



Ely Little Mtn. HMA m 7/15/83
United States Department of the Interior

IN REPLY REFER TO

4730
(NV-057)

BUREAU OF LAND MANAGEMENT

Caliente Resource Area
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Caliente, NV 89008

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July 15, 1983

Wild Horse Organized Assistance
Atten: Dawn Y. Lappin, Director
P.O. Box 555
Reno, NV 89505

Dear Ms. Lappin:

The planning and preparation period for the Little Mountain Wild Horse Herd Management Area, identified to you in a December 22 correspondence, is complete. Extraordinary circumstances prolonged the oftentimes lengthy preparation and review of a preliminary draft. The extended time period, however, has resulted in optimistically a more satisfactory document. Review by the Coordinated Resource Management Planning Committee and appropriate public interest groups marks the ultimate step in finalization of the Little Mountain Wild Horse Herd Management Area Plan.

Enclosed for your review and comment, is a copy of the Management Plan. Please forward all comments to the Caliente Bureau of Land Management Office by August 15, 1983 if possible. Questions concerning this correspondence direct to Phillip Seegmiller, Caliente Bureau of Land Management, Wild Horse and Burro Specialist.

Sincerely,

Paul W. Brierley
FOR Darwin G. Anderson "ACTING"
Area Manager

no plan - C. Plan - Bombing Range

LITTLE MOUNTAIN WILD HORSE

HERD MANAGEMENT AREA PLAN

CALIENTE RESOURCE AREA

LAS VEGAS DISTRICT

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I. Introduction

Preparation of a wild horse herd management area plan designed to specifically manage the wild horses populating the Little Mountain region with multiple use taken into consideration was recommended by the Caliente Management Framework Plan (Las Vegas Bureau of Land Management, U.S. Department of Interior, 1980).

The Little Mountain Wild Horse Herd Management Area Plan (WHMAP) is designed to effectively manage the wild horse population in accordance with the Bureau of Land Management NSO Manual Supplement 4730.6, Release NV4-6, and 43 Code of Federal Regulations 4700.

Effective management of the wild horse population is essential so that through management a net benefit to the valuable resources (i.e., vegetation, wildlife, soils, wild horses, livestock, etc.) which occupy the area, can be the ultimate goal.

II. Background Information

A. Location and Size

The Little Mountain Wild Horse Herd Management Area (WHMA) is located within Lincoln County, Nevada, approximately two miles east of Caliente. The boundaries of the WHMA are the Nevada State Highway 319 on the north, the Panaca Division Fence on the east, Clover Creek and the Union Pacific Railroad on the south, and by private lands along Highway 93 and the eastern Peck Allotment boundary on the west (Appendix 1).

There are 54,558 total acres in the Little Mountain WHMA. A breakdown by land status of the 54,558 acres included within the WHMA is shown in Table 1.

TABLE 1

Land Status

<u>Land Status</u>	<u>Acres*</u>	<u>Percent of Total</u>
Public Land	54148	99.2
DLE Applications	360	.7
Leases	50	.1

* Compiled from Caliente Unit Resource Analysis Table .44-9 and Master Title Plats (U.S. Department of Interior, 1978).

* Acreage portrayed in approximates.

B. Resource Date

A more complete discussion of the existing environment can be found in the Caliente Final Environmental Statement (INT-FES 79-44).

1. Vegetation

There are three major vegetation communities on the WHMA; pinyon-juniper with sagebrush understory extends over the low hills and mountains comprising 60% of the management area, sagebrush and saltbush types make up the other two vegetation types which extend most of the valley areas. Additional information on composition of vegetation communities for the area maybe obtained from the Caliente Final Environmental Statement (INT-FES 79-44).

2. Soil

Located within the Little Mountain WHMA are, at most, six major soil associations; Tica-Rock Outcrop-Hamtah Association, Itca-Rock Outcrop-Cedaran Association, Acana-Roval-Seval Association, Badland- Linco-Acana Association, Decan-Uana-Shroe Association, and Geer-Heist-Patter Association. Additional information on these associations maybe obtained from the soil survey for the Meadow Valley Wash area, Nevada-Utah (U.S. Department of Interior and Agriculture, 1976).

3. Watershed

Six watershed areas are located in the Little Mountain WHMA. Erosion condition class designation on these areas varied from slight to critical with present condition anticipated to deteriorate over the next 15 years. For additional information see the Caliente Unit Resource Analysis (U.S. Department of Interior, 1978).

4. Animals

a. Many wildlife species are present in the WHMA; jackrabbits, cottontails, kangaroo rats, mice, deer mice, mountain lions, coyotes, badgers, gray foxes, etc. Information concerning species, their habitat and distribution can be found in the Caliente Unit Resource Analysis (BLM, Las Vegas, 1978). In addition, mule deer (Odocoileus hemionus), inhabit the south eastern portion of the WHMA as a yearlong range with a portion of the eastern area identified as crucial deer winter range by the Nevada Department of Wildlife.

b. Livestock

There are seven livestock grazing allotments involved with the WHMA, Buckboard, Panaca Cattle, Roadside, White Hills, Little Mountain, Cove, and Clover Creek. All of these grazing allotment except the Clover Creek are included in their entirety. The grazing privileges for the Little Mountain Allotment have been relinquished back to the Bureau.

The Buckboard, Panaca Cattle, Roadside and White Hills Allotments are indentified to have an Allotment Management Plan (AMP) developed. Development of an AMP that requires extensive fencing could result in restricting the normal wild horse distribution and movement patterns. However, there are no immediate plans for AMP implementation on any of the allotments in the WHMA.

The Little Mountain Allotment grazing privileges were relinquished back to the United States of America, USDI, Bureau of Land Management, by the Clark Brothers, after they were paid valuable consideration by the National Mustang Association.

The total number of Active Livestock AUMs authorized in the WHMA is 1347 with cattle as the sole class of livestock authorized. Table 2 lists the livestock AUMs for each allotment, plus season-of-use, class of livestock and the percent of the allotment within the WHMA.

TABLE 2

Livestock Grazing Privileges **

<u>Allotment</u>	<u>% Within Management Area</u>	<u>Active Preference</u>	<u>Season-of-Use</u>	<u>Class of Livestock</u>
Buckboard	100%	623	YL	C
Clover Creek	1.4%	9	11/1-4/30	C
Cove	100%	129	YL	C
Little Mountain	100%	1422*	--	--
Panaca Cattle	100%	453	YL	C
Roadside	100%	32	12/1-2/28	C
White Hills	100%	101	12/1-2/28	C

* The Little Mountain Allotment has been relinquished back to the United States Bureau of Land Management, hence, AUMs listed indicate Historical Authorized Preference only.

** Information acquired from Operator case files reserved in the Caliente Bureau of Land Management Office.

Livestock grazing within the WHMA has not been consistent. White Hills, Roadside, Little Mountain, Cove, and Clover Creek have not received any grazing use in the past five years. The extent of grazing use in the Panaca Cattle and Buckboard Allotments has been about 60% of active preference since privileges were acquired in 1980. Under present management most of this use has occurred in the northwest portion of the Panaca Cattle Allotment with little use in the Buckboard Allotment.

c. Wild Horses

1) Present Situation

a) Population Size

Demographic information on wild horses was essentially nonexistent prior to the passage of the Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195). Consequently, to obtain information essential to effectively manage wild horse populations, six aerial census were conducted in the Caliente Resource Area that pertained to the WHMA subsequent to passage of the Wild Free-Roaming Horse and Burro Act. In 1973 the initial inventory was conducted with subsequent census in 1974, 1977, 1981, 1982, and 1983. All census, except the 1982 census, were accomplished by use of a helicopter. The 1982 inventory travel mode was a fixed wing aircraft. The inventory results are disclosed in Table 3.

TABLE 3

Wild Horse Inventory

<u>Inventory Date</u>	<u>Inventory Count</u>
** 1973	102
** 1974	86
** 1977	89
*** 1981	13
*** 1982	13
*** 1983	25

** Caliente Unit Resource Analysis (Table, 44-8)

*** Caliente Resource Area personnel secured the 1981, 1982 and 1983 inventory data (includes young of year). This data reflects the 1980 wild horse gathering operation. A more detailed account of the inventory is reserved in the Caliente Resource Area, Bureau of Land Management Office.

