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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 July 1, 2003

HMA Number	HMA Name	Total Acres	Appropriate Management Level[1]	Censused Population		Wild Horses Gathered Since Last Census		July 1, 2003 Population Estimate[2]
				Number	Date	Number	Date	
401	Antelope	400,335	324	351	5/02	---	---	473[3]
402	Monte Cristo	228,940	236	836	5/01	586	12/02	623[3]
403	Buck and Bald	627,030	423	331	5/02	---	---	460[3]
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[4]	5/02	---	---	0
407	Butte	436,500	95	76	5/02	---	---	103[3]
408	Jakes Wash	153,203	6[7]	75	6/03	---	---	75
409	White River	98,534	90	286[5]	6/03	---	---	286
410	Dry Lake	494,335	94	383	6/03	---	---	383
411	Seaman	361,318	159	63	5/02	---	---	83[3]
412	Diamond Hills South	10,500	22	121	3/01	---	---	209
413	Moriah	53,878	0[7]	251[6]	6/03	---	---	251[6]
513	Meadow Valley Mountains	94,966	0	18	3/01	37	8/02	0
514	Blue Nose Peak	84,442	0[7]	0	3/01	---	---	0
515	Delamar Mountains	185,815	---	67	3/01	---	---	115
516	Clover Mountains	172,125	---	26	3/01	25	7/02	14

HMA Number	HMA Name	Total Acres	Appropriate Management Level[1]	Censused Population		Wild Horses Gathered Since Last Census		July 1, 2003 Population Estimate[2]
				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
	Ely District Subtotal	5,050,974	1,896	---	---	---	---	4,135

[1]Established AMLs were set in FMUDs as issued for allotments within the HMA.
[2]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.
[3]If any census occurred at mid-foaling season, counted foals were doubled to estimate the end of the foaling season population.
[4]Censused wild horses were known to be from the Elko District and were returned.
[5]Census includes 200 wild horses that summer off the HMA.
[6]Includes 75 wild horses outside of the HMA in Utah and 44 wild horses outside of the HMA in Nevada.
[7]AML has been established on a portion of the HMA.

Appendix B

Descriptions of HMAs and Establishment of AMLs

HERD MANAGEMENT AREA DESCRIPTIONS AND

APPROPRIATE MANAGEMENT LEVEL EVALUATION

1. INTRODUCTION

The following section includes a description of each wild horse herd management area (HMA) being considered in the Environmental Assessment. Existing monitoring data, horse census data, emergency horse gather data, and input from the BLM wildlife, range management, and wild horse specialists were used to determine if each HMA had the four habitat components in sufficient quantity to maintain a healthy, self-sustaining population of wild horses.

2. HMA DESCRIPTIONS AND AML EVALUATION

2.1 ALTERNATIVE 1 – INDIVIDUAL HMAS, TIERED ANALYSIS

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, forage, water, cover, and space, within the HMA boundary. 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 forage resources were not sufficient to support wild horses. The nature of the forage was also considered. Much of the herbaceous forage is unpredictable with respect to availability and quantity. 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 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 year-long 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.

The second tier was to establish AML based on monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and use pattern 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 uses 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, and the need for past emergency wild horse gathers. The need for emergency wild horse gathers indicated that wild horse numbers at the time of gather were too high for the capacity of the HMA. 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 breeding-age horses considered necessary to maintain a viable population (i.e., 50 breeding-age horses). To allow BLM the flexibility to gather up to periodically gather wild horses when the population reaches or exceeds the upper level, and still leave 50 breeding-age wild horses, the AML must be at least 85. This allows for foals and yearlings to be part of the population. Therefore, the minimum number of wild horses considered as a viable population would be 85. 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.

2.1.1 Jakes Wash HMA

The Jakes Wash HMA is located in southwestern White Pine County, Nevada approximately 15 miles west of Ely, Nevada. The HMA is approximately 153,000 acres that includes Jakes Valley and the hills east of Jakes Valley. Elevations range from 6,000 feet in Jakes Valley to 7,800 feet in the mountains southeast of Ruth, Nevada. Precipitation ranges from approximately six inches in the valley to 12 inches in the mountains. There are four allotments within the HMA[4], Tom Plain Allotment (34,945 acres), Badger Spring Allotment (30,378 acres), Giroux Wash Allotment (36,251 acres), and Indian Jake Allotment (48,812 acres). In addition, the Jakes Unit Sheep Trail Allotment runs north/south through the east portion of Indian Jake Allotment and through the Jakes Wash portion of the Giroux Wash Allotment. Vegetation consists of salt-desert shrub and winterfat plant communities at the lower elevations and sagebrush-perennial grass, and pinyon-juniper plant communities on the benches and higher elevation sites. Temperatures range from greater than 90 degrees in the summer to below zero in the winter. Livestock grazing includes sheep and cattle. Most of the wild horse use occurs in the Indian Jake Allotment, primarily the east portion near Walt's Well and Railroad Crossing Dam, and the southern portion of the HMA near Deadman Well.

[4] Some allotments may be wholly within the HMA and only portions of some allotments may be within the HMA. The approximate acreages indicate how much of each allotment is within the HMA. This convention is continued throughout the document.

First Tier Evaluation

Public, perennial water sources are limited on the allotment. There are only four public water sources within the HMA, and the high elevation areas lack water. Lack of water during summers of 1998 and 2001 resulted in the emergency gather of 60 and 98 wild horses, respectively.

The HMA lacks sufficient summer range, as the wild horses move off the HMA to USFS-administered lands. Wild horses were documented on USFS-administered lands during censuses in 1990, 1997, 1998, 2000, and 2003. Limited forage availability was also cited as one reason for the emergency gather in 1998. Badger Hole Spring, Blackjack Spring, and a small portion of White River are the only riparian areas within Giroux Wash, Indian Jake, and Tom Plain allotments, respectively. Heavy and severe forage utilization occurs in each of the three allotments. The severe winter of 1992-93 resulted in winter kill of wild horses due to lack of cover and available forage. In addition, 19 wild horses were found dead due to dehydration in 1998 prior to the emergency gather. Two emergency gathers have been conducted within this HMA, 60 horses in 1998 and 98 horses in 2001. Both were summer gathers during drought periods when forage and waters were lacking.

The lack of public, perennial water sources, lack of sufficient summer range, severe use of native range by wild horses and livestock, and shortage of available cover and forage during hard winters indicate that the management objectives, standards for rangeland health, and compliance with the law cannot be achieved within this HMA.

Therefore, the recommendation for Jakes Wash HMA is an AML of zero.

2.1.2 Moriah HMA

Moriah HMA is located in the northeastern corner of White Pine County adjacent to the Nevada-Utah state border. The topography consists of hills to steep rocky slopes. Elevation ranges from approximately 6,000 feet to 9,000 feet and steepness restricts grazing in much of the HMA. Moriah HMA is approximately 54,000 acres and made up of five allotments including, Indian George (33,673 acres), Pleasant Valley (4,714 acres), Mill Spring (6,187 acres), Mallory Springs (7,523 acres), and Tippet (1,781 acres). Vegetation in the uplands consists of crested wheatgrass, salt desert shrub, pinyon-juniper, big sagebrush-bitterbrush, black sagebrush, aspen and white fir, and riparian vegetation types. Sections of the HMA have been seeded and chained. Livestock grazing includes cattle and sheep.

First Tier Evaluation

Several public, perennial water sources are found in the Moriah HMA, with 20 water sources identified by the BLM (developed and undeveloped springs). Horse movement out of the Moriah HMA into non-HMA lands in Nevada for summer use and non-HMA lands in Utah for winter use, demonstrates that the HMA is unsuitable year-long habitat because it lacks adequate space, forage, and cover resources. This HMA lacks winter range forcing movement into Utah. Census data shows that horses travel to non-HMA areas in Nevada and Utah. Additionally, use pattern mapping in the late 1980s, 1990s, and early 2000s

indicates that the appropriate utilization levels (AULs) were exceeded for key forage species in pastures and riparian areas.

The lack of adequate space, cover and forage, severe use of riparian areas by wild horses, and the need for wild horses to move into parts of Utah, demonstrate that the Moriah HMA is unsuitable year-long habitat for wild horses.

In order to meet management objectives and comply with the law, the recommended AML for the Moriah HMA is zero.

2.1.3 Blue Nose Peak HMA

Blue Nose Peak HMA is located in south-central Lincoln County, Nevada approximately 25 miles south of Caliente, NV. This HMA is approximately 84,500 acres in size and is bordered on the west by the Meadow Valley Mountains and on the east by the Tule Desert. The HMA includes portions of three allotments including Garden Spring (31,874 acres), White Rock (15,864 acres) and the Henrie Complex (36,704 acres). Summer climate in the area is quite harsh, with temperatures well over 110 degrees F. Vegetation communities include southern desert shrub (i.e., creosote, shadscale, Joshua tree, three-awn, and bursage) northern desert shrub (i.e., blackbrush, Mormon tea, rabbitbrush, bursage, three awn, and Indian ricegrass), and annual vegetation (i.e., red brome, filaree, and Indian wheat). Rainfall averages only four to six inches per year, divided almost equally between summer and winter. Summer rains are localized, short and very intense while winter/spring rains are gentler and over a wider area. Permanent water sources consist of several small springs, as well as pipelines and troughs developed for livestock watering. The animals sometimes have to travel several miles from forage to water and back during the drier part of the year. Elevations range from 3,000 feet in the valley to 6,300 feet at the southern end of the Clover Mountains, where the topography is steep. Permitted livestock use includes cattle.

First Tier Evaluation

There are only three known natural, public waters within the HMA. Previous evaluations of the White Rock, Garden Spring, and Henrie Complex allotments have identified issues with the habitat suitability for wild horses. The evaluation of the Henrie Complex determined that this portion of the HMA was unsuitable for wild horses because year-long grazing in the Mojave Desert was deemed inappropriate due to the extreme summer temperatures and limited water availability. In addition, the variability of seasonal precipitation causes wide variation in the availability and annual production of herbaceous forage. The lack of resources for wild horses resulted in an emergency gather in 2000 to remove four wild horses. Incidental use of the Blue Nose Peak HMA by horses from the Clover Mountains HMA is known to occur and there does not appear to be an established herd within the Blue Nose HMA. An allotment boundary fence separates a portion of the two HMAs, which limits movement.

Therefore, the recommendation for Blue Nose Peak HMA is an AML of zero.

2.1.4 Delamar Mountains HMA

The Delamar Mountains HMA is located in south-central Lincoln County, Nevada approximately eight miles southwest of Caliente, NV. This HMA is approximately 186,000 acres in size and covers over 75 percent of the Delamar Mountains, for which the HMA is named. Allotments in the Delamar Mountains HMA include Oak Springs (93,311 acres), Delamar (65,332 acres), Lower Riggs (19,214 acres), and Rainbow (7,958 acres). Elevations range from 2,200 feet in the valley to over 8,000 feet at Chokecherry Mountain. Vegetation communities in the HMA include crested wheatgrass seedings, northern desert shrub, southern desert shrub, pinyon-juniper, riparian vegetation, and ponderosa pine (in the canyons). Portions of the HMA have been burned by large wildfires and have converted to grass communities. At the southern end of the HMA rainfall ranges from six to eight inches per year; the upper elevations receive ten or more inches annually. Summer rains are localized, short and very intense while winter/spring rains are gentler and over a wider area. Livestock use includes cattle.

First Tier Evaluation

Permanent water sources consist of approximately 30 small springs found in the canyons of the Delamar Mountains as well as water troughs installed for livestock grazing where springs have been fenced to protect the spring source. All seasonal habitats are available within the HMA. However, two emergency gathers have been conducted within this HMA. In 1996, 61 wild horses were removed in late summer during a drought and 92 wild horses were removed in 2000 in late summer.

Therefore, AML should be further considered for the Delamar Mountains HMA.

Second Tier Evaluation

Utilization in the majority of the Delamar Mountains HMA is slight to moderate. Heavy to severe use occurs near water sources and associated riparian vegetation, but the acreage associated with these high utilization levels is less than ten percent of the HMA and is distributed throughout the HMA. Monitoring data indicates an improvement in achieving allotment objectives since the early 1980s, indicating that the adjustments made in livestock numbers and grazing management have reduced the level of utilization within the HMA.

Due to the adequate supply of water as well as adequate space, cover and forage, the Delamar HMA is suitable as horse habitat. Resource issues are limited to over utilization near water sources and the unsuitability of certain plant communities, such as winterfat, for year-long use. This utilization pattern continues, even after the adjustment in livestock grazing. The two emergency gathers indicate that during drought, the HMA cannot support high numbers of wild horses. Therefore, the AML should be less than the approximately 200 wild horses that were stressed during 2000 and required removal of 92 wild horses. The current data for the HMA indicates that the estimated 115 wild horses within the HMA are still too high with respect to riparian habitat issues. Therefore, a population level of 85 wild horses (i.e., less than 115) is the recommended AML to be considered as the AML for the third tier evaluation.

Third Tier Evaluation

The AML of 85 meets the minimum viable population recommendation. Monitoring of the riparian areas should be used to determine if AULs can be achieved with this AML

The proposed AML for the Delamar Mountains HMA is 85 wild horses.

2.1.5 Clover Mountains HMA

The Clover Mountains HMA is located in south-central Lincoln County, Nevada starting approximately seven miles southeast of Caliente, NV. This HMA is approximately 172,000 acres in size and covers over 75 percent of the Clover Mountains, for which it is named. Allotments included in this HMA are Sandhills (12,288 acres), Pennsylvania (30,164 acres), Cottonwood (62,221 acres) and Sheep Flat (67,452 acres). The Clover Mountains HMA ranges from 5,100 to 7,600 feet in elevation with steep, hilly terrain. Dominant vegetation in this HMA includes pinyon-juniper, sagebrush-grass, and blackbrush. In some locations, such as the Cottonwood and Sheep Flat allotments, ponderosa pines and cottonwoods are found in canyons and high elevations. Several chainings were conducted in the allotments and sections of some of the allotments were seeded in the early 1950's with crested wheatgrass. Additionally, wildland fire scars create a mosaic on the uplands, particularly in the Cottonwood allotment, and provide upland forage for livestock and horses. However, these areas are converting back to shrub and woodlands. A portion of the Meadow Valley Wash riparian area is also present within the HMA. Rainfall averages only eight to 14 inches per year, divided almost equally between summer and winter.

First Tier Evaluation

Permanent water sources consist of many small springs found in the canyons of the Clover Mountains and Clover Creek (a viable trout stream). Water troughs installed for livestock grazing provide water during portions of spring, summer, and fall. BLM has identified 39 developed and undeveloped springs within the HMA. Livestock grazing includes cattle. Incidental use of the Blue Nose Peak HMA by horses from the Clover Mountains HMA is known to occur. There is movement between the Clover Mountains HMA and the Clover Creek HMA, due to water and forage availability along the border of the HMAs. One emergency gather was conducted in 1996 due to drought, and two emergency gathers were conducted in 2000, followed by an emergency gather conducted in 2002 for wild horses from this HMA that were in non-HMA areas. Since 1996, 94 wild horses have been removed from this HMA.

