to evaluate the herd numbers, condition, and demography over time.
- After AML is established, emergency gathers may still be required to prevent the deterioration of wild horse health.

The policies and Standard Operating Procedures applicable to actions proposed for the management of wild horses are listed in Appendix C.

## **2.1 ALTERNATIVE 1 – INDIVIDUAL HMAs**

Alternative 1 is to establish AMLs for 11 existing HMAs and re-evaluate the AML previously established for the Miller Flat HMA by considering each HMA as a separate unit with respect to herd management, as indicated in Table 2. All resources necessary to sustain the wild horse herd must occur within the HMA. Monitoring of range health to assess the management of the multiple uses within each HMA would continue. Adjustments to AML would be based on the monitoring data.

A multi-tiered analysis was used to develop the proposed AMLs. The first tier consisted of determining if each existing HMA had the four essential habitat components, food, water, cover, and space, within the HMA boundary (See Appendix B). Food was determined by the utilization monitoring and the available AUMs within the allotments bounded by the HMA. Improper utilization of riparian vegetation, upland forage (native or seeded), or other vegetation was used as an indication that food resources were not sufficient to support wild horses. The nature of the forage was also considered. Much of the herbaceous forage is ephemerally available; during years with normal or above normal precipitation, vegetation is available. During drought, production of perennial species is greatly reduced, and annual grasses and forbs are not generally available. Water had to be public, natural waters (i.e., private water developments or private water rights were not considered). Water availability during drought conditions was also considered. Sufficient water for wild horses must be available during drought to manage for “*thriving natural ecological balance and multiple-use relationships*”. Cover and space were somewhat related. They included the vegetation required for seasonal needs as well as the distribution of this vegetation within the seasonal ranges (i.e., winter range at lower elevations where snow depths are less). The ability of horses to move unobstructed between seasonal ranges was also considered part of the space component. Movement out of the HMA into an adjacent HMA or to non-HMA areas for required resources on a seasonal basis was used as an indication that an HMA was not capable of sustaining yearlong wild horse use. If one or more of these components were missing, then the HMA was considered

unsuitable for year-long habitation by wild horses, and the proposed AML was zero horses in the HMA. If all components were present, then the second tier in the evaluation was considered.

**Table 2**  
**Comparison of AMLs under Alternative 1, Alternative 2, Alternative 3, and Current Populations of Wild Horses in the 12 HMAs**

<b>Herd Area Number</b>	<b>Herd Management Name</b>	<b>July 1, 2003 Population Estimate<sup>1</sup></b>	<b>Alternative 1 AML</b>	<b>Alternative 2 AML</b>	<b>Alternative 3 AML</b>	<b>No Action Alternative AML<sup>3</sup></b>
408	Jakes Wash	75	0	0	0	n/a
413	Moriah	176 <sup>2</sup>	0	0	0	n/a
514	Blue Nose Peak	12	0	0	0	n/a
515	Delamar Mountains	115	75	75	75	n/a
516	Clover Mountains	14	0	0	75 <sup>5</sup>	n/a
517	Clover Creek	24	0			n/a
518	Applewhite	14	0	0	0	n/a
519	Little Mountain	48	0	0	0	n/a
520	Miller Flat <sup>4</sup>	4	0			30
521	Deer Lodge Canyon	103	0	50 <sup>6</sup>	50 <sup>6</sup>	n/a
522	Highland Peak	66	0	34 <sup>6</sup>	34	n/a
523	Rattlesnake	0	0			n/a
	<b>Total</b>	651	75	159	234	n/a

<sup>1</sup>Estimates are based on the latest census, less any animals removed since the latest census, plus an average 20% annual rate of increase since the last census.

<sup>2</sup>Not included were 75 non-HMA Utah wild horses, but did include 44 non-HMA wild horses in Nevada.

<sup>3</sup>The AMLs established under the No Action Alternative would be determined through the allotment evaluation/MUD process and because this process has not taken place on all of the allotments in the HMAs, AMLs are not displayed for the No Action Alternative, except for Miller Flat HMA, which was previously set.

<sup>4</sup>Miller Flat AML was previously set at 30, but this AML is re-evaluated in this EA.

<sup>5</sup>Clover Mountains and Clover Creek would be managed as a complex with combined AML of 75.

<sup>6</sup>Deer Lodge Canyon would be managed as complex with Wilson Creek HMA, which has an existing AML of 160, for a combined AML of 210.

<sup>7</sup>Highland Peak HMA and Rattlesnake HMA would be managed as a complex with Dry Lake HMA, which has an existing AML of 94, for a combined AML of 128.

The second tier was to establish AML based on forage availability within the HMA and allotment monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. If allotment objectives were being met, then the wild horse census data was examined to determine the

range of population values that have occurred in the HMA. The upper values were used to set AML when no range health issues occurred. In HMAs where the allotment objectives were not being achieved, the livestock and wild horse use were examined to determine if either or both were contributing to the failure to meet objectives. The AML was set based on the range of census data relative to the level of range utilization that occurred, or the need for emergency wild horse gathers. Livestock stocking was also considered (i.e., whether or not adjustments to livestock numbers had been made previously). The resulting number was used in the third tier of the process.

The third tier was to compare the calculated AML with the minimum number of wild horses considered necessary to maintain a viable population (i.e., 50 breeding wild horses and a total population of 75). If the calculated AML was less than the minimum viable population, the AML was set at zero. If the AML exceeded the minimum viable population, the AML was set at the calculated value.

## **2.2 ALTERNATIVE 2 – MANAGE SOME HMAs AS COMPLEXES**

Alternative 2 is to establish AMLs for 11 existing HMAs and re-evaluate the AML previously established for the Miller Flat HMA, as indicated in Table 2, with consideration for managing some HMAs as complexes. A complex consists of two or more HMAs that are adjacent to each other and where the wild horses can move freely between HMAs, and therefore, are one population. Only HMAs lacking a habitat component that is currently available on an adjacent HMA, which is currently being used by wild horses, are considered for management within a complex under this alternative. The AML for the other HMAs is established as described under Alternative 1.

The following complexes were considered in Alternative 2:

- Clover Mountain/Clover Creek HMA Complex;
- Little Mountain/Miller Flat HMA Complex;
- Deer Lodge Canyon/Wilson Creek HMA Complex; and
- Highland Peak/Rattlesnake/Dry Lake HMA Complex.

Under Alternative 2, a similar tiered analysis was used to establish AML; however, an additional tier was added. The first tier was as described above. If one or more of the habitat components were missing, then the HMA was considered unsuitable for year-long habitation by wild horses and the new second tier was considered. If all components were present, then the third tier of the analysis was considered.

The second tier under this alternative was to determine if the HMA could be managed as part of a complex with adjacent HMAs. If so, then the third tier of the process was considered. If the HMA could not be managed as a part of a complex, then the AML was set at zero.

The third tier was to establish AML based on forage availability within the HMA and allotment monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and utilization mapping were the primary data used in the analysis, but frequency (trend) data was also considered. If allotment objectives were being met, then the wild horse census data was examined to determine the range of population values that have occurred in the HMA. The upper

values were used to set AML when no range health issues occurred. In HMAs where the allotment objectives were not being achieved, the livestock and wild horse utilization was examined to determine if either or both were contributing to the failure to meet objectives. The AML was set based on the range of census data relative to the level of range utilization that occurred or need for emergency wild horse gathers. Livestock stocking was also considered, including whether or not adjustments to livestock numbers had been made previously. This number was used in the fourth tier of the process.

The fourth tier under this alternative was to compare the calculated AML with the minimum number of wild horses considered necessary to maintain a viable population (i.e., 50 breeding wild horses or a total population of 75). If the calculated AML was less than the minimum viable population, the AML was set at zero. If the AML exceeded the minimum viable population, the AML was set at the calculated value.

### **2.3 ALTERNATIVE 3 – RE-ALLOCATION OF AUMs TO PROVIDE FOR VIABLE POPULATIONS OF WILD HORSES**

Alternative 3 is to establish AMLs on public lands administered by the BLM EFO for 11 existing HMAs and re-evaluate the AML previously established for the Miller Flat HMA, considering re-allocation of AUMs to provide for viable populations of wild horses where the four essential habitat components are present. Under this alternative, the livestock numbers would be reduced, where necessary, to provide sufficient AUMs to increase the calculated AML to provide for the minimum viable population of 75 wild horses.

This alternative only applies to the Clover Mountains and Clover Creek HMAs. Monitoring indicates that the combined AML of 50 for the complex as determined under Alternative 2 was below the viable population of 75, therefore, the re-allocation of 300 AUMs (12 AUM per year per wild horse multiplied by 25 wild horses) would be required for this complex to meet the minimum population of 75 wild horses. The AML would be established as indicated in Table 2.

The first tier consisted of determining if each complex of HMAs had the four essential habitat components, food, water, cover, and space, within the HMA complex boundary (See Appendix B). If one or more of these components were missing, then the HMA complex was considered unsuitable for year-long habitation by wild horses and the proposed AML was zero wild horses in the HMA. If all components were present, then the second tier in the analysis was considered.

The second tier was to establish AML based on forage availability within the HMA complex and allotment monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and utilization mapping were the primary data used in the analysis, but frequency (trend) data was also considered. If allotment objectives were being met, then the wild horse census data was examined to determine the range of population values that have occurred in the HMA complex. The upper values were used to set AML when no range health issues occurred. In HMAs where the allotment objectives were not being achieved, the livestock and wild horse use were examined to determine if either or both were contributing to the failure to meet objectives. Livestock stocking was also

considered, including whether or not adjustments to livestock numbers had been made previously. The AML was set based on the range of census data relative to the level of range utilization that occurred or need for emergency wild horse gathers. This number was used in the third tier of the process.

The third tier was to compare the calculated AML with the minimum number of wild horses considered necessary to maintain a viable population (i.e., 50 breeding horses or 75 total wild horses). If the AML exceeded the minimum viable population, the AML was set at the calculated value. If the calculated AML was less than the minimum viable population, the number of additional AUMs necessary to support the minimum viable population of wild horses was determined. The livestock grazing permits for those allotments within the complex would be proportionately reduced to make the AUMs available to wild horses.

### **2.3 No Action Alternative**

Under the No Action Alternative, AMLs would continue to be set through the allotment evaluation/MUD process. Monitoring data would be evaluated to determine if allotment objectives and standards for healthy rangelands are being achieved. AML would be established based on attainment or non-attainment of these objectives and standards.

### **2.4 Alternatives Considered but Eliminated from Detailed Analysis**

An alternative that was considered was a habitat improvement alternative. This alternative surfaced when doing the initial tier of the analysis, which determined whether or not the HMA included all components of the habitat required by wild horses. If one or more identifiable components were missing, the alternative included development of a plan to provide the missing components. However, when the missing component was space, the missing component could only be provided by changing the boundary of the HMA. The boundaries of an HMA can only be modified through a land use plan amendment, which was out of the scope of this analysis. Only natural perennial waters were considered for wild horse sustainability. Wells and water developments for wild horse populations were not considered feasible under the current funding and staffing levels. Additional forage and water developments would be addressed through an allotment evaluation or other activity plan and was considered out of the scope of this analysis. In the event that the missing habitat component(s) becomes available, the AML for the HMA could be re-evaluated.

Another alternative that was considered and eliminated from detailed consideration was to allow wild horses that currently exist on HMAs at populations below the recommended 50 breeding wild horses or minimum population of 75 wild horses necessary to maintain population viability to remain on the HMA until some event or series of events (e.g., extreme drought and harsh winters) eliminated the population. This alternative was eliminated because managing wild horses at less than viable populations does not comply with the definition of self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.

