



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Surprise Field Office

PO Box 460

Cedarville, CA 96104

www.ca.blm.gov/surprise



6-23-03

In Reply Refer To:
4700(CA-370)

June 23, 2003

Dear Interested Party:

Enclosed, for your review, is a copy of the ~~_____~~ **Management Level (AML) Determination and Gather Plan Environmental Assessment (EA No. CA-370-03-19)**.

The purpose of these documents is to establish an AML for the Carter Reservoir HMA and analyze the impacts of removing wild horses to the established level.

Please submit any comments you may have to the Bureau of Land Management, Surprise Field Office, Post Office Box 460, Cedarville, CA 96104. Comments must be received by July 23, 2003.

Thank you for your interest in our wild horse and burro program.

Sincerely,

Owen Billingsley
Surprise Field Manager

Enclosures

**CARTER RESERVOIR HERD MANAGEMENT AREA
AML ESTABLISHMENT/
CAPTURE PLAN
ENVIRONMENTAL ASSESSMENT**

CA-370-03- 19

JUNE, 2003

SURPRISE FIELD OFFICE

Background Information

With passage of the Wild Horse and Burro Act of 1971, Congress found that: "Wild horses are living symbols of the pioneer spirit of the West". In addition, the Secretary was ordered to manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. From the passage of the Act, through the present day, the Bureau of Land Management (BLM), Surprise Field Office, has endeavored to meet the requirements of the Act. The procedures and policies implemented to accomplish this mandate have been constantly evolving over the years.

Throughout this period, BLM experience has grown, and knowledge of the effects of current and past management on wild horses and burros has increased. For example, wild horses have been shown to be capable of 16 to 25% increases in numbers annually. This can result in a doubling of the wild horse population about every 3 years. At the same time, nation-wide awareness, and attention has grown. As these factors have come together, the emphasis of the wild horse program has shifted.

Program goals have expanded beyond simply establishing a thriving natural ecological balance by setting and achieving an appropriate management level (AML) for individual herds. Goals now include achieving and maintaining viable, vigorous, and stable populations.

This document has been prepared to assess the environmental impacts of establishing an appropriate management level, and adjusting the numbers of wild horses within the Carter Reservoir Herd Management Area (HMA) to the established population level. This HMA is more specifically described as that area east of Cedarville, CA, beginning at roughly the California / Nevada state line and extending approximately 6 miles east into northern Washoe County, Nevada. The HMA consists of approximately 21,074 acres of public lands and 2,349 acres of private lands for a total of 23,423 acres.

The Wild Horse Population Model Version 3.2 Developed by Dr. Steven Jenkins, Associate Professor, University of Nevada, Reno was used to predict populations under each alternative considered in this document.

The proposed AML for the Carter Reservoir HMA was established using observations of conditions since 1990, plus intensive monitoring data collected during 2001 to the present. The key limiting factors for wild horses within this HMA are; 1) the use of private riparian areas by wild horses, 2) a limited supply of available public water to support wild horses, and 3) areas of upland heavy utilization by wild horses. Another

consideration is the egress of wild horses outside of the established HMA into areas not identified in the land use plan as areas where wild horses are to be managed.

This AML was determined by calculating the optimum number of animals that could use this area, while lessening impacts to upland ranges, private riparian areas and water sources. Also considered was availability of public water sources overall in the HMA. (See Appendix III, Carter Reservoir AML Analysis)

Purpose and Need for Action

The Surprise Field Office proposes to implement a program of integrated wild horse management in the Carter Reservoir HMA. The emphasis of this integrated management program will be to achieve and maintain wild horse AML's, collect information on herd characteristics, determine herd health, maintain sustainable rangelands, maintain a healthy and viable wild horse population, and possibly conduct fertility control research. All activities will be conducted according to a specified set of standardized operating procedures (SOP's) (Appendix II).

Conformance with Existing Land Use Plans

The Cowhead- Massacre Management Framework Plan (MFP)/Final Grazing Environmental Impact Statement (EIS) and Record of Decision, which directs the management of the project area, were approved on April 24, 1981. Decision No. 10 for the Subunit 3, Long Valley/Sand Creek calls for the establishment of the Carter Reservoir Herd Management Area and to manage for a total population of 20-30 wild horses.

The Proposed Action is in conformance with these plans and consistent with federal, state, and local laws, regulations, and plans to the maximum extent possible.

Relationship to Statutes, Regulations, Policies, Plans, or Other Environmental Analysis

The Carter Reservoir Herd Management Area Plan (HMAP) was developed in 1985 and revised in 1989. This document and the Cowhead/Massacre Management Framework Plan guide the management of the Carter Reservoir HMA. The Cowhead Management Framework Plan provides general management direction, while the Carter Reservoir HMAP provides specific management parameters on such variables as conformation, color of animal to be managed, and sex and age structure.

The AML has been proposed utilizing detailed monitoring data collected since 2001, and observations made for the last decade. During 2001 and 2002, intensive monitoring data

was collected to determine public versus private water availability, and impacts to both public and private lands.

The Surprise Field Office may begin supporting research aimed at controlling the reproduction rate of wild horses through a collaborative effort to develop an immuno-contraceptive vaccine. The vaccine is a safe, humane and inexpensive tool, when used with management prescriptions, and may reduce the frequency of gathering excess wild horses. Studies have been conducted on a varied group of HMAs in Nevada and will be utilized to develop management strategies implementing fertility control treatment. The analysis of the use of this vaccine on wild horses in the Carter Reservoir HMA is part of the Alternative 2.

The Cowhead/ Massacre MFP and Carter Reservoir Herd Management Area Plan are available in the Surprise Field Office for public review.

Alternatives Including the Proposed Action

The Proposed Action and alternatives represent a reasonable range of alternatives based on the issues and goals identified. Common to the Proposed Action and alternatives, is the establishment of an appropriate management level for the Carter Reservoir HMA at 35 wild horses, with a range of 25 to 35 animals. Determination of the appropriate management level is based on the best and most current monitoring information. An analysis of this information is found in Appendix III. Also common to all alternatives is the collection of genetic information from animals captured. This data will be used to determine if actions are necessary to increase genetic variability in the herd. Actions may include the periodic introduction of new animals into the population to expand the genetic base of the herd. Complete livestock removal was considered as an alternative, however dropped from consideration as it would not address the problem of water availability on public lands or areas of over-utilization by wild horses. Complete removal of wild horses was also considered, however, this would be in non-conformance with the Cowhead/ Massacre Land Use Plan and the Wild Horse and Burro Act.

Alternative 1 (Proposed Action)

The Proposed Action is based on the BLM's 2001 Wild Horse Strategy and includes the gathering of all HMA's to reach AML over a ten- year period. The plan outlines a four-year gather cycle to manage wild horses Bureau wide. The strategy was to implement population management for each HMA where wild horses will be managed in a range from 40% below AML, to AML. AML is the maximum number of wild horses for the HMA. For the Carter Reservoir Herd, it is planned to implement a three-year gather cycle, with each removal reducing the population of animals down to 30% below AML.

Part of the Proposed Action for the Carter Reservoir HMA would be to capture approximately 220 wild horses and remove 210 wild horses, determine sex, age, and color, acquire blood samples for genetic analysis, assess herd health (pregnancy/parasites loading/physical condition/etc.) sort individuals as to age, sex, temperament and/or physical condition, and to return selected animals to the range. Excess wild horses would be prepared for adoption.

The following Table 1 shows the current population estimate obtained by helicopter census on May 22, 2001, adjusted for estimated foal crops during 2002 and 2003. This data was used to determine the estimated number of wild horses to be removed from the HMA.

Table I

HMA	Estimated 2003 Population	Estimated #'s to Remove	AML Range	Estimated #'s to Remain in HMA
Carter Reservoir HMA	234*	210	25-35	25

*up to 60 head are outside the HMA on a seasonal basis. The goal is to completely remove all animals found outside the HMA.

Multiple capture sites (traps) may be used to capture wild horses from this HMA. Whenever possible, capture sites would be located in previously disturbed areas. All capture and handling activities will be conducted in accordance with the Standard Operating Procedures (SOP's) described in Appendix II. Selection of capture techniques would be based on several factors such as the season of removal, condition of animals, herd health, and environmental considerations.

Determination of which horses would be returned to the range would be based on an analysis of existing population characteristics and post gather data for age, sex ratio, and colors. A balanced representation of age classes would be returned to the range.