Wild horse gathering operations were conducted in the Miller Flat WHMA and the Little Mountain WHMA during the summer of 1980 resulting in the removal of a total of 115 wild horses from both areas (the number of animals removed solely from the Little Mountain HMA is unknown). Hence, the discrepancy between the 1977 and 1981 census (see Miller Flat Wild Horse Herd Management Area Plan, Caliente Resource Area, Bureau of Land Management Office). Aerial censuses invariably underestimate total numbers of wild horses per given area and there has been no correction factor developed for this area. Thus, total count data secured on the Little Mountain WHMA population is presumably below the actual population size.

b) Color

The wild horse gathering operation conducted in 1980 yielded 115 captured animals. Data is available on only 109 animals, without any differentiation as to whether they were removed from the Little Mountain or Miller Flat WHMA's. The population capture sample demonstrated animal color predominately in the medium to dark hues. Table 4 depicts the color variations by percent as averaged from the 1980 capture and 1981, 1982, and 1983 censuses.

TABLE 4

Color

Percentage each color represents as averaged from the 1980 capture and 1981, 1982, 1983 censuses.

<u>Color</u>	<u>Percentage</u>
Bay	54.7%
Sorrel	15.8%
Brown	8.9%
Black	7.5%
White	2.6%
Roan	2.5%
Chestnut	2.3%
Gray	1.9%
Pinto	.9%
Red Roan	.9%
Dun	.5%
Buckskin	.5%
Blue Roan	.5%
Sevina	.5%
	100%

Color variations are due possibly to the subjectivity involved in the process of determining color by different observers.

Color patterns demonstrated in certain areas often indicate selection and breeding by the early settlers of the area and to the extent possible should be enhanced (i.e., Pinto, White, Appaloosa, Palomino, Buckskin, Grulla, Roan, Gray, etc.). Enhancement of color can be achieved through selective removal by retention of colored animals during capture operations.

c) Condition

Generally, the animals removed during capture operations were in fair to good condition. The population as a whole appeared healthy with isolated maladies afflicting some of the older animals.

d) Forage

Fecal analysis studies were conducted over a four month period during the summer of 1977 on the HMA. Large herbivores inhabiting the study area and included in study are mule deer, wild horses, and cattle. Dietary overlap was determined greater between cattle and wild horses than mule deer and wild horses. For location, results and discussion see Appendix 2. Future studies should and will be pursued (when funding permits) to further supplement the information gained from the past fecal analysis studies. Additional fecal studies are needed to aid in determining what the key species are for wild horses and further identify the dietary overlap between cattle, deer and wild horses.

e) Cover

Pinyon and juniper woodlands supply the cover for wild horses. These woodlands blanket the majority of the WHMA and constitute 60% of the vegetative resource. Possible conversion of portions of pinyon-juniper areas, as well as sagebrush areas, and seeding areas would greatly benefit wild horses, yet still maintain adequate cover.

f) Water

The management area is serviced mainly by developed and undeveloped springs, and the Clover Creek. Wild horse use occurs on these waters annually (Appendix 1). Water is not a limiting factor as far as the wild horse population, but is definitely a problem considering proper distribution to eliminate impacts associated with a limited number of waters.

Private ownership along the Clover Creek pose future water access problems for wild horses. Unfortunately, any development of the private land could eliminate access to water by the wild horses in the south portion of the HMA.

g) Seasonal Use and Home Range

A comprehensive study has never been performed to determine the seasonal use patterns or home ranges of wild horse bands inhabiting the management area. Identification of major use areas, however, was accomplished (Appendix 1). Accurate knowledge pertaining to wild horse movement patterns is pertinent in accomplishment of utilization studies, identifying areas of competition and is essential in eliminating interference with the free-roaming behavior of wild horses when intensive grazing management requires management facilities such as fencing.

2) Population Demography

Effective management of wildlife populations is contingent on the acquisition and accurate interpretation of reliable sex and age data. Management of wild horse populations is no exception. Sex and age information secured through capture operations is a reliable technique utilized by the Bureau of Land Management to analyze population processes for management purposes. Caliente Resource Area has completed one removal from this HMA, however, one removal produces only a limited amount of information that may not imply accurate interpretation of the current population. Therefore, additional information will be obtained when possible to make analysis much more reliable through capture operations and field observation, and will be compiled in the Caliente Resource Area office. Analysis of the Little Mountain WHMA population will consider four population parameters; sex ratio, age structure, productivity, and mortality or conversely survival.

5. Recreation

The Little Mountain WHMA incorporates many areas which provide a variety of recreational pursuits, including sightseeing, hiking, off-road vehicle (ORV), hunting, camping, etc. Off-road vehicle competitive events are permitted on a case-by-case basis via Special Recreation Use Permits. Such competitive events could conceivably interrupt wild horse movement patterns and create undue harassment.

C. Existing Range Improvement Projects (Appendix 1)

1. Water Developments

Water developments are limited in the management area. Choke-cherry Spring is developed, but needs some repair. See Appendix 1 for location.

2. Fencing

The majority of the Little Mountain WHMA boundary is fenced (Appendix 1).

D. Coordination

1. Relationship to Other Resource Uses

a. Wild Horse - Wildlife (Appendix 1)

Mule deer, a big game species populating the WHMA, utilized most of the Buckboard Allotment and east half of the Little Mountain Allotment as yearlong range. In addition the Caliente Management Framework Plan identified a mule deer crucial winter area located on the Cedar Mountain Range (U.S. Department of Interior, 1980). Intensive range monitoring of this area is essential to preservation. Caliente Management Framework Plan recognized wildlife "reasonable numbers" at approximately 52.91 (U.S. Department of Interior, 1980). Separation of mule deer reasonable numbers by allotment is presented in Table 6.

TABLE 6

Mule Deer Vegetative Demand

<u>Allotment</u>	<u>Mule Deer Reasonable Number</u>
Roadside	DY-0
White Hills	DY-0
Panaca Cattle	DY-4
Buckboard	DY-19
Little Mountain	DY-29
Cove	DY-0
Clover Creek	DY-.91

Note: DY = Deer use on a yearlong basis.

A reputed fishing resource exists in the Clover Creek. The continued existence of this resource is desired. Diligent coordination among the recreation, wildlife, range and wild horse programs was advocated by the Caliente Management Framework Plan (U.S. Department of Interior, 1980).

b. Wild Horse - Livestock

Conflicts with intensive livestock grazing management and wild horses could result where additional fencing is required to implement successful grazing systems.

The Coordinated Resource Management Planning process and range monitoring system are integral parts of the wild horse and livestock management programs. Genuine participation in these processes will diminish the potential for resource conflicts.

c. Wild Horse and Vegetation

Vegetation utilization and trend data for the WHMA is unavailable at present. However, the Nevada Range Studies Task Force (1981) defined forage monitoring techniques that will be used to secure the information within three to five years. This data will be analysed to determine if the actual numbers of horses using the area are in balance with vegetative resource, hence, a static to upward trend in forage condition can be obtained.

2. Coordination and Reading of Monitoring Studies, and Management Number

Future management numbers will be determined through subsequent analysis of monitoring data. This will require coordination of reading monitoring studies. Initial management number to start monitoring will be 25 head of wild horses plus their increase. Actual use number to be used in monitoring analysis will be obtained by aerial census.

III. Objectives

The overall objectives are to maintain and manage populations of wild, free-roaming horses as recognized components of the public land environment, in balance with their habitat and other resource uses.

A. General Objectives

1. Habitat

- a. Eliminate areas of concentration around a presently limited number of water sources by attaining better distribution of animals through development of additional water facilities for wild horses throughout the HMA.
- b. Maintain home ranges of wild horses by not compromising seasonal movement and distribution patterns when intensive grazing practices require management facilities that restrict the animals free-roaming behavior (i.e., fences).
- c. Manage the Little Mountain Allotment for wild horse and wildlife use pursuant to the 1976 relinquishment of the grazing privileges back to the United States of America for that specific purpose.

2. Wild Horse

- a. Maintenance of a population of sound healthy animals by selective removal during capture operations of seriously lame, ill or deformed individuals.
- b. Enhance unusual or unique color markings (e.i., Pinto, White, Appaloosa, Palomino, Buckskin, Grulla, Roan, Gray, etc.) by selective retention of those colored animals during capture operations.

B. Specific Objectives

1. Habitat

- a. Determine key forage plant species for wild horses. Initially key species will be selected using the Nevada

Range Monitoring Task Force procedures. Within five years these key species will be evaluated through fecal analysis (depending on funding) and field observations to determine which key forage plant species to continue to monitor.