## **3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

The Critical Elements of the Human Environment which have been considered for this EA are listed in Appendix D. Elements that may be affected are further described in this EA. Rationale for determining which elements would be affected is listed in Appendix D.

In addition to the Critical Elements of the Human Environment, the BLM must consider other resources that occur on public lands, or issues raised during public scoping of the Proposed Action. The potential resources, uses, and issues that may be affected are listed in Appendix D, along with a brief rationale for either considering or not considering the issue or resource further.

Based on the review of the alternatives, the following resources were identified for further analysis:

- Wild Horses;
- Vegetation;
- Non-native, invasive species (including Noxious Weeds);
- Special Status Species;
- Livestock grazing;
- Soils;
- Wildlife (including Migratory Birds);
- Water Quality;
- Wetlands/Riparian;
- Recreation; and
- Socioeconomics.

The affected environment for the all of the alternatives, including the No Action Alternative, would be the same. The following sections describe the affected environment for each resource, followed by the discussion of environmental consequences for each alternative.

### **3.1 WILD HORSES**

#### **3.1.1 Affected Environment**

A brief description of each HMA and the respective herd is provided in Appendix B. Summary statistics for each HMA under consideration are provided in Table 3.

**Table 3**  
**HMA Summary Information**

HMA #	HMA	HMA Acres	Allotment	Acreage in HMA	AUMs per Allotment	July 1, 2003 Population Estimate <sup>1</sup>	HMA Vegetation Types	Undeveloped/ Developed Springs <sup>2</sup>
408	Jakes Wash	153,203	Tom Plain	34,945	2,947	75	Salt desert shrub; winter fat; black sagebrush-grass; big sagebrush-grass; pinyon-juniper; riparian.	4
			Indian Jake	48,812	2,542			
			Badger Spring	30,378				
			Copper Flat	2,817	213			
			Giroux Wash	36,251	4,002			
413	Moriah	53,878	Indian George	33,673	2,312	176 <sup>3</sup>	Crested wheatgrass seedings; big sagebrush-bitterbrush; pinyon-juniper; black sagebrush, salt desert shrub; riparian.	20
			Pleasant Valley	4,714	372			
			Mill Spring	6,187				
			Mallory Spring	7,523	580			
			Tippett	1,781	73			
514	Blue Nose Peak	84,442	Garden Spring	31,874	2,282	12	Southern desert shrub; northern desert shrub; annual grassland; riparian.	3
			White Rock	15,864				
			Henrie Complex	36,704	307			
515	Delamar Mts	185,815	Delamar	65,332	1,511	115	Northern desert shrub; southern desert shrub; crested wheatgrass seedings; pinyon-juniper; ponderosa pine; riparian.	30
			Oak Spring	93,311	4471			
			Rainbow	7,958				
			Lower Riggs	19,214	1386			
516	Clover Mts	172,125	Sand Hills	12,288		14	Pinyon-juniper, sagebrush-grass; blackbrush; crested wheatgrass seedings; ponderosa pine; cottonwoods; riparian.	39
			Pennsylvania	30,164	573			
			Cottonwood	62,221				
			Sheep Flat	67,452				
517	Clover Creek	33,175	Clover Creek	15,842		24	Pinyon-juniper, big sagebrush; blackbrush, crested wheatgrass seedings; riparian	6
			Sawmill Canyon	9,038	169			
			Mustang Flat	6,563				
			Oak Spring	1,732	83			
518	Applewhite	30,484	Applewhite	30,484		14	Pinyon-juniper woodlands; riparian	15

HMA #	HMA	HMA Acres	Allotment	Acreage in HMA	AUMs per Allotment	July 1, 2003 Population Estimate <sup>1</sup>	HMA Vegetation Types	Undeveloped/Developed Springs <sup>2</sup>
519	Little Mt	53,131	Peck	4,888	112	48	Northern desert shrub; pinyon-juniper; riparian.	2
			Little Mountain	18,367	395			
			Buckboard	10,687	259			
			Panaca Cattle	15,868	457			
			White Hills	2,369	87			
			Roadside	952	27			
520	Miller Flat	91,301	Rabbit Spring	15,563	1310	4	Pinyon-juniper; sagebrush-grass; riparian.	6
			Sheep Spring	30,341	399			
			Uvada	4,769	162			
			Oak wells	29,869	528			
			Clover Creek	6,334				
			Sheep Flat	4,425				
521	Deer Lodge Canyon	108,160	Deer Lodge	7,327	178	103	Sagebrush-grass; pinyon-juniper; riparian.	6
			Mahogany Peak	26,973	683			
			Condor Canyon	33,914				
			McGuffy Spring	21,911	298			
			Rabbit Spring	5,024	423			
			N4/N5	13,011				
523	Highland Peak	136,744	Bennett Spring	48,562		66	Pinyon-juniper; black sagebrush-grass; riparian.	6
			Pioche	10,695	325			
			Ely Springs Sheep	24,177	791			
			Black Canyon	8,551				
			Highland Peak	37,526	3040			
			Klondike	7,233				
523	Rattlesnake	70,801	Rattlesnake	34,284	1,423	0	Northern desert shrub; riparian.	3
			Oak Springs	36,517				

<sup>1</sup>Estimates are based on the latest census, less any animals removed since the latest census, plus an average 20% annual rate of increase since the last census.

<sup>2</sup> Water has to be public, natural waters (i.e., private water developments or private water rights were not considered).

<sup>3</sup>Not included were 75 non-HMA Utah wild horses, but did include 44 non-HMA wild horses in Nevada.

### **3.1.2 Environmental Consequences**

#### ***3.1.2.1 Alternative 1 – Individual HMAs***

AML for wild horses on Jakes Wash, Moriah, Blue Nose Peak, Applewhite, Little Mountain, Miller Flat, Deer Lodge Canyon, Highland Peak and Rattlesnake HMAs would be set at zero. Each of these HMAs has one or more components of the habitat missing and management for healthy, viable populations within the HMA is not possible. The AML for Clover Mountains and Clover Creek HMAs would also be set at zero. These two HMAs had all of the habitat components within each respective HMA; however, the AMLs were below the recommended number for maintenance of viable populations. AML for Delamar Mountains HMA would be set at 75 wild horses. The existing habitat within this HMA was determined to provide the habitat needs necessary to manage for healthy, viable populations within the HMA.

Reduced competition for forage and water among the wild horses is anticipated to increase the herd health. By removing wild horses from the HMAs that do not have suitable year-long habitat, wild horses would not suffer due to shortages of water, forage, space, or cover. Reduced competition for forage and water among the wild horses would occur within the Delamar Mountains HMA.

Establishment of AML on these HMAs would allow the EFO to plan for gathers to meet AML where the current populations exceed AML. Setting AML would allow BLM to gather wild horses before poor body condition necessitates emergency gathers. This would provide for the long-term health of the herds, and allow the BLM to meet the respective RAC Standards and Guidelines for wild horses, as well as meet the objective of the Tactical Plan (BLM 2001).

Based on the current estimated population of wild horses in the 12 HMAs, a total of 576 wild horses would be subject to removal from these HMAs.

#### ***3.1.2.2 Alternative 2 – Manage Some HMAs as Complexes***

The EFO would manage nine HMAs to maintain total AML of 159 wild horses. The Delamar Mountains HMA would have AML established as in Alternative 1 and three other HMAs would be managed as were complexes. Two complexes would be established:

- Deer Lodge Canyon/Wilson Creek HMA Complex; and
- Highland Peak/Rattlesnake/Dry Lake HMA Complex.

AML has been previously established on both the Wilson Creek HMA and the Dry Lake HMA. This alternative recognizes that wild horses from the Deer Lodge Canyon HMA use portions of the Wilson Creek HMA, and that wild horses from the Highland Peak and Rattlesnake HMAs use portions of the Dry Lake HMA, for either some seasonal habitat or water and forage requirements. In addition, by managing as complexes, the total AML of the HMAs within the complex exceeds the minimum population viability criterion, increasing the genetic viability of all the populations within the complexes. Reduced competition for forage and water among the wild horses is anticipated to increase the herd health. By

formally recognizing that these movements occur, the BLM can continue to manage wild horses in these HMAs. This alternative would provide for 84 more wild horses than under Alternative 1, for a total of 159 wild horses.

Deer Lodge Canyon, Highland Peak and Rattlesnake HMAs would have AMLs set as indicated in Table 2. At these AMLs, the HMA complexes would maintain viable population of wild horses and genetic diversity. The AML would be within the capacity of the HMA to “*preserve and maintain a thriving ecological balance and multiple-use relationship*” (Act). Reduced competition for forage and water among the wild horses is anticipated to increase the herd health.

Establishment of AML on these HMAs would allow the EFO to plan for gathers to meet AML where the current populations exceed AML. Setting AML would allow BLM to gather wild horses before poor body condition necessitates emergency gathers. This would provide for the long-term health of the herds, and allow the BLM to meet the respective RAC Standards and Guidelines for wild horses, as well as meet the objective of the Tactical Plan (BLM 2001).

Based on the current estimated population of wild horses in the 12 HMAs, a total of 492 wild horses would be subject to removal from these HMAs.

### ***3.1.2.3 Alternative 3 – Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

The EFO would manage six HMAs to maintain total AML of 234 wild horses. The Delamar Mountains HMA would have AML established as in Alternative 1. The Deer Lodge Canyon, Highland Peak, and Rattlesnake HMAs would have AML established as in Alternative 2. In addition, the Clover Mountains and Clover Creek HMAs would be managed as a complex by adjusting AUMs to allow for an increase in the AML to meet the minimum viable population size of 75 wild horses. The following complexes would be established:

- Clover Mountains/Clover Creek HMA Complex;
- Deer Lodge Canyon/Wilson Creek HMA Complex, and
- Highland Peak/Rattlesnake/Dry Lake HMA Complex.

AML has been previously established on both the Wilson Creek HMA and the Dry Lake HMA. This alternative recognizes that wild horses from the Deer Lodge Canyon HMA use portions of Wilson Creek HMA, and that wild horses from Highland Peak and Rattlesnake HMAs use portions of Dry Lake HMA, for either some seasonal habitat or water and forage requirements. Similarly, the wild horses in the Clover Mountains and Clover Creek HMAs use both HMAs. The increase in AML through the re-allocation of livestock AUMs in the Clover Mountains/Clover Creek HMA Complex provides for a total AML within the complex that meets the minimum population viability criterion, increasing the genetic viability of the populations within the complex. This also applies to the Deer Lodge Canyon/Wilson Creek HMA Complex and the Highland Peak/Rattlesnake/Dry Lake HMA Complex. Reduced competition for forage and water among the wild horses is anticipated to increase the herd health. By formally recognizing that these movements occur, the BLM can continue to manage wild horses in these HMAs. This alternative

would provide for 159 more wild horses than under Alternative 1, and 75 more wild horses than Alternative 2.

At these AMLs, the HMA complexes would maintain viable population of wild horses and genetic diversity. The AML would be within the capacity of the HMA to “*preserve and maintain a thriving ecological balance and multiple-use relationship*” (Act). Reduced competition for forage and water among the wild horses is anticipated to increase the herd health.