As there is no mixing between the Carter Reservoir Herd and other herds in the Surprise Resource Area, there may be a need to augment the genetic pool by the introduction of animals from other herds. According to Dr. Gus Cochran, from the University of Kentucky, it is best to augment the population with young mares that will likely enter the breeding population. Under the Proposed Action and alternatives, data from blood drawn

for genetic analysis will be used to determine actions necessary to keep the populations viable and self-sustaining. Any animals introduced into the herd would meet the general characteristics (color, size, type, etc.) as from the existing population.

The Proposed Action would be implemented in the summer or fall of 2003.

Alternative 2 (Proposed Action with the use of Immuno-contraceptives)

This alternative would be the same as the Proposed Action, however, BLM would also conduct immuno-contraceptive research and monitor results as appropriate.

This alternative includes the treatment of released mares with a revised immuno-contraceptive vaccine, Porcine Zona Pellucida (PZP).

The immuno-contraceptive vaccine would inhibit reproduction for one breeding season. All treated mares would be freeze marked on the left shoulder to enable the researchers to positively identify animals in the research project during the data collection phase.

Alternative 3 (Selective Removal)

Wild horse management under this alternative would be to remove animals utilizing a Selective Removal Strategy based on previously established age selective removal criteria (i.e. 0-5 year olds), using the various capture techniques and processing protocols identified in the Proposed Action. Selective removal objectives target removal efforts for excess animals, based on specific segments of a given wild horse population. Selective removal under this alternative however, would not only be age based, but could also be based on other critical population variables as well (sex ratios/historic characteristics/genetic viability/etc.). Criteria can be structured to reduce the effects of specific population issues. Issues which may be addressed with selective removal strategies include: correction of unusual population variables (skewed sex ratio, unbalanced age structure), maintenance of herd structure and composition, and maintenance of long term herd viability.

Selective removal under this alternative would be primarily aged based, removing only the younger, adoptable animals, and negating the need to place un-adoptable animals in long term holding.

Table II shows an example of selective removal using May 2001 census data to determine current population levels and estimated removal for 0-5 age classes. For the purpose of this example, achieving AML is the major objective.

Table II

HMA Name/Number	Current Pop. Estimate	AML Range	No. Animals 5 years and younger to remove *	Estimated Population after gather
Carter Reservoir (CA-269)	234	25-35	161	73

*For this example, it is estimated that 69% of the total animals would be 0-5 years of age. This percentage is based on the age structure of captured animals from the 1988 removal.

As the example above shows, it is unlikely that it would be possible to reach AML during the initial gather, even if all animals in the 0-5 age classes were removed.

Alternative 4 (No Action)

This alternative consists of no direct management of wild horse numbers. Wild horses would be allowed to regulate their numbers naturally through predation, disease, and forage, water and space availability.

This alternative is in non-conformance with the Cowhead/Massacre Land Use Plan and the requirements of the Wild Free-Roaming Horse and Burro Act of 1971 which mandates the Bureau to protect the range from the deterioration associated with overpopulation, and to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.

However, for comparative purposes, the No Action Alternative will be included in this analysis.

Affected Environment

Carter Reservoir Herd Management Area

The Carter Reservoir HMA is located approximately 10 miles east of Cedarville, California in Northern Modoc County, and Northern Washoe County, Nevada. See Map 1, General Location Map, and Map 2, Map of Carter Reservoir HMA. The HMA is

bordered to the west by Surprise Valley and to the east by Long Valley. There are no other Herd Management Areas adjacent to this area. Elevations range from 4400 feet on sites adjacent to Middle Lake to 7100 feet at the top of the Hays Mountain Range.

The entire area is comprised of approximately 23,423 acres.

Soils

The primary soils in the lower portion of the HMA is the Gorzell Series, which are well drained soils, occurring on 2 to 30% slopes. At higher elevations, soils consist primarily of Schamp very stony loam occurring on 4 to 15% slopes, Zymans cobbly loam, occurring also on 4 to 15% slopes, Corral very stony loam occurring on 15 to 30% slopes and the Ashdos very gravelly loams occurring on the steeper 30-50% slopes.

Vegetation

Vegetation types can be generally broken into 4 main categories 1) the Desert Shrub Lowlands, 2) the Intermediate Range, 3) the Carter Reservoir Uplands, and 4) Stream/spring riparian habitats. These vegetation types are described below.

Desert Shrub Lowlands- The dominant brush species in the lowland area are greasewood, shadscale and hopsage. Other desert shrub species found in this area are horsebrush and bud sage. The dominant herbaceous species include Great Basin wildrye, squirreltail, and saltgrass.

Intermediate Range- The dominant brush species in this area is big sagebrush with some hopsage and shadscale on the western edge. The dominant grass species are Great Basin wildrye, squirreltail with some stands of Thurber's needlegrass. On some of the shallower soils, there are areas of Sandberg's bluegrass.

Carter Reservoir Uplands- This area has very diverse vegetation types. The flats and rolling hills are comprised of low sagebrush with a Sandberg bluegrass/forb under story. The drainages and slopes are comprised of western juniper and big sagebrush with a perennial grass under story. Perennial grass species include Idaho fescue, Thurber's needlegrass and Great Basin wildrye. Bitterbrush is found in conjunction with big sagebrush sites scattered throughout the area.

Stream/spring riparian habitats- A five mile reach of Sand Creek, a perennial stream, dissects the north end of the Intermediate range. Much of this creek has been fenced from cattle and wild horses to exclude grazing and allow improvement of the associated riparian habitat. Numerous spring areas exist in the Herd Management Area. Almost all springs are located on private lands. These sites run the full range of dry to wet meadows. Dry meadow types are dominated by basin wildrye, and invading sagebrush and rabbitbrush, while the remaining wet meadow sites are primarily dominated by sod

forming grasses and a wide variety of perennial forbs. The areas adjacent to Carter Reservoir and American Flat have large areas of juncus.

Water Sources

Springs and seeps are located throughout the Carter Reservoir HMA, with the majority being under private ownership. In addition, there are several wells and Carter Reservoir, a large, but intermittent lake on the north portion of the HMA. Numerous reservoirs are scattered throughout the area, however, these are generally considered reliable water sources only during the early spring period. See Map 3, Public Water Sources.

Wildlife

Wildlife values in the area vary from low to high. Deer and pronghorn antelope utilize the lowland area in winter and early spring. An identified antelope kidding ground occurs on the western edge of the area, in the lower pasture.

In the Intermediate range area, there is year-long use by both mule deer and antelope, but the major use period is during the winter and early spring. Some 400 antelope winter in this area. Sage grouse, chukar, quail, dove, golden eagles and prairie falcons are common in the area. This area also contains a five-mile stretch of Sand Creek that is important to game and non-game species.

In the Carter Reservoir Area, wildlife values are moderate to high. The area provides year-long range for antelope. Mule deer winter along the eastern rims in the bitterbrush areas. The area provides strutting and brooding habitat for sage grouse.

Livestock

The Carter Reservoir HMA is located within the Sand Creek Allotment (See Map 4). This allotment has seven grazing permittees authorized to utilize up to 3,647 active AUMs during a six month season of use (April 1 to September 30). The livestock are grazed in accordance with the Sand Creek Allotment Management Plan (AMP). The AMP calls for alternating early season grazing use (before July 1) between the Desert Shrub Lowlands and the 49 Seeding and deferred use by cattle for the Carter Reservoir Pasture each year. An additional Pasture was created in 2000 by fencing a rehabilitated wildfire area. This area is referred to the Lake Fire II Seeding. This area has been rested from all grazing use for the past 2 years, with limited use made this spring. The seeding is marginally successful with the bulk of vegetation returning as cheatgrass. During the spring of 2003, the

occurrence of large areas of larkspur made this seeding unusable early in the season.

Noxious Weeds and Invasive Non-Native Species

Noxious weed and invasive non-native species introduction and proliferation is a growing concern among local and regional interests. Noxious weed surveys including invasive and non-native species have not been completed in this area.

Wild Horses

Wild horses are introduced species within North America and have few natural predators. Few natural controls act upon wild horse herds making them very competitive with native wildlife and other living resources managed by the BLM. Wild horses have been shown to be capable of 16 to 25% increases in numbers annually. This can result in a doubling of the population about every 3 years.

The initial inventory of the old New Years Lake Herd Area (HA), conducted in August, 1973, revealed 60 wild horses. The New Years Lake HA consisted of a total of 277,100 acres of public land. From this HA, the Carter Reservoir Herd Management Area (HMA), which consists of 21,100 acres of public lands, was established. The Carter Reservoir HMA was the only HMA established in this area. The Cowhead/Massacre Management Framework Plan, completed in 1980, established the Carter Reservoir HMA and specified a planned management level of 20 to 30 wild horses.