- b. Determine allowable use factors on key forage plant species on each key area within ten years not to exceed (at present) the allowable use factors for perennial range as established by the Nevada Range Monitoring Task Force as follows:

<u>Plant Category</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>	<u>Yearlong</u>
Perennial Grasses and Grasslike	50	50	60	60	55
Shrubs, Half Shrubs and Trees	30	50	50	50	45

- c. Maintain a static to upward trend in vegetation characteristics by establishing frequency plots on key management areas using methodology as established by the Nevada Range Monitoring Task Force to be evaluated every three years.
- d. Increase perennial forage base by 2000 acres through vegetation manipulation within 10 years, depending on available funding.

2. Wild Horse

- a. Determine management number of wild horses for Little Mountain WHMA within five years, using monitoring studies, as described by the Nevada Range Monitoring Task Force. Initiate monitoring with 25 head and their increase.
- b. Obtain information on population characteristics (i.e., color, condition, average band size), and population dynamics (i.e., age class, sex ratio, age structure) every three years (depending on funding) to be evaluated in 15 years. Information to be collected during periodic capture, aerial census and on ground field observations. Information is necessary to better understand the forces which shape the population and will assist in the establishment of management direction and new objectives.

IV. Management Methods

A. Management Methods for General Objectives

1. Habitat

- a. Eliminate areas of concentration around a presently limited number of water sources by attaining better distribution of

animals through development of additional water facilities for wild horses throughout the herd management areas. Water facilities that are being proposed are identified in Appendix 1, and consist of developing the Keel and Board Springs and piping Chokeycherry Spring west approximately three miles. These will be proposed during FY 84. In addition to spring development and pipeline construction, areas for reservoir construction will be field located during FY 84 and proposed during FY 85. Sharing the cost of construction of these projects with other range users will be considered and investigated. Projects approval and construction is dependent on funding and feasibility.

- b. Maintenance of wild horse home ranges will be assured through proper identification of the animals' seasonal movement and distribution patterns. To determine these movement patterns studies will be proposed for FY 84 that will aid in the identification of home ranges, and provide the information necessary to properly design management facilities that will allow for normal distribution and movement patterns of the animals. These studies involve on-the-ground field observations during each of the four seasons. Until such studies are completed, new management facilities should be delayed that restrict movement and distribution patterns of wild horses.
- c. Manage the Little Mountain Allotment for wildlife and wild horse use pursuant to the 1976 relinquishment of the grazing privileges back to the BLM for that specific purpose. Minimal use of management facilities may be required to aid in retaining the number of horses necessary to attain the desired utilization on key species for that area, yet maintain the proper balance with other resource users on the rest of the WHMA. Wild horses may be relocated onto this area subject to terms and conditions specified under Section V B-5, titled Relocation of Wild Horses in this plan, in order to attain desired utilization.

2. Wild Horse

- a. Maintenance of a population of sound healthy animals by selective removal during capture operations of seriously lame, ill or deformed individuals.
- b. Enhance unusual or unique, color markings, i.e., Pinto, White, Appaloosa, Palomino, Buckskin, Grulla, Roan, Gray, in that order, by selective retention of those colored animals during capture operations. During required adjustment removals the required sex ratio and age structure will not be sacrificed at the expense of color.

B. Management Methods for Specific Objectives

1. Habitat

- A. Determine Key forage plant species for wild horses. Initially key species will be selected using the Nevada Range Monitoring Task Force procedures. Within five years these key species will be evaluated through fecal analysis (depending on funding) and field observations to determine which key forage plant species will reflect the overall acceptability of current grazing management on all or part of the Little Mountain Herd Management Area.
- b. Determine allowable use factors for wild horses on key forage plant species on each key area within ten years not to exceed (at present) the allowable use factors for perennial forage as established by the Nevada Range Monitoring Task Force as follows:

<u>Plant Category</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>	<u>Yearlong</u>
Perennial Grasses and Grasslike	50	50	60	60	55
Shrubs, Half Shrubs and Trees	30	50	50	50	45

This can be accomplished by identifying which key species each class of animal is using in each particular key area, identifying areas of use by each class of animal, and by conducting fecal analysis studies (depending on funding) and observation of plants used. This goal can only be accomplished through coordination of installation and reading of monitoring studies as described by the Nevada Range Monitoring Task Force.

- c. Maintain a static to upward trend in vegetation characteristics by monitoring closely changes in vegetation composition in relation to animal use. To be accomplished by establishing and reading frequency plots on key management areas using the methodology as established by the Nevada Range Monitoring Task Force to be evaluated every three years.
- d. Increase perennial forage base by 2000 acres through vegetation manipulation. Vegetation manipulation will be proposed during FY 84. The area that is being considered was identified during MFP-Step 3 and covers the southern half of the Buckboard Allotment, (Appendix 1). This area is covered mostly with thick stands of pinyon/juniper and should be opened up and seeded to provide additional forage for wild horses. This revegetation would not only benefit wild horses, but would be of direct benefit to livestock and wildlife. Sharing the cost of revegetation by other resource users will be investigated. In addition,

a test plot will be located in the southwest portion of the HMA. This test plot will be less than one acre in size and will enable a study of the response of native grasses to being released through application of herbicide to a target species of big sagebrush. Portions of the test plot will also be reseeded. Results from this study may have implications on future improvement proposals for the WHMA.

2. Wild Horses

- a. Determine management number of wild horses for Little Mountain WHMA within five years using monitoring studies, as described by the Nevada Range Monitoring Task Force. Initiate monitoring with 25 head and their increase, plus any initial number of animals that may be relocated into the HMA.
- b. Collect information on population characteristics (i.e., color, condition, average band size), and population dynamics (i.e., age class, sex ratio, age structure) every three years (or less depending on funding) to be evaluated in 15 years. Information to be collected during periodic capture, aerial census and on ground field observations. Information is necessary to better understand the forces which shape the population and will assist in the establishment of management direction and new objectives. The WHMA is being proposed for field studies during FY 84 to gather data on home ranges, therefore, information concerning population characteristics and population dynamics will be gathered at this time.

C. Population Adjustments

Population Adjustments will be conducted only when range monitoring studies demonstrate a need. Adjustment will be based on the utilization of key forage species (Range Studies Task Group, 1981). Distribution and use patterns of livestock and wild horses will be taken into consideration when making adjustments. A basic utilization - population size formula will be employed for calculation of the necessary adjustment as follows:

$$X = \frac{(\text{Desired Population Size})}{\text{Desired Utilization}} = \frac{\text{Present Population Size}}{\text{Present Utilization}}$$

Utilization monitoring, as per BLM Manual 4412.22 B 7 c 5, and the Nevada Range Monitoring Procedures Handbook, 1981, will be executed in the key management areas. When the need for a population adjustment (at least two years hence) is evidenced, both wild horse and livestock populations will reflect changes according to the historical use patterns of each class of animal. Wild horse adjustment will be contingent on the 1983 population actual count reflecting a annual finite rate of increase as determined by future population studies analysis.

Maintenance of a population that can coexist in the HMA and yet, attain at least 50% utilization on key species in the Little Mountain Allotment is the management objective. To attain this objective in the HMA and still maintain existing numbers internal adjustment may be used. For example, one major use area may be identified as requiring a downward population adjustment and a second major use area may need an upward population adjustment to meet the proper utilization goal, the necessary adjustment can be made while still maintaining the desired management population.

In addition, contingent upon utilization studies and because of the unique status of the Little Mountain Allotment (relinquishment of grazing privileges), relocation of wild horses from other areas in the district (that is over populated or has problem animals) onto the Little Mountain WHMA to meet WHMA objectives specific to the Little Mountain Allotment may be considered. However, this situation does not preclude the possibility that an overall population adjustment upward or downward might eventually be warranted.

All population reductions will be in accordance with guidelines established by the Caliente-Virgin Valley Wild Horse and Burro Gathering Plan (retained in the Caliente Bureau of Land Management office) and 43 Code of Federal Regulations 4740.

V. Studies and Assessment

Actual procedures for each type of study will be contained in the WHMA files in the Caliente Resource Area office in order that some consistency can be attained in the program for each WHMA.

A. Habitat

1. Trend

Trend is defined as a change in vegetation and soil characteristics as a direct result of environmental factors, primarily climate and grazing. Trend studies will be used in combination with other studies to evaluate the effectiveness of this management plan. The frequency sampling procedure described by Tueller et. al., (1972) will be the methodology utilized. The data collected will be reserved in the allotment files located in the Caliente Bureau of Land Management office. Refer to the range monitoring map (Appendix 1) for approximate location of the trend plots.

2. Utilization

Utilization is defined as the degree of herbage removed from current annual production. Utilization studies help to evaluate management systems by determining patterns and quantity of use. The Key Forage Plant Method is the technique adopted for this management plan. Section 4423.33B7C of the Bureau of Land Management Manual and the Range Studies Task Group (1981) describes this particular method adequately. Utilization data will be

collected contiguous with movement of livestock from key management areas, thus acquiring cattle and wild horse use. Utilization data will again be collected prior to cattle re-entry to obtain wild horse utilization only. Utilization transects will be conducted throughout the key management area. Data will be reserved with trend information.