Establishment of AML on these HMAs would allow the EFO to plan for gathers to meet AML where the current populations exceed AML. Setting AML would allow BLM to gather wild horses before poor body condition necessitates emergency gathers. This would provide for the long-term health of the herds, and allow the BLM to meet the respective RAC Standards and Guidelines for wild horses, as well as meet the objective of the Tactical Plan (BLM 2001).

Based on the current estimated population of wild horses in the 12 HMAs, a total of 417 wild horses would be subject to removal from these HMAs.

#### ***3.1.2.4 No Action Alternative***

Under the No Action Alternative, the AML for each HMA would be established through the allotment evaluation/MUD process. The No Action Alternative would not meet the RAC Standards and Guidelines for wild horses until the allotment evaluation/MUD process can be completed, during which time the wild horses would continue to suffer where the habitat is unsuitable or where current wild horse numbers exceed the capacity of the resources. Management of wild horses would be delayed until the allotment evaluations could be completed. The No Action Alternative would not achieve the objective of the Revised Tactical Plan (BLM 2001), which is to set AMLs by the year 2003. In addition, the EFO would be unable to meet the M/S RAC and the NE RAC Standards for rangeland health due to the inability to adjust wild horse numbers in areas of resource conflict where AML has not been established.

Administratively, the existence of HMAs without established AMLs requires that wild horse health can only be addressed by emergency gathers. Emergency gathers are reactive procedures for situations where herd health has already deteriorated. Emergency gathers would be used to maintain horse health as provided by regulation, except for the Miller Flat HMA for which AML has been previously set and regularly scheduled gathers can be conducted within this HMA. The number of wild horses would continue to increase. Under this alternative, approximately 576 more wild horses would be present within the HMAs than under Alternative 1, or approximately 492 more wild horses than under Alternative 2, or approximately 417 more wild horses than under Alternative 3.

In terms of resource health, the emergency gather process is a relatively lengthy process that relies on the identification and documentation of a problem before the action can be taken, allowing impacts to horse health and/or resource degradation to continue while the process is followed. In contrast, livestock grazing management allows for some immediate season of use restrictions in anticipation of worsening conditions (e.g., continued drought). By not establishing AML, the emergency gather process is the only avenue available to the BLM to react to deteriorating wild horse health and resource degradation.

### **3.1.3 Mitigation and Monitoring**

No mitigation is identified for the alternatives, other than the development of gather plans to achieve the established AMLs.

Monitoring of range condition through use pattern mapping, horse populations through aerial censuses, herd demography through age and sex data, and genetics from blood testing, would continue on all HMAs for which AML greater than zero has been established.

## **3.2 VEGETATION**

### **3.2.1 Affected Environment**

A brief description of each HMA, including dominant vegetation is provided in Appendix B. Major plant communities for each HMA are listed in Table 3.

### **3.2.2 Environmental Consequences**

#### ***3.2.2.1 Alternative 1 – Individual HMAs***

The purpose of establishing AML for wild horses is to determine the number of wild horses that can be sustained by the habitats within each HMA. Because forage is one of the habitat components, and is also the habitat component for which there is competition among all herbivores (i.e., vegetation eating insects, rodents, rabbits, big game species, livestock, and wild horses) on the range, the establishment of wild horse AMLs would allow the BLM to reduce resource conflict with regard to vegetation use. Implementation of Alternative 1 would provide a framework from which BLM can manage wild horses in an effort to achieve the M/S RAC and NE RAC standards for healthy rangeland. Therefore, the anticipated impact to vegetation is one of improvement toward healthy rangelands where rangeland standards are not currently being achieved. The degree of improvement depends on the difference between the current wild horse population in each HMA and the proposed AML. Where these two numbers are greatly different, more improvement in the vegetation resource is anticipated (e.g., Deer Lodge Canyon and Highland Peak HMAs, Table 2). Where the current population and the proposed AML are similar, the changes in vegetation may not be readily discernable (e.g., Miller Flat and Rattlesnake HMAs, Table 2), except in riparian areas (e.g., Clover Creek) and vegetation treatment areas (e.g., crested wheatgrass seedings, chainings, or burned areas).

Specifically, the AML of 75 for the Delamar Mountains HMA and the AML of zero for the Clover Mountains and Clover Creek, HMAs, were established due to year-long use of riparian vegetation (e.g., Kane Spring Wash, and Clover Creek) and seedings (e.g., the seedings and burns in Clover Mountains HMA) with respect to the current estimated populations of 115, 14, and 24 wild horses, respectively.

### ***3.2.2.2 Alternative 2 – Manage Some HMAs as Complexes***

As with Alternative 1, managing the Delamar Mountains HMA at AML 75 and the Deer Lodge Canyon/Wilson Creek HMA Complex and Highland Peak/Rattlesnake/Dry Lake HMA Complex at their respective combined AMLs is anticipated to reduce resource conflict; and therefore, improve range health.

The combined AML for the Delamar HMA and the two complexes is 159 wild horses and the current combined population estimate is 284. Therefore, the management of wild horses to AML is anticipated to improve rangeland health by reducing the AUM demand by 1,500 AUMs. As with Alternative 1, the magnitude of improved rangeland health would be determined by the size of the difference between the current population of wild horses and the AML. For the Deer Lodge Canyon and Highland Peak HMAs, the established AMLs would be about 50 percent of the current estimated population, and for the Delamar Mountains HMA, the established AML would be about 65 percent of the estimated population; and therefore, measurable improvement in the riparian vegetation is anticipated.

### ***3.2.2.3 Alternative 3 – Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

The reduction of livestock numbers or permitted use to allow for viable populations of wild horses may not reach the intended objective. There is considerably more control over livestock than there is over wild horses, and the livestock are not permitted to graze yearlong on most allotments. Temporary grazing reductions or season of use changes can be immediately implemented for livestock due to extreme drought. Wild horses must be managed through scheduled gathers, emergency gathers, and modifying fertility, none of which can be implemented quickly. Therefore, there is potential for impacts to vegetation to occur under this alternative that do not occur to the same extent under Alternative 1 and Alternative 2. However, the impact is limited to two HMAs, Clover Mountains and Clover Creek HMAs.

Heavy to severe utilization currently occurs on both the Clover Mountains and Clover Creek HMAs. Riparian vegetation and vegetation in close proximity to water sources are likely to continue to receive heavy to severe levels of utilization in these two HMAs due to the yearlong grazing that has potential to occur, especially during periods of drought. The yearlong grazing by wild horses versus the seasonal grazing by livestock can have long-term impacts on the vegetation vigor and plant community composition.

### ***3.2.2.4 No Action Alternative***

Wild horse populations would continue to increase in the absence of a framework from which to manage the populations until the allotment evaluation/MUD process can be completed. Resource conflicts, including over utilization of vegetation resources in some areas would continue or increase in magnitude during this time period. Wild horse health would continue to be an issue because emergency gathers would be the only means of reducing numbers during periods of resource shortages.

### **3.2.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1, Alternative 2, or Alternative 3. Under all of the alternatives, emergency gathers may be required to prevent degradation of the vegetation resource.

Monitoring of the vegetation through the existing range studies would be necessary to ensure that the standards for healthy rangelands are achieved. Under Alternative 2, the complexes should be monitored more closely than the other HMAs to ensure that overlapping use of the same areas by different horse bands does not occur, or at least does not occur to the extent that impacts to the vegetation are detected (i.e., non-achievement of the standards for healthy rangelands). Under Alternative 3, monitoring of the vegetation at the end of the growing season and after winter grazing should be conducted to determine if rangeland standards are being achieved.

## **3.3 NON-NATIVE, INVASIVE SPECIES (INCLUDING NOXIOUS WEEDS)**

### **3.3.1 Affected Environment**

Non-native, invasive species include noxious weeds and undesirable species such as cheatgrass. These species generally establish in areas where surface disturbance has occurred or where native plant species are stressed. Riparian areas that are not in proper functioning condition are prime areas for establishment of these species.

### **3.3.2 Environmental Consequences**

#### ***3.3.2.1 Alternative 1 – Individual HMAs***

Establishing AML in each of the HMAs would reduce the potential for non-native, invasive species establishment by reducing the number of wild horses that use native range, springs, and riparian areas. In the eleven HMAs where AML is set at zero, the potential for weed seeds to be transported by wild horses and relocated through fecal piles would be eliminated, or greatly reduced. In the Delamar Mountains HMA, the potential for spread of non-native, invasive species would still exist due to the movement of horses throughout the HMA.

#### ***3.3.2.2 Alternative 2 – Manage Some HMAs as Complexes***

The impacts under this alternative would be similar to those described for Alternative 1. However, the potential would exist for the introduction of non-native, invasive species from one HMA in the complex to another via the wild horses that drift between HMAs. Four of the 12 HMAs would maintain wild horse populations under this alternative, Delamar Mountains, Deer Lodge Canyon, Highland Peak, and Rattlesnake HMAs.

### ***3.3.2.3 Alternative 3 – Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

The impacts under this alternative would be slightly greater than the impacts described for Alternative 2. Six of the 12 HMAs would have AML above zero, but the additional yearlong grazing in the Clover Mountain and Clover Creek HMAs would increase the potential for non-native, invasive species to establish. The heavy to severe use on the riparian area vegetation may be relieved to some degree by reduction in livestock numbers, but the continued yearlong use of the riparian vegetation by wild horses is not likely to lead to the overall improvement of these areas and has the potential to allow non-native, invasive species to establish. This is especially applicable to Clover Creek; the riparian zone along this creek receives considerable use by livestock and wild horses.

### ***3.3.2.4 No Action Alternative***

The current population of wild horses would continue to exist and increase within the HMAs until the AMLs are set through the allotment evaluation/MUD process. During this period, the HMAs would continue to be at risk for establishment and spread of non-native, invasive species. Where wild horses currently contribute to non-functioning riparian systems, such as Clover Creek, the potential for establishment of non-native, invasive species would continue to increase. Where these populations are in excess of the proposed AMLs, the potential exists for the increased establishment and spread of non-native, invasive species. This alternative has the greatest potential for impacts resulting from non-native, invasive species establishment.

## **3.3.3 Mitigation and Monitoring**

Mitigation for the alternatives would include treatment of noxious weed infestations as approved by the BLM. Disturbed areas that are invaded by other non-native, invasive species, such as cheatgrass, halogeton, or Russian thistle, would be identified for possible vegetation restoration treatments to establish native rangeland species under the Great Basin Restoration Initiative.

Monitoring of the HMAs for non-native, invasive species would be part of the ongoing range monitoring studies under all the alternatives.

## **3.4 SPECIAL STATUS SPECIES (FEDERALLY LISTED, PROPOSED OR CANDIDATE THREATENED OR ENDANGERED SPECIES, AND STATE SENSITIVE SPECIES)**

### **3.4.1 Affected Environment**

There are two federally listed species within the Blue Nose Peak HMA, the endangered Southwest willow flycatcher and the threatened Mojave desert tortoise. There are also eight sensitive plant species that occur in various HMAs (Table 4). The BLM and U. S. Fish and Wildlife Service (USFWS) agreed to manage wild horse and burro use with an objective to maintain ecological site conditions. To achieve this

objective, wild horses would be managed with the same seasonal utilization limits proposed for livestock. Under this agreement (USFWS 2000) utilization limits would be:

- From March 15 to October 15, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs, and shrubs; and
- Between October 15 and March 15, as long as forage utilization does not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs.

Two BLM State sensitive species, sage grouse and Pygmy rabbit, occur in Jakes Wash and Moriah HMAs. The valleys of the two HMAs provide breeding habitat and the riparian areas provide brood habitat for sage grouse. Pygmy rabbit habitat occurs in the riparian areas where deep soils suitable for burrows occur. These soils generally support basin big sagebrush communities.