The Clover Mountains HMA has sufficient habitat components to sustain wild horses on a year-long basis; however, some wild horses do move off the HMA to adjacent HMAs. Therefore, the AML should be further considered for the Clover Mountains HMA.

Second Tier Evaluation

Monitoring data indicates that utilization levels have been heavy to severe when wild horse populations have been high. Rather than isolated areas of heavy use associated with water, areas of heavy use also occurred within seedings and burned areas. In 2002 when the population was estimated to be 37 head, the

EFO had to conduct an emergency gather due to poor horse conditions resulting from lack of forage. Twenty-five horses were removed leaving 12 horses within the HMA in July 2002. At the same time livestock use was voluntarily reduced by the permittees. During 2003 the remaining horses appeared to be in good condition. Based on the current horse condition, an estimated population of 14 wild horses appears to be within the capacity of the habitat. Therefore, an AML of less than 37 wild horses and more than 14 wild horses should be considered as the AML for the third tier evaluation.

Third Tier Evaluation

The 2002 population of 37 was too high to maintain wild horses in good condition and an emergency gather had to be conducted. The recommended AML of 26 horses (which is the mid-point between 14 and 37) does not meet the minimum viable population recommendation of 85 wild horses.

Therefore, the Clover Mountains HMA should be managed for an AML of zero.

2.1.6 Clover Creek HMA

The Clover Creek HMA is located in south-central Lincoln County, Nevada immediately southeast of Caliente, NV. This HMA is approximately 33,200 acres in size, covering the northern foothills of the Clover Mountain. Allotments in the HMA include Clover Creek (15,842 acres), Sawmill Canyon (9,083 acres), a portion of Oak Springs (1,732 acres) and Mustang Flat (6,563 acres). Elevations range from 4,500 feet in the valley to 6,000 feet in the foothills. Vegetation in the HMA includes crested wheatgrass seedings, pinyon-juniper woodland, and sagebrush, with riparian areas such as Clover Creek. Clover Creek provides habitat for trout and other endemic fish species, including two Candidate species. Ponderosa pine, gambel oak, and aspen occur in small patches throughout the higher elevation canyons. Chainings and prescribed burns have been used to increase production of crested wheatgrass and native species. The Clover Creek Allotment contains the main watering sources for wild horses. Only one primary and reliable source of forage the Head Chaining and Prescribed Burn exists partially within the HMA and movement of the population occurs between Clover Creek HMA and Clover Mountains HMA. Foraging occurs primarily in Clover Creek HMA and watering occurs primarily in Clover Mountains HMA Permanent water sources consist of several small springs found in the canyons of the Clover Mountains, Clover Creek (a viable trout stream), as well as water troughs installed for livestock grazing. Livestock use includes cattle; however, over the past 20 years, Sawmill, Mustang Flat, and Clover Creek allotments have either had periods of non-use by livestock or were grazed below preference for extended periods. Some unauthorized use from adjacent allotments has occurred on the Clover Creek HMA.

First Tier Evaluation

There are several perennial waters sources within Ash Canyon, at Clover Creek, along Meadow Valley Wash, and at a small spring in Kershaw Canyon. Six developed and undeveloped springs have been identified in the HMA by the BLM. Individual bands move between the Clover Mountains HMA to feed and Clover Creek HMA to water. There is one primary source of upland forage, the Head Chaining, within the HMA. The Clover Creek and Mustang Flat allotments are the main foraging and watering areas

in the HMA. The Clover Creek HMA provides adequate habitat for wild horses. However, at least a portion of the forage used by these wild horses is obtained from the Clover Mountains HMA. Water sources and cover are suitable to meet the needs for a wild horse population. Only one gather has been conducted within the HMA, the purpose of which was to remove three problem horses.

Therefore, AML should be further considered for the Clover Creek HMA.

Second Tier Evaluation

The allotment monitoring data indicates wild horse use of the forage was light to moderate within the Mustang Flat Allotment, but heavy to severe use occurred within the riparian corridors of the Clover Creek Allotment. The majority of the vegetation within the HMA is pinyon-juniper mixed with sagebrush. The pinyon-juniper woodland does not provide abundant herbaceous vegetation, which results in increased use of the riparian areas. The Head Chaining and Prescribed Burn area on the Mustang Flat allotment has increased the amount of upland herbaceous forage and has been moderately used by wild horses. Based on moderate to light use of the HMA, the current estimated population of 24 wild horses meets upland allowable use levels.

Third Tier Evaluation

The current estimated population of 24 wild horses does not meet the minimum recommendation of 50 breeding-age animals, or total population of 85 wild horses for an HMA.

Therefore, the Clover Creek HMA should be managed for an AML of zero.

2.1.7 Applewhite HMA

The Applewhite HMA is located in south-central Lincoln County, Nevada approximately five miles southwest of Caliente, NV. This HMA is approximately 30,500 acres in size and includes the foothills of the Delamar Mountains as well as Applewhite Canyon, for which the HMA is named. Applewhite allotment is the only allotment within the HMA. Elevations range from 4,900 feet in the valley to 7,700 feet in the mountains. Vegetation consists of primarily pinyon-juniper woodlands and riparian areas. The riparian areas are the main source of forage for horses, and include cottonwoods, willows, and grass species. Livestock use is cattle.

First Tier Evaluation

Permanent water sources consist of small springs found in the canyons of the Delamar Mountains as well as water troughs installed for livestock grazing. BLM has identified 15 developed and undeveloped springs within the HMA.

The HMA is closed in by a fence, which with proper maintenance would preclude wild horses from interacting with herds from the Delamar Mountains HMA. In the long-term, this situation would be unsuitable to maintain genetic viability. Dense tree cover minimizes herbaceous forage and additionally,

the majority of forage available for horses is located in the riparian corridors that are not in proper functioning condition.

Due to lack of resources available for wild horses in the Applewhite HMA, the recommendation for Applewhite HMA is an AML of zero.

2.1.8 Little Mountain HMA

The Little Mountain HMA is located in south-central Lincoln County, Nevada immediately east of Caliente, NV. This HMA is roughly 53,000 acres in size and covers an area known locally as the Little Mountain range, for which it is named. Allotments within this HMA include Roadside (952 acres in the HMA), White Hills (2,369 acres), Panaca Cattle (15,868 acres), Buckboard (10,687 acres), Little Mountain (18,367 acres), and Peck (4,888 acres). Elevation in the HMA ranges from 4,200 feet in the valleys to approximately 6,800 feet at Empy Mountain. Vegetation communities in the HMA include northern desert shrub, with galleta grass, cheatgrass, Indian ricegrass, budsage, prickly pear, Douglas rabbitbrush, sand dropseed, and bottlebrush squirreltail common. Climate in the area is quite harsh, with summer temperature well over 100 degrees F. The animals sometimes have to travel several miles from forage to water and back during the drier part of the year.

First Tier Evaluation

The resident horses within the Little Mountain HMA have to travel to the Miller Flat HMA as there are only two very small springs within its borders. Horses move to Miller Flat HMA during the warmer months to use available water resources. In addition, wild horses move to the non-HMA portion of the Crossroads Allotment to use the crested wheatgrass seeding. A total of 37 wild horses have been removed in two emergency gathers since 1996. Suitable year-long habitat for wild horses is not available on the Little Mountain HMA; inadequate space and water exist.

Due to lack of resources available for wild horses in the Little Mountain HMA, the recommendation for the Little Mountain HMA is an AML of zero.

2.1.9 Miller Flat HMA

The Miller Flat HMA is located in south-central Lincoln County, Nevada approximately six miles east and northeast of Caliente, NV. This HMA is approximately 91,000 acres in size and covers an area known locally as Miller Wash. Elevations range from approximately 4,750 feet along Clover Creek to 7,340 at Mosey Mountain. Precipitation varies from four to eight inches at the lower elevations in the southern and western portions of the HMA, to eight to 16 inches in the higher elevations. Vegetation varies from pinyon-juniper woodlands with little to no vegetation under dense tree canopies to increasing amounts of various shrubs and/or grasses under less dense canopies and in areas where pinyon-juniper has not yet encroached. Permanent water sources consist of several small springs found on both private and public lands. Livestock use on all allotments within the HMA consists of cattle; however, the Rabbit Springs Allotment has the option to graze cattle and/or sheep. Currently, wild horses are the primary forage

consumers, because of voluntary non-use by livestock operators. AML for this HMA was previously set at 30 through a Final Multiple Use Decision dated June 6, 2000. This AML is being re-evaluated through this analysis.

This HMA can be divided into four principal use areas for horses. The largest of these is the Rabbit Spring/Sheep Spring use area, which is located in the northern half of the Miller Flat HMA. This use area is the main foraging and watering area for over 60 percent of the wild horses within the HMA. This use area is used heavily during the spring through fall period, but year-long use does occur with a few resident bands. The wild horses from this area generally move to the Little Mountain HMA during the late fall and winter due to snow cover. Several perennial water sources exist here, which provide water for this HMA as well as the Little Mountain HMA that is located west of and contiguous to the Miller Flat HMA. Rabbit Spring is a very reliable year-round water source, produces the largest volume of water per minute and is located on private land. The spring maintains a large pond that is routinely full. Miller Spring, Sheep Spring and Oak Well Spring are also reliable water sources, but are located on private lands.

The Oak Wells use area is second in size in both acreage and population. This area is primarily the Oak Wells Allotment, but also includes the Crossroads Allotment, which is non-HMA. Use in this area occurs yearlong. The wild horses water along the Oak Well Spring pipeline or on private property at the spring source. A portion of the wild horses from this area make considerable amounts of use within the Crossroads Allotment's crested wheatgrass seedings. This movement has been a perpetual problem over the years.

The third largest use area is associated with the Sheep Flat and Clover Creek Allotments along Clover Creek in the southern portion of the HMA. The wild horses use in this area is yearlong and some of the wild horses also make use within the southwest portions of the Crossroads and Oak Wells Allotments. Clover Creek supplies the majority of the water needs, but several small springs also exist in the area. The wild horses are making excessive use on the riparian area associated with Clover Creek on a year-long basis.

The smallest principal use area in size and population is the Uvada Allotment. The majority of the use is made when water is available in the reservoirs within the allotment. Otherwise, when there is no other water available, the wild horses either water elsewhere within the HMA or leave the HMA to water on the Deer Lodge Canyon HMA, which is located to the north of this use area.

First Tier Evaluation

Water use on public lands in this HMA is limited. Of the nine natural springs occurring within the Miller Flat HMA five are located on BLM Lands within two allotments. The four remaining spring sources are located on private lands and this includes Rabbit Spring, which produces the largest volume of year-round reliable water in the HMA. Extensive use is made of Clover Creek and some movement to the Deer Lodge Canyon HMA occurs when water sources within the Miller Flat HMA dry up. This movement involves crossing Highway 319 and public concern has been raised due to vehicle accidents involving wild horses. There is also movement between the HMA and the non-HMA Crossroads Allotment to use

the crested wheatgrass seeding. The most observable movement of wild horses is between the Miller Flat and Little Mountain HMAs. This movement occurs on a daily basis due to the limited water availability within the Little Mountain HMA. The wild horse population existing within the Little Mountain HMA is primarily comprised of the same wild horses that are using the Miller Flat HMA.

Three emergency gathers, totaling 239 wild horses, have been conducted on the Miller Flat HMA as a result of severe drought and lack of forage in 1996, 2002, and 2001. Suitable habitat for wild horses is not available on the Miller Flat HMA; sufficient space and cover do not exist in the Miller Flat HMA.

The recommendation for Miller Flat HMA is an AML of zero.

2.1.10 Deer Lodge Canyon HMA

The Deer Lodge Canyon HMA is located in south-central Lincoln County, Nevada approximately ten miles northeast of Panaca, NV. This HMA is roughly 108,000 acres in size and covers an old mining district known as Deer Lodge, which was located within Deer Lodge Canyon. Allotments in the Deer Lodge Canyon HMA include N4/N5 (13,011 acres), Mahogany Peak (26,973 acres), Deer Lodge (7,327 acres), Condor Canyon (33,914 acres), McGuffy (21,911 acres) and Rabbit Spring (5,024 acres). Elevation ranges from approximately 5,100 feet to approximately 8,700 feet. Vegetation includes sagebrush and pinyon/juniper. Precipitation varies from four to eight inches at the lower elevations to eight to sixteen inches at higher elevations, particularly in the eastern mountainous portions of the HMA.

Permanent water sources consist of springs as well as water troughs installed for livestock grazing. Livestock use consists of cattle. The largest horse use area is located in the western one half of the HMA and is the main foraging and watering area for the majority of wild horses.

First Tier Evaluation

Five natural springs occur within the HMA on public lands. Two of the springs show little evidence of producing above ground water and do not appear to attract either livestock or big game. However one of these two springs is developed and has a pipeline system which services water troughs at lower elevations. The remaining three springs produce water during a normal precipitation year.

One emergency gather has been conducted within this HMA in 2002 and 24 wild horses were removed. Some wild horses travel to the Wilson Creek HMA and to an HMA in Utah to winter.

Due to lack of resources available for wild horses in the Deer Lodge Canyon HMA, the recommendation for Deer Lodge Canyon HMA is an AML of zero.

2.1.11 Highland Peak HMA

The Highland Peak HMA is a 137,000-acre HMA located to the west of the small town of Panaca, NV. The HMA includes six allotments, Ely Springs Sheep (24,177 acres), Pioche (10,695 acres), Highland Peak (37,526 acres), Black Canyon (8,551 acres), Bennett Spring (48,562 acres), and Klondike (7,233

acres). Elevation in the HMA ranges from 5,500 feet in the valleys to 9,400 feet at Highland Peak. The HMA consists of two small mountain ranges (Highland and Chief) and their associated foothills. Vegetation communities include pinyon-juniper woodland, and black sagebrush-perennial grasses at the lower elevations. Antelope bitterbrush and cliffrose are common shrub species where the pinyon-juniper has not completely dominated mountain sites. Higher elevation vegetation includes ponderosa pine-white fir-bluegrass and mountain brush. The animals have to travel several miles from forage to water and back during the drier part of the year. Livestock use consists of cattle and sheep. Sheep are watered using watering trucks and mobile watering troughs.

First Tier Evaluation

Eleven natural springs found within the HMA and two are located on private lands. Bennett Springs is a major spring on private land that provides an abundant water source which services the central portion of the HMA. Of the nine natural springs located on public lands, Floral Springs, has been developed for a municipal water supply and does not produce any above ground water at the spring source. The remaining eight springs are located in the northern portion of the HMA.

Seventy-seven wild horses that had moved off of the HMA were removed in 2002. Wild horses in the northern portion of this HMA move to the Dry Lake HMA for winter, indicating a lack of year-long habitat for the current population.