3. Actual Use

Wild horse actual use estimates will be obtained from aerial census conducted by the Caliente Resource Area Wild Horse and Burro Specialist at a minimum of once every three years, depending on funding. Data will be reserved with trend and utilization information.

4. Fecal Analysis

A fecal analysis study will be conducted when funding permits. This study will supplement information gained from the fecal analysis conducted in 1977 and discussed in Section II B of this plan. Methodology adopted for the study follows:

- Data collection will span an entire year.
- Seasonal samples will be gathered through collection of monthly sub-samples (minimum of five sub-samples/collection area).
- Establishment of collection areas in close proximity to trend and utilization studies.
- Only fresh-moist sub-samples shall be selected.

B. Wild Horse

1. Home Ranges and Seasonal Movement Patterns.

A comprehensive study will be conducted to secure information on home ranges and seasonal movement patterns. This information is essential to accomplish utilization studies and prevent future conflicts with intensive grazing management practices. Considering the present situation regarding the size of the WHMA and present number of wild horses a study could be conducted with limited funding as follows:

Phase 1 - October, January, April, July

Objective: Determine seasonal movement patterns and home range establishment.

Method: On the ground observations from horseback conducted seasonally (fall, winter, spring, and summer), with sighting locations plotted on a map. This would require approximately 20 days horse rental and one work month.

Phase 2 - Evaluation of information acquired through field work.

In addition, information regarding other population characteristics and population dynamics would be gathered at this time (i.e., color, condition, band size, age classes, sex ratio, etc.). This additional information would require use of a spotting scope positioned at strategic locations.

2. Productivity and Survival

Information on young/adult classification will be collected when funding is available, but should be gathered at a minimum of every three years. The survey should be conducted in July and again the following January. Aerial survey will be the method used to collect data, plus additional information should be collected during the survey that would enhance data already contained in the resource files concerning other characteristics of the population (i.e., color, condition, band size, actual count, home ranges and seasonal movement patterns etc.).

3. Sex Ratio Determination

Further enhancement of the sex ratio assessment secured from the 109 horse removal, conducted in 1980, is the objective of this study. Two methods will be utilized in the accomplishment of this endeavor.

Classification of captured animals - sex determination will be conducted on all horses captured during gathering operations.

Field observation - a spotting scope positioned at strategic locations (water sources, trails, natural salt licks, etc.) will be employed to obtain sex ratio information where possible. However, unless all animals in a band can be classified, the data will not be used.

4. Age Structure Evaluation

Relative age structure of the Little Mountain WHMA population will be periodically evaluated. The 109 animal capture sample obtained during the 1980 gathering operation supplied valuable data. This information will be further supplemented with classification of future captured animals - animals captured during gathering operations will undergo age determination activities.

5. Relocation of Wild Horses

The relocation of wild horses from one herd area to another may be undertaken when necessary to meet specific management objectives. Relocation is a tool that has utility in maintaining vigor in herds and in enhancing selected characteristics which are managed

in a population. Therefore, because of limited data available concerning relocation, a proposal is being made to relocate between five and ten wild horses onto the Little Mountain Wild Horse Herd Management Area and conduct intensive studies concerning their behavior and movement patterns in order that a data base may be built. However, relocation will only be allowed if utilization on key forage species is determined to be below 50% on key areas within the Little Mountain WHMA.

This proposal to relocate wild horses onto the Little Mountain WHMA is for the purpose of obtaining data concerning the animals behavior and movement pattern. Any future adjustments in wild horse numbers will be made only after adequate data has been obtained from monitoring studies as outlined in Section IV C., titled Population Adjustments.

In the event that wild horses are relocated onto the Little Mountain WHMA, for the purpose of obtaining information, the following guidelines should be considered.

Special Needs:

- Collars - Radio collars to monitor movement.
- Receiver - To monitor movement via collars.
- Panels - Holding facilities.
- Flight Time - 12 hours flight time depending on locatability from ground observations.
- Hay and Water - One month.
- Work Months - One Work Month.
- Horse Rental - Five Days.
- Spotting Scope - 30x60 Power.

Special Considerations:

Horses relocated should cohabit as a band in their original habitat.

Selection of colored horses (i.e., Pinto, White, Palomino, Buckskin, Roan, etc.) for relocation will aid in identifying the band once relocated, and enhance selected characteristics which are managed for in the population.

Selection of only healthy mature wild horses is imperative.

Band to be relocated should be comprised of all females except for one dominant stud/band. The only exception being that the band cohabit as a band in their original habitat.

Phase 1

Objective: In a coordinated effort with Caliente Wild Horse and Burro Specialist, identify horses to be relocated.

Methods: Capture and attach collars to all mature wild horses and provide necessary medical attention.

Phase 2

Objective: Locate wild horses onto the Little Mountain Allotment.

Methods: Provide adequate space in corral made of panels for approximately one month providing adequate feed and water for maintenance. Corral to be located approximately in T. 4S., R.67E., Sec. 12.

Phase 3

Objective: Release of wild horses onto Little Mountain WHMA.

Methods: Remove part of the panels to allow horses to escape.

Phase 4

Objective: Monitor behavior and movement patterns.

Methods: Depending on the funding level, monitor behavior and movement via air and ground observations. Initially, observe and follow animals, monitoring movement and behavior patterns for the first five days. Use of airplane may be necessary to locate animals in order that on ground observations from horse back, using spotting scope can be made. Initially during the first five days their movement patterns will be plotted on maps, also to be recorded is the type of behavior exhibited by the band (i.e., inter band social interactions, interactions with other bands, response to other environmental factors, development of patterns relating to certain areas of use, etc.).

After the initial first five days of observations, observe the band's location every other day for the next ten days recording only the location. Thereafter, depending on sighting frequency, locate the band once a week for two months recording location. Thereafter, periodic observation noting location of band in regards to seasonal movement and behavior patterns during each of the four seasons for the life of the collars.

During the two year study, information concerning population characteristics (i.e., condition, band size, etc.) will be recorded; plus information on population dynamics (i.e., age class, sex ratio, age structure) as they relate to the relocated animals. If relocated band splits and collared animals join other bands then these bands will be included in study and will be monitored as long as the collars emit a signal.

If the animals do not relocate onto the Little Mountain Wild Horse Herd Management Area then appropriate measures will be pursued to remove animals from the range, as determined by the authorized officer, and provide for their well-being in accordance with BLM Manual Supplement 4730.6, Release NV4-6, and 43 Code of Federal Regulations 4700.

VI. Approval

Prepared by: _____ Date _____
Wild Horse and Burro Specialist,
Caliente Resource Area