The estimated wild horse population for the Carter Reservoir HMA is currently estimated to be 234 wild horses based on a helicopter census conducted on May 22, 2001, adjusted for the 2002 and 2003 foaling seasons. During the 2001 census, there were 133 adults and yearlings and 30 foals counted in the HMA, and outside the HMA to the north. This represents a foal crop of over 18% for that season. With March – June considered the primary foaling months, this census did not account for foals born during June, therefore, it is likely the total foaling rate for 2001 approached 20%.

The Carter Reservoir HMA has undergone several removals since passage of the Act. These removals have incorporated all of the removal strategies identified in the proposed action, with the exception of fertility control.

The last gather in the Carter Reservoir HMA was conducted in 1988. At that time, a total of 54 head were gathered and 10 head were released back to the herd management area. Of those animals gathered, 19 head were removed from outside the HMA in the Crooks

Lake Allotment to the north. Another 11 head, found in the Crooks Lake Allotment, could not be captured.

Past capture data will be used to determine the color and approximate percentage of each color within the herd. Additionally, post gather data will be used to determine the sex ratio (%) and age structure within the herd.

After the 1988 gather, sex ratios for wild horses within the Carter Reservoir HMA were approximately 65% female and 35% male. Generally for other HMA's in the Surprise Field Office, ratios have more closely approximated a 50/50 ratio. Generally, at birth, sex ratios are roughly equal. This balance shifts to favor mares throughout the younger age classes. This pattern shifts again at around 15 years of age, favoring studs.

The Surprise Field Office first initiated the collection of genetic data from herds during gathering operations in 2001. Because the last removal from the Carter Reservoir HMA was in 1988, there has been no genetic data collected for this herd.

Cultural Resources

There are numerous cultural resource sites throughout the Carter Reservoir HMA. These range from prehistoric temporary and permanent loci to historic ranching, homesteading and trail sites.

Water Quality

A five mile reach of Sand Creek occurs within the Carter Reservoir HMA. Additionally there are numerous springs and seeps, ephemeral lakebeds, and numerous reservoirs. Water quality is generally adequate for livestock, wildlife and wild horses.

Other Values

The following critical elements of the human environment are not present and/or not affected by the Proposed Action: wilderness, air quality, areas of critical environmental concern, environmental justice, hazardous or solid waste, prime or unique farm land, flood plains, native American religious concerns, threatened and endangered species, recreation, or wild and scenic rivers.

Environmental Consequences (Proposed Action & Alternatives)

Vegetation and Soils

Implementation of the Proposed Action would be to establish an appropriate management level of 35 wild horses for the Carter Reservoir HMA, and then reduce the wild horse population to 30% below AML (to 25 head) in the Carter Reservoir HMA. These actions would help to promote the achievement and maintenance of a thriving natural ecological balance for a period of approximately three years.

2001 Monitoring data shows that in the lower pasture, there are significant areas that receive heavy to severe use by wild horses, over the winter months. This data was collected prior to livestock entering the pasture and after a full years rest by livestock. Much of this area is important spring pronghorn antelope kidding habitat. The establishment of the AML and removal to the AML would reduce the utilization on these areas.

Monitoring data collected in June, 2002 for the Carter Reservoir Area, prior to livestock entering the pasture, showed localized areas of moderate use adjacent to riparian areas, primarily on private lands. By removing animals to AML, grazing use on private lands, associated with private springs, would be reduced. Additionally, utilization of upland habitats, during the critical spring growth period (before July 1) would be reduced, and would result in the improvement of current range conditions, including forage availability, vegetation density, vigor, reproduction, and productivity.

The Proposed Action and alternatives, excluding the No Action Alternative, would lessen the impact of hoof action on the soil around unimproved private springs and riparian areas that would lead to an improvement in riparian habitat conditions. It would be expected that there would be a reduction in erosion caused by trailing occurring into spring areas and reduced competition for available public water sources.

It is, however, expected that there would be some localized areas of over- utilization still occurring from wild horses that may continue to congregate around water sources (both public and private), especially during the hot season.

Impacts to vegetation with implementation of the Proposed Action or alternatives could include disturbance of native vegetation immediately in and around temporary trap sites, and holding and processing facilities. Impacts are created by vehicle traffic, and hoof action of penned horses, and can be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than one half acre) in size. Since most trap sites are re-used during recurring wild horse gather

operations, any impacts would remain site specific and isolated in nature. In addition, most trap sites are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. There would be no impacts of trapping or transportation activities on soils or vegetation under the No Action Alternative.

The No Action Alternative would allow wild horses to increase to high populations. Population modeling, as shown in Appendix I, shows there could be an increase to over 1300 head in 10 years. This number of wild horses, and the fact that they are on the range 12 months out of the year, would have negative impacts to the vegetative and soils resources. With high populations of wild horses utilizing the upland range during the critical spring growth period, a decrease in plant vigor, production and overall range health would be expected. Trampling and compaction of soils would become more evident, especially during the wetter times of the year.

Water Source Availability/Riparian Habitat

Availability of public water sources has been determined to be one of the key limiting factors for wild horses in the Carter Reservoir Herd Management Area. Public water sources consist of almost exclusively man made reservoirs and wells. There are also a few seasonal lakes that provide water during the early season. During the late season, when the reservoirs have the potential for becoming dry, almost all of the water available to wild horses is from private springs.

The Proposed Action would insure adequate water supplies to support animals during even the driest years, with minimal impacts to private lands. An inventory of water sources during the summer/fall of 2002 showed that eight of the nine public watering sources located on public lands in the upper pasture were dry or extremely low. This resulted in wild horses utilizing private lands for their primary watering sources, leading to overuse of riparian vegetation and continual complaints from private landowners. The private landowners have indicated that they will totally exclude wild horses from their private water sources unless their numbers are brought down to levels that would have limited impacts to their private lands and waters. This would severely limit the number of animals that could occupy the HMA, or possibly necessitate complete removal. In the past, when animals were at the 20-30 head range as called for in the Cowhead/ Massacre Land Use Plan, the private landowners did not take issue with wild horses utilizing their private lands or water sources.

The establishment of an AML based on current data, along with the implementation of actions to achieve AML, will benefit riparian habitats. However, it is recognized that there may still be heavy use of some of the riparian areas. This will be due to wild horses continuing to congregate on preferred use areas.

Under the Proposed Action and Alternative 2, and to a lesser degree Alternative 3, it is expected that trend on these riparian habitats would become upward as damage due to over-utilization and trampling is decreased.

The No Action Alternative would allow wild horses populations to continue to grow, resulting in increased use of private lands and waters by wild horses. As the wild horse population continues to grow, an increased number of wild horses would utilize private water sources, increasing trampling damage to springs and utilization of riparian areas. It is likely that the private landowners will take action(s) to exclude the animals from their private waters and lands. On dry years, this would be a severe impact to wild horses as no reliable public waters exist in the allotment, with the exception of one spring and several wells that are in Surprise Valley, outside the areas wild horses utilize. With no or little available sources of water, this may make partial emergency removals necessary, or possibly complete removal of the wild horse populations.

Wildlife and Livestock

Livestock are grazed in accordance with the Sand Creek Allotment Management Plan. This grazing system calls for alternate years rest for the lower elevation areas, with use alternated between the 49 Seeding and the native range. Each year either the 49 Seeding or the lower native range receives rest from livestock grazing. The upper elevation area, called the Carter Reservoir Pasture, receives use only after seed ripe (after July 1) of each year. This grazing system for livestock use should meet the physiological needs of the vegetation by providing either alternate years rest or deferment of the native ranges and seeded areas.

The Proposed Action and alternatives would result in reduced utilization of the lowlands and the upper Carter Reservoir Pasture during the critical spring growth period, and should increase vigor of perennial herbaceous species, increasing the quantity and quality of available forage. There would be less disturbance associated with wild horses along spring riparian habitat and adjacent upland habitat.

Reduced competition for water between wildlife and wild horses at public sources would be a positive impact to wildlife, especially apparent during the summer season when quantities are limited. Impacts to wildlife would be potential disturbance from the

helicopter and increased traffic. These disturbances would be during the capture period only.

The No Action Alternative would result in increased utilization of forage species, which would result in reduced forage for all grazing animals. As utilization of vegetation, during the critical spring growth period became severe, all foraging animals, including the wild horses would be negatively impacted. The current livestock grazing system which provides either alternate year's complete rest or grazing deferment (after July 1) for all areas within the HMA would not be effective, and a downward trend in range condition would be expected.