Due to lack of resources available for wild horses in the Highland Peak HMA, the recommendation for Highland Peak HMA is an AML of zero.

2.1.12 Rattlesnake HMA

The Rattlesnake HMA is approximately 71,000 acres and is located in north-central Lincoln County. The Rattlesnake (34,284 acres) and Oak Springs (36,517 acres) allotments make up the HMA. Elevation in the Rattlesnake HMA ranges from 4,500 feet in the dry lake bed to 6,900 feet in the mountains. Vegetation community consists of northern desert shrub, and the major species are winterfat, Indian ricegrass, fourwing saltbush, sand dropseed, and galleta grass. Drought conditions in 1996 produced forage with below average vigor and caused little growth of key species. Livestock use consists of cattle.

First Tier Evaluation

The HMA has few, but adequate water sources. BLM has identified three developed and undeveloped springs on public lands. The Rattlesnake HMA provides winter habitat, but wild horses move into the Dry Lake HMA for summer habitat.

Due to lack of resources available for wild horses in the Rattlesnake HMA, the recommendation for Rattlesnake Peak HMA is an AML of zero.

2.1.13 Summary of Analysis for Alternative 1

The recommended AML for each HMA based on the preceding analysis is provided in Table1. For AML greater than zero, the AML is expressed as a range. The range of values is to accommodate a four- to five-year gather cycle. The upper value of the range represents the maximum number of wild horses that are within the capacity of the HMA. This range allows BLM to conduct a gather and then allow several years for the population to build up to the upper value of the AML.

Table 1: Alternative 1, Recommended AMLs from Tiered Analysis

Herd Management Area	Recommended Range of AML
Jakes Wash	0
Moriah	0
Blue Nose Peak	0
Delamar Mountains	51 - 85
Clover Mountains	0
Clover Creek	0
Applewhite	0
Little Mountain	0
Miller Flat	0
Deer Lodge Canyon	0
Highland Peak	0
Rattlesnake	0
Total	**51 - 85**

2.2 ALTERNATIVE 2 – MANAGE SOME HMAS AS COMPLEXES, TIERED ANALYSIS

A complex consists of two or more HMAs that are adjacent to each other, where the wild horse population can move freely between HMAs, and where the wild horses can be managed as one population. Only HMAs that are lacking a habitat component that is currently available on an adjacent HMA, and 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.

Under this alternative, a similar tiered analysis was used to establish AML; however, an additional tier was added. The first tier was as described above for Alternative 1. 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 cannot be managed as a part of a complex, then the AML was set to zero.

The third tier was to establish AML based on monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and use pattern 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 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 need for emergency wild horse gathers. The need for emergency wild horse gathers indicated that wild horse numbers at the time of gather were too high for the capacity of the HMA. 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 fourth tier of the process.

The fourth tier under this alternative was to compare the calculated AML with the minimum number of horses considered necessary to maintain a viable population (i.e., 85 wild horses, including 50 breeding-age horses). If the calculated AML was less than the minimum viable population, the AML was set to zero. If the AML exceeded the minimum viable population, the AML was set at the calculated value.

Under this alternative, the following complexes were considered:

- 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.

2.2.1 Jakes Wash HMA

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

The lack of public, perennial water sources, lack of sufficient summer range, severe use of certain riparian areas by wild horses and livestock, and shortage of available cover and forage during severe winters indicate that the management objectives, standards for rangeland health, and compliance with the law cannot be achieved within this HMA.

Second Tier Evaluation

Jakes Wash HMA is an isolated HMA that is not adjacent to any other HMA. In addition, U.S. Highway 50 separates this HMA from the nearest HMA, the Butte HMA. The Jakes Wash HMA cannot be managed in conjunction with any other HMA.

Therefore, the recommendation for Jakes Wash HMA is an AML of zero.

2.2.2 Moriah HMA

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

The lack of adequate cover and forage, severe use of riparian areas by wild horses, and the need for wild horses to move into non-HMA parts of Utah, demonstrate that the Moriah HMA is unsuitable year-long habitat for wild horses.

Second Tier Evaluation

Moriah HMA is an isolated HMA that is not adjacent to any other HMA. The HMA is bordered on all sides by non-HMA designated lands.

Therefore, the recommendation for Moriah HMA is an AML of zero.

2.2.3 Blue Nose Peak HMA

First Tier Evaluation

There are only three known natural, public waters within the HMA. Previous evaluations of the White Rock, Garden Spring, and Henrie Complex allotments have identified issues with the habitat suitability. This HMA is within the Mojave Desert and this habitat was deemed inappropriate wild horse habitat due to the extreme summer temperatures, limited water availability, and the unpredictable and temporary

nature of the herbaceous forage. The lack of resources for wild horses resulted in an emergency gather in 2000 to remove four horses.

Wild horses move incidentally between the Blue Nose Peak HMA and the Clover Mountains HMA. This movement occurs primarily during the summer when the trees, canyons, and water sources in the mountains provide the seasonal habitat needs that cannot be provided within the Blue Nose Peak HMA.

Second Tier Evaluation

The incidental movement of wild horses between the Blue Nose Peak HMA and the Clover Mountains HMA indicate that the combined HMA areas provide all the seasonal requirements for the wild horse population. However, the portion of the Blue Nose Peak HMA where AML has not been set is separated from the Clover Mountains HMA by an allotment boundary fence, and movement between the HMAs is restricted when the fence is properly maintained.

Therefore, the recommendation for the Blue Nose Peak HMA is an AML of zero.

2.2.4 Delamar Mountains HMA

The evaluation for this HMA is the same under this alternative as under Alternative 1. The recommended AML is 85 wild horses to be managed as an individual HMA.

2.2.5 Clover Mountains/Clover Creek HMA Complex

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

Second Tier Evaluation

The Clover Mountains HMA is centrally located south of and adjacent to the Clover Creek HMA. The mountains within this HMA provide summer habitat for wild horses from the Clover Creek HMA, and in turn, wild horses from the Clover Mountains HMA use portions of the Clover Creek HMAs for fall and winter use. There is unrestricted movement between the two HMAs. Therefore, consideration should be given to managing the two HMAs as a complex. Managing the Clover Creek HMA with the Clover Mountains HMA would ensure that seasonally required resources are available to wild horses in both HMAs.

Third Tier Evaluation

Monitoring data indicates that utilization levels have been heavy to severe when wild horse populations have been high. Rather than isolated areas of heavy use associated with water, areas of heavy use also occurred within seedings and burned areas. In 2002 when the population was estimated to be 37 head, the EFO had to conduct an emergency gather due to poor horse conditions resulting from lack of forage. Twenty-five horses were removed leaving 12 horses within the HMA in July 2002. At the same time

livestock use was voluntarily reduced by the permittees. During 2003, the remaining horses appeared to be in good condition. Based on the current horse condition, an estimated population of 14 wild horses appears to be within the capacity of the habitat. Therefore, an AML of between 14 and 37 wild horses should be considered as the AML for the fourth tier evaluation.

The AML recommended for this HMA is 26 (the midway point between 14 and 37). If managed as a complex, with the Clover Creek HMA, the total recommended AML is 50 wild horses (Clover Mountains HMA AML of 26 and Clover Creek HMA AML of 24; see below).

The allotment monitoring data indicates that overall wild horse use of the forage was slight to light within the Mustang Flat Allotment, but heavy to severe use has occurred within the riparian corridors of the Clover Creek Allotment. The majority of the vegetation within the HMA is pinyon-juniper mixed with sagebrush. The pinyon-juniper woodland does not provide abundant herbaceous vegetation, which results in increased use of the riparian. The Head Chaining and Prescribed Burn area on the Mustang Flat allotment has increased the amount of upland herbaceous forage and has been moderately used by wild horses. When combined with the Clover Mountains HMA, the recommended AML for this HMA is 24 wild horses.

Fourth Tier Evaluation

The recommended AML of 50 wild horses for the Clover Mountain/Clover Creek HMA Complex would not achieve the minimum viable population recommendation of 85 wild horses.

The recommended AML for the Clover Mountains/Clover Creek HMA Complex is zero AML.

2.2.6 Applewhite HMA

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

Second Tier Evaluation

The existing fence between the Applewhite HMA and the Delamar Mountains HMA, when properly maintained, precludes the access of wild horses to move from the Applewhite HMA to the Delamar Mountains HMA for water during drought periods and would preclude the maintenance genetic viability in the long-term. Therefore, this HMA cannot be managed as part of a complex.

Due to lack of resources available for wild horses in the Applewhite HMA, the recommendation for Applewhite HMA is an AML of zero.

2.2.7 Little Mountain /Miller Flat HMA Complex

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

Second Tier Evaluation

The wild horse population existing within the Little Mountain HMA is comprised of the same horses that are using the Miller Flat HMA. The movement between the HMAs occurs on a daily basis due to the limited water availability within the Little Mountain HMA. The wild horses have home ranges that overlap both HMAs. A noticeable movement also occurs during the late fall and early winter when accumulating snowfall at higher elevations forces the horses in the Miller Flat HMA to move to the open sagebrush associated with the Little Mountain HMA. The movement reverses in the early summer when the wild horses move up in elevation to take advantage of the available water and shade from trees on the Miller Flat HMA. Suitable habitat for horses is available if the Miller Flat HMA and the Little Mountain HMA are combined. The unimpeded movement between HMAs allows for these two HMAs to be managed as a complex.

Third Tier Evaluation

Allotment objectives and rangeland health standards were not being achieved on the allotments within the Miller Flat HMA, despite the non-use by livestock since 1984 on the Rabbit Spring Allotment and since 1974 on the Sheep Spring Allotment. Therefore, the non-achievement of objectives and standards was attributed to wild horses. An emergency gather in 1996 removed 99 wild horses from this HMA and only slight use of the majority of both allotments was observed during the 1997. Since 1997, an additional 140 wild horses have been removed from this HMA. The estimated population in 2000 of 144 wild horses required an emergency gather to remove 90 wild horses. The removal of 50 wild horses in 2002 included approximately 25 wild horses that moved from the Miller Flat HMA to non-HMA areas. Based on the monitoring data and the limited water on this HMA, the existing AML of 30 wild horses, set through a Final Multiple Use Decision dated June 6, 2000, is an appropriate population. When the Miller Flat HMA and Little Mountain HMA are managed as a complex, the combined population for the complex would be 30 wild horses because the same horses use both HMAs.

Fourth Tier Evaluation

The recommended AML of 30 wild horses for the Little Mountain/Miller Flat HMA Complex would not achieve the minimum viable population recommendation of 85 wild horses.

The recommended AML for the Little Mountain/Miller Flat HMA Complex is zero wild horses.

2.2.8 Deer Lodge Canyon HMA

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

Second Tier Evaluation

Horses in the Deer Lodge Canyon HMA travel to the Wilson Creek HMA and to an HMA in Utah to winter. The movement of wild horses between the HMAs provides for the seasonal requirements of the

wild horses and also provides an opportunity for genetic exchange. The recommendation is to manage the Deer Lodge Canyon HMA as a complex with the Wilson Creek HMA.

Third Tier Evaluation

The allotment evaluations for the Deer Lodge, Mahogany Peak, Condor Canyon, McGuffy Spring, Rabbit Spring, and N4/N5 allotments indicate that the allotment objectives and standards for rangeland health are generally being met. The recommended AML from these evaluations is 50 wild horses for the Deer Lodge Canyon HMA. When the Deer Lodge Canyon HMA and the Wilson Creek HMA are managed as a complex, the total AML would be 210 wild horses.

Fourth Tier Evaluation

The recommended AML of 210 wild horses for the Deer Lodge Canyon/Wilson Creek HMA Complex exceeds the minimum viable population recommendation of 85 wild horses.

The recommended AML for the Deer Lodge Canyon/Wilson Creek HMA Complex is 210 wild horses, with the AML for each HMA as follows:

- *Deer Lodge Canyon HMA – AML of 50; and*
- *Wilson Creek HMA – AML of 160 (previously established).*

2.2.9 Highland Peak/Rattlesnake/Dry Lake HMA Complex

First Tier Evaluation

See above under Alternative 1 Tiered Analysis for details.

Second Tier Evaluation

Wild horses from the northern portion of Highland Peak HMA move to the Dry Lake HMA for winter. Movement is unimpeded, and these two HMAs can be managed as a complex.

Incidental use of the Rattlesnake HMA by wild horses from the Dry Lake HMA occurs on a seasonal basis. Wild horses summer within the Dry Lake HMA and incidental winter use by these wild horses occurs on the Rattlesnake HMA. Seasonal use of the Rattlesnake HMA is due to lack of summer habitat. Movement is unimpeded, and these two HMAs can be managed as a complex.

Third Tier Evaluation

Use pattern mapping and utilization studies for the allotments in the Highland Peak HMA indicate that the allotment objectives and standards for rangeland health are being achieved. Some areas of heavy to severe use have occurred. The use pattern observed is expected due to the drought conditions. This HMA has limited water sources and the AML for wild horses should be established relative to the available water. Two emergency gathers in 1999 and 2002 had to be conducted to remove problem animals that moved from the HMA to non-HMA areas, indicating that the water/forage base is not sufficient to

maintain this population level. Use is currently concentrated in the northern third of the Highland Peak HMA due to the location of water sources. Therefore, due to documented heavy to severe use at some locations and the movement of wild horses to areas outside the HMA, the recommended AML for this HMA is 50 percent of the current population, or 33 wild horses.

Use pattern mapping and utilization studies for the allotments in the Rattlesnake HMA indicate that the allotment objectives and standards for rangeland health are being achieved. This HMA has limited water sources and the AML for wild horses should be established relative to the available water. Currently, the estimated wild horse population is zero. The recommended AML for this HMA is one, to accommodate incidental use by horses from the Dry Lake HMA.

Fourth Tier Evaluation

The recommended AML of 128 wild horses for the Highland Peak/Rattlesnake/Dry Lake HMA Complex would achieve the minimum viable population recommendation of 85 wild horses.

The recommended AML for the Highland Peak/Rattlesnake/Dry Lake HMA Complex is 128 wild horses, with the AML for each HMA as follows:

- *Highland Peak HMA – AML of 33;*
- *Rattlesnake HMA – AML of 1; and*
- *Dry Lake HMA – AML of 94 (previously established).*

2.2.10 Summary of Analysis for Alternative 2

The recommended AML for each HMA based on the preceding analysis is provided in Table 2. For AML greater than zero, the AML is expressed as a range. The range of values is to accommodate a four- to five-year gather cycle. The upper value of the range represents the maximum number of wild horses that are within the capacity of the HMA. This range allows BLM to conduct a gather and then allow several years for the population to build up to the upper value of the AML.

Table 2: Alternative 2, Recommended AMLs from Tiered Analysis

Herd Management Area	Recommended Range of AML
Jakes Wash	n/a
Moriah	n/a
Blue Nose Peak	n/a
Delamar Mountains	51 - 85[1]
Clover Mountains	0[2]
Clover Creek	0[2]
Applewhite	n/a
Little Mountain	0[2]
Miller Flat	0[2]
Deer Lodge Canyon	30 - 50[3]
Highland Peak	20 - 34[4]
Rattlesnake	
Total	**101 – 169**

[1]The Delamar Mountains HMA would be managed as an independent HMA and not in complex with any other HMA.