### **3.4.2 Environmental Consequences**

#### ***3.4.2.1 Alternative 1 – Individual HMAs***

The AML for the Blue Nose Peak HMA would be set at zero. Conflicts between wild horses and the threatened Mojave desert tortoise and endangered Southwestern willow flycatcher would not occur.

Blue Nose Peak, Highland Peak, Little Mountain, Miller Flat, Applewhite, Clover Creek and Deer Lodge Canyon would be managed for AML of zero. Potential impacts to sensitive plant would not occur. Therefore, it is anticipated that implementation of Alternative 1 would not jeopardize the sensitive plants present in these HMAs.

The AML for Jakes Wash and Moriah HMAs under this alternative would be set to zero. Potential conflicts between wild horses and sage grouse or Pygmy rabbit would not occur.

#### ***3.4.2.2 Alternative 2 – Manage Some HMAs as Complexes***

Under Alternative 2, the AML for the Blue Nose Peak HMA would be set at zero. Conflicts between wild horses and the threatened Mojave desert tortoise and endangered Southwestern willow flycatcher would not occur.

Highland Peak and Deer Lodge Canyon HMAs would have AMLs established that allow wild horses in these HMAs. Of the two sensitive plant species found in Highland HMA, Eastwood milkweed is more likely to be impacted by wild horses. This species occurs in small washes and other moisture-accumulating micro-sites in shadscale, mixed-shrub, sagebrush, and lower pinyon-juniper zones. These moisture-accumulating sites are likely to be grazed by wild horses. The habitat of waxflower in Nevada is not well known, but this species is known to inhabit crevices in limestone cliffs. These sites are not typically used by wild horses; therefore, no impacts to this species are anticipated.

**Table 4**  
**Special Status Species in Herd Management Areas**

Special Status Species	Herd Management Area								
	Jakes Wash	Moriah	Blue Nose Peak	Highland Peak	Little Mountain	Miller Flat	Applewhite	Clover Creek	Deer Lodge Canyon
<b>Federally Listed Endangered Species</b>									
Southwestern Willow Flycatcher <i>(Empidonax traillii extimus)</i>			X						
<b>Federally Listed Threatened Species</b>									
Mojave Desert Tortoise <i>(Gopherus agassizii)</i>			X						
<b>Sensitive Plant Species</b>									
Eastwood milkweed <i>(Asclepias eastwoodiana)</i>				X				X	X
One-leaflet Torrey milkvetch <i>(Astragalus calycosus var. monophyllidius)</i>					X	X			
Needle Mountains milkvetch <i>(Astragalus eurylobus)</i>					X				
Nevada willowherb <i>(Epilobium nevadense)</i>								X	
Scarlet buckwheat <i>(Erigeron phoeniceum)</i>									X
Waxflower <i>(Jamesia tetrapetala)</i>				X					
Schlesser pincushion <i>(Sclerocactus schlesseri)</i>					X				
Long-calyx eggvetch <i>(Astragalus oophorus var. lonchocalyx)</i>						X	X	X	X
<b>Sensitive Wildlife Species</b>									
Sage grouse <i>(Centrocercus urophasianus)</i>	X	X							
Pygmy rabbit <i>(Brachylagus idahoensis)</i>	X	X							

Scarlet buckwheat is found on white tuffaceous knolls, bluffs, and rocky flats in openings in pinyon-juniper, and is associated with big sagebrush and bitterbrush. These openings in the pinyon-juniper woodlands are frequently areas where herbaceous forage is relatively abundant and use of these areas by wild horses is expected. Habitat description for the long-calyx eggvetch is not well documented; therefore, potential impacts to this species are not determined. However, the intent of the wild horse management is to manage for thriving ecological condition. The AML for the Deer Lodge Canyon and Highland Peak HMAs would represent a decrease in the number of wild horses over the current estimated populations. Therefore, implementation of Alternative 2 is not anticipated to impact the sensitive plants with potential to occur on these HMAs.

The AML for Jakes Wash and Moriah HMAs under this alternative would be set to zero. Potential conflicts between wild horses and sage grouse or Pygmy rabbit would not occur.

#### ***3.4.2.3 Alternative 3 – Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

Impacts to special status species would be similar under Alternative 3 as described for Alternative 2, except wild horse numbers would be managed at 75 wild horses with concurrent reduction in livestock numbers in the Clover Mountains/Clover Creek HMAs. This increase in wild horse numbers and season-long use has the potential to impact the Nevada willowherb within the Clover Creek HMA. The habitat for this sensitive plant species is not well documented in Nevada; however, it does occur on slopes with limestone outcrops or talus at 6,000 to 8,900 feet elevation and is associated with singleleaf pinyon and ponderosa pine, and it has been documented in the Clover Creek HMA. Therefore, there is potential for this sensitive plant species to be impacted by the implementation of Alternative 3.

The AML for Jakes Wash and Moriah HMAs under this alternative would be set to zero. Potential conflicts between wild horses and sage grouse or Pygmy rabbit would not occur.

#### ***3.4.2.4 No Action Alternative***

Under the No Action Alternative, wild horse populations would be managed through emergency gathers until AMLs are established through the allotment evaluation/MUD process. The Blue Nose Peak, Highland Peak, Little Mountain, Applewhite, and Deer Lodge Canyon HMA estimated populations are currently greater than the proposed AML for these HMAs under any of the alternatives. Therefore, the potential for impact to sensitive special status species is greater under the No Action Alternative than the other alternatives. Potential impacts to the southwestern willow flycatcher, which inhabits riparian areas with willow growth, are likely to occur on the Blue Nose Peak HMA until AML is established through the allotment evaluation/MUD process. Similarly, potential impact to the Mojave desert tortoise would occur, which would not be in compliance with the agreement for desert tortoise management.

Wild horses would continue to inhabit Jakes Wash and Moriah HMAs until AMLs are established through the allotment evaluation/MUD process, with potential for impacts to sage grouse brood rearing habitat and Pygmy rabbit habitat.

### **3.4.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1 or Alternative 2. Mitigation for Alternative 3 includes a survey to identify the potential habitat and populations of Nevada willowherb within the Clover Creek HMA. The yearlong use by wild horses in this HMA has potential to impact this species. Mitigation under the No Action Alternative includes either surveys of potential habitat for the sensitive plants in the Highland Peak, Little Mountain, Miller Flat, Applewhite, Clover Creek, and Deer Lodge Canyon HMAs that would allow these plant populations to be monitored, or emergency gathers to remove wild horses when utilization levels exceed the allotment objectives.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.5 LIVESTOCK GRAZING/RANGE**

### **3.5.1 Affected Environment**

The allotments and acreage of the allotments in each HMA are provided in Table 3. All of the allotments have permitted use within the HMA; however, some operators have opted for periods of non-use or to run under permitted use.

### **3.5.2 Environmental Consequences**

#### ***3.5.2.1 Alternative 1 – Individual HMAs***

Due to the competition for forage between livestock and wild horses, there are impacts to the livestock at the current high numbers of wild horses. Under Alternative 1, the AML would be set at zero for all but the Delamar Mountains HMA. Setting the AML based on monitoring data should eliminate the competition. This would eliminate or greatly reduce the impacts of wild horses to livestock on 11 of the 12 HMAs covering approximately 987,000 acres. The 576 wild horses that would be removed from the HMAs represent over 6,900 AUMs. Although this forage would not be allocated to livestock, the removal of the wild horses may reduce utilization in some pastures from the heavy and severe levels to the moderate level. This is also likely to improve livestock distribution.

The AML of 75 wild horses in the Delamar Mountains HMA is anticipated to be compatible with livestock grazing. Previous adjustments in the livestock grazing have resulted in an improvement in achieving allotment objectives since the early 1980s. The areas not meeting Rangeland Standards are the areas near water sources. The yearlong use by wild horses has continued to stress the winterfat plant community and the vegetation near water sources.

### **3.5.2.2 Alternative 2 – Manage Some HMAs as Complexes**

The number of wild horses would be set at zero for eight of the 12 HMAs and reduced on four HMAs (Table 2). The AUMs represented by the removal of 492 wild horses would be over 5,900 AUMs. As with Alternative 1, this would result in less competition with livestock than currently exists.

Impacts to livestock on the Delamar Mountains HMA would be as described above for Alternative 1.

The monitoring of the Deer Lodge, Mahogany Peak, Condor Canyon, McGuffy Spring, Rabbit Spring and NR/N5 allotments within the Deer Lodge Canyon HMA indicate that the allotment objectives and standards for rangeland health are generally being achieved. Reduction from the current estimated wild horse population of 103 wild horses to the AML of 50 wild horses should improve the range condition and reduce the need for emergency gathers due to poor wild horse health in this HMA.

The monitoring data for the Ely Springs Sheep, Pioche, Highland Peak, Black Canyon, Bennett Spring, and Klondike allotments within the Highland Peak HMA and the Rattlesnake and Oak Springs allotments in the Rattlesnake HMA indicate that the allotment objectives and standards for rangeland health are generally being achieved. Heavy to severe utilization occurs near water sources, in part due to season-long grazing by wild horses. Reduction of the wild horses from the current estimated population of 66 wild horses to 33 in the Highland Peak HMA and allowing for incidental use (AML of 1) by wild horses in the Rattlesnake HMA should bring the wild horse population in line with the available water and reduce utilization near the water sources.

Therefore, impacts to livestock under this alternative should be negligible to beneficial.

### **3.5.2.3 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses**

The need to re-allocate AUMs from livestock to wild horses to achieve viable populations of wild horses would only be required in the Clover Mountains/Clover Creek HMA Complex. Impacts to all other allotments within the other 12 HMAs would be as described under Alternative 2.

The recommended AML of 50 for the Clover Mountains/Clover Creek HMA Complex would need to be increased by 25 wild horses to achieve the minimum population of 75 wild horses. To facilitate horse populations at these levels, the Clover Mountains/Clover Creek HMA Complex would require the re-allocation of 300 AUMs (annual forage for 25 wild horses) from the livestock operations to wild horses. Assuming that the 300-AUM reduction to the livestock operators would be apportioned according to percentage of each allotment with the HMA Complex, the reduction of AUMs for each allotment would be as indicated in Table 5.

Direct impacts to livestock operators of the Sand Hills, Pennsylvania, Cottonwood, and Sheep Flat allotments within the Clover Mountains HMA would occur due to the reallocation of 251 AUMs from the livestock operators to wild horses in the Clover Mountains HMA. The impact varies between 4.6 and 7.9 percent of the AUMs currently permitted for livestock use per allotment (Table 5).

**Table 5: AUM Reduction by Allotment Necessary to Establish the Recommended AML of 75 Wild Horses in the Clover Mountains/Clover Creek HMA Complex.**

HMA	Allotment Name	Permitted AUMs	Reduction (AUMs)	Percent Reduction	Adjusted AUMs
Clover Mountains HMA	Sand Hills Allotment	229	18	7.9 %	211
	Pennsylvania Allotment	588	44	7.5 %	544
	Cottonwood Allotment	1,296	91	7.0 %	1,205
	Sheep Flat Allotment	1,977	98	5.0 %	1,879
Clover Creek HMA	Clover Creek Allotment	613	23	3.8 %	590
	Sawmill Canyon Allotment	181	13	7.2 %	168
	Mustang Flat Allotment	147	10	6.8 %	137
	Oak Spring Allotment	52 <sup>1</sup>	3	5.8%	49
<b>Total</b>		5,083	300	5.9 %	4,783

<sup>1</sup>This figure is estimated because data for the allotment was not available.