Noxious Weeds and Invasive Non-Native Species

Noxious weed impacts associated with the proposed action or alternatives include potential importation or transportation of new species of weeds to the Carter Reservoir area, spread of existing noxious weed seeds and plant parts to new areas in the HMA, and increases in the size of existing weed infestation sites. These impacts would potentially occur by vehicles and saddle horses working in close proximity to the gather area and through possible feeding of contaminated hay to captured horses that are released before seeds pass through their system. The potential for the introduction and/or spread of noxious weeds is not known, however, will be considered and mitigated (if possible) during all gather operations.

Under the Proposed Action and alternatives, the establishment of an appropriate management level and subsequent maintenance at that level, would reduce the amount of trampling and disturbance to riparian and upland habitats. This would help to prevent the establishment of noxious weeds as many species proliferate on disturbed areas.

The No Action Alternative would result in increased populations of wild horses, and a subsequent increase in trampling and disturbance of riparian and upland habitats. This would allow noxious weeds to become more readily established.

Cultural Resources

The Proposed Action and alternatives would lead to a reduction and maintenance of wild horses to AML. This would reduce trampling to cultural resource sites associated with perennial water sources.

No impacts to cultural resources are anticipated to occur due to actual gather operations since all trap sites and holding facilities would be inventoried for cultural resources prior to construction. The Surprise FO archeologist will review all proposed and previously

used trap site and facility locations to determine if these have had a cultural resources inventory, and/or if a new inventory is required. If cultural resources are encountered at proposed trap site or holding facility locations, those locations would not be utilized unless such use could be modified to avoid impacts to cultural resources.

Under the No Action Alternative, trampling and damage to historic and prehistoric sites would increase as wild horse numbers increased. This impact would be most severe in sites associated with riparian habitats, as this is where the animals would tend to congregate, especially during the hot season period.

Water Quality

Under the Proposed Action and Alternatives, it would be expected that water quality would improve for livestock, wild horses and wildlife, as there would be less disturbance associated with water sources, on a yearlong basis. As upland and riparian habitat conditions improved, water quality would also be expected to improve.

Under the No Action Alternative, increased numbers of wild horses would cause more disturbance to soils, increasing silt load. Pollutants such as animals feces would also be increased.

Wild Horses

Impacts of establishing and maintaining an AML designed to achieve a natural thriving ecological balance would be a benefit to the wild horses themselves. Under the population range derived from the AML, wild horses would be assured adequate water sources during even the hottest and driest periods of the year. While horses would continue to utilize private water sources, the impacts should be, for the most part, negligible. The reduced competition for available water should also help relieve the extreme trampling presently occurring on private spring sources, resulting in better water quality for those animals remaining. The possibility of a large scale die-off due to inadequate water supplies, should the private waters be fenced or otherwise barricaded from the wild horses, would be greatly reduced. Additionally, the potential for frequent emergency gathers from private lands would be reduced, thereby reducing frequency of impacts to social structure of the bands.

Impacts to wild horses under the Proposed Action or alternatives may occur to either individual animals or the population as a whole. These impacts include handling stress associated with the herding, capture, processing, and transportation of animals from temporary trap sites to temporary holding facilities (if used), and from the trap sites or temporary holding facilities to an adoption preparation facility. Following administration

of the immuno-contraceptive fertility control vaccines, as called for in Alternative 2, minor swelling may occur at the injection site and/or an injection site injury may occur, however this is rare. The intensity of these impacts vary by individual, and are indicated by behaviors ranging from nervous agitation to physical distress. Mortality of wild horses captured during a gather does occur, however it is infrequent and typically is no more than one half to one percent of the animals captured.

Impacts that can occur after the initial stress may include spontaneous abortion in mares, and increased social displacement and conflict in studs. Spontaneous abortion following capture is very rare. Traumatic injuries that may occur typically involve biting and/or kicking that may result in bruises and minor swelling which normally does not break the skin. These impacts are known to occur intermittently during wild horse gather operations. The frequency of occurrence of these impacts among a population varies with the individual.

Population-wide impacts can occur during or immediately following implementation of the proposed action or alternatives. They include the displacement of bands during capture and the associated re-dispersal, modification of herd demographics (age and sex ratios), temporary separation of members of individual bands of horses, re-establishment of bands following releases, and the removal of animals from the population. With the exception of changes to herd demographics, direct population-wide impacts over the last 20 years have proven to be temporary in nature with most, if not all, impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened shyness toward human contact. Observations of animals following release have shown horses relocate themselves back to their home ranges within 12 to 24 hours of release.

The effect of removing wild horses from the population would not be expected to have a significant impact on herd dynamics or population variables, as long as the selection criteria for removal ensured a typical population structure was maintained. Obvious potential impacts on horse herds and populations from exercising poor selection criteria not based on herd dynamics include modification of age or sex ratios to favor a particular class of animal.

Selective removal as called for in Alternative 3, would remove most, if not all, of the younger animals from the population, leading to an atypical age structure for the herd. As future removals occur using selective removals, the age of the population would continue to be skewed toward the older age classes. This could be somewhat mitigated by the selection and release of younger animals during the initial and each subsequent gather.

All alternatives, including the Proposed Action, include the establishment of an AML at

35 head, and implementation of actions to reduce the number of animals to 30% below AML, or 25 wild horses. As there is no mixing between the Carter Reservoir Herd and other herds in the Surprise Resource Area, there may be a need to augment the genetic pool by the introduction of animals from other herds. According to Dr. Gus Cochran, from the University of Kentucky, it is best to augment the population with young mares that will likely enter the breeding population. Under the Proposed Action and alternatives, blood will be drawn for genetic analysis. This data will be used to determine actions necessary to keep the populations viable. Animals from other HMAs in Nor-Cal East, or adjacent states could be used to add to the breeding population. Animals selected for population augmentation would be selected to adhere to the type and colors characteristic of the herd.

The Proposed Action would mitigate the potential adverse impacts on wild horse populations by establishing a procedure for determining what selective removal criteria is warranted for the herd. The flexible procedures (Appendix II SOP's) would allow for correction of any existing discrepancies in herd demographics that could predispose a population to increased chances for catastrophic impacts. The Proposed Action would also establish a standard for selection that would minimize the possibility for developing negative age or sex based selection effects to the population in the future.

Alternative 2, including use of immuno-contraception would limit the numbers of mares that would conceive and deliver foals. This would reduce the genetic variability entering into the population the year after treatment, and after each subsequent treatment.

Population-wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify. Population wide indirect impacts would be associated primarily with the use of fertility control drugs and involve reductions in short term fecundity of initially a large percentage of mares in a population, increasing herd health as AML's are achieved, and potential genetic issues regarding the control of contributions of mares to the gene pool, especially in small populations.

With implementation of the Proposed Action, these impacts would be partially mitigated by not imposing fertility control treatments on the mare population, allowing all mares to successfully recruit some percentage of their offspring into the population. This would result in increased genetic variability of the herd. This, coupled with augmentation with outside animals, would help with genetic issues and overall viability of the population.

Implementation of the Proposed Action and Alternative 2 would allow immediate achievement of AML. Alternative 3, Selective Removal, would not achieve AML during the initial gather, or within the next ten years. If forage and available water was unlimited, it is projected that the No Action alternative would allow the populations to

increase dramatically during the next 10 years (projected to over 1300 head). However, water and forage would limit this growth, and could possibly lead to large scale die-offs, especially during drought or severe winters.

In an attempt to predict population dynamics, a computer simulation was run using the wild horse population model developed by Dr. Stephen Jenkins of the University of Nevada, Reno (Jenkins 1996) (Appendix I). For each alternative, populations are predicted for the next 10 years.

Cumulative Impacts (Proposed Action & Alternatives)

Cumulative impacts are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Implementation of the Proposed Action or alternatives (excluding the No Action) would reduce the wild horse population to AML in the Carter Reservoir HMA that would help promote a thriving natural ecological balance. In the Proposed Action and Alternative 2, this effect would be immediate. In the case of Alternative 3, Selective Removal, this would occur over time, but not within 10 years. The achievement and maintenance of AML would result in an increase in vegetation density, vigor, reproduction, productivity, forage availability and most importantly water availability. Subsequent removals would maintain animal populations in a thriving natural ecological balance.

Adverse impacts to vegetation with implementation of the proposed action or the alternative would include disturbance of native vegetation immediately in and around temporary trap sites, and holding and processing facilities. Impacts created by vehicle traffic, and hoof action of penned horses, can be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than one half acre) in size. Since most trap sites and holding facilities are re-used during recurring wild horse gather operations, any impacts would remain site specific and isolated in nature. In addition, most trap sites or holding facilities are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. These common practices would minimize the cumulative effects of these impacts.

The removal of animals to and the subsequent maintenance of AML would allow reduced utilization of riparian and upland habitats on a year- long basis. This management

coupled with a livestock grazing program which is based on the physiological needs of the vegetation would result in improved rangeland health.