[2]The combined AML did not meet the minimum viable population size of 85 wild horses; therefore, AML for the individual HMAs is zero.

[3]Deer Lodge Canyon HMA, with AML of 50, would be managed as a complex with Wilson Creek HMA which has a previously established AML of 160; the combined AML for this complex would be 210 wild horses.

[4]Highland Peak HMA, with AML of 33, and Rattlesnake HMA, with AML of 1 for incidental use, would be managed as a complex with Dry Lake HMA, which has a previously established AML of 94; the combined AML for this complex would be 128 wild horses.

2.3 Alternative 3 – Re-Allocation of AUMs to Provide for Viable Populations of Wild Horses, Tiered Analysis

This alternative includes consideration for 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 85 wild horses.

The first tier consisted of determining if each complex of HMAs had the four essential habitat components, forage, water, cover, and space, within the HMA complex boundary. 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 horses in the HMA complex. 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 and on allotment monitoring data. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and use pattern 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 use were examined to determine if either or both were contributing to the failure to meet objectives. Livestock stocking was also considered (i.e., 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 horses considered necessary to maintain a viable population (i.e., 85 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 would be proportionately reduced to make the AUMs available to wild horses.

The first tier of evaluation conducted above for Alternative 1 identified that the following HMAs do not provide all the seasonal habitat requirements for wild horses, regardless of the numbers of wild horses or livestock, and could not be managed in complex with any other HMA:

- Jakes Wash HMA
- Moriah HMA
- Blue Nose Peak HMA
- Applewhite HMA

These HMAs were not considered further under this alternative.

The AML established for the Delamar Mountains HMA was sufficiently large to ensure a population of 85 wild horses; and therefore, the Delamar Mountains HMA was considered as a viable population and no adjustments in livestock numbers were considered. The Deer Lodge Canyon HMA when managed as a complex with Wilson Creek HMA had sufficient AML for a viable population; and therefore, no adjustments in livestock numbers were considered. Similarly, Highland Peak and Rattlesnake HMAs when managed as a complex with the Dry Lake HMA had a combined AML above the minimum viable population size and no adjustments in livestock numbers were considered.

Only two HMA complexes, the Clover Mountains/Clover Creek HMA Complex and the Little Mountain/Miller Flat HMA Complex had suitable habitat to support wild horses yearlong and had AMLs calculated as less than the recommended 85 wild horses; and therefore, only these two HMA complexes were included in the following analysis.

2.3.1 Clover Mountains/Clover Creek HMA Complex

First Tier Evaluation

Permanent water sources consist of many small springs found in the canyons of the Clover Mountains, Clover Creek (a viable trout stream), within Ash Canyon, along Meadow Valley Wash, and at a small spring in Kershaw Canyon. BLM has identified 45 developed and undeveloped springs within the HMA. Movement of wild horses occurs between the Clover Mountains HMA and the Clover Creek HMA primarily for water and forage. One emergency gather was conducted on the Clover Mountains HMA in 1996 due to drought, and two emergency gathers were conducted in 2000, followed by an emergency gather conducted in 2002 for wild horses from this HMA that were in non-HMA areas. Since 1996, 94 wild horses have been removed from the Clover Mountains HMA. Only one gather has been conducted within the Clover Creek HMA, the purpose of which was to remove three problem horses.

The Clover Mountain/Clover Creek HMA Complex has sufficient habitat components to sustain wild horses on a year-long basis; therefore, the complex should be considered for AML establishment.

Second Tier Evaluation

The monitoring data indicate that where utilization levels have been heavy to severe within the complex, wild horses have been the dominant herbivores. Rather than isolated areas of heavy use associated with water, the utilization on the Cottonwood, Sand Hills, Pennsylvania, and Sheep Flat allotments occurred on large areas, including seedings and burned areas, and use within the riparian corridors of the Clover Creek Allotment was heavy to severe. The Head Chaining and Prescribed Burn area on the Mustang Flat Allotment has increased the amount of upland herbaceous forage and has been moderately used by wild horses. As indicated in Section 2.2.5, Third Tier Evaluation, the recommended AML for the Clover Mountains HMA was 26 wild horses. As indicated in Section 2.2.6, Third Tier Evaluation, the recommended AML for the Clover Creek HMA was 24 wild horses.

Third Tier Evaluation

The recommended AML of 50 does not meet the minimum viable population recommendation of 85 wild horses (i.e., no non-breeding-age wild horse could be in the herd). Adjustment of the population demographics through gathers would not achieve this criterion.

For the purposes of this analysis, it is assumed that at least 85 wild horses would be required to allow gathers and still maintain the demographics necessary for a population of 50 breeding-age wild horses. Consequently, an additional 35 wild horses, representing 420 AUMs, would be necessary to have a population of at least 85 wild horses within the Clover Mountains/Clover Creek HMA Complex.

Assuming that the 420-AUM reduction to the livestock operators would be apportioned according to percentage of each allotment within the HMA Complex, the reduction in AUMs for each allotment would be as indicated in Table 3. The result would be an additional 26 wild horses in the Clover Mountains HMA and an additional nine wild horses in the Clover Creek HMA.

Table 3: AUM Reduction by Allotment Necessary to Establish the Recommended AML of 85 Wild Horses in the Clover Mountains/Clover Creek HMA Complex.[1]

Allotment Name	Permitted AUMs	Reduction (AUMs)	Percent Reduction	Adjusted AUMs
Sand Hills Allotment	229	22	9.6 %	207
Pennsylvania Allotment	588	55	9.4 %	533
Cottonwood Allotment	1,296	113	8.7 %	1,183
Sheep Flat Allotment	1,977	122	6.2 %	1,855
Subtotal – Clover Mountains HMA	**4,090**	**312[2]**		**3,778**
Clover Creek Allotment	613	52	8.5 %	561
Sawmill Canyon Allotment	181	29	16.0 %	152
Mustang Flat Allotment	147	21	14.3 %	126
Oak Spring Allotment	83	6	7.2 %	77
Subtotal – Clover Creek HMA	**1,024**	**108[2]**		**916**
Complex Total	**5,114**	**420**		**4,694**

[1]The actual reduction for each allotment would be determined through grazing decisions; the figures used in the table are for analysis only.

[2]The AUM reduction for the allotments in the Clover Mountains HMA would accommodate 26 wild horses. The AUM reduction for the allotments in the Clover Creek HMA would accommodate 9 wild horses.

2.3.2 Little Mountain/Miller Flat HMA Complex

First Tier Evaluation

The resident horses within the Little Mountain HMA have to travel to the Miller Flat HMA as there are only two very small springs within its borders. Horses move to Miller Flat HMA during the warmer months to use available water resources. Water use on public lands in Miller Flat HMA is limited as only six developed or undeveloped springs have been identified by the BLM. Large spring sources are located on private property. Extensive use is made by wild horses of Clover Creek and some movement to the Deer Lodge Canyon HMA occurs when water sources within the Miller Flat HMA dry up. This movement involves crossing Highway 319 and public concern has been raised due to vehicle accidents involving wild horses. There is also movement between these HMAs and the non-HMA Crossroads Allotment to use the crested wheatgrass seeding.

Three emergency gathers, totaling 239 wild horses have been conducted on the Miller Flat HMA as a result of severe drought and lack of annual forage in 1996, 2002, and 2001. A total of 37 horses have been removed from Little Mountain HMA in two emergency gathers since 1996.

Second Tier Evaluation

Allotment objectives and rangeland health standards were not being achieved on the allotments within the Miller Flat HMA, despite the non-use by livestock since 1984 on the Rabbit Spring Allotment and since 1974 on the Sheep Spring Allotment. Therefore, the non-achievement of objectives and standards was attributed to wild horses. An emergency gather in 1996 removed 99 wild horses from this HMA and only slight use of the majority of both allotments was observed during the 1997. Since 1997, an additional 140 wild horses have been removed from this HMA. The estimated population in 2000 of 144 wild horses required an emergency gather to remove 90 wild horses. The removal of 50 wild horses in 2002 included approximately 25 wild horses that moved from the Miller Flat HMA to non-HMA areas. Based on the monitoring data and the limited water on this HMA, the existing AML of 30 wild horses, set through a Final Multiple Use Decision dated June 6, 2000, is an appropriate population. When the Miller Flat HMA and Little Mountain HMA are managed as a complex, the combined population for the complex would be 30 wild horses because the same horses use both HMAs.

Monitoring data from the Little Mountain HMA indicates that upland objectives and rangeland health standards were not being achieved due to heavy to severe use of the Miller Bench area. This utilization was a combination of livestock and wild horse use.

Third Tier Evaluation

The recommended AML of 30 does not meet the minimum viable population recommendation of 85 wild horses. For the purposes of this analysis, it is assumed that at least 85 wild horses would be required to allow gathers and still maintain the demographics necessary for a population of 50 breeding-age wild

horses. Consequently, an additional 55 wild horses, representing 660 AUMs, would be necessary to have a population of at least 85 wild horses within the Little Mountain/Miller Flat HMA Complex.

Assuming that the 660-AUM reduction to the livestock operators would be apportioned according to percentage of each allotment within the HMA Complex, the reduction in AUMs for each allotment would be as indicated in Table 4. The result would be an additional 20 wild horses in the Little Mountain HMA and an additional 35 wild horses in the Miller Flat HMA.

Table 4: AUM Reduction by Allotment Necessary to Establish the Recommended AML of 85 Wild Horses in the Little Mountain/Miller Flat HMA Complex[1].

Allotment Name	Permitted AUMs	Reduction (AUMs)	Percent Reduction	Adjusted AUMs
Peck Allotment	112	22	19.6 %	90
Little Mountain Allotment	395	83	21.0 %	312
Buckboard Allotment	259	48	18.5 %	211
Panaca Cattle Allotment	457	72	15.8 %	385
White Hills Allotment	87	11	12.6 %	76
Roadside Allotment	27	4	14.8 %	23
Subtotal – Little Mountain HMA	**1,337**	**240[2]**		**1,097**
Rabbit Springs Allotment	1,310	72	5.5 %	1,238
Sheep Springs Allotment	399	139	34.8 %	260
Uvada Allotment	162	22	13.6 %	140
Oak Wells Allotment	528	137	25.9 %	391
Clover Creek Allotment	170	29	17.1 %	141
Sheep Flat Allotment	117	21	17.9 %	96
Subtotal – Miller Flat HMA	**2,686**	**420[2]**		**3,363**
Complex Total	**4,023**	**660**		**3,483**

[1]The actual reduction for each allotment would be determined through a grazing permit; the figures used in the table are for analysis only.

[2]The AUM reduction for the allotments in the Little Mountain would accommodate 20 wild horses. The AUM reduction for the allotments in the Miller Flat HMA would accommodate 35 wild horses.

However, the two allotments where allotment objectives and rangeland standards were not being achieved were allotments where livestock operators have taken non-use for over 19 years. Therefore, reduction of livestock AUMs on these allotments does not achieve any on-the-ground change, and the increase in wild horse AML on this complex would increase the year-long use, exacerbating the problem. Based on this situational analysis, the reduction in AUMs would not achieve the management objective.

Therefore, the AML for this complex is recommended at zero.

2.3.3 Summary of Analysis for Alternative 3

The recommended AML for each HMA based on the preceding analysis is provided in Table 5. For AML greater than zero, the AML is expressed as a range. The range of values is to accommodate a four- to five-year gather cycle. The upper value of the range represents the maximum number of wild horses that are within the capacity of the HMA. This range allows BLM to conduct a gather and then allow several years for the population to build up to the upper value of the AML.

Table 5: Alternative 3, Recommended AMLs from Tiered Analysis

Herd Management Area	Recommended Range of AML for Complex
Jakes Wash	n/a
Moriah	n/a
Blue Nose Peak	n/a
Delamar Mountains	51 - 85[1]
Clover Mountains	51 - 85[2]
Clover Creek	
Applewhite	n/a
Little Mountain	0[3]
Miller Flat	0[3]
Deer Lodge Canyon	30 - 50[4]
Highland Peak	20 - 34[5]
Rattlesnake	
Total	**152 - 254**

[1]The Delamar Mountains HMA would be managed as an independent HMA and not in complex with any other HMA.

[2]Clover Mountains and Clover Creek would be managed as a complex with a total AML of 85 (Clover Mountains AML established at 51 and Clover Creek AML established at 34). The combined AML would be achieved by a reduction in livestock AUMs.

[3]The combined AML did not meet the minimum viable population size of 85 wild horses, even with the reduction in livestock AUMs; therefore, AML for the individual HMAs is zero.

[4]Deer Lodge Canyon HMA would be managed as a complex with Wilson Creek HMA which has a previously established AML of 160; the combined AML for this complex would be 210 wild horses.

[5]Highland Peak HMA, with AML of 33, and Rattlesnake HMA, with AML of 1 for incidental use, would be managed as a complex with Dry Lake HMA, which has a previously established AML of 94; the combined AML for this complex would be 128 wild horses.

2.4 ALTERNATIVE 4 – SET AML BASED ON FORAGE AVAILABILITY

Under this alternative, AML was based on forage availability within the HMA and on allotment monitoring data. Habitat components of water, cover, and space, as well as population viability, were not considered. Monitoring data was reviewed to identify if allotment objectives were being met. Key forage utilization and use pattern 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 emergency gather history is an indication that at certain population levels, the wild horses cannot be managed in a "*thriving natural ecological balance*" (i.e., good body condition); and therefore, the AML should be established at a number less than the population at the time the emergency gather was conducted. 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 (i.e., 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 as AML.

2.4.1 Jakes Wash HMA

Monitoring data indicated that allotment objectives were being achieved on the Badger Spring Allotment (Final Multiple Use Decision for the Badger Spring Allotment (0823), December 24, 1992) for both wild horses and livestock. Monitoring for the Giroux Wash, Indian Jake, Tom Plain, and Jakes Unit Trail allotments was summarized by the EFO and based on the monitoring data, the EFO recommended reducing livestock grazing 3,340 AUMs, or 31 percent, of the total 10,739 AUMs in the Giroux Wash, Indian Jake, and Tom Plain allotments. This reduction would be taken as voluntary non-use for a 10-year period in order to achieve resource management objectives and rangeland health.

Monitoring data from these allotments and emergency gathers of wild horses from the HMA indicated that forage availability during drought years and overall shortage of water, were issues for wild horses. Sixty wild horses were removed through an emergency gather in 1998 due to lack of available water and forage, and 98 wild horses were removed by emergency gather in 2001 due to lack of available water. The July 2003 population estimate for this HMA is 75 wild horses. The recommended AML for Jakes Wash HMA based on the analysis of monitoring data was 35 wild horses (420 AUMs). This represents a 47 percent reduction from the current population estimate.