Direct impacts to livestock operators of the Clover Creek, Sawmill Canyon, Mustang Flat, and Oak Springs allotments in the Clover Creek HMA would amount to 49 AUMs, or 4.9 percent of the AUMs allocated to livestock.

**3.5.2.4 No Action Alternative**

The existing grazing permits would continue and no impacts to livestock grazing would occur beyond the existing competition between livestock and wild horses at the current estimated populations of wild horses until AML can be established using the allotment evaluation/MUD process. During this period, BLM would not meet the RAC Standards and Guidelines on those allotments where wild horses are contributing to grazing in excess of the AULs.

**3.5.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1 or Alternative 2. Under Alternative 3, vegetation treatments to develop additional herbaceous forage could be conducted to offset the loss of AUMs to livestock, especially in pinyon-juniper and sagebrush communities.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.6 WILDLIFE (INCLUDING MIGRATORY BIRDS)**

### **3.6.1 Affected Environment**

Mule deer, elk, desert bighorn sheep, and pronghorn antelope are the primary species competing with wild horses for forage and water on these desert and high desert HMAs. However, a variety of bird (including migratory bird), mammal, reptile, and amphibian species use the riparian areas as well as native range.

### **3.6.2 Environmental Consequences**

#### ***3.6.2.1 Alternative 1 – Individual HMAs***

Removal of all wild horses from 11 of the 12 HMAs and managing wild horses at the established AML on the Delamar Mountains HMA would reduce the impacts to wildlife that occur under the existing wild horse populations. Improvement in riparian habitats, additional water and availability of water, and better range health would create direct and indirect benefits to wildlife.

The primary impact to wildlife in the HMAs being considered would be the change in condition of riparian areas, especially Clover Creek in the Clover Mountains, Clover Creek, and Miller Flat HMAs. In addition, improvement in riparian vegetation is anticipated along Pine and Ash creeks in the Clover Mountains HMA, Horse Spring and Chokecherry #2 Spring in the Clover Creek HMA, Log Trough, Mud, Taylor Mine, Applewhite, and Buckboard springs in the Applewhite HMA, Meadow Valle Wash in the Little Mountain HMA., Rabbit, Sheep, Oak Well, and Miller springs in the Miller Flat HMA, several small springs on public land in the Deer Lodge Canyon HMA, and the Casleton Wash and Highland Spring in the Highland Peak HMA. These riparian areas, when in proper functioning condition, provide important nesting habitat for migratory birds, foraging and cover for many small mammals, and essential habitat for amphibians. The riparian vegetation also provides mule deer and elk habitat.

#### ***3.6.2.2 Alternative 2 – Manage Some HMAs as Complexes***

Establishment of, and management to, AML would reduce the current estimated population of wild horses by 492 wild horses. Impacts would be the same as identified for Alternative 1, above. Benefits, as described above, would be greatest on the Jakes Wash, Moriah, Little Mountain, Deer Lodge Canyon, and Highland Peak HMAs where the reduction of wild horses would total 385 animals. Managing Deer Lodge Canyon HMA with Wilson Creek HMA, and Highland Peak and Rattlesnake HMAs with Dry Lake HMA, as complexes would allow wild horses to move among HMAs to obtain seasonal habitat requirements, reducing the effect of yearlong grazing by wild horses in some wildlife habitats.

The small springs on public land in the Deer Lodge Canyon HMA, and the Casleton Wash and Highland Spring in the Highland Peak HMA may not experience the same level of improvement under Alternative 2 as would be anticipated under Alternative 1, but the AML was established based on the monitoring data

that indicates wild horse reductions should help achieve the RAC Standards and Guidelines for rangeland health.

### ***3.6.2.3 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

Under this alternative, indirect impacts to wildlife through continued habitat degradation may occur. As stated above in Section 3.2, Vegetation, the impact of re-allocating the AUMs from livestock to wild horses may not help to achieve standards for rangeland health. The yearlong grazing by wild horses versus the seasonal grazing by livestock can have long-term impacts on the vegetation vigor and plant community composition. These changes in the plant communities are reflected in changes in the wildlife composition of the HMAs. The improvement in riparian habitat along Clover Creek, Pine Creek, Ash Creek, and at Horse Spring and Chokecherry Spring #2 within the Clover Mountains/Clover Creek HMA Complex would not occur under this alternative. These impacts would be limited to the Clover Mountains and Clover Creek HMAs. Improvement in range health is anticipated for the other HMAs, which would be a beneficial impact for wildlife.

The yearlong grazing in the Deer Lodge Canyon/Wilson Creek HMA Complex and the Highland Peak/Rattlesnake/Dry Lake HMA Complex would limit the amount of improvement anticipated for the riparian areas in these complexes, as discussed above for Alternative 2.

### ***3.6.2.4 No Action Alternative***

Wildlife habitats would remain in their current condition and availability until AML can be established through the allotment evaluation/MUD process. The heavy and severe use of vegetation in riparian areas and in habitats near water would continue during this period. Non-achievement of standards for rangeland health would be reflected in the composition and stability of wildlife populations for species such as mule deer, elk, pronghorn antelope, and desert bighorn sheep. Suitable nesting habitat for migratory birds and yearlong habitat for amphibians would not improve during this period.

## **3.6.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1 and Alternative 2. Under Alternative 3, protection of riparian habitat and spring sources from over utilization by wild horses should be conducted on the Clover Mountains and Clover Creek HMAs.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.7 WATER QUALITY (DRINKING AND GROUND)**

### **3.7.1 Affected Environment**

Only one source of drinking water occurs within the 12 HMAs, a spring that has been developed for municipal water supply in the Highland Peak HMA. This spring does not have any surface expression and is not available to, or impacted by, wild horses.

Approximately 140 springs on public lands have been identified in the 12 HMAs under consideration in this EA. There are additional springs on private lands within these HMAs as well as streams and creeks that traverse public and private lands within the HMAs. Clover Creek, Meadow Valley Wash, Rainbow Creek, Garden Wash, and Jakes Wash are some of the major creeks within the HMAs. Water quality and quantity at these water sources is dependent on healthy vegetation in sufficient quantity to allow the watershed systems to function. Sediment transport, sediment deposition, and water storage are three major functions of the riparian systems that can be directly impacted by rangeland health.

### **3.7.2 Environmental Consequences**

#### ***3.7.2.1 Alternative 1 – Individual HMAs***

Approximately 576 wild horses, representing over 6,900 AUMs, would be removed from public lands within the 12 HMAs. This would help alleviate the impacts to riparian habitats that are documented in almost all allotment monitoring data. Heavy and severe use of the vegetation is generally associated with water sources on most of the HMAs.

Clover Creek, Meadow Valley Wash, Rainbow Creek, Garden Wash, Jakes Wash, Pine Creek, and Ash Creek are anticipated to demonstrate improvement in the riparian vegetation due to the cessation of the season-long grazing in these riparian areas. Improvement to and maintenance of proper functioning condition of these creeks and the numerous springs found in the 12 HMAs should result in water quality improvements.

#### ***3.7.2.2 Alternative 2 - Manage Some HMAs as Complexes***

As with Alternative 1, managing wild horses to AMLs that have been established based on monitoring data is intended to bring the wild horse populations in line with the capacity of the lands within these HMAs. This would result in improvements to water quality and quantity in areas where wild horse impacts have been identified.

Year-long grazing would continue in the Deer Lodge Canyon, Highland Peak, Rattlesnake, and Delemar Mountains HMAs under this alternative, but at reduced levels over the current estimated populations. Therefore, the changes in water quality under this alternative may not be achieved as quickly as under Alternative 1.

### ***3.7.2.2 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

Under this alternative, improvement to riparian systems and water quality would be intermediate to Alternative 1 and Alternative 2. Improvement in these systems is anticipated on ten of the 12 HMAs, but the potential exists for continued impact to the riparian systems on Clover Mountains and Clover Creek HMAs. As stated above in Section 3.2, Vegetation, the yearlong grazing by wild horses is likely to impact the riparian systems in comparison to the seasonal grazing by livestock within these two HMAs.

Impacts to Pine Creek, Ash Creek, Horse Spring, Chokecherry #2 Spring, and Clover Creek are anticipated to continue under this alternative. The heavy to severe utilization of the riparian vegetation at these water sources is likely to continue, with associated impacts of increased sedimentation to the water flows and increased water temperatures.

### ***3.7.2.4 No Action Alternative***

Severe and heavy utilization of vegetation associated with water sources would continue until AML can be established through the allotment evaluation/MUD process, except where and when emergency gathers would be conducted to alleviate stress to wild horses. Riparian systems that are either not at proper functioning condition or that are at risk would not improve. Water quality and quantity issues would not be resolved under this alternative during the time required for AML to be established.

## **3.7.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1 and Alternative 2. Under Alternative 3, protection of riparian habitat and spring sources from over utilization by wild horses should be conducted on the Clover Mountains and Clover Creek HMAs.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.8 WETLANDS/RIPARIAN RESOURCES**

### **3.8.1 Affected Environment**

The description of the affected environment for Wetlands/Riparian Resources is the same as described for Water Quality in Section 3.1.7. Water quality and wetland/riparian systems are intricately related and as stated above, water quality is a function of the health of the wetland/riparian systems.

### **3.8.2 Environmental Consequences**

#### ***3.8.2.1 Alternative 1 – Individual HMAs***

The severe and heavy utilization of wetland/riparian habitats at springs and creeks would be reduced. Approximately 576 wild horses, representing over 6,900 AUMs, would be removed from public lands

within the 12 HMAs. This would remove the year-long stress to the wetland/riparian systems that has been attributed to wild horses and allow for some improvement of these systems.

Clover Creek, Meadow Valley Wash, Rainbow Creek, Garden Wash, Jakes Wash, Pine Creek, and Ash Creek are anticipated to demonstrate improvement in the riparian vegetation due to the cessation of the season-long grazing in these riparian areas. In addition, most of the springs within the HMAs, including Horse Spring and Chokecherry #2 Spring in the Clover Creek HMA; Log Trough, Mud, Taylor Mine, Applewhite, and Buckboard springs in the Applewhite HMA; Rabbit, Sheep, Oak Well, and Miller springs in the Miller Flat HMA; and Highland Spring in the Highland Peak HMA would all be anticipated to exhibit improvement in riparian condition.

### ***3.8.2.2 Alternative 2 – Manage Some HMAs as Complexes***

Eight of the 12 HMAs would have wild horse AMLs set at zero (Table 2), and improvements in the associated riparian areas in these HMAs would be as described for Alternative 1. Season-long grazing by wild horses would continue in the Delamar Mountains, Deer Lodge Canyon, Highland Peak, and Rattlesnake HMAs, and the riparian areas in these HMAs would not improve as quickly as under Alternative 1. However, the AMLs for these HMAs were established based on the monitoring data for the allotments within these HMAs with the intent of bringing the wild horse populations within the capacity of the habitats on which they depend. By managing for “*thriving ecological natural ecological balance on the public lands*”, improvement of the wetland/riparian systems is anticipated.

### ***3.8.2.3 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

As stated above in Section 3.7, Water Quality, impacts to wetland/riparian systems are anticipated to continue under this alternative within the Clover Mountains and Clover Creek HMAs. The increased yearlong use of riparian vegetation is not likely to result in achievement of proper functioning condition of these systems that are not currently functioning properly or are functioning properly, but at risk.