Under the No Action Alternative, private riparian areas would likely be excluded from use by wild horses. This would result in a real possibility that wild horses would not have adequate water, as a basic habitat need, to thrive in this area. At some point it might become necessary to completely remove wild horses from the Carter Reservoir HMA.

The Surprise Field Office would continue to identify any adverse impacts as they occur, and mitigate them as needed on a project specific basis to maintain habitat and herd quality. The Proposed Action would contribute to the cumulative impacts of future actions by maintaining the herd at AML, and establishing a process whereby biological and/or genetic issues associated with herd or habitat fragmentation would become apparent sooner and mitigating measures implemented more quickly.

Mitigation Measures

The Proposed Action and Alternatives incorporate proven standard operating procedures that have been developed over time. These SOP's (Appendix II) represent the "best methods" for reducing impacts associated with gathering, handling, transporting and collecting herd data.

Additional mitigation measures have been incorporated into the alternatives.

Consultation and Coordination

List of Preparers

Rob Jeffers	Supervisory RMS
Alan Uchida	Watershed Specialist
Dino Borghi	GIS
Penni Van Ornum	Cultural Resource Specialist
Jerry F. Bonham	Range Technician

Persons, Groups, and Agencies Consulted

Copies of this environmental Assessment have been sent to the following groups and individuals for review and comment:

Nevada Commission for the Preservation of Wild Horses
Wild Horse Organized Assistance
The Fund for Animals, Inc.
Nevada State Clearing House
Sand Creek Allotment Grazing Permittees
Fee Ranch, Inc.
Redwing Horse Sanctuary
Nevada Division of Wildlife
Bill Phillips, Modoc/ Washoe Experimental Stewardship Committee
Wildlife Management Institute
Fort Bidwell Tribal Council
Cedarville Rancheria
Dan Heinz, former member, N.E. California Resource Advisory Council
American Lands Alliance
Barbara Burhans
Colorado Wild Horse and Burro Coalition
Wes Finley, N.E. California Resource Advisory Council
Lee Chauvet, Chair, N.E. California Resource Advisory Council
Modoc Land Use Committee
Modoc Cattlemen's Association
Nevada Cattlemen's Association, North Washoe Unit

Appendix I- Population Modeling

**Carter Reservoir Herd Management Area
Projected Populations
Number of horses, by year, for each alternative**

YEAR	Alternative 1 Proposed Action	Alternative 2 Proposed Action with Immuno- contraceptives	Alternative 3 Selective Removal (0-5 years)	No Action Alternative
2003	234	234	234	234
2004	30	32	87	278
2005	37	33	104	340
2006	46	42	126	399
2007	28	30	73	485
2008	32	28	86	597
2009	38	33	103	692
2010	29	35	61	815
2011	33	30	74	981
2012	37	28	89	1151
2013	31	31	55	1322

APPENDIX II

STANDARD OPERATING PROCEDURES

Gathers would be conducted by contractors or agency personnel. The same procedures for gathering and handling wild horses and burros apply whether a contractor or BLM personnel are used. The following stipulations and procedures will be followed to ensure the welfare, safety and humane treatment of the wild horses and burros (WH&B) in accordance with the provisions of 43 CFR 4700.

Gathers are normally conducted for one of the following reasons:

1. Regularly scheduled gathers to obtain or maintain the Appropriate Management Level (AML).
2. Drought conditions that could cause mortality to WH&B due to the absence of water or forage, and where continued grazing may result in a downward trend to the vegetative communities due to plant mortality and reduced vigor and productiveness.
3. Fires that remove forage to the extent that there is inadequate forage to sustain the population or to allow recovery of native vegetation.
4. Utilization levels that reach a point where a continued increase in utilization would cause a downward trend in the plant communities and impede meeting standards for rangeland health.
5. Monitoring indicates that WH&B use would begin to cause a downward trend in riparian function or not permit the recovery of riparian vegetation determined to be in undesirable condition.

1. CAPTURE METHODS USED IN THE PERFORMANCE OF A GATHER-Contract Operations

1. Helicopter - Drive Trapping

Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If this method is selected the following applies:

- a. A minimum of two saddle horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the BLM. Under no circumstances shall animals be tied down for more than one hour.

- b. The contractor/BLM shall assure that bands remain together, and that foals shall not be left behind.
- c. A domestic saddle horse(s) may be used as a pilot (or "Judas") horse to lead the wild horses into the trap site. Individual ground hazers may also be used to assist in the gather.

2. Helicopter - Roping

Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If this method is selected the following applies:

- a. Under no circumstances shall animals be tied down for more than one hour.
- b. The contractor shall assure that bands remain together, and that foals shall not be left behind.

3. Bait Trapping

Capture attempts may be accomplished by utilizing bait (feed or water) to lure animals into a temporary trap. If this method is selected the following applies:

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

2. BLM- Non-Contract Operations

- 1. Gather operations will be conducted in conformance with the Wild Horse and Burro Aviation Management Handbook (March 2000).
- 2. Two-way radio communication between the helicopter and the ground crew will be maintained at all times during the operation

C. Safety and Communications

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

D. Trapping and Care

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:
 - a. All trap and holding facilities locations must be approved by the BLM prior to construction. The Contractor may also be required to change or move trap locations as determined by the BLM. All traps and holding facilities not located on public land must have prior written approval of the landowner.
2. The rate of movement and distance the animals travel shall not exceed limitations set by the BLM who will consider terrain, physical barriers, weather, condition of the animals and others factors.

3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
 - a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered with plywood (without holes) or like material.
 - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable restraining chute to restrain, age, or provide additional care for animals shall be placed in the runway in a manner as instructed by or in concurrence with the BLM.
 - d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses. Eight linear feet of this material shall be capable of being removed or let down to provide a viewing window.
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No fence modifications will be made without authorization from the COR/PI. The Contractor/BLM shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor/BLM shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, and estrays from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age or other similar practices. In these instances, a portable restraining chute will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires the animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized,

the Contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the BLM.

7. The Contractor/BLM shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day.
8. It is the responsibility of the Contractor/BLM to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
9. The Contractor/BLM shall restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction shall be done by the most humane method available. Authority for humane destruction of wild horses (or burros) is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed in Instructional Memorandum No. 98-141.

Any captured horses that are found to have the following conditions may be humanely destroyed:

- a. The animal shows a hopeless prognosis for life.
 - b. Suffers from a chronic disease.
 - c. Requires continuous care for acute pain and suffering.
 - d. Not capable of maintaining a body condition rating of one.
 - e. The animal is a danger to itself or others.
10. Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the BLM for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the BLM. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the BLM. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the BLM. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the BLM.

E. Motorized Equipment

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

6. Animals to be loaded and transported in any trailer shall be as directed by the BLM and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The following minimum square feet per animal shall be allowed in all trailers:
 - 11 sq. ft. per adult horse (1.4 linear ft. in an 8ft. wide trailer);
 - 8 sq. ft. per adult burro (1.0 linear ft. in an 8ft. wide trailer);
 - 6 sq. ft. per horse foal (.75 linear ft. in an 8ft. wide trailer);
 - 4 sq. ft. per burro foal (.50 linear ft. in an 8ft wide trailer);
7. Prior to any gathering operations, the BLM will provide for a pre-capture evaluation of existing conditions in the gather areas. The evaluation will include animal condition, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine the level of activity likely to cause undue stress to the animals, and whether such stress would necessitate a veterinarian be present. If it is determined that capture efforts necessitate the services of a veterinarian, one would be obtained before capture would proceed. The Contractor will be apprised of all the conditions and will be given directions regarding the capture and handling of animals to ensure their health and welfare is protected.
8. If the BLM determines that dust conditions are such that animals could be endangered during transportation, the Contractor will be instructed to adjust speed.
9. Trap sites will be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites will be located on or near existing roads. Additional trap sites may be required, as determined by the BLM, to relieve stress caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.).

F. Animal Characteristics and Behavior

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

G. Public Participation

It is BLM policy that the public will not be allowed to come into direct contact with WH&B being held in BLM facilities. Only BLM personnel, or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

H. Responsibility and Lines of Communication

If a contractor is used for gathering operations, the Contracting Officer's Representative, Rob Jeffers, and Project Inspectors, Steve Surian, and Jerry Bonham from Nor-Cal East, have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Surprise Field Office Manager will take an active role to ensure that appropriate lines of communication are established between the field, Field Office, State Office, and National Program Office. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Surprise Field Manager.