Recommended
for Approval: _____ Date _____
Area Manager, Caliente Resource Area

Approved by: _____ Date _____
District Manager, Las Vegas District

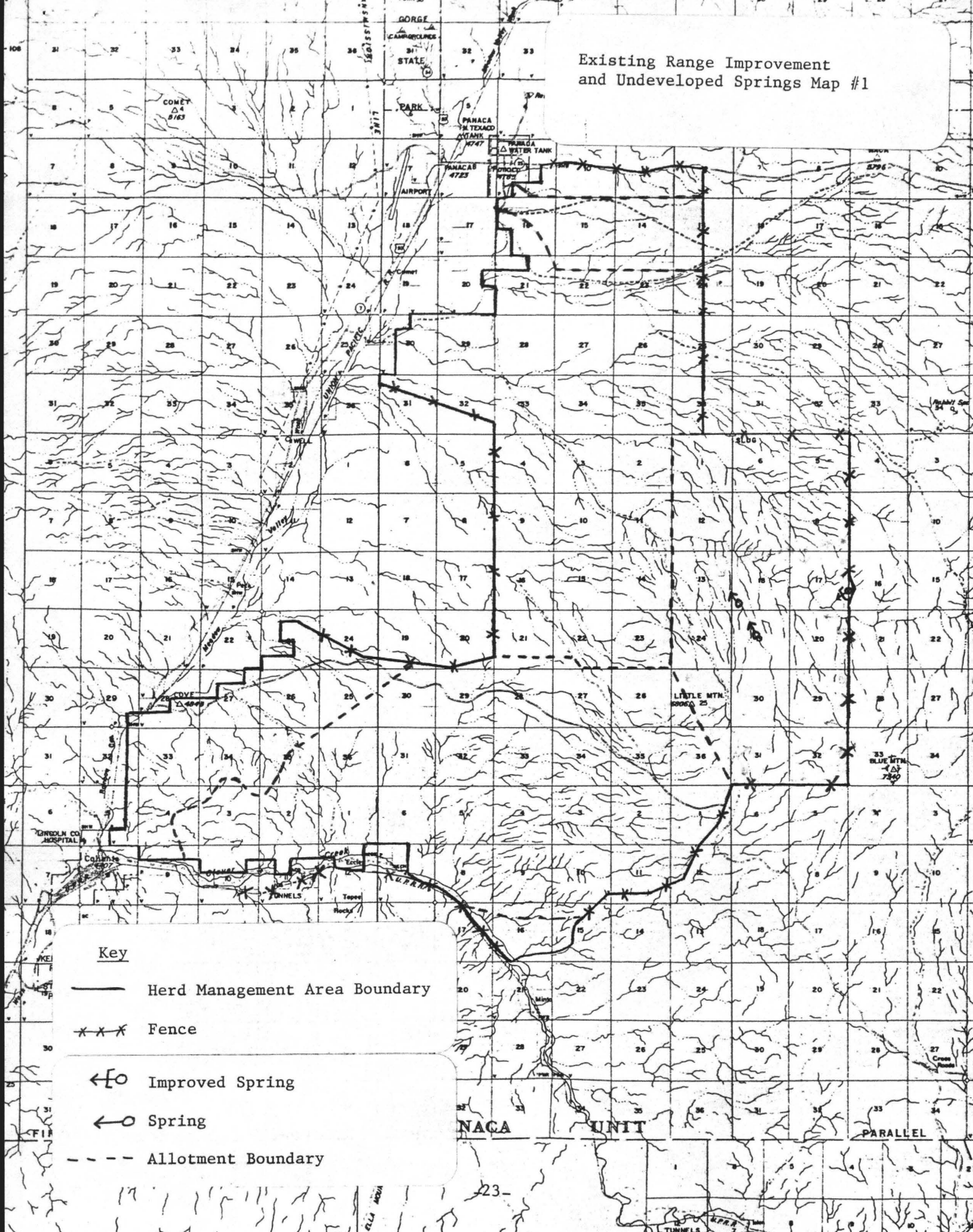
Concurrence: _____ Date _____
State Director, Nevada State Office

APPENDIX 1

MAPS

- Existing Range Improvement Map #1 - Depicts all range improvements and springs existing on the Little Mountain WHMA, and grazing allotments included within the boundary of the WHMA.
- Proposed Range Improvement Map #2 and Map #3 - Map #2 is the proposed water developments. Map #3 is the proposed vegetation conversion.
- Wildlife Map #4 - Mule Deer Use Area
- Major Use Areas and Range Monitoring Map #5 - Wild horse major use areas and the location of range monitoring plots are identified.
- Fecal Analysis Map #6 - Fecal study area locations.

Existing Range Improvement
and Undeveloped Springs Map #1

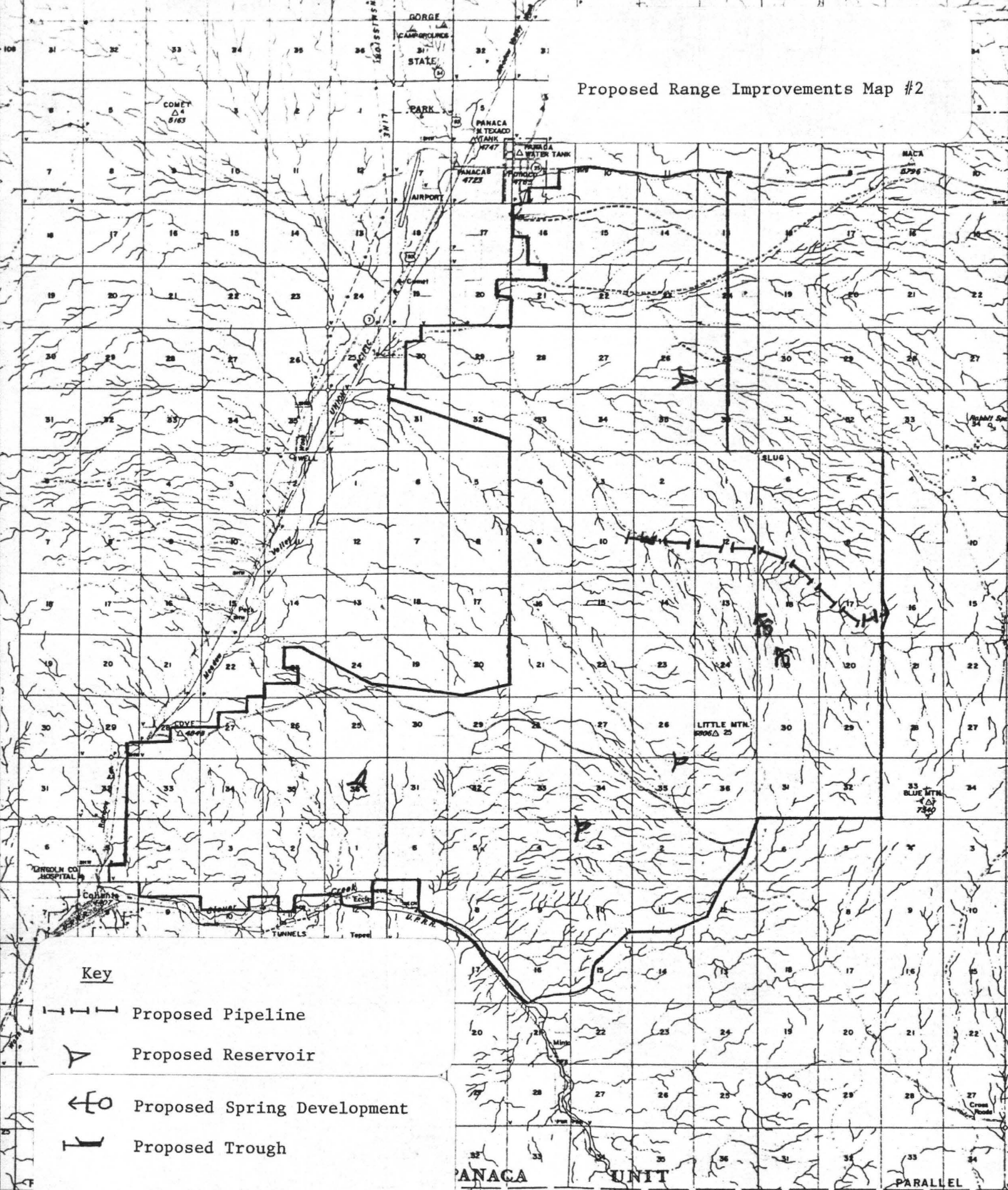


Key

- Herd Management Area Boundary
- xxx Fence
- ←○ Improved Spring
- ←○ Spring
- Allotment Boundary