Riparian condition in Pine Creek, Ash Creek, and Clover Creek, as well as at Horse Spring and Chokecherry #2 Spring, are not likely to improve under this alternative.

### ***3.8.2.4 No Action Alternative***

The impacts to wetland/riparian systems that have been attributed to wild horses in the allotment monitoring data would continue under this alternative until AML can be established through the allotment evaluation/MUD process. Wild horse populations would remain above the productivity of the land and water systems in all but the Miller Flat HMA (Table 2).

## **3.8.3 Mitigation and Monitoring**

No mitigation has been identified for Alternative 1 and Alternative 2. Under Alternative 3, protection of riparian habitat and spring sources from over utilization by wild horses should be conducted on the Clover Mountains and Clover Creek HMAs.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.9 RECREATION**

### **3.9.1 Affected Environment**

The lands within the HMAs are used for a variety of dispersed recreational activities, including hunting, hiking, wild horse viewing, wildlife viewing, camping, and camping.

### **3.9.2 Environmental Consequences**

#### ***3.9.2.1 Alternative 1 – Individual HMAs***

Alternative 1 would result in an improvement in riparian and upland vegetation, which would enhance certain recreation activities. The removal of 576 wild horses from approximately 987,000 acres of the 1,173,000 of public lands within the HMAs would reduce the opportunities to view wild horses. Improvements to rangeland health, especially to riparian areas as discussed in Section 3.8.2.1, would enhance the other recreational opportunities.

#### ***3.9.2.2 Alternative 2 – Manage Some HMAs as Complexes***

Improvement in riparian and upland vegetation is anticipated on approximately 672,000 acres in eight HMAs where the AMLs would be set at zero; and therefore, wild horse viewing opportunities would be reduced, but other recreational activities would be enhanced. AML on the remaining four HMAs would be reduced over the current estimated populations, which would also result in improvement of recreational opportunities.

#### ***3.9.2.3 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

Under this alternative, improvement in riparian and upland vegetation is anticipated in all but the Clover Mountains and Clover Creek HMAs; and therefore, overall recreational activities would be enhanced. Wild horses would be managed on approximately 707,000 acres, but at a reduced level of 234 wild horses compared to the estimated current population of 651 wild horses. Impacts to recreational opportunities would be similar to those described for Alternative 2, except improvement of the riparian areas in the Clover Mountains/Clover Creek HMA Complex is not anticipated.

#### ***3.9.2.4 No Action Alternative***

Under the No Action Alternative, vegetation in riparian and uplands is anticipated to continue to receive heavy to severe utilization where wild horse populations exceed the productive capability of the HMAs, thus detracting from recreational activities, until the AMLs can be established through the allotment evaluation/MUD process. Wild horses would remain on approximately 1,173,000 acres of public lands within the HMAs during this period. Wild horse populations would fluctuate, but would be likely to

remain at or above the current estimated population of 651 unless emergency gathers were conducted to remove wild horses from some HMAs. Recreational opportunities, except for wild horse viewing, would not improve during this period.

### **3.9.4 Mitigation and Monitoring**

No mitigation has been identified for the alternatives.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.10 SOCIOECONOMICS**

### **3.10.1 Affected Environment**

The social aspects of wild horse management are evident by the variety of strongly held viewpoints and emotional interest associated with wild horses. The health of wild horses is the primary social issue; the law requires that the BLM manage wild horses in “*order to preserve and maintain a thriving natural ecological balance and multiple-use relationships*” in recognition of this social issue.

The competition for forage among wildlife, wild horses, and livestock is also an economic issue, especially when forage allocation for livestock is included in the action.

### **3.10.2 Environmental Consequences**

#### ***3.10.2.1 Alternative 1 – Individual HMAs***

The establishment of AML at zero on 11 of the 12 HMAs under consideration in this EA would improve wild horse health over existing conditions. Most of the 12 HMAs have had emergency wild horse gathers due to poor wild horse body condition as a result of wild horse populations in excess of the capacity of the HMAs. Removal of wild horses from HMAs that do not have suitable habitat or that cannot support viable populations would prevent wild horses from suffering to a point that justifies an emergency gather.

No re-allocation of AUMs to livestock would occur under this alternative; therefore, no change in the economic aspect of the livestock operations is anticipated.

#### ***3.10.2.2 Alternative 2 – Manage Some HMAs as Complexes***

Establishment of AML to zero on eight HMAs and establishment of AML for individual HMAs or for complexes on four HMAs is anticipated to improve wild horse health. Managing populations across HMA boundaries provides missing habitat components for the population that would not be provided in a single HMA. Therefore, wild horses in these complexes when managed to AML would have all of their seasonal needs and should maintain good body condition. Removal of wild horses from HMAs that do not have

suitable habitat or that cannot support viable populations when managed as a complex, would prevent wild horses from suffering to a point that justifies an emergency gather.

No re-allocation of AUMs to livestock would occur under this alternative; therefore, no change in the economic aspect of the livestock operations is anticipated.

### ***3.10.2.3 Alternative 3 - Re-allocation of AUMs to Provide for Viable Populations of Wild Horses***

The social impacts under this alternative would be similar to those described under Alternative 2. Wild horse herd health would be improved in 10 of the 12 HMAs. The improvement of horse health in the Clover Mountains/Clover Creek HMA Complex would depend on the actual impacts of the increased season-long grazing on the riparian areas. Long-term degradation of these areas would contribute to poor wild horse body condition for wild horses within this complex.

This alternative has direct economic impacts to the livestock operators of the allotments within the Clover Mountains/Clover Creek HMA Complex. As indicated in Table 5, the AUM reduction per allotment varies from 3.8 to 7.9 percent of the currently permitted AUMs allocated to livestock. This reduction would result in the operator being allowed to run fewer livestock on the public lands. This reduction would have to be made up by private land resources, or the operator would have to reduce the number of animals in the operation. This alternative has the greatest economic impact to the livestock operator.

### ***3.10.2.4 No Action Alternative***

Under the No Action Alternative, wild horse health would continue to decline until the AMLs can be established through the allotment evaluation/MUD process. Wild horses would remain on approximately 1,173,000 acres of public lands within the HMAs during this period and emergency gathers would be likely to continue where wild horse numbers exceed the resources available on the HMAs. Emergency gathers require that wild horse reach body condition 2 (see Glossary for body condition descriptions); and therefore, wild horse suffering would continue under this alternative.

No re-allocation of AUMs to livestock would occur under this alternative; therefore, no change in the economic aspect of the livestock operations is anticipated.

### **3.10.3 Mitigation and Monitoring**

No mitigation has been identified for the alternatives.

No monitoring beyond the monitoring identified as common to all alternatives in Section 2 would be required.

## **3.2 CUMULATIVE IMPACTS**

According to the BLM handbook *Guidelines for Assessing and Documenting Cumulative Impacts* (BLM 1994), the cumulative analysis should be focused on those issues and resource values identified during

scoping that are of major importance. The two major issues identified for this environmental analysis were to manage for healthy rangeland in conformance with the M/S RAC and NE RAC Standards and Guidelines, and to manage for healthy, viable wild horse herds as mandated by the Act.

Cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts could result from individually minor, but collectively significant actions taking place over a period of time. The cumulative impacts assessment area for this EA is the Ely District Area.

### **3.2.1 Past Actions**

During the 1500s the Spanish explorers brought the modern horse with them from Spain and the rest of Europe. Many of these animals became feral and roamed the grassland of the plains, as well as isolated mountain ranges of the west where the Spanish had explored or settled. As additional settlers arrived in the western United States, they brought many breeds of horses with them; each breed was developed for unique tasks or purposes. As these settlers passed through Nevada or settled in Nevada, some of these horses became feral or were purposely turned loose on the range and used as a commodity. The wild horses of eastern Nevada are descendants of ranch stock, mining draft horses, Calvary mounts, and various other breeds.

From the late 1800s until the 1930s many horses were produced on the range for use in the Calvary remount program. Many Arabian and thoroughbred stallions were released on the range to reproduce with wild mares in order to obtain progeny that had endurance and other characteristics required by the military. Wild horses on the rangelands were periodically gathered by private individuals. The young wild horses were sold to the military, and the undesirable stallions and mares were destroyed to eliminate their characteristics from the gene pool. After the end of the Calvary remount program, many wild horses were captured to be sold for rendering profits. Wild horses were viewed as a nuisance and/or commodity. Many “mustangers” operated in eastern Nevada, capturing wild horses and selling them for slaughter, or keeping a few for personal use.

In 1934 Congress passed the Taylor Grazing Act establishing grazing districts and the Grazing Service. This act was the first step in regulation of grazing use on the public lands. In 1946 the Grazing Service was merged with the General Land Office and the BLM was formed. Wild horses were not federally protected and individuals that claimed ownership or mustangers with permission from the BLM continued to use the wild horses for commercial purposes.

In 1959 Congress passed the Wild Horse Annie Act. This act protected wild horses from being captured, harassed or chased with motorized vehicles. In 1971 Congress passed the Wild and Free-Roaming Horse and Burro Act. This act provided full protection for wild, free-roaming horses. Wild or free-roaming horses that were not claimed for individual ownership were under the protection of the Secretaries of Interior and Agriculture. This act provided protection, but no appropriation authority for management of the wild horses. In 1976 the Federal Land Policy and Management Act was passed which gave the BLM a direction for management as well as approved appropriation authority for the management of wild and

free-roaming horses on the public lands. This act also gave the Secretary the authority to use motorized equipment in the capture of wild free-roaming horses and continued authority to inventory the public lands.

Herd Areas were identified in 1971 as areas occupied by wild horses. The HMAs were established in the late 1980s through the land use planning process as areas where wild horse management was a designated land use. Since the mid-1980s, AML have been established on 13 HMAs through the allotment evaluation/MUD process within the Ely District.

The Wild and Free-Roaming Horse and Burro Act was amended in 1978 through the Public Range Improvement Act, by allowing the Secretary to place excess wild horses into private ownership or adopt these animals to the citizenry of the United States in order to improve the condition of the public lands through wild horse removals where AMLs have been established.

Due to these laws and subsequent court decisions, integrated wild horse management and removals have occurred periodically within the 13 HMAs in the Ely District where AMLs have been established. Wild horses have been removed when over-populated and horse health have reached a point where an emergency gather was justified on HMAs with or without established AML.

### **3.2.2 Present Actions**

Currently, the 12 HMAs considered in this EA have an estimated population of 651 wild horses. Resource damage is occurring in of most of the HMAs and wild horses are moving from some HMAs to non-HMA areas due in part to excess animals and in part to missing yearlong habitat components in some HMAs.

In the absence of established AMLs, the BLM may only conduct emergency gathers to maintain herd health and to protect resources, but only after problems have been identified and documented. Current mandates prohibit the destruction of healthy animals that are removed or deemed to be excess. Currently, only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method.

Public interest in the welfare and management of wild horses is currently higher than it has ever been. Many different values pertaining to wild horse management form current wild horse perceptions. Wild horses are viewed as nuisances, as well as living symbols of the pioneer spirit.

### **3.2.3 Reasonably Foreseeable Future Actions**

The BLM would manage wild horses within a population range for future established AMLs, while maintaining genetic diversity, age structure, and sex ratios. Natural selection may not be the preferred method for managing wild horses in the future. Wild horse AML would most likely be expressed as a range in the future as a result of the Ely Resource Management Plan process. Future management would focus on an integrated ecosystem approach with the basic unit of analysis being the watershed. Wild

horses would continue to be a component of the public lands, managed within a multiple use concept within the 12 HMAs.