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

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

**CARTER RESERVOIR HERD
MANAGEMENT AREA
(CA-269)**

**ANALYSIS OF WATER AND FORAGE CONDITIONS
FOR THE PURPOSE OF ESTABLISHING
AN APPROPRIATE MANAGEMENT LEVEL**

**BUREAU OF LAND MANAGEMENT
SURPRISE FIELD OFFICE
P.O. BOX 460
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June, 2003

1. PURPOSE

The purpose of this document is to analyze and evaluate all existing information in order to establish an appropriate management level for the Carter Reservoir Herd Management Area (HMA). The goal is to set and maintain an appropriate management level (AML) which will lead to the management of wild horses in a thriving natural ecological balance. Minimizing conflicts with other uses is an important consideration in establishing an AML.

2. BACKGROUND INFORMATION

The Carter Reservoir HMA is administered by the Surprise Field Office, Cedarville, California. The Carter Reservoir HMA consists of approximately 21,100 acres of public lands and 1500 acres of private lands. The Cowhead/Massacre Management Framework Plan established a planned management level of 20 to 30 wild horses in the HMA.

The primary issues in the Carter Reservoir HMA are repeated utilization of riparian habitats each year during the critical growth period, heavy and severe use of vegetation over the winter period, and utilization of private lands and water sources by an increasing population. Additionally, animals are expanding outside the boundaries of the HMA, establishing residence on areas not established as Herd Management Areas in the Cowhead/ Massacre Land Use Plan.

3. LOCATION OF AREA

The Carter Reservoir HMA is located approximately 10 miles east of Cedarville, California in Northern Modoc County, and Northern Washoe County, Nevada. See Map 1, General Location Map and Map 2, Map of Carter Reservoir HMA. The HMA is bordered to the west by Surprise Valley and to the east by Long Valley. There are no other Herd Management Areas adjacent to this area. Elevations range from 4400 feet on sites adjacent to Middle Lake to 7100 feet at the top of the Hays Mountain Range.

4. EXISTING ENVIRONMENT

Soils

The primary soils in the lower portion of the HMA is the Gorzell Series, which are well drained soils, occurring on 2 to 30% slopes. At higher elevations, soils consist primarily of Schamp very stony loam occurring on 4 to 15% slopes, Zymans cobbly loam, occurring also on 4 to 15% slopes, Corral very stony loam occurring on 15 to 30% slopes and the Ashdos very gravelly loams occurring on the steeper 30-50% slopes.

Vegetation

Vegetation types can be generally broken into 4 main categories 1) the Desert Shrub Lowlands, 2) the Intermediate Range, 3) the Carter Reservoir Uplands, and 4) Stream/spring riparian habitats. These vegetation types are described below.

Desert Shrub Lowlands- The dominant brush species in the lowland area are greasewood, shadscale and hopsage. Other desert shrub species found in this area are horsebrush and bud sage. The dominant herbaceous species include Great Basin wildrye, squirreltail, and saltgrass.

Intermediate Range- The dominant brush species in this area is big sagebrush with some hopsage and shadscale on the western edge. The dominant grass species are Great Basin wildrye, squirreltail with some stands of Thurber's needlegrass. On some of the shallower soils, there are areas of Sandberg's bluegrass.

Carter Reservoir Uplands- This area has very diverse vegetation types. The flats and rolling hills are comprised of low sagebrush with a Sandberg bluegrass/forb understory. The drainages and slopes are comprised of western juniper and big sagebrush with a perennial grass understory. Perennial grass species include Idaho fescue, Thurber's needlegrass and Great Basin wildrye. Bitterbrush is found in conjunction with big sagebrush sites scattered throughout the area.

Stream/spring riparian habitats- A five mile reach of Sand Creek, a perennial stream, dissects the north end of the Intermediate range. Much of this creek has been fenced from cattle and wild horses to exclude grazing and allow improvement of the associated riparian habitat. Numerous spring areas exist in the Herd Management Area. These sites run the full range of dry meadow to wet meadow. Dry meadow types are dominated by basin wildrye, and invading sagebrush and rabbitbrush, while the remaining wet meadow sites are primarily dominated by sod forming grasses and a wide variety of perennial forbs. The area adjacent to Carter Reservoir and American Flat have large areas of juncus.

Livestock

The Carter Reservoir HMA is located within the Sand Creek Allotment. This allotment has seven grazing permittees authorized to utilize up to 3,647 active AUMs during a six month season of use (April 1 to September 30). The livestock are grazed in accordance with the Sand Creek Allotment Management Plan (AMP). The AMP calls for alternating

early season grazing use (before July 1) between the Desert Shrub Lowlands and the 49 Seeding and deferred use by cattle for the Carter Reservoir Pasture each year. An additional Pasture was created in 2000 by fencing a rehabilitated wildfire area. This area is referred to as the Lake Fire Seeding. This area had been rested from all grazing use for the previous 2 years, with a little use made during the spring of 2003. The seeding is marginally successful with the bulk of vegetation returning as cheatgrass.

Wildlife

Wildlife values in the area vary from low to high. Deer and antelope utilize the lowland area in winter and early spring. An identified antelope kidding ground occurs on the western edge of the area, in the low pasture.

In the Intermediate range area, there is year-long use by both mule deer and antelope, but the major use period is during the winter and early spring. Some 400 pronghorn antelope winter in this area. Sage grouse, chukar, quail, dove, golden eagles and prairie falcons are common in the area. This area also contains a five mile stretch of Sand Creek which is important to game and non-game species.

In the Carter Reservoir Area, wildlife values are moderate to high. The area provides year-long range for antelope. Mule deer winter along the eastern rims in the bitterbrush areas. The area provides strutting and brooding habitat for sage grouse.

Wilderness Study Areas

There are no Wilderness Study Areas located in the Carter Reservoir Herd Management Area.

Cultural Resources

The area has numerous sites associated with pre-historic and historic use. The bulk of these are lithic scatters or habitation sites, generally associated with springs and lakebeds in the area. A section of the Lassen Applegate Trail also transverses the area.

Recreation

Recreation in this area is dispersed, generally limited to hunting of upland birds and big game species such as mule deer and antelope.

Wild Horses and Burros

The initial inventory of the old New Years Lake Herd Area (HA), conducted in August, 1973, revealed 60 wild horses. The New Years Lake HA consisted of a total of 277,100 acres of public land. From this HA, the Carter Reservoir Herd Management Area (HMA) was established.

The Carter Reservoir HMA consists of 21,100 acres of public lands. There were no other HMAs established in the area of the old New Years Lake HA. The Cowhead/Massacre Management Framework Plan, completed in 1980, established the Carter Reservoir HMA and specified a planned management level of 20 to 30 wild horses. Populations were managed at these levels until 1988 when the last removal occurred within the HMA. During this removal a total of 54 head were gathered and 10 head were released back to the herd management area. Of the 54 head gathered, 19 were removed from the Crooks Lake area to the north, which is outside the HMA.

This herd has historically been made up of mostly dun or buckskin colored horses. Other characteristics have included barred or striped legs and prominent dorsal stripes. In the last 10 years, observations indicate the incidence of other colors of animals has become pronounced, including appaloosa and palomino. The reason for the shift in colors is not known.

5. LAND USE PLANNING OBJECTIVES

Applicable Land Use Goals and Objectives (Cowhead/Massacre-wide)

1. Improve the ecological condition of public lands by preventing destructive uses and by providing for their orderly use and improvement.
2. Give special consideration and priority to the protection and management of areas with special environmental concern.
3. Protect and maintain a population of 270 wild horses in the Cowhead/Massacre area.

Applicable Specific Land Use Goals for Subunit 3 (Long Valley-Sand Creek)

1. Establish the Carter Reservoir Herd Management Area and manage for a total population of 20 to 30 wild horses.

2. Allocate forage among both consumptive and non-consumptive resources. As additional forage becomes available, increased allocations will be made to wildlife, wild horses, and livestock based on needs, response to management, policy, etc.

3. Manage the Horse Lake, Little Basin, Calcutta, and Sand Creek Allotments to reach 50-75 percent of site potential. Provide at least one growing season rest every two years on native range.

6. ANALYSIS OF MONITORING DATA

Based on field inspections, the four primary limiting factors affecting wild horses and their habitat in the Carter Reservoir HMA are 1) limited public waters during dry years, and subsequent use of private water sources, 2) overuse of private riparian habitat, 3) season long use on the upland areas by wild horses, and 4) expansion of animals outside the HMA. Below is a description of these factors.