Therefore, the recommended AML for Jakes Wash HMA is 35 wild horses.

2.4.2 Moriah HMA

Monitoring data summarized in the Mill Spring Allotment Evaluation (1983-1990) indicated that wild horses were contributing to non-achievement of allotment objectives. Utilization in the crested wheatgrass seeding was the primary issue. Use pattern mapping for the Mallory Springs Allotment (1999), Mill Springs Allotment (1999), Tippet Allotment (2002), and Pleasant Valley Allotment (1999 and 2000) showed moderate or less use on the majority of the allotment acreages within the HMA. Heavy use was observed in 2000 on approximately 10 percent of the Pleasant Valley Allotment in an area associated with Indian and Gravel springs. In contrast, use pattern mapping for the Indian George Allotment (spring 1999, fall 1999, and spring 2000) indicated heavy to severe use on approximately 10 to 20 percent of the allotment.

Wild horse census data collected between 1991 and 2002 ranged between 33 and 63 wild horses with an average of 48 wild horses. Approximately the same number of wild horses was observed in non-HMA areas in Nevada and Utah adjacent to the Moriah HMA. During 2003, 132 wild horses were observed within the HMA and 119 were observed on non-HMA areas. Given the heavy and severe use on a portion of the Indian George Allotment, the upper census level of 63 wild horses observed between 1991 and 2002 would not achieve allotment objectives and rangeland health standards. The recommended AML for the Moriah HMA is 48 wild horses, based on stocking rate calculations of forage availability.

The recommended AML for the Moriah HMA is 48 wild horses.

2.4.3 Blue Nose Peak HMA

An estimated 10 to 15 wild horses spend a portion of the year on the Blue Nose Peak HMA within the White Rock and Garden Springs allotments, but routinely move to the Clover Mountains HMA. A permanent herd does not inhabit the Blue Nose Peak HMA. Water availability is primarily available through efforts of the livestock operators; and therefore, water is generally only dependably available during the October through May grazing period.

The AML on the Henrie Complex Allotment portion of the Blue Nose Peak HMA was set at zero in July 1999 because year-long grazing in the Mojave Desert was deemed inappropriate due to extreme summer temperatures and limited water availability. This same reasoning, as well as consideration for the Desert tortoise, is the basis for recommending an AML of one to provide for incidental wild horse use within the Blue Nose Peak HMA. The incidental use occurs from wild horses moving between the Blue Nose Peak HMA and the Clover Mountains HMA. Wild horses on the Blue Nose Peak HMA would be managed in conjunction with the Clover Mountains HMA, with priority for removal of wild horses in the desert (i.e., Blue Nose Peak HMA), in recognition of seasonal movement between the two HMAs.

The recommended AML for the Blue Nose Peak HMA is one, for incidental use.

2.4.4 Delamar Mountains HMA

Utilization in the majority of the Delamar Mountains HMA is slight to moderate. Heavy to severe use occurs near water sources and associated riparian vegetation, but the acreage associated with these high utilization levels is less than ten percent of the HMA and is distributed throughout the HMA. Monitoring data indicates an improvement in achieving allotment objectives since the early 1980s, indicating that the adjustments made in livestock numbers and grazing management have reduced the level of utilization within the HMA.

Resource issues are limited to over utilization near water sources and the unsuitability of certain plant communities, such as winterfat, for year-long use. This utilization pattern continues, even after the adjustment in livestock grazing. The two emergency gathers indicate that during drought, the HMA cannot support high numbers of wild horses. Therefore, the AML should be less than the approximately 200 wild horses that were stressed during 2000 and required removal of 92 wild horses. The current data for the HMA indicates that the estimated 115 wild horses within the HMA are still too high with respect to riparian habitat issues. Therefore, 85 wild horses is the recommended AML to be considered as the AML for this HMA.

The proposed AML for the Delamar Mountains HMA is 85 wild horses.

2.4.5 Clover Mountains HMA

Monitoring data indicates that utilization levels have been heavy to severe when wild horse populations have been high. Rather than isolated areas of heavy use associated with water, areas of heavy use also occurred within seedings and burned areas. In 2002 when the population was estimated to be 37 head, the EFO had to conduct an emergency gather due to poor horse conditions resulting from lack of forage. Twenty-five horses were removed leaving 12 horses within the HMA in July 2002. At the same time livestock use was voluntarily reduced by the permittees. During 2003 the remaining horses appeared to be in good condition. Based on the current horse condition, an estimated population of 14 wild horses appears to be within the capacity of the habitat. Therefore, an AML of less than 37 wild horses and more than 14 wild horses should be considered as the AML.

The recommended AML for this HMA is 26 wild horses (which is the mid-point between 14 and 37).

2.4.6 Clover Creek HMA

The allotment monitoring data indicates that wild horse use of the forage was light to moderate within the Mustang Flat Allotment, but heavy to severe use occurred within the riparian corridors of the Clover Creek Allotment. The majority of the vegetation within the HMA is pinyon-juniper mixed with sagebrush. The pinyon-juniper woodland does not provide abundant herbaceous vegetation, which results in increased use of the riparian areas. The Head Chaining and Prescribed Burn area on the Mustang Flat Allotment has increased the amount of upland herbaceous forage and has been moderately used by wild horses. Based on moderate to light use of the HMA on the upland areas and the lack of emergency gathers

on this HMA due to poor health conditions, the current estimated population of 24 wild horses meets upland allowable use levels.

Therefore, the recommended AML for this HMA is 24 wild horses.

2.4.7 Applewhite HMA

This HMA is dominated by pinyon-juniper with very little herbaceous understory. Lack of upland forage results in heavy and severe use of the riparian areas. Heavy to severe use occurs on riparian areas associated with Log Trough, Mud, Taylor Mine, and Applewhite springs (Memo to Applewhite HMA file, February 10, 2003). These riparian areas are not in proper functioning condition. Non-achievement of rangeland health standards and allotment objectives is a result of livestock grazing and wild horse use. Wild horse movement between the Applewhite HMA and the Delamar Mountain HMA occurs on a seasonal basis in response to forage and water needs.

The current population estimate for this HMA is 14 wild horses. Even with this low number of wild horses, the allotment objectives and standards for rangeland health are not being achieved. Therefore, the AML of one (1) is recommended for this HMA to account for incidental use from the Delamar Mountains HMA.

The recommended AML for the Applewhite HMA is one, for incidental use.

2.4.8 Little Mountain HMA

The wild horse population existing within the Little Mountain HMA is comprised of the same horses that are using the Miller Flat HMA. The movement between the HMAs occurs on a daily basis due to the limited water availability within the Little Mountain HMA. The wild horses have home ranges that overlap both HMAs. A noticeable movement also occurs during the late fall and early winter when accumulating snowfall at higher elevations forces the horses in the Miller Flat HMA to move to the open sagebrush associated with the Little Mountain HMA. The movement reverses in the early summer when the wild horses move up in elevation to take advantage of the available water and shade from trees on the Miller Flat HMA. A total of 37 horses have been removed from Little Mountain HMA in two emergency gathers since 1996.

Because the wild horses on the Little Mountain HMA are the same wild horses that use the Miller Flat HMA, the AML for one HMA is somewhat dependent on the other. Therefore, the allotment monitoring data from the allotments in the Miller Flat HMA was also considered when setting the AML for Little Mountain HMA.

Allotment objectives and rangeland health standards were not being achieved on the allotments within the Miller Flat HMA, despite the non-use by livestock since 1984 on the Rabbit Spring Allotment and since 1974 on the Sheep Spring Allotment. Therefore, the non-achievement of objectives and standards was attributed to wild horses. An emergency gather in 1996 removed 99 wild horses from this HMA and only

slight use of the majority of both allotments was observed during the 1997. Since 1997, an additional 140 wild horses have been removed from this HMA. The estimated population in 2000 of 144 wild horses required an emergency gather to remove 90 wild horses. The removal of 50 wild horses in 2002 included approximately 25 wild horses that moved from the Miller Flat HMA to non-HMA areas. Based on the monitoring data and the limited water on this HMA, the existing AML of 30 wild horses, set through a Final Multiple Use Decision dated June 6, 2000, is an appropriate population. Because the wild horses use the two HMAs on a seasonal basis, the AML for each HMA is recommended at 15 wild horses, for a total of 30 wild horses.

Therefore, the AML for the Little Mountain HMA is recommended at 15 wild horses.

2.4.9 Miller Flat HMA

See Section 2.4.8, Little Mountain HMA, above.

The AML for the Miller Flat HMA is recommended at 15 wild horses.

2.4.10 Deer Lodge Canyon HMA

The allotment evaluations for the Deer Lodge, Mahogany Peak, Condor Canyon, McGuffy Spring, Rabbit Spring, and N4/N5 allotments indicate that the allotment objectives and standards for rangeland health are generally being met. The recommended AML from these evaluations is 50 wild horses for the Deer Lodge Canyon HMA.

The recommended AML for the Deer Lodge Canyon HMA is 50 wild horses.

2.4.11 Highland Peak HMA

Use pattern mapping and utilization studies for the allotments in the Highland Peak HMA indicate that the allotment objectives and standards for rangeland health are being achieved. Some areas of heavy to severe use has occurred. The use pattern observed is expected due to the drought conditions. This HMA has limited water sources and the AML for wild horses should be established relative to the available water. Two emergency gathers in 1999 and 2002 had to be conducted to remove problem animals that moved from the HMA to non-HMA areas, indicating that the water/forage base is not sufficient to maintain this population level. Use is currently concentrated in the northern third of the Highland Peak HMA due to the location of water sources. Therefore, due to documented heavy to severe use at some locations and the movement of wild horses to areas outside the HMA, current population of 66 wild horses is too high.

The recommended AML for this HMA is 50 percent of the current population, or 33 wild horses.

2.4.12 Rattlesnake HMA

Use pattern mapping and utilization studies for the allotments in the Rattlesnake HMA indicate that the allotment objectives and standards for rangeland health are being achieved. This HMA has limited water sources and the AML for wild horses should be established relative to the available water. Currently, the estimated wild horse population is zero. The recommended AML for this HMA is one, to accommodate incidental use by horses from the Dry Lake HMA (for which AML has been previously set).

The recommended AML for the Rattlesnake HMA is one, for incidental use.

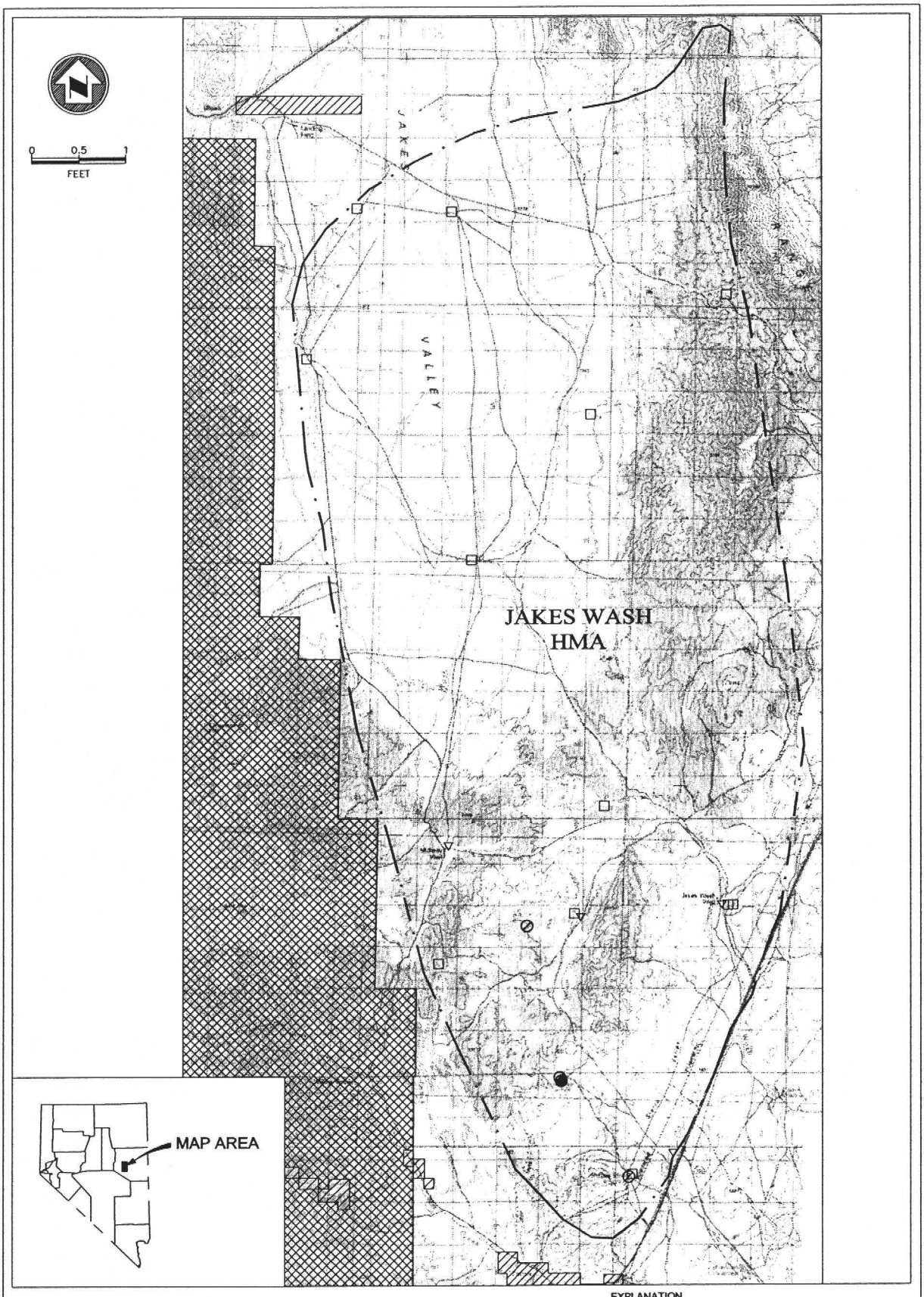
Table 6: Alternative 4, Recommended AMLs Based on Forage Availability

Herd Management Area	Recommended Values of AML Range
Jakes Wash	21 - 35
Moriah	29 - 48
Blue Nose Peak	1[1]
Delamar Mountains	51 - 85
Clover Mountains	16 - 26
Clover Creek	14 - 24
Applewhite	1[1]
Little Mountain	9 - 15
Miller Flat	9 - 15
Deer Lodge Canyon	30 – 50[2]
Highland Peak	20 – 33[3]
Rattlesnake	1[1,3]
Total	**202 - 334**

[1]The AML of one (1) represents incidental use within the HMA.

[2]Deer Lodge Canyon HMA would be managed as a complex with Wilson Creek HMA which has a previously established AML of 160; the combined AML for this complex would be 210 wild horses.

[3]Highland Peak and Rattlesnake HMAs would be managed as a complex with Dry Lake HMA, which has a previously established AML of 94; the combined AML for this complex would be 128 wild horses.