NAGA UNIT PARALLEL

Proposed Range Improvements Map #2

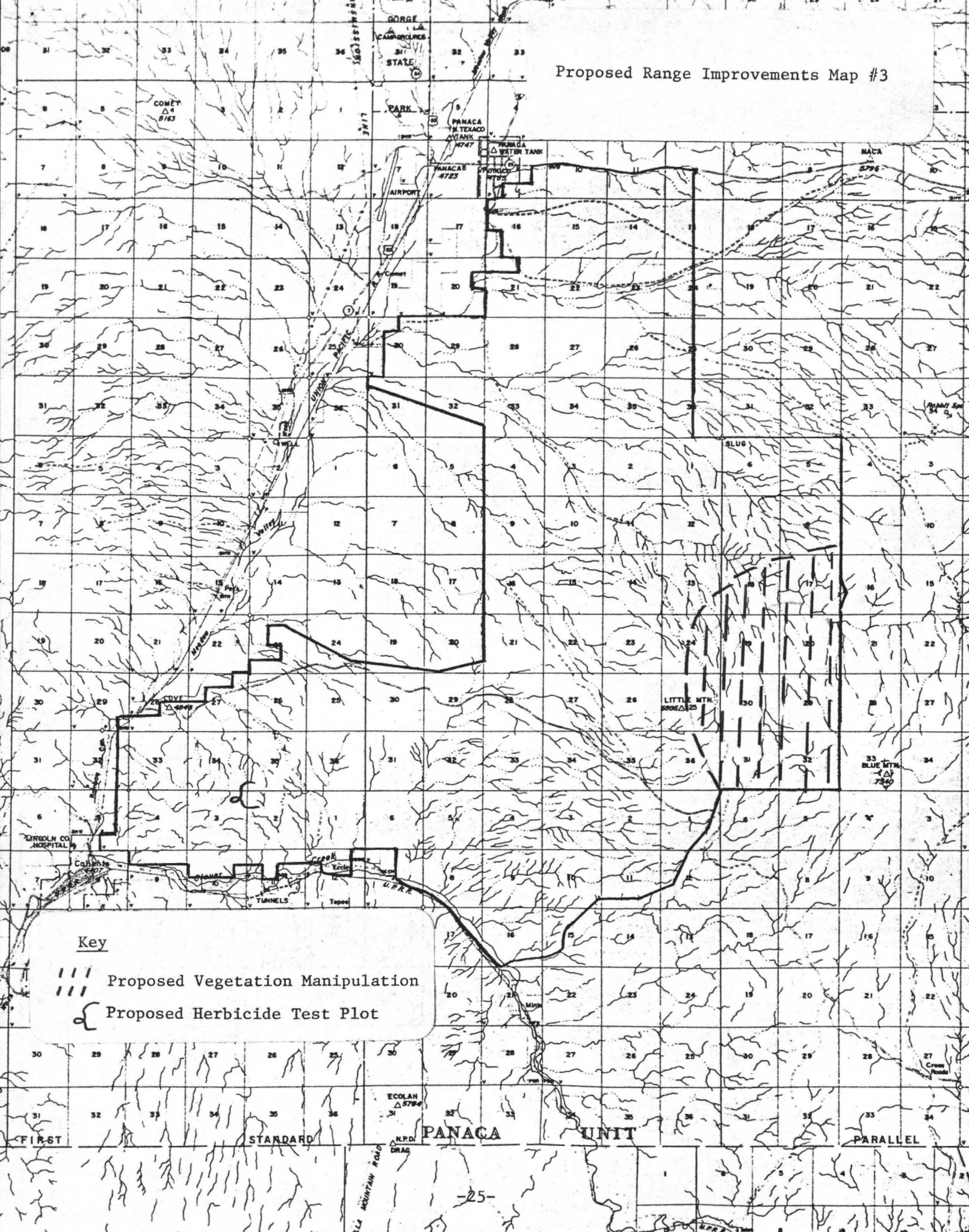


Key

- Proposed Pipeline
- ▲ Proposed Reservoir
- ←○ Proposed Spring Development
- ▬ Proposed Trough