Water Availability

Public water sources in the Carter Reservoir HMA consist of three wells, ten reservoirs, and one spring (see attached Map 3). Additionally, Carter Reservoir generally contains water on a seasonal basis. The wells are located on the valley floor in Surprise Valley and are not used by the wild horses. In drier years, the reservoirs on the public lands dry up, leaving only private springs as water sources. This has been an on-going issue with private landowners with wild horse use on private waters and overuse of private riparian habitat. When wild horse numbers were within those numbers called for in the land use plan, there was no issue. It is only since the wild horse population has grown in excess of the management level called for in the land use plan (20-30 head) that wild horse use of private waters and land has become an issue.

Private Lands/Riparian Habitat

During range inspections in 2002, utilization on private and public meadows was observed as being in the moderate utilization class. This utilization was observed during the month of June, prior to cattle entering the Carter Reservoir Pasture. On open years such as the winter of 2002- 2003, wild horses have been observed or reported on private lands throughout the winter months. The private landowners have asked removal of these animals from private lands and waters for the last several years. The issue of wild horses utilizing private waters and lands has become the primary issue relating to this area.

Numerous requests have been made for the removal of animals from private lands and waters. The private landowners have stated that they will fence, or otherwise barricade, all private waters and lands to alleviate these problems.

Season-long Grazing by Wild Horses in the Uplands

Livestock grazing in the Sand Creek Allotment has been under management since 1982. The livestock management plan calls for alternate years rest for the lower pastures. The 49 Seeding is used one year early with the native range being rested. On alternate years, the Seeding is rested and the lower pastures are used early. This allows full season rest by livestock on one-half the lower range each year. The Carter Reservoir Pasture receives deferred use from livestock each year, with cattle entering this pasture after July 1. The season of use is limited to a six month season of use (April 1-September 30). This system generally meets the physiological needs of the perennial herbaceous species. The riparian habitat associated with Sand Creek has been protected from both livestock and wild horses through a series of riparian exclosures.

Wild horses utilize the lower pastures throughout the winter season. Data collected during the spring of 2001, show there are areas of heavy and severe use occurring in the lower pasture, prior to livestock use. This is even after the area receiving complete years rest from livestock during the 2000 year. During years when there are open winters, some of the horses will remain in the uplands of the Carter Reservoir Pasture yearlong. This situation does not provide the perennial plants any rest from critical growing season grazing.

Wild Horse Expansion Outside Carter Reservoir HMA

Horses were last removed from the Crooks Lake Allotment (to the north, outside the HMA) in 1988. At that time, 11 head could not be captured. It was thought that these animals might move back into the Carter Reservoir HMA during the winter after the gather. Since that time, wild horses have been routinely reported on the Crooks Lake Allotment. The last aerial census, conducted in May, 2001, revealed that there were 19 animals (15 adults, 4 foals) were inside the boundaries of the Crooks Lake Allotment. This has become a issue as the land use plan calls for the Crooks Lake Allotment to be free of wild horses. In the spring of 2002, horses were on the very northern portion of the Crooks Lake Allotment, in the crested wheatgrass seedings where they had never been previously seen. The permittee has requested the removal of wild horses from this allotment during the last several years.

7. CONCLUSIONS

Water Conditions- Based on data collected during the 2002 field season (which was considered a normal year), public water sources became dry as the year progressed. Inspections during the early spring of 2002, indicate that there was very limited public water sources available to wild horses. All eight of the reservoirs in the Carter Reservoir Pasture were dry or almost dry, limiting reliable public water to one spring. As the year progressed, wild horses turned to private lands/waters to supply adequate water. This has been a constant point of contention, with the private landowners demanding compensation. The private landowners have indicated that they would tolerate wild horse use of their private waters, as long as populations were maintained at a lower level.

Private Land Use by Wild Horses- As water sources become limited during the hot summer season, wild horse use is concentrated on private spring meadows resulting in over-utilization of these areas. Due to this use, the private landowners feel their only option is to fence or otherwise barricade their private water sources from wild horses, which would extremely limit the number of animals able to exist in the HMA. The Bureau has explored the potential of developing other public water sources, however there is limited potential. Any new reservoirs constructed would also have the potential of becoming dry during those years when precipitation is limited.

Wild Horse Population Expansion Outside Of the Carter Reservoir HMA- It is documented that wild horses have expanded outside the Carter Reservoir HMA. This expansion is to the north into an area not established as an HMA in the Cowhead/Massacre Land Use Plan. Wild horses were noted outside the HMA in 1988, when the last gather occurred in the area. At that time, 19 animals were removed, however, 11 head could not be caught. The most recent aerial count, conducted in May, 2001, revealed 19 head in the Crooks Lake Allotment. Since that time the numbers have fluctuated to a reported 60 head at times. This expansion outside the HMA may be the result of the lack of water in the high country of the Carter Reservoir HMA, or the territoriality of the bands reacting to a large increase in population.

Wild Horse Use of Upland Range- Utilization mapping reveals that there are sizable areas of heavy to severe use by wild horses on the lower pasture over the winter months. Additionally, some areas of riparian habitat in the upper pasture fall into the moderate utilization range, even before livestock enter the pasture.

7. APPROPRIATE MANAGEMENT LEVEL DETERMINATION

When establishing an appropriate management level, the following factors are considered:

- 1) Utilization of private and public riparian areas in the Carter Reservoir Pasture by wild horses only has been moderate prior to livestock entering the pasture.
- 2) Because it is known that wild horses utilize the private water sources and riparian areas year-long, the annual wild horse utilization is overall heavy, when considered on a year-long basis. This is especially true during the hot season when water sources on public lands are completely dry, and wild horses must use these areas for water.
- 3) Water is the most limiting factor on public lands for wild horses during the late season, especially on dryer years, when all but one public water source may become dry.
- 4) The lack of available water for wild horses in the late season may be contributing to the egress of wild horses outside the HMA into the Crooks Lake Allotment.
- 5) BLM cannot allocate private water sources and/or lands to wild horses. Adequate water for wild horses on public lands is an important component in managing wild horse herds in a thriving natural ecological balance.
- 6) There are areas of heavy to severe utilization by wild horses in the lower pasture, prior to livestock entering the pasture, even when the pasture received complete prior year's rest from livestock.

In order to determine the optimum number of wild horses that can occupy the Carter Reservoir Herd Management Area, utilization of upland vegetation in the lower pasture has been used. This appears to be the most limiting factor for wild horses (except water availability). By applying a simple utilization formula to the native range in the lower pasture, before livestock enter the allotment, the result is as follows:

<u>1416 AUMs (118 adult wild horses* X 12 Months)**</u>	X	<u>AUMs</u>
70% (mid-point between moderate and heavy utiliz. Classes***)		20% (desired use)

$$\frac{1416 \text{ AUMs} \times 20\%}{70\%} = 405 \text{ AUMs}$$

* 118 head is the number of adult wild horses which would have contributed to the utilization levels occurring in the winter of 2000/2001.

**1416 AUMs is determined to be the amount of use made on the uplands contributing to pre-livestock turnout utilization in 2001. This does not include foals born during the spring of 2001, or animals that were outside the HMA in the Crooks Lake Allotment.

*** The mid-point of moderate and heavy utilization classes is used because a large portion of the pre-livestock wild horse utilization falls within these two classes.

For potential stocking rate:

$\frac{405 \text{ AUMs}}{12 \text{ months}} = 35 \text{ wild horses optimum}$

20% utilization (light use) is the maximum utilization by wild horses desired in the upland and riparian areas on BLM administered lands during the spring period. The Cowhead/Massacre Land Use Plan, Decision No. 4, calls for at least one growing season of rest every two years on native range. However, it would be expected that light use levels would have minimal impacts during this period.

For an appropriate management level range:

$35 \text{ wild horses (AML)} \times 70\% = 25 \text{ wild horses}$

Thus, it is determined a population range of 25-35 wild horses is appropriate for the Carter Reservoir HMA.

The low range is 70% of the appropriate management level and is the level that the population would be gathered to so that in 3 years, it would be at or slightly above the maximum level.