There is no anticipation that there will be amendments to the Act that would change the way wild horses could be managed on the public lands. If changes in the act that relate to the disposal of excess wild horses or sanctuaries outside of the United States are authorized, gathers and removals should become more predictable due to the facility space. This should increase stability of gather schedules, which would result in gathers on the HMAs every four years. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles, reducing the need to remove as many wild horses.

If there are no future amendments to the Act, and no changes in funding levels for the wild horse program, then few changes in on-the-ground management would occur.

The EFO has initiated the update of the Resource Management Plan, which includes the components of the Great Basin Restoration Initiative, and is scheduled to be completed by 2005. Wild horse management for the 12 HMAs would be addressed on a programmatic basis.

### **3.2.4 Impacts**

Past actions regarding the management of wild horses have resulted in the current wild horse populations within the 12 HMAs being considered in this EA. Wild horse management has contributed to the present resource condition and wild horse herd structure within the HMAs.

Cumulatively, the estimated 75 AML in the 12 HMAs make up only four percent of the estimated 1,941 AML on public lands administered by the EFO under Alternative 1. Similarly, the 159 AML under Alternative 2 makes up ten percent of the total AML on public lands administered by the EFO, and the AML of 234 under Alternative 3 accounts for just 12 percent of the total AML on public lands administered by the EFO. Under all of the alternatives, wild horses would continue to be one of the multiple uses of the public lands.

With regard to the two major issues, that of managing for healthy rangeland in conformance with the M/S RAC and NE RAC Standards and Guidelines and to manage for healthy, viable wild horse herds as mandated by the Act, Alternative 1 is more likely to provide conformance with the Standards and Guidelines than Alternatives 2, 3, and the No Action Alternative over the short-term. The management of complexes under Alternative 2 may result in excessive utilization at riparian areas due to the year-long use by wild horses within the complexes. Alternative 3 is also likely to result in excessive utilization at riparian areas within the Clover Mountains/Clover Creek HMA Complex due to the increased AML under this alternative, despite reduction in the number of AUMs allocated to livestock. Under the No Action Alternative, progress toward achieving the Standards and Guidelines would not begin until AMLs can be established.

All of the alternatives are intended to improve horse health and condition by establishing AML within the capacity of the HMA or HMA complexes to provide year-long suitable habitat. This may not be

completely achieved within the Clover Mountains/Clover Creek HMA Complex under Alternative 3 if the increased AML and corresponding reduction in livestock AUMs do not result in improved riparian habitat conditions. Wild horses may continue to be stressed under these circumstances. Horse health would continue to be an issue under the No Action Alternative until AMLs can be established under the allotment evaluation/MUD process.

Overall, with establishment of AML under Alternatives 1, 2, and 3, and eventually under the No Action Alternative, horse health would not have to deteriorate to Body Condition 2 (i.e., emaciated) before gathers could be conducted. Instead, gathers could be conducted on a regular, pro-active basis to maintain wild horse herds in “*a thriving natural ecological balance on the public lands.*”

The combination of the past, present, and reasonably foreseeable future actions, along with the alternatives, would include increased health of the wild horses. While the overall number of wild horses would be reduced from the current populations, the remaining wild horses would be managed at a population level that is appropriate for the productivity of the HMA, given the other multiple uses within each HMA.

## 4.0 CONSULTATION, COORDINATION AND CONTACTS

### 4.1 PERSONS, GROUPS AND AGENCIES CONSULTED

A public scoping letter was sent to approximately 100 groups and individuals on the BLM EFO mailing list who have indicated an interest in wild horse and rangeland management actions, as well as to the affected permittees. Three letters were received in response by the EFO.

Public scoping of the proposed establishment of AMLs identified the following concerns:

- Identify conflicts with cows or sheep;
- Identify the forage allotted for livestock;
- Need to control wild horses in areas that have been designated at risk or too sensitive for cattle grazing;
- Wild horse use of improvements intended for livestock and maintained by the grazing permittee;
- Wild horse uncontrolled use of streams and springs in contrast to regulated livestock grazing of the same areas;
- Clarification of the boundaries of the HMAs and allotments;
- AML establishment should consider protection of sensitive plant species; and
- Effects of wild horse management activities with respect to the Mojave desert tortoise and the final biological opinion issued by the U.S. Fish and Wildlife Service.

### 4.3 LIST OF PREPARERS

This EA was prepared under contract and direction with the BLM, EFO, Nevada by Steffen Robertson & Kirsten, Inc (SRK). The following is a list of individuals responsible for preparation of the EA.

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## 5.0 GLOSSARY AND ACRONYMS

### GLOSSARY

**Animal Unit Month (AUM)** – The amount of forage required to support one animal unit (e.g., cow-calf pair) for one month.

**Allowable Use Level (AUL)** – Utilization levels specified for an allotment in order to meet Rangeland Standards and Guidelines.

**Climate** - The average or prevailing weather conditions of a place over a period of years.

**Cover** - The combined aerial parts of plants and mulch, and (2) shelter and protection for animals and birds. (BLM Manual 4400).

**Deterministic** – pertaining to a series of systematic processes.

**Equine body condition** –

1. Poor. Extremely emaciated; spinal processes, ribs, tailhead, tuber coxae and ischii projecting prominently, no fatty tissue can be seen.
2. Very Thin. Emaciated; slight fatty covering over base of spinal processes; transverse processes of lumbar vertebrae feel rounded; spinal processes, ribs, tailhead, tuber coxae and ischii prominent; withers, shoulders, and neck structure faintly discernible.
3. Thin. Fat buildup about halfway on spinal processes; transverse processes cannot be felt; slight fat covering over ribs; spinal processes and ribs easily discernible; tailhead prominent; but individual vertebrae cannot be identified visually; tuber coxae appear rounded but easily discernible, tuber ischii not distinguishable; withers, shoulders, and neck accentuated.
4. Moderately Thin. Slight ridge along back; faint outline of ribs discernible; tailhead prominence depends on conformation – fat can be felt around it; tuber coxae not discernible; withers, shoulders and neck not obviously thin.
5. Moderate. Back is flat (no crease or ridge); ribs not visually distinguishable but easily felt around tailhead and area beginning to feel spongy; withers appear rounded over spinal processes; shoulders and neck blend smoothly into body.
6. Moderately Fleishy. May have slight crease down back; fat over ribs spongy; fat around tailhead soft; fat beginning to be deposited along the side of withers behind shoulders, and along sides of neck.
7. Fleishy. May have crease down back; individual ribs can be felt, but noticeable filling between ribs with fat; fat around tailhead soft; fat deposited along withers, behind shoulders and along neck.
8. Fat. Crease down back; difficult to feel ribs; fat around tailhead very soft; area along withers filled with fat; area behind shoulder filled with fat; noticeable thickening of neck; fat deposited along inner thighs.

9. Extremely Fat. Obvious crease down back; patchy fat appearing over ribs; bulging fat around tailhead, along withers, behind shoulders, and along neck; fat along inner thighs may rub together, flank filled with fat.

**Distribution (Grazing)** - Dispersion of grazing animals within a management unit or area.

**Forage** - The plant material actually consumed by (or available to) grazing animals.

**Frequency** - The ratio between the number of sample units that contain a species and the total number of sample units. A quantitative expression of the presence of absence of individuals of a species in a population. It is defined as the percentage of occurrence of a species in a series of samples of uniform size. (BLM Technical Reference 4400-4)

**Guidelines** - Guidelines are livestock management practices (e.g. tools, methods, strategies and techniques) designed to achieve healthy public lands as defined by Standards and portrayed by Indicators. Guidelines are designed to provide direction, yet offer flexibility for local implementation through activity plans and grazing permits. Activity plans may add specificity to the Guidelines based on local goals and objectives as provided for in adopted manuals, handbooks and policy. Not all Guidelines fit all circumstances. Monitoring or site specific evaluation will determine if significant progress is being made towards achieving the Standards, and if the appropriate Guidelines are being applied.

**Habitat** - The natural abode of a plant or animal, including all biotic, climatic, and edaphic factors affecting life.

**Herd Area** – Historical range where wild horses were found in 1971.

**Herd Management Area** - An area within the Herd Area defined through a public planning process where wild horses are managed.

**Intensity (Grazing)** - A reference to grazing density per unit of time.

**Land Use Plan** - Land use plan means a resource management plan, developed under the provisions of 43 CFR part 1600, or management framework plan. These plans are developed through public participation in accordance with the provisions of the Federal Land Policy and Management Act of 1976 and establish management direction for resource uses of public lands. (43 CFR 4100.0.5)

**Management Objective** - The objectives for which rangeland and rangeland resources are managed which includes specified uses accompanied by a description of the desired vegetation and the expected products and/or values.

**Management Plan** - A program of action designed to reach a given set of objectives.

**Monitoring** - The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives. (BLM Technical Reference 4400-7). Monitoring means the periodic observation and orderly collection of data to evaluate: (1) Effects of management actions; and (2) Effectiveness of actions in meeting management objectives. (43 CFR 4100.0.5)

**Multiple Use** - The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals watershed, wildlife and fish, natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return of the greatest unit output. (Federal Land Policy and Management Act)

**Proper Functioning Condition** - Riparian-Wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. (BLM Technical Reference 1737-9)

**Range Improvement** - Range improvement means an authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses, and fish and wildlife. The term includes but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

**Riparian** - Referring to or relating to areas adjacent to water or influenced by free water associated with streams or rivers on geologic surfaces occupying the lowest position of a watershed.

**Self-sustaining** - the process whereby established populations are able to persist and successfully produce viable offspring which shall, in turn, produce viable offspring, and so on over the long term. The absolute size which a population must attain to achieve a self sustaining condition varies based on the demographic and sociological features of the herd (and adjoining herds), and these aspects should be evaluated on a case by case basis. In many cases it is not necessary that populations be isolated genetic units, but both naturally-occurring and management-induced ingress and egress activity can be considered, in order to maintain sufficient genetic diversity within these populations.

**Stochastic** – pertaining to a series of random processes

**Trend** - The direction of change in ecological status or resource value rating observed over time. Trend in ecological status should be described as *toward*, or *away from* the potential natural community, or as not apparent. (BLM Technical Reference 4400-4)

**Utilization** - The proportion of current year's forage production that is consumed or destroyed by grazing animals. May refer either to a single species or to the vegetation as a whole.