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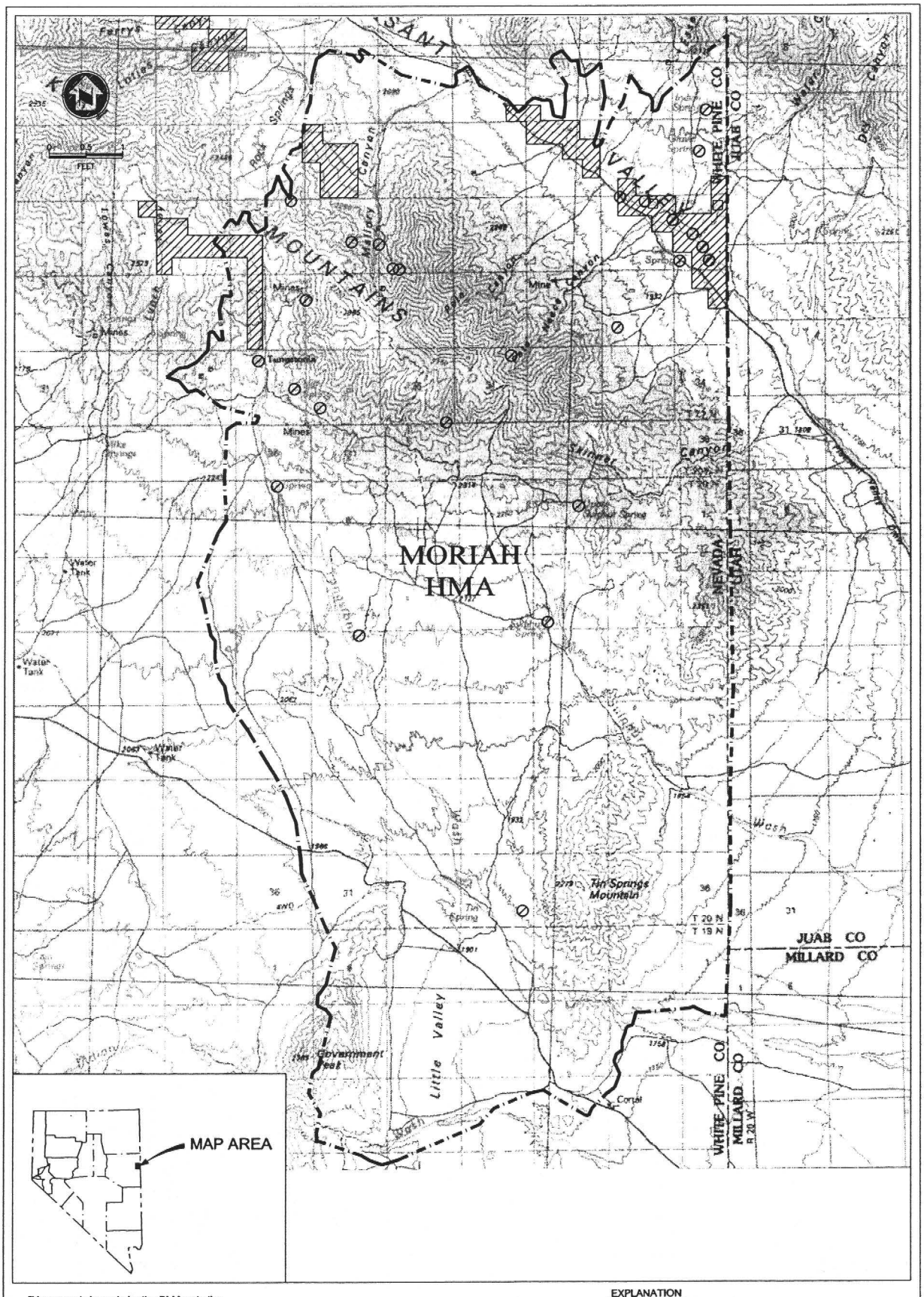
EXPLANATION

- Well
- Spring
- Spring-developed
- Spring- undeveloped
- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

JAKES WASH HMA



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EXPLANATION

- Well
- Spring
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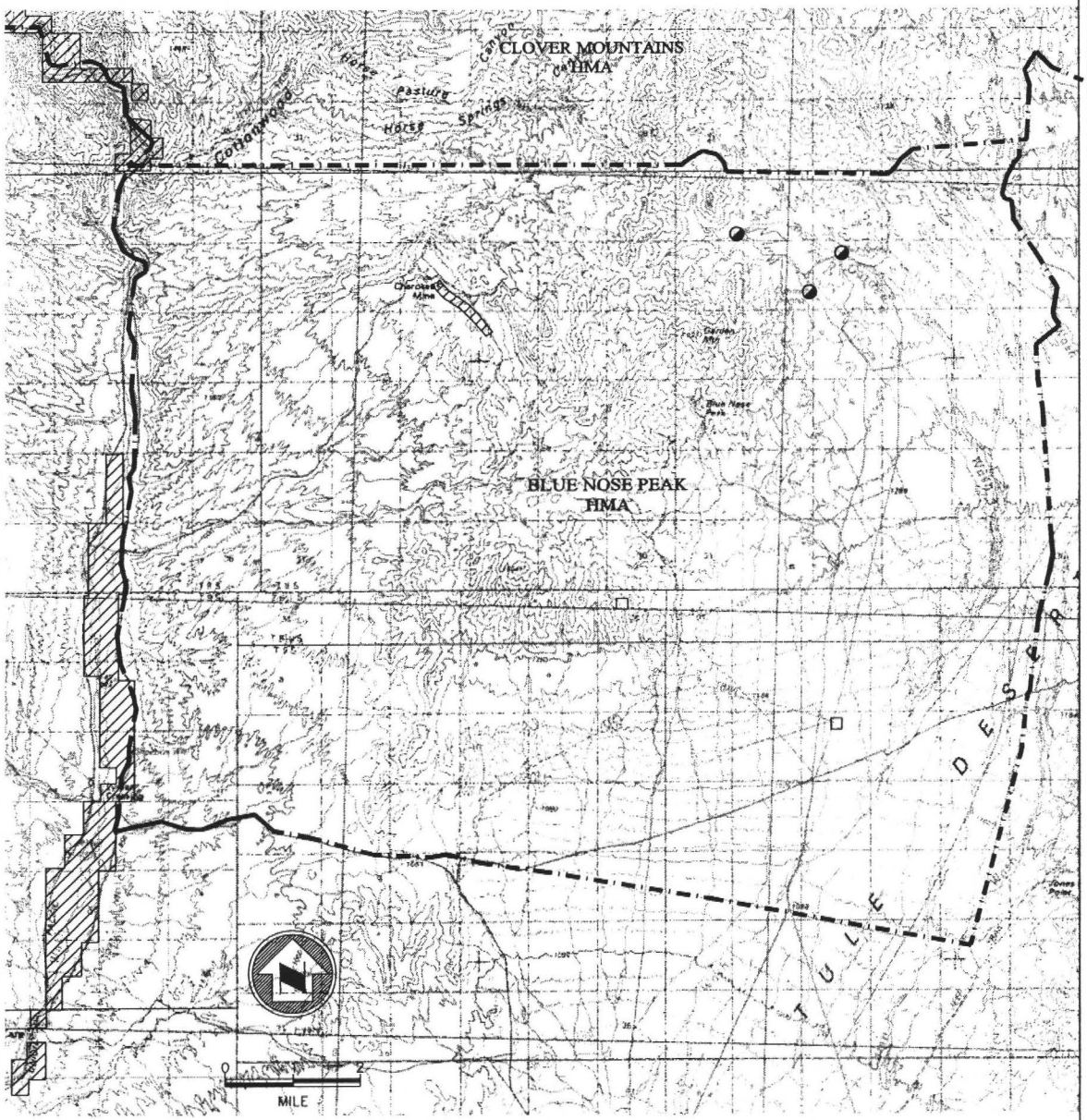
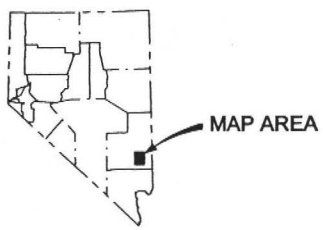
- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

MORIAH HMA





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- State of Nevada
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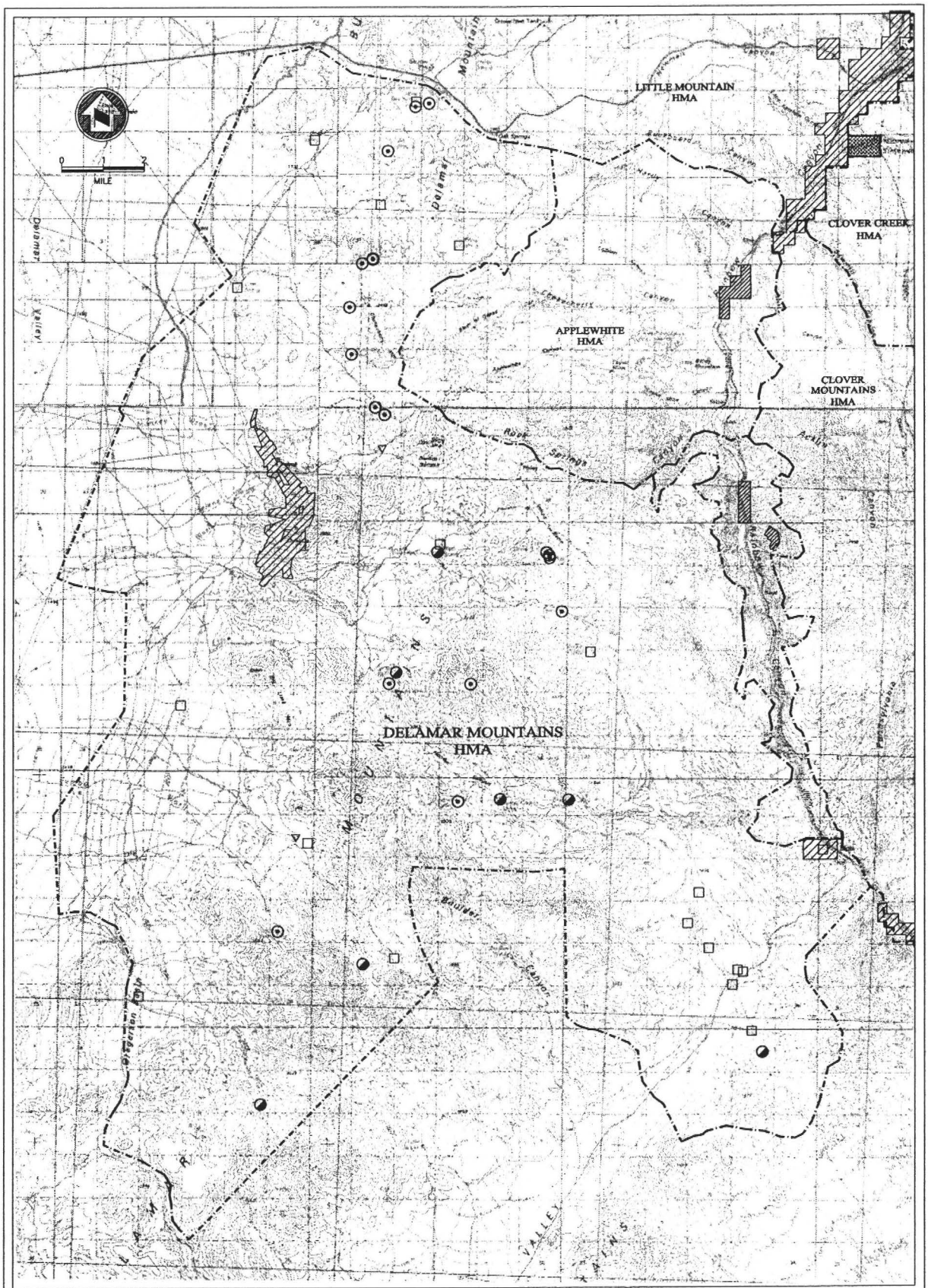
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

BLUE NOSE PEAK HMA



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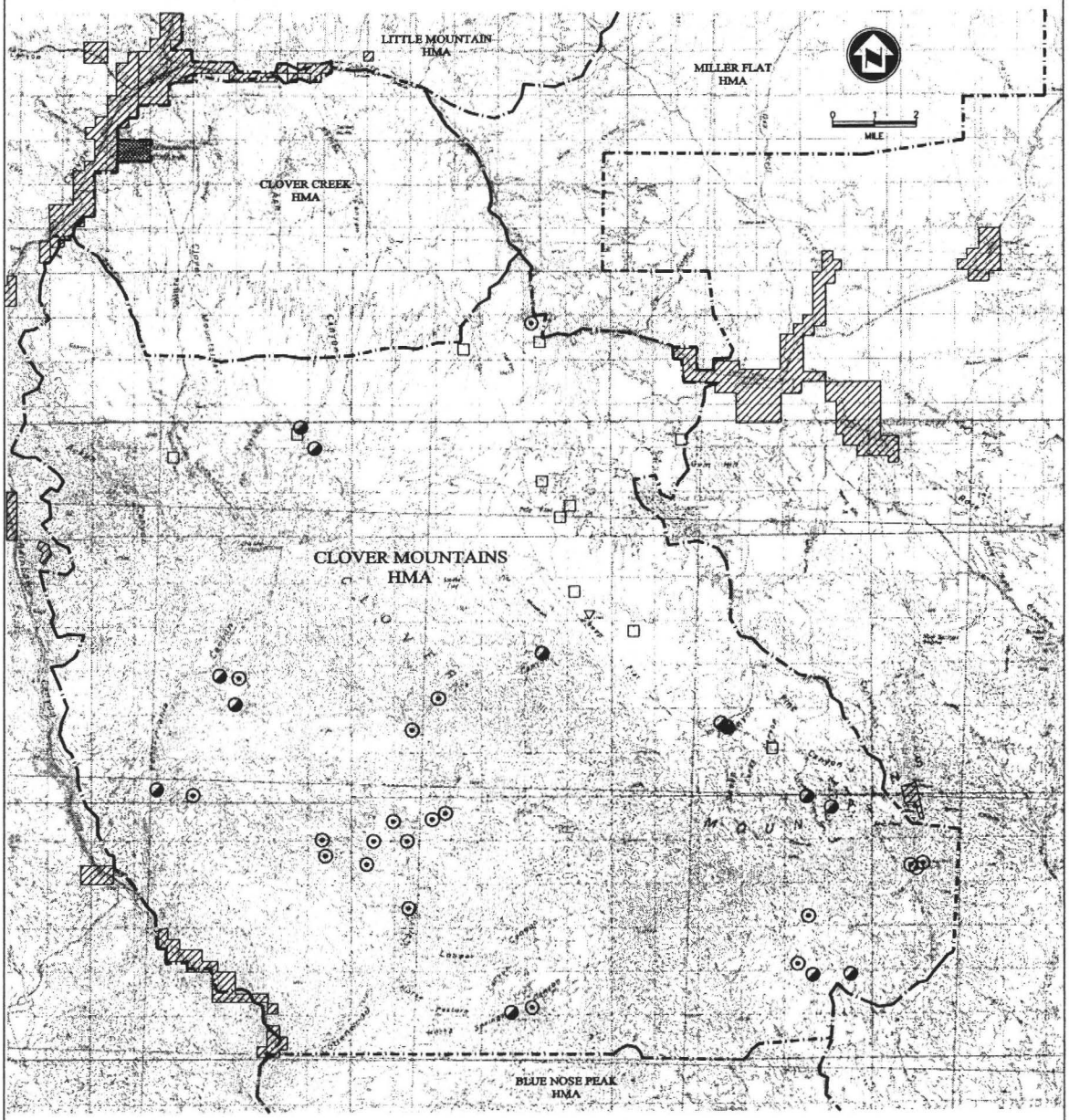
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