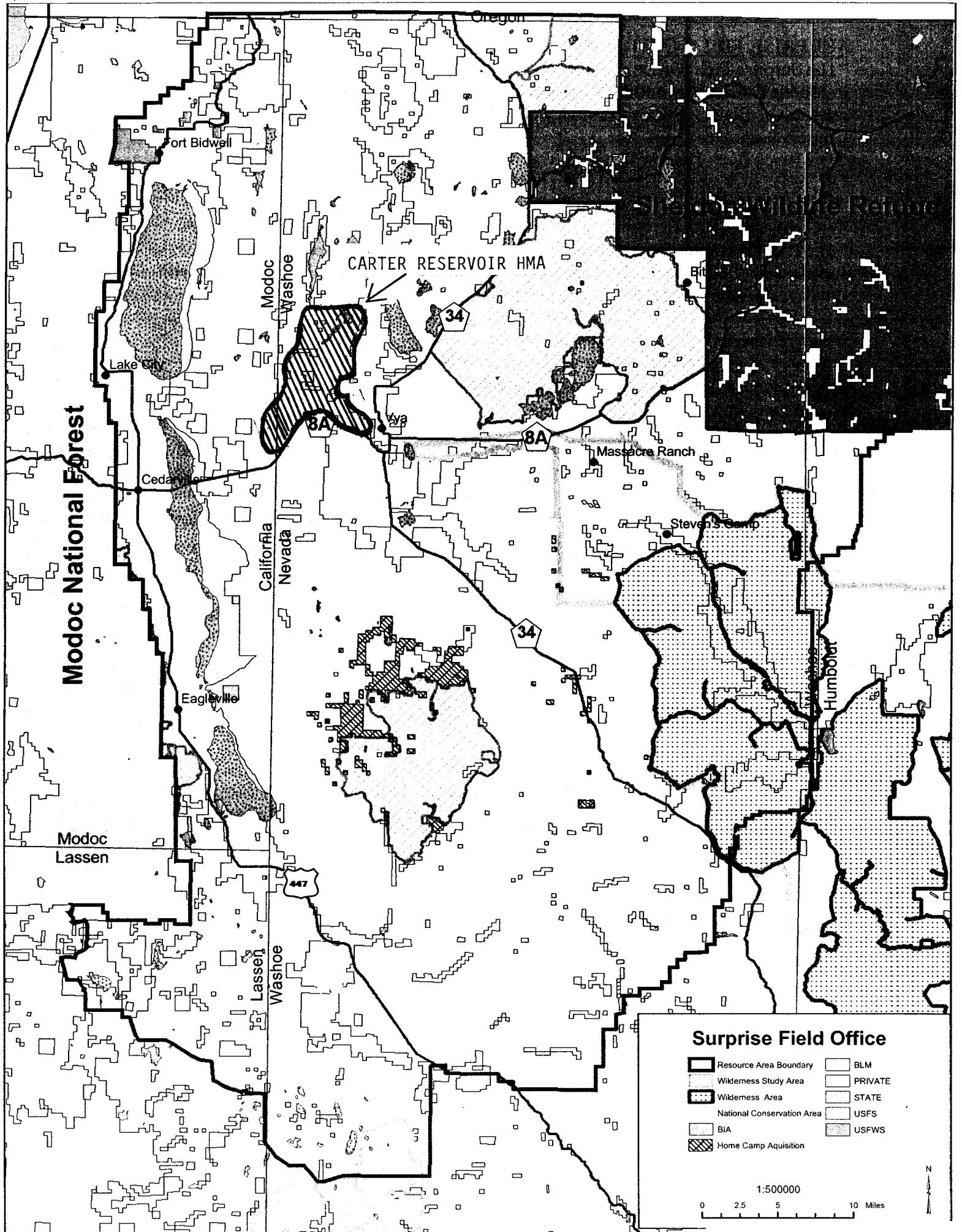
Rationale:

The current livestock grazing system for the Sand Creek Allotment allows for complete rest from livestock grazing for the lower pastures on alternative years and deferred grazing for the uplands in the Carter Reservoir Pasture each year. This grazing scheme, coupled with a season of use for six months should allow for the physiological needs of the upland vegetation. At the current population levels, there are moderate to severe utilization levels occurring by wild horses on both public upland and private riparian areas.

A range of 25-35 wild horses has been determined to be the population range that will achieve and maintain a Thriving Natural Ecological Balance within the Carter Reservoir Herd Management Area. The established level should:

- 1) Lead to light utilization levels on both the upland and riparian habitats during the spring growth period. Allow for prior year's residual vegetation for watershed protection.
- 2) Allow for adequate water supplies for wild horses during dry years. It should be recognized that wild horses will continue to make use of private water sources and lands as they remain available to the wild horse population. However, this use should be negligible.
- 3) Eliminate or greatly reduce the complaints of private landowners of wild horse depredation on private lands and waters, reducing the need to annually remove animals from private lands as requested by the landowner(s) as called for in 43 CFR 4720.2-1
- 4) Eliminate the egress of animals outside the HMA, by 1) providing adequate territory for remaining bands, and 2) providing adequate water for existing populations.

Attached: Maps



Modoc National Forest

CARTER RESERVOIR HMA

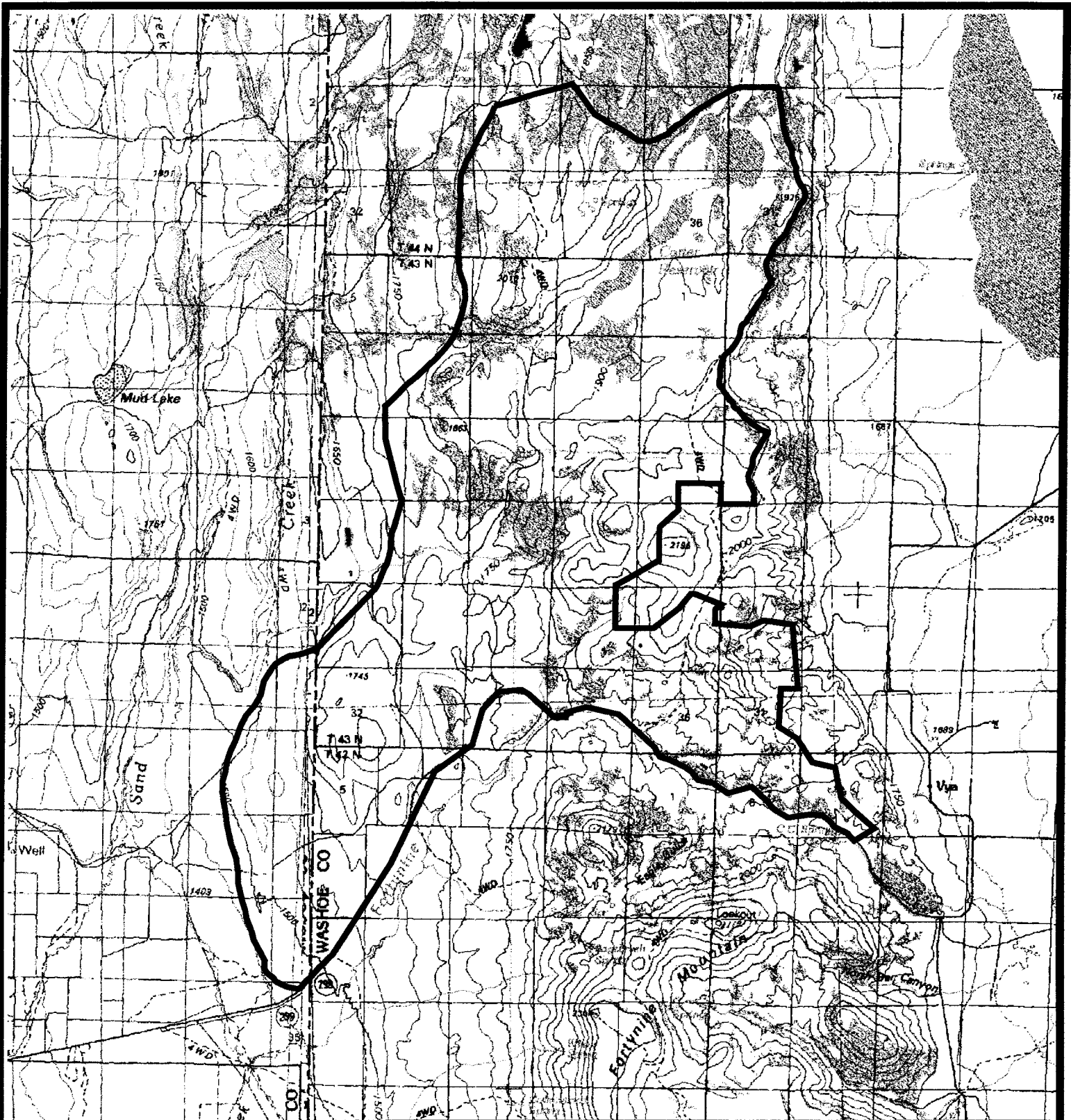
Surprise Field Office

- Resource Area Boundary
- Wilderness Study Area
- Wilderness Area
- National Conservation Area
- BIA
- Home Camp Acquisition
- BLM
- PRIVATE
- STATE
- USFS
- USFWS

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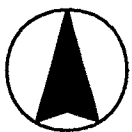
0 2.5 5 10 Miles

MAP 1- GENERAL LOCATION



Carter Reservoir HMA

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 Herd Management Areas