**Viable Population** – A population capable of maintaining itself, without significant manipulation.

## ACRONYMNS

**AML** – Appropriate Management Level

**AUL** – Allowable Use Levels

**EFO** – Ely Field Office

**HMA** – Herd Management Area

**M/S RAC Standards and Guidelines for Rangeland Health** - Mojave/Southern Great Basin Resource Advisory Council Standards and Guidelines for Rangeland Health

**NE RAC Standards and Guidelines for Rangeland Health** - Northeastern Great Basin Resource Advisory Council Standards and Guidelines for Rangeland Health

**RAC** – Resource Advisory Council

**PMP** – Population Management Plan

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**Appendix A**  
**Ely District Wild Horse Herd Management Areas**  
**July 1, 2003**  
**Ely Field Office**

## Ely District Wild Horse Herd Management Areas and Herd Areas July 1, 2003

HMA Number	Herd Management Area Name	Total Acres	Appropriate Management Level <sup>1</sup>	Censused Population		Wild horses Gathered Since Last Census		July 1, 2003 Population Estimate <sup>2</sup>
				Number	Date	Number	Date	
401	Antelope (HMAP)	400,335	324	351	5/02	---	---	473 <sup>3</sup>
402	Monte Cristo (HMAP)	228,940	236	836	5/01	586	12/02	623 <sup>3</sup>
403	Buck and Bald	627,030	423	331	5/02	---	---	460 <sup>3</sup>
404	Wilson Creek	689,185	160	614	3/01	347	2/02	583
405	Sand Springs East	386,776	257	327	8/00	200	9/00	218
406	Cherry Creek	44,269	0	5 <sup>4</sup>	5/02	---	---	0
407	Butte (HMAP)	436,500	95	76	5/02	---	---	103 <sup>3</sup>
408	Jakes Wash	153,203	6 <sup>7</sup>	75	6/03	---	---	75
409	White River	98,534	90	286 <sup>5</sup>	6/03	---	---	286
410	Dry Lake	494,335	94	383	6/03	---	---	383
411	Seaman	361,318	159	63	5/02	---	---	83 <sup>3</sup>
412	Diamond Hills South	10,500	22	121	3/01	---	---	209
413	Moriah	58,878	0 <sup>7</sup>	176 <sup>6</sup>	6/03	---	---	176 <sup>6</sup>
513	Meadow Valley Mountains	94,966	0	18	3/01	37	8/02	0
514	Blue Nose Peak	84,442	0 <sup>7</sup>	0	3/01	---	---	12
515	Delamar Mountains	185,815	---	67	3/01	---	---	115
516	Clover Mountains	172,125	---	26	3/01	25	7/02	14

HMA Number	Herd Management Area Name	Total Acres	Appropriate Management Level <sup>1</sup>	Censused Population		Wild horses Gathered Since Last Census		July 1, 2003 Population Estimate <sup>2</sup>
				Number	Date	Number	Date	
517	Clover Creek	33,175	---	14	3/01	---	---	24
518	Applewhite	30,484	---	0	3/01	---	---	14
519	Little Mountain	53,131	---	52	3/01	34	7/02	48
520	Miller Flat	91,301	30	37	3/01	50	7/02	4
521	Deer Lodge Canyon	108,160	---	77	3/01	24	8/02	103
522	Highland Peak	136,744	---	66	6/03	---	---	66
523	Rattlesnake	70,801	---	0	6/03	---	---	0
	<b>Ely District Subtotal</b>	5,050,974	1896	---	---	---	---	4072

<sup>1</sup>Established AMLs were set in FMUDs as issued for allotments within the HMA.

<sup>2</sup>Estimates are based on the latest census, less any animals removed since the latest census, plus an average 20% annual rate of increase since the last census.

<sup>3</sup>In any census occurred at mid-foaling season, counted foals were doubled to estimate the end of the foaling season population.

<sup>4</sup>Censused wild horses were known to be from the Elko District and were returned.

<sup>5</sup>Census includes 200 wild horses that summer off the HMA.

<sup>6</sup>Not included were 75 non-HMA Utah wild horses, but did include 44 non-HMA wild horses in Nevada.

<sup>7</sup>AML has been established on a portion of the HMA.



## **Appendix B**

### **Descriptions of HMAs and Establishment of AMLs**



# **Appendix C**

## **Standard Operating Procedures**

## STANDARD OPERATING PROCEDURES (SOPs) COMMON TO THE ALTERNATIVES

### **Activity and RMP Implementation Plans**

The Egan RMP and Caliente and Schell MFPs generally provide for implementation through site-specific management actions that are outlined in activity plans under the principles of multiple-use and subject to environmental review. Allotment-specific evaluations that consider wild horses, in conjunction with livestock grazing and wildlife result in area-specific determinations for the resource management. Censuses are conducted periodically, and wild horses are maintained at AML by gathering excess animals.

### **Monitoring and Evaluation**

The Egan RMP, and Caliente and Schell MFPs provide for monitoring and evaluation to meet the standard and associated guidelines for rangeland health. Standards and Guidelines to address the health of wild horses and burros were approved by the Nevada State Director on December 14, 2000. This is in conjunction with monitoring to meet the rangeland health standards and associated guidelines of the Northeastern Great Basin Area Resource Advisory Council and the Mojave/Southern Great Basin Resource Advisory Council. Monitoring also occurs to meet area-specific objectives for wild horses, wildlife, and livestock determined by activity plans, such as allotment evaluations/multiple use decisions, allotment management plans, and habitat management plans. Adjustments to herd size are made based on monitoring.

### **Population Management**

Population Management Plans (PMPs) specifically address the biology, ecology, and management of a herd. Within a PMP document, the following are described: HMA description, herd history, herd genetic viability, herd social structure, herd demographics, population monitoring and evaluation, and consequences of management actions. Collection of the following data on wild horses captured and released during gathers is useful in preparing and monitoring PMP:

- Blood samples;
- Sex ration/age structure;
- Reproduction and survival;
- Characteristics (color and size);
- Condition class; and
- Other data (such as parasite load, disease, percentage of pregnant mares).

A population computer model is used to predict potential effects on population growth rates through implementation of different management strategies. The numbers, age, and sex of the animals proposed

for removal are analyzed with *The Wild Horse Population Model Version 1.35 WinEquus* developed by Dr. Steven Jenkins, Associate Professor, University of Nevada, Reno.

Immunocontraception is another tool to manage populations during gathers. *Porcine zona pellucida* (PZP) immunocontraception is a technique whereby injection of vaccine, derived from the protein membrane surrounding pig egg cells, stimulates the immune system of female wild horses to produce antibodies. At sufficiently high numbers, these antibodies inhibit fertilization, and as a result, prevent pregnancy for up to two years. The vaccine is a safe, humane, and inexpensive tool to reduce the frequency of gathering excess wild horses.

### **Wild Horse Gathers**

Gathers of wild horses are scheduled when data indicates the population of an HMA is not consistent with its AML, and are necessary to achieve and maintain an ecological balance and multiple-use relationship in a given area. Gathers may also be conducted when emergency situations arise from such events as wildland fire or drought.

- Gather plans are subject to environmental review for National Environmental Policy Act compliance prior to their being implemented. Assessments are made available to interested and affected groups and individuals.
- All capture and handling activities are conducted in accordance with SOPs for gathering wild horses. Copies of these SOPs are included with every capture plan.
- *Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada*” (BLM 2000) provides the following guidelines:
  - a. Where wild horse and burro populations are adversely affecting the sage grouse population or habitat, evaluate herd populations and adjust numbers as necessary;
  - b. Locate wild horse and burro capture facilities at appropriate distances from known sage grouse habitat to avoid adverse impacts to the habitat;
  - c. Gathers use contractors with a helicopter and traps to humanely capture animals;
  - d. The BLM uses the Great Basin Wild Horse and Burro Gather Contract to administrate gathers. Helicopter round-ups cannot occur during the foaling season.

### **Wild Horse Selective Removal Criteria**

The *Gather Policy and Selective Removal Criteria for Wild Horses*, Washington Office IM 2002-095, was implemented with the following priorities:

- Age class five years and younger: wild horses five years of age and younger may be removed and placed into the national adoption program.
- Age class ten years and older: Wild horses ten years of age and older may be removed and placed into long-term holding. Long-term holding are facilities contracted by the BLM used to house wild horses that have been determined to be unadoptable. These facilities provide forage, water, veterinarian, and all other needs for these animals on a permanent basis.

- Age Class six to nine years: Wild horses aged six to nine years old should be removed last and only if the HMA cannot achieve AML without their removal.

### **Wilderness**

All activities and projects for the management of wild horses, such as gathers and water developments, must conform to the “non-impairment” criteria as stated in the Interim Management Policy for Lands Under Wilderness Review. Non-impairment criteria are:

- The use, facility, or activity must be temporary. This means a temporary use that does not create surface disturbance or involve permanent placement of facilities may be allowed if such use can easily and immediately be terminated upon wilderness designation. “Temporary” means the use or facility may continue until the date of wilderness designation, at which time the use must cease and/or the facility must be removed. “Surface disturbance” is any new disruption of the soil or vegetation, including vegetation trampling, which would necessitate reclamation.
- When the use, activity, or facility is terminated, the wilderness values must not have been degraded so far as to significantly constrain Congress’ prerogative regarding the area’s suitability for preservation as wilderness. The wilderness values to be considered are those described in Section 2 (c) of the Wilderness Act of 1964.

### **Range Improvements**

Range improvement projects in wild horse management areas shall be designed to incorporate features for the management of free-roaming wild horses. This includes the construction of fences in wild horse areas that are visible to the animals, and ensuing water and forage is available to meet their habitat requirements.

**Appendix D**

**Critical Elements of the Human Environment and Other  
Resources Considered for Analysis**

**Critical Elements of the Human Environment and Rationale for Detailed Analysis**

<b>Critical Element</b>	<b>No Effect</b>	<b>May Affect</b>	<b>Not Present</b>	<b>Rationale</b>
Air Quality	X			Establishment of AMLs should not affect air quality
Areas of Critical Environmental Concern (ACEC)	X			ACECs that are closed to wild horse access would remain closed and not affect ACECs where wild horses are permitted.
Cultural Resources	X			Establishment of AMLs should not affect cultural resources.
Environmental Justice	X			No minority or low income groups would be affected by disproportionately high and adverse health or environmental effects because this action only involves the establishment of AMLs.
Farm Lands (prime or unique)			X	No prime or unique Farm Lands occur in the Project Area.
Flood Plains	X			Establishment of AMLS should not affect floodplains.
Native American Religious Concerns	X			BLM will conduct consultation with Native American tribes to determine if Native American Religious Concerns exist for the HMAs.
Non-native, Invasive Species		X		Ground disturbing and plant community changes create opportunities for non-native invasive species to establish.
Threatened and Endangered Species		X		Issue identified during public scoping.
Wastes (hazardous or solid)			X	No wastes (hazardous or solid) would be used or generated by the Alternatives.
Water Quality (drinking/ground)		X		Wild horses use springs and creeks for watering.
Wetlands/Riparian		X		Wild horses use wetland/riparian areas.
Wild and Scenic Rivers	X			Establishing AMLs is not anticipated to impact Wild and Scenic Rivers.
Wilderness	X			Establishing AMLs is not anticipated to impact Wilderness or Wilderness Study Areas.

**Other Resources and Issues, and Rationale for Detailed Analysis**

<b>Resource or Issue</b>	<b>No Effect</b>	<b>May Affect</b>	<b>Not Present</b>	<b>Rationale</b>
Lands	X			No change in land use, access, or status would occur with the establishment of AMLs.
Soils	X			Establishment of AMLs is not anticipated to impact soils.
Geology/ Minerals	X			No impact anticipated to subsurface resources.
Paleontological Resources	X			No impact anticipated to subsurface resources.
Vegetation		X		Vegetation provides forage and cover for wild horses.
Livestock Grazing/ Range		X		Forage allocation affects livestock.
Wildlife		X		Forage allocation affects wildlife.
Wild Horses and Burros		X		This is the focus of the alternatives.
Recreation		X		Wild horse viewing is a recreational pursuit.
Visual Resource Management	X			No changes to the landscape are anticipated as a result of the alternatives.
Sensitive Species		X		Sensitive species may be present at springs and creeks.
Forestry	X			Establishing AMLs is not anticipated to impact forest resources.
Socioeconomics	X			The Alternatives do not create or remove economic opportunities or impact the infrastructure of the local communities.