DELAMAR MOUNTAINS HMA



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EXPLANATION

- Well
- Spring
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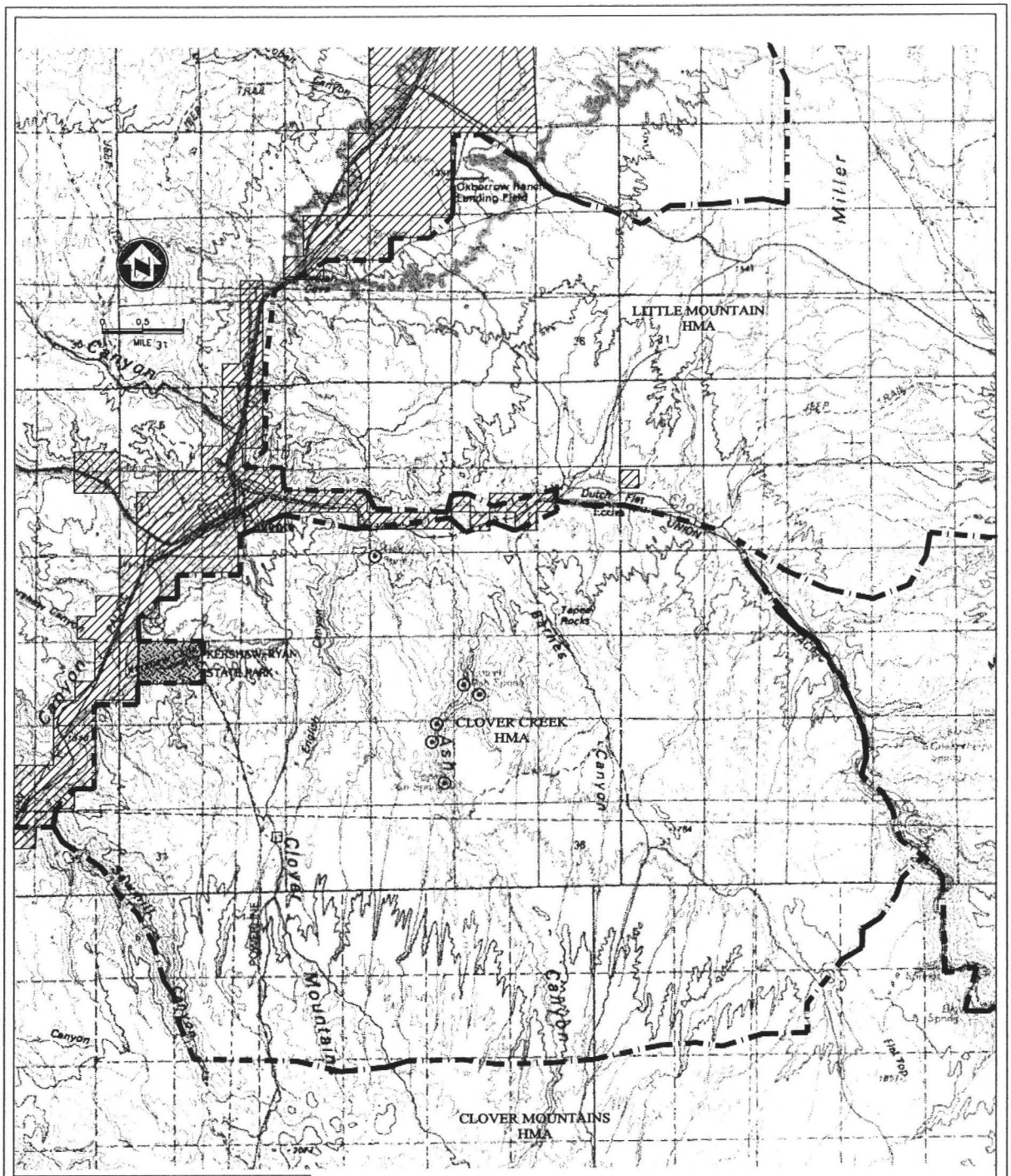
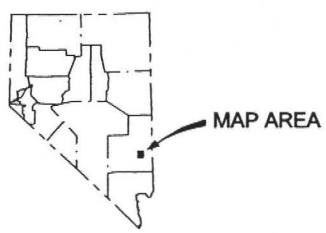
- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

CLOVER MOUNTAINS HMA





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EXPLANATION

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- Spring
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- Reservoir
- HMA Boundary
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- USFS
- Private
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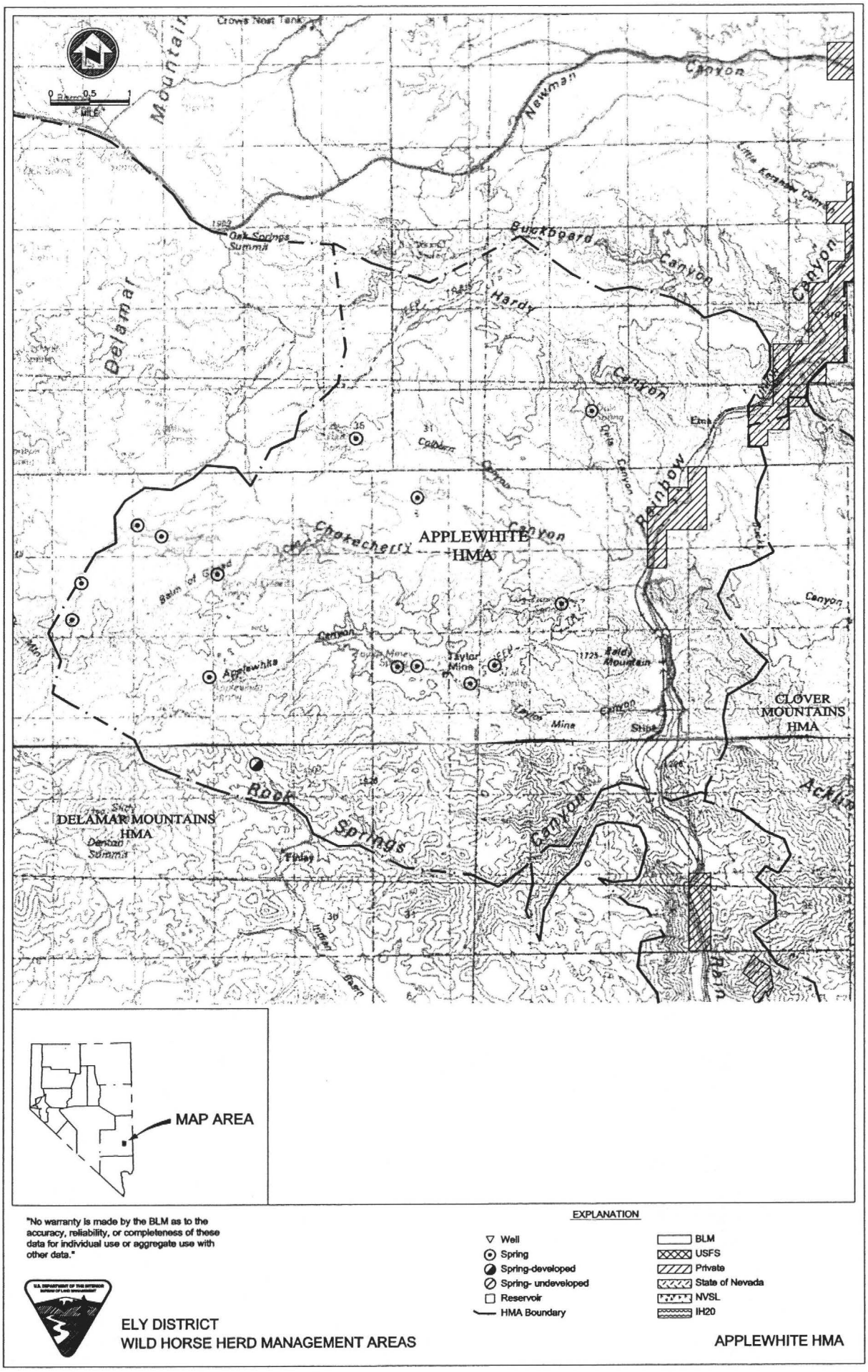
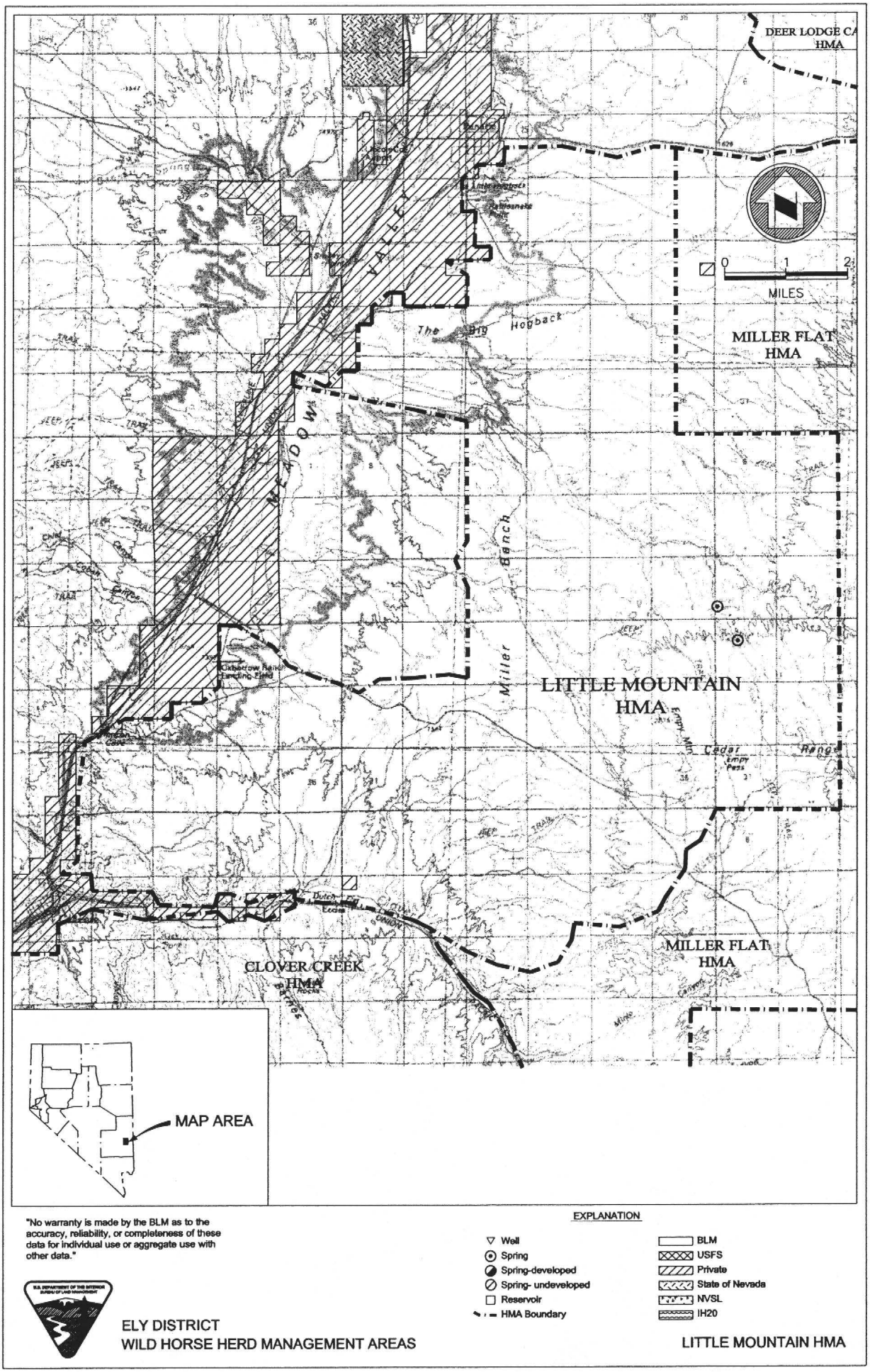
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

CLOVER CREEK HMA


APPLEWHITE HMA
CLOVER MOUNTAINS HMA
DELAMAR MOUNTAINS HMA
MAP AREA
EXPLANATION
Well
Spring
Spring-developed
Spring- undeveloped
Reservoir
HMA Boundary
BLM
USFS
Private
State of Nevada
NVSL
IH20
"No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data."
ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS
APPLEWHITE HMA