PANACA UNIT PARALLEL

Proposed Range Improvements Map #3

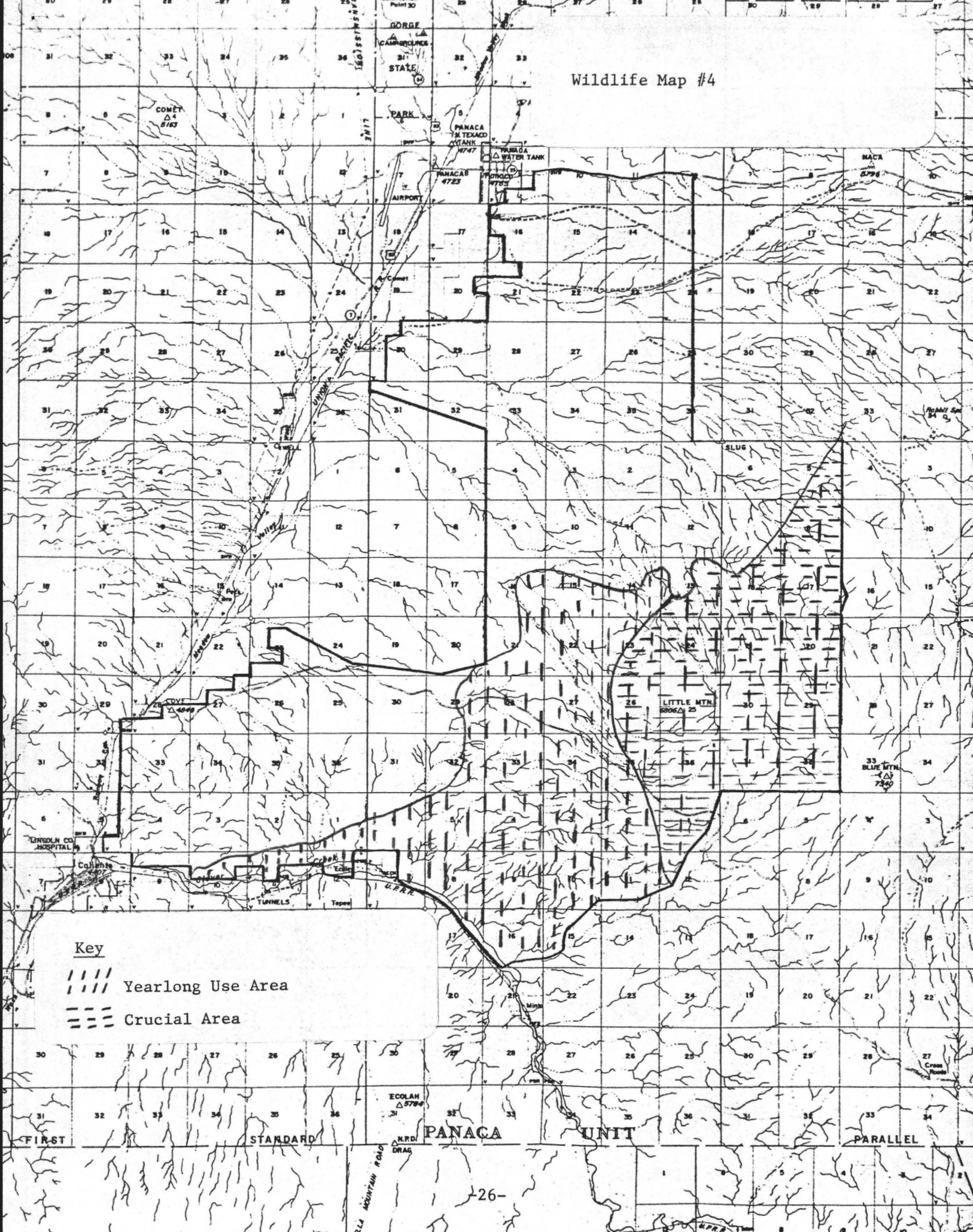


Key



- /// Proposed Vegetation Manipulation
- Proposed Herbicide Test Plot

FIRST STANDARD PANACA UNIT PARALLEL

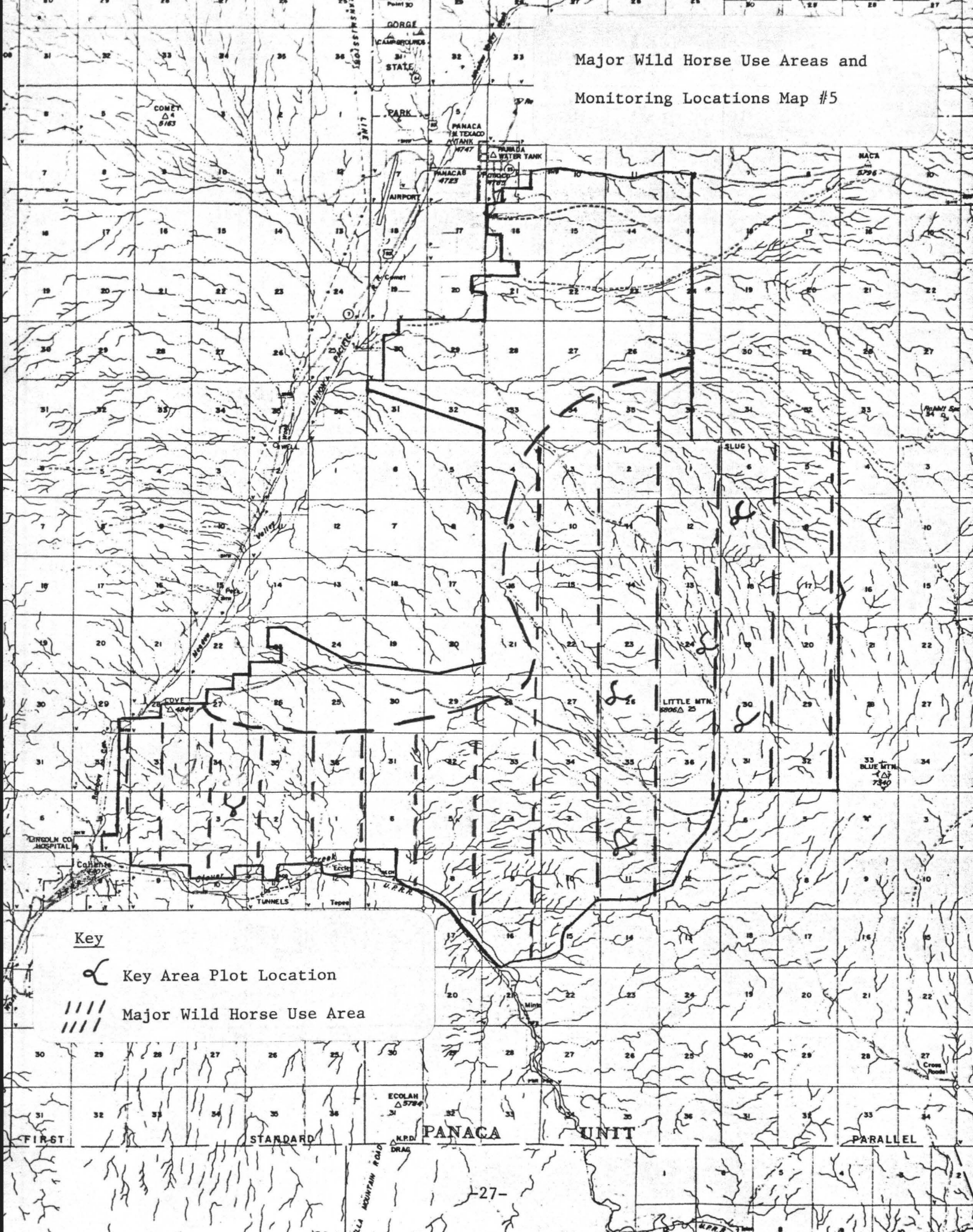
Wildlife Map #4





Key

-  Yearlong Use Area
-  Crucial Area

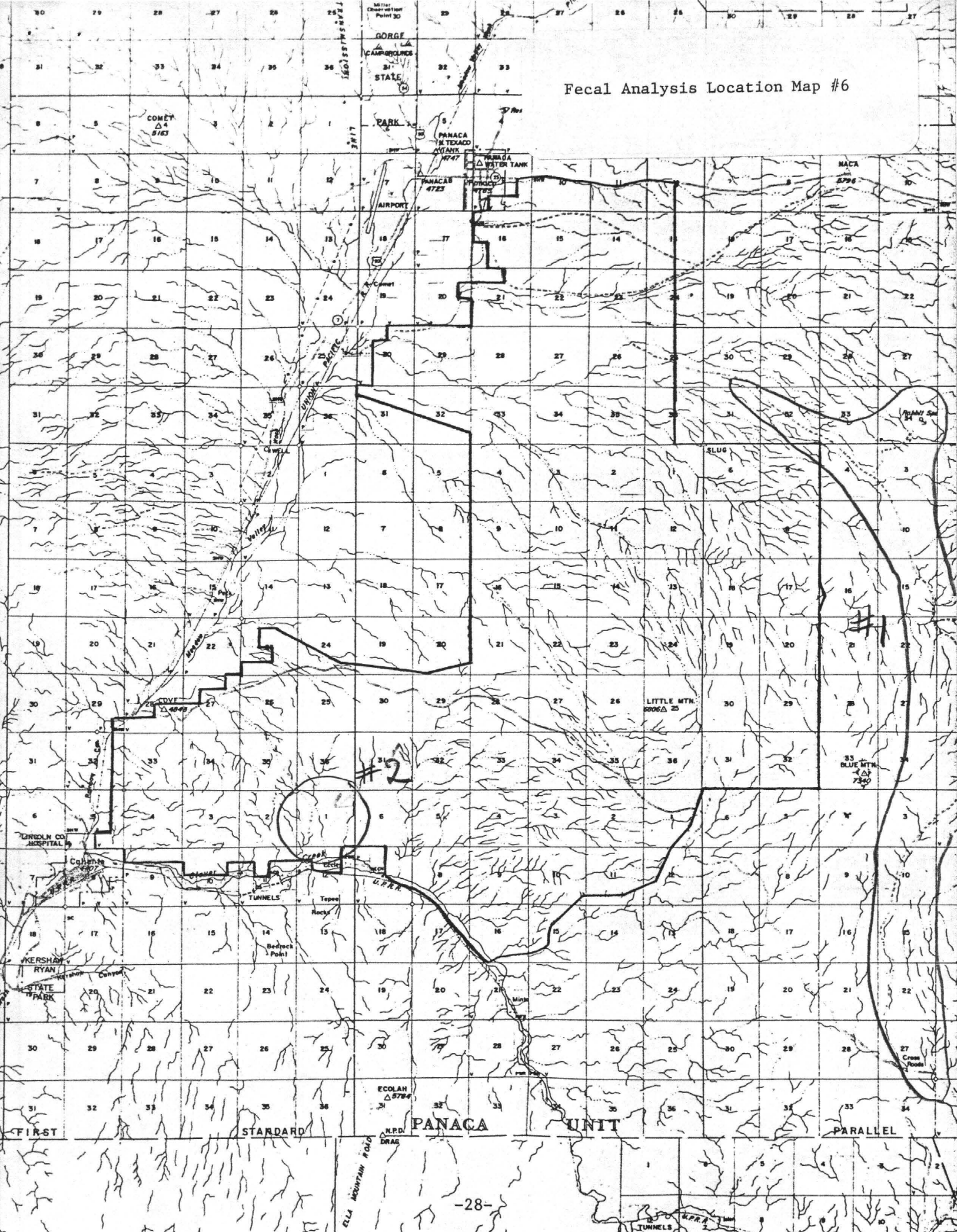
Major Wild Horse Use Areas and
Monitoring Locations Map #5



Key

-  Key Area Plot Location
-  Major Wild Horse Use Area

Fecal Analysis Location Map #6



APPENDIX 2

FECAL ANALYSIS

A brief summary of the fecal analysis study conducted in the Little Mountain WHMA in 1977 is presented here. A more detailed account of the study is contained in the Caliente Unit Resource Analysis located in the Caliente Bureau of Land Management office.

Fecal analysis studies were conducted over a four month period during the summer of 1977. There are two study areas that affect the Little Mountain WHMA, Study Area #2 is located three miles east of the City of Caliente just north of the Clover Creek (Appendix 1, Map #6). Study Area #1 is typical of the eastern edge of the Little Mountain WHMA, and general vegetative communities are pinyon-juniper-sagebrush. Study Area #2 is classified more a juniper-sagebrush community and is typical of the western half of the Little Mountain WHMA.

Large herbivores inhabiting Study Area #2 include mule deer, wild horses, large herbivores inhabiting Study Area #1 include mule deer, wild horses, domestic sheep (not addressed in study), and cattle. Dietary overlap was determined greater between cattle and wild horses, than between mule deer and wild horses. Research conducted in Wyoming's Red Desert (Olsen and Hansen, 1977) and the Douglas Mountain Area of Colorado (Hansen et. al., 1977) also in Northwestern Nevada (Hansen, 1982) showed similar results. Additionally, wild horses preferred grasses to forbs and shrubs. Similar findings are documented by Hansen et. al. (1977), Salter and Hudson (1979) in western Alberta, Canada and Olsen and Hansen (1977), and Hansen (1982). The main grasses consumed by the horses inhabiting the WHMA include bromus (Bromus spp.), needle-and-thread (Stipa comata), three-awn (Aristida spp.), sand dropseed (Sporobolus cryptandrus), galleta (Hilaria jamesii), and wheatgrass (Agropyron spp.).

There are obvious limitations to the information gained from this fecal analysis. Fecal samples were collected only for four months and not on a yearlong basis. Fecal samples were not always fresh and moist. The study was restricted to a single area in the Miller Flat WHMA and a single area in the Little Mountain WHMA and then extrapolation of information to the entire Little Mountain WHMA, which may or may not be appropriate.

Future studies would and will be pursued (when funding permits) to aid in determining key plant species for wild horses and further supplement the information gained from the 1977 fecal analysis. These studies will include further fecal analysis in addition to trend and utilization evaluation.