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EXPLANATION

- Well
- Spring
- Spring-developed
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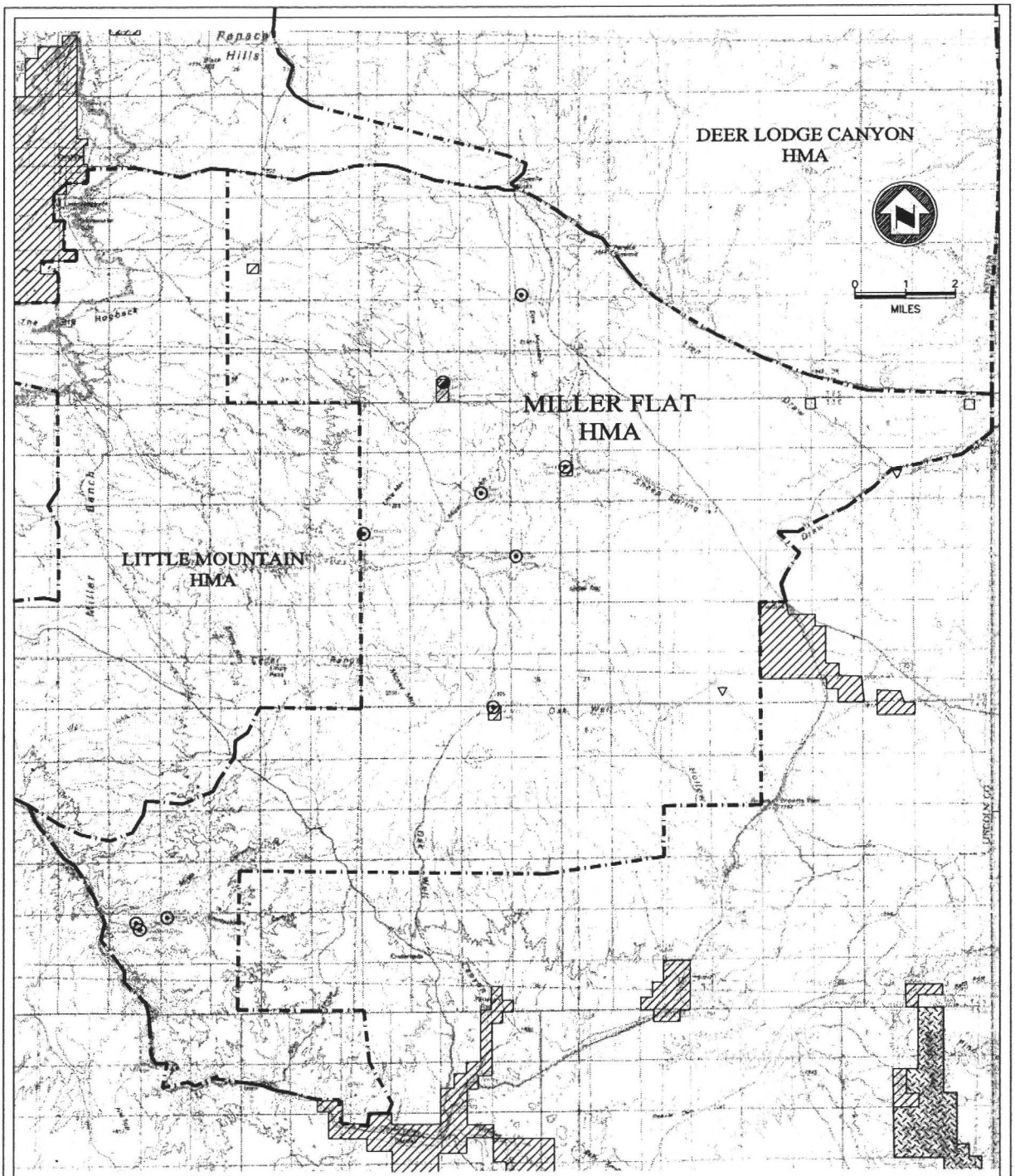
- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

LITTLE MOUNTAIN HMA



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EXPLANATION

- Well
- Spring
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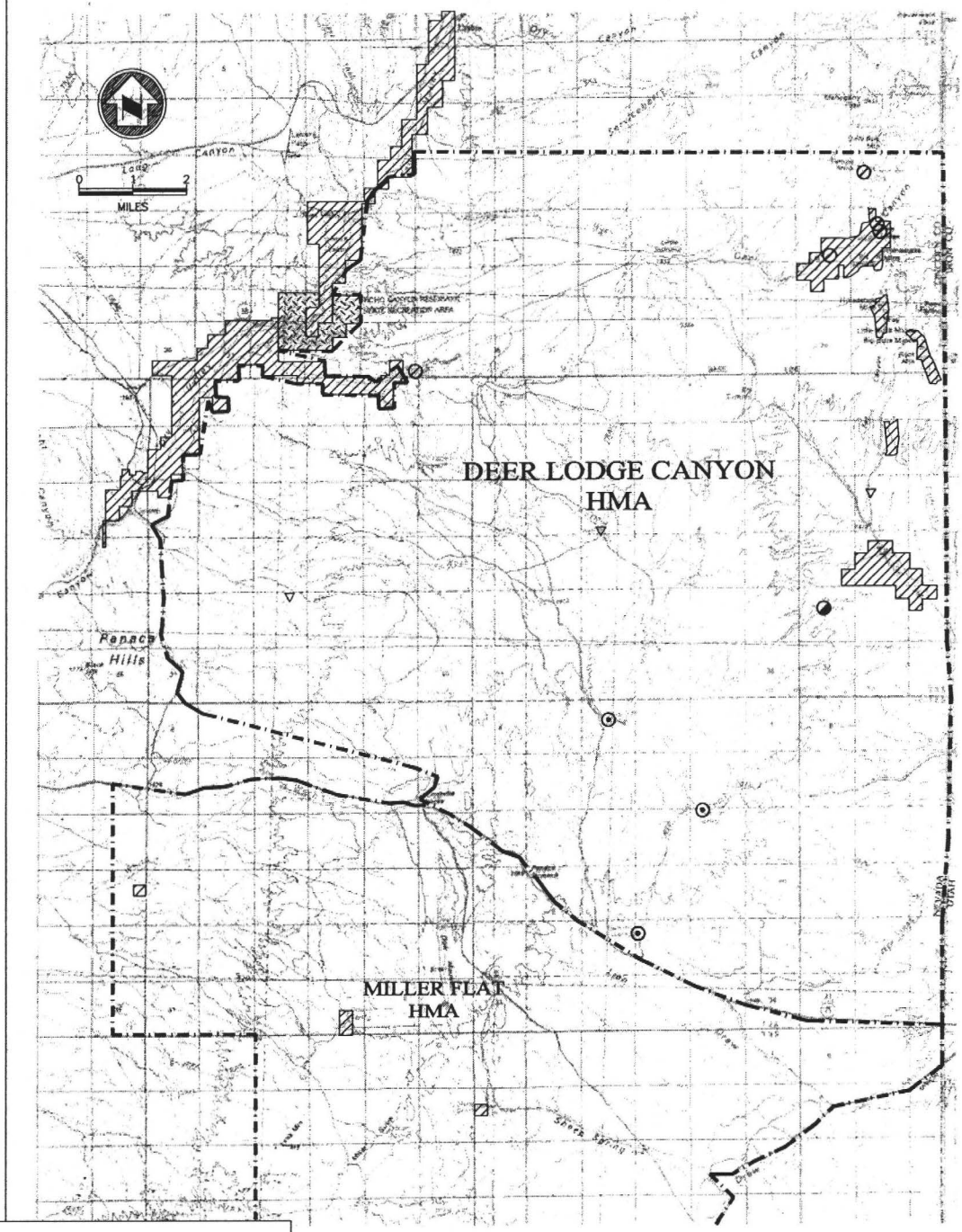
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

MILLER FLAT HMA



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EXPLANATION

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- HMA Boundary
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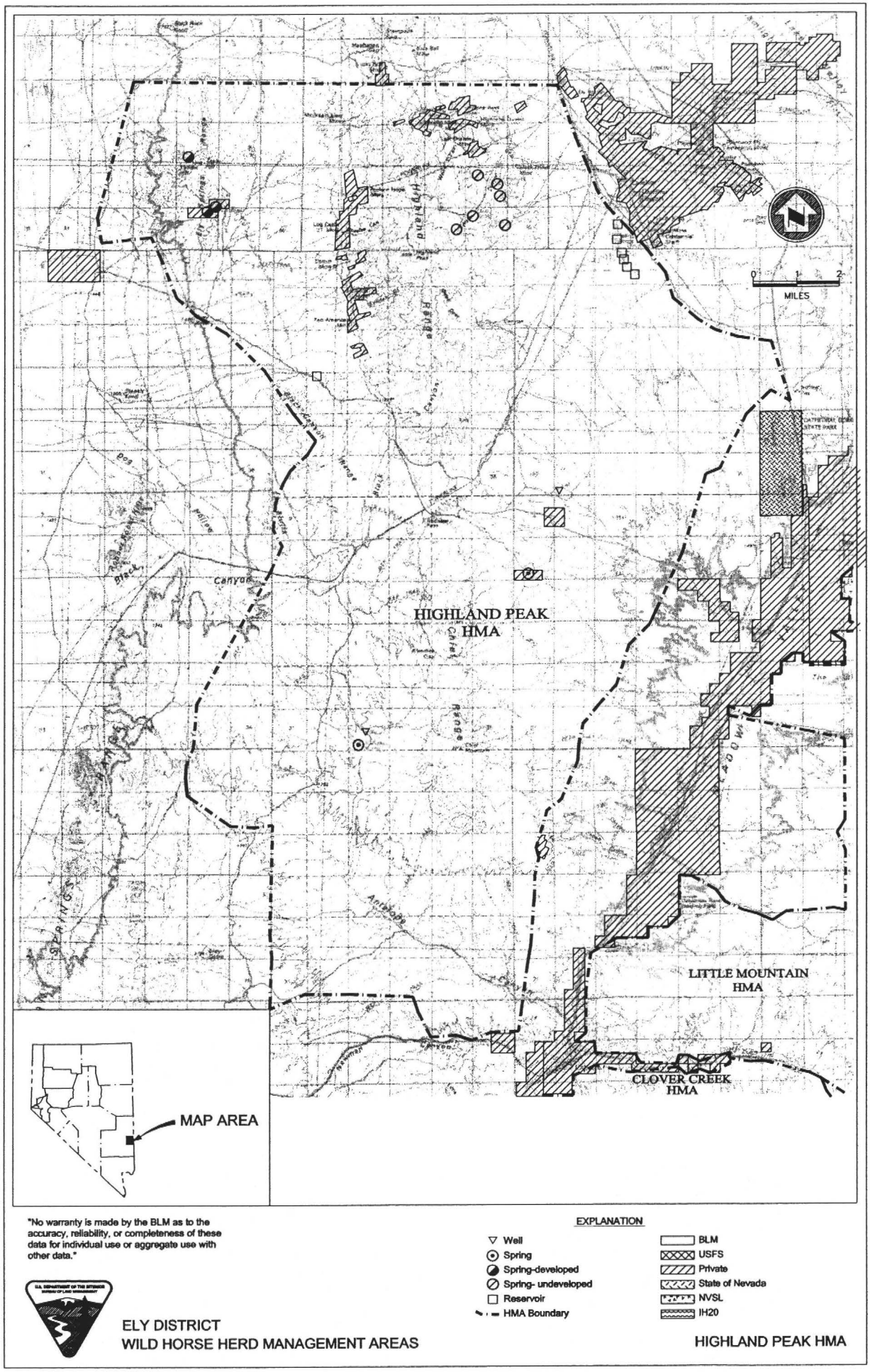
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

DEER LODGE CANYON HMA



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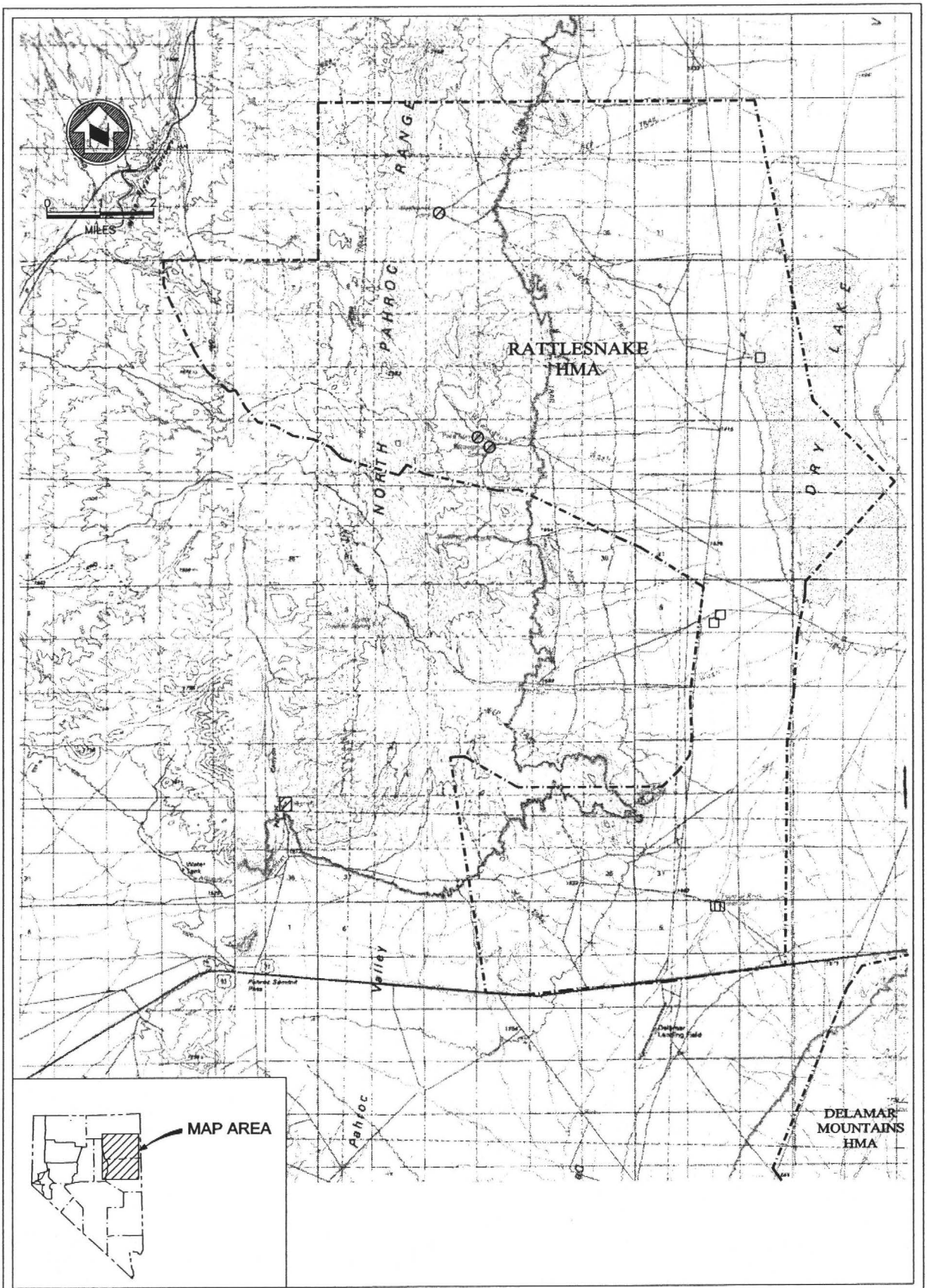
EXPLANATION

- Well
- Spring
- Spring-developed
- Spring- undeveloped
- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

HIGHLAND PEAK HMA



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EXPLANATION

- Well
- Spring
- Spring-developed
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- Reservoir
- HMA Boundary
- BLM
- USFS
- Private
- State of Nevada
- NVSL
- IH20

ELY DISTRICT
WILD HORSE HERD MANAGEMENT AREAS

RATTLESNAKE HMA

Appendix C

Management Actions for HMAs with Established AML

MANAGEMENT ACTIONS FOR HMAS WITH ESTABLISHED AML

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 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 ratio/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 pellucidae* (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 standard operating procedures SOPs for gathering wild horses. Copies of these standard operating procedures SOPs are included with every capture plan.
- Gathers use contractors with a helicopter and traps to humanely capture animals;
- The BLM uses the Great Basin Wild Horse and Burro Gather Contract to administrate gathers. Helicopter round-ups cannot occur during the foaling season.
- *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;

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.