PLANT SPECIES COMPOSITION LIST

Key to Occurrence

- i - infrequent
c - common
a - abundant

GRASSES

- | | |
|---------------------------------|-----------------------------------|
| <u>Agropyron desertorum</u> - a | <u>Oryzopsis hymenoides</u> - i |
| <u>Agropyron smithii</u> - i | <u>Poa nevadensis</u> - c |
| <u>Aristida spp.</u> - c | <u>Poa secunda</u> - i |
| <u>Bouteloua gracilis</u> - c | <u>Sitanion hystrix</u> - c |
| <u>Bromus rubens</u> - i | <u>Sporobolus cryptandrus</u> - i |
| <u>Bromus tectorum</u> - i | <u>Stipa comata</u> - i |
| <u>Hilaria jamesii</u> - c | |

FORBS

- | | |
|------------------------------|------------------------------------|
| <u>Astragalus spp.</u> - i | <u>Iris spp.</u> - i |
| <u>Antennaria spp.</u> - i | <u>Lotus spp.</u> - c |
| <u>Brassica nigra</u> - i | <u>Lupinus spp.</u> - i |
| <u>Chenopodium album</u> - i | <u>Lygodesmia spp.</u> - i |
| <u>Commandra pallida</u> - i | <u>Penstemon spp.</u> - i |
| <u>Erigeron spp.</u> - i | <u>Phlox spp.</u> - i |
| <u>Eriogonum spp.</u> - i | <u>Salsola kali tenuifolia</u> - i |
| <u>Euphorbia spp.</u> - i | <u>Sphaeralcia spp.</u> - i |

TREES AND SHRUBS

- | | |
|--|-------------------------------------|
| <u>Artemisia nova</u> - a | <u>Juniperus utahensis</u> - a |
| <u>Artemisia tridentata</u> - a | <u>Leptodactylon pungens</u> - i |
| <u>Aster engalmannii</u> - i | <u>Opuntia spp.</u> - i |
| <u>Atriplex canescens</u> - i | <u>Peraphyllum ramosissimum</u> - i |
| <u>Cercocarpus ledifolius</u> - i | <u>Pimus monophylla</u> - a |
| <u>Chrysothamnus nauseosus</u> - i | <u>Purshia tridentata</u> - c |
| <u>Chrysothamnus viscidiflorus</u> - a | <u>Quercus gambellii</u> - i |
| <u>Cowania mexicana stansburiana</u> - c | <u>Quercus turbinella</u> - i |
| <u>Ephedra nevadensis</u> - a | <u>Salvia carnososa</u> - i |
| <u>Ephedra viridis</u> - c | <u>Tetradymia canescens</u> - i |
| <u>Eriogonum spp.</u> - c | <u>Yucca spp.</u> - i |
| <u>Gutierrezia spp.</u> - c | |

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GLOSSARY

Age Structure. The ratio of one age class to another used in determining or understanding the population dynamics and identifying future or past problems in the herd.

Allotment. An area of land where one or more operators graze their livestock. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock and season-of-use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

Allotment Management Plan (AMP). A livestock grazing management plan dealing with a specific unit of rangeland, based on multiple-use resource management objectives. The AMP considers livestock grazing in relation to other uses of the range and in relation to renewable resources—watershed, vegetation, and wildlife. An AMP establishes season-of-use, number of livestock to be permitted on the range, and rangeland developments needed.

Alluvial Fan. A sloping, fan-shaped mass of sediment deposited by a stream where it emerges from an upland onto a plain.

Alluvial Soil. A soil formed recently deposited alluvium and having essentially no horizon development no modification of recently deposited materials.

Act, The. The Wild Free-Roaming Horse and Burro Protection Act of December 15, 1971, 16 U.S.C. 1331-1431.

Animal Unit (AU). A measurement of animal numbers based on the equivalent of a mature cow with calf (800 pounds live weight); roughly one cow with calf, one horse, one mule, five sheep, five swine, six goats, or two burrows.

Animal Unit Month (AUM). Amount of feed or forage required by an animal-unit for one month.

Annual Plant. A plant that completes its life cycle and dies in one year or less.

Carrying Capacity. The maximum number of animals possible without inducing damage to vegetation or related resources. It may vary from year to year on the same area due to fluctuating forage production.

Climax. The highest ecological development of a plant community capable of perpetuation under the prevailing climatic and edaphic conditions.

Cohort. A group of animals born simultaneously.

Community. A group of plants and animals living in a specific region under relatively similar conditions.

Demography. The study of vital statistics of a population.

Ecological Density. The number of organisms (per unit area) occupying only those areas that can adequately meet their requirements.

Ecosystem. An ecological community together with its physical environment, considered as a unit.

Environment. The surrounding condition, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.

Erosion. The wearing away of the land surface by wind, running water, and other geological agents.

Exclosure. A small area set aside and protected from grazing, either to preserve representative areas in excellent range condition or to allow observation of succession on depleted rangeland without grazing.

Fecundity. Rate at which an individual produces offspring, usually expressed only for females.

Finite Rate of Increase (). Factor by which the population increases during each time unit.

Forage. All browse and herbaceous food that is available to grazing animals.

Forbs. A herbaceous plant or annual plant species.

Graze. To feed on herbage.

Grazing System. A systematic application of grazing treatments to a management unit in a prescribed sequence over recurring periods of time; the manipulation of livestock to accomplish a desired result.

Habitat. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Habitat Management Plan (HMP) A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objective, and outlines procedures for evaluating accomplishments.

Herbivore. An animal that feeds on plants.

Herd. A number of wild animals of one species that remain together as a group.

Herd Management Area (HMA). That area of wild horse habitat covered by HMAP.

Herd Management Area Plan (HMAP). A plan for management of the HMA.

Home Range. An area that an animal or group of animals travel in pursuit of their routing activity.

Key Management Area. These are areas that may be a relatively small portion of a range selected because of its location, use, or grazing value as a monitoring point for management decisions. It is assumed that key areas, if properly selected, will reflect the overall acceptability of current grazing management over all or part of the grazing unit.

Key Species. (1) Forage species whose use serves as an indicator to the degree of use of associated species; (2) those species which must, because of their importance, be considered in the management program.

Life Tables. A series of columns, headed by standard notations, each of which describes mortality relations within a population when age is considered. Life tables provide the vital statistics for calculating growth performance of a population.

Management Framework Plan (MFP). A planning decision document which establishes for a given area of land, land use allocations, coordination guidelines for multiple-use, and objectives to be achieved for each class of land use or protection. It is BLM's Land-Use Plan.

Mortality. Ratio of the number of deaths of individuals to the population, often described as a function of age.

ORV. Off-Road vehicle.

Perennial (Plant). A plant that has a life cycle of three or more years.

PH. A measure of the acidity or alkalinity of a solution, numerically equal to seven for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity.

Phenology. The study of periodic biological phenomenon such as flowering, seeding, etc., especially as related to climate.

Public Land. Tracts of land administered by the Bureau of Land Management.

Range Condition. The current productivity of a range relative to what the range is naturally capable of producing.

Range Inventory. An itemized list of resources of a management area such as range site; range condition classes; range condition trends; range use; estimated proper stocking rates; physical developments; and natural conditions such as water, barriers, etc.

Range Trend. Change in vegetation and soil characteristics as a direct result of environmental factors, primarily climate and grazing.

Reasonable Numbers. That number of animals which the wildlife management agency is striving to maintain within a given planning unit under a multiple-use concept on a sustained yield basis.

Riparian. Of, on, or pertaining to the bank of a river, or a pond or small water source.

Rock Outcrop. Bedrock exposures or patches of thin soil over bedrock.

Runoff, Surface. Refers to the relative rate water is removed by flow over the surface of the soil. Rates are referred to as slow, medium, and rapid.

Sex Ratio. The ratio existing between the number of male and female animals within a given herd, band, or population.

Shrub. A relatively low-growing, much branched, many stemmed, woody, perennial plant.

Soil. The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

Soil Associations. A group of defined and named soil units occurring together in a characteristic pattern over a geographic region.

Soil Family. In soil classification, one of the categories intermediate between the great soil group and the soil series. Families are defined largely on the basis of physical and mineralogical properties of importance to plant growth.

Soil Moisture. Water stored within the soil, which is available for plant uptake (transpiration) and evaporation to the atmosphere. Each soil has a characteristic capacity for holding moisture. When this capacity is reached, water cannot infiltrate the soil but instead runs off, increasing the probability of flooding.

Survivorship Curve. A graphical presentation of survival in a population of individuals from conception, or birth, to the maximum age attained by any member of the population.

Threatened and Endangered Plants (T & E Plants). Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Ungulates. A broad group of herbivorous hoofed mammals.

Unit Resource Analysis (URA). A comprehensive display of physical resource data and an analysis of the current use, production, condition, and trend of the resource and the potentials and opportunities within a planning unit, including a profile of ecological values.

Utilization (Range Utilization). A degree of use of current year's plant production made by grazing animals.

Vegetative Type. A plant community with distinguishable characteristics, described by the dominant vegetation present.

Watershed. The total area above a given point on a stream that contributes water to the flow at that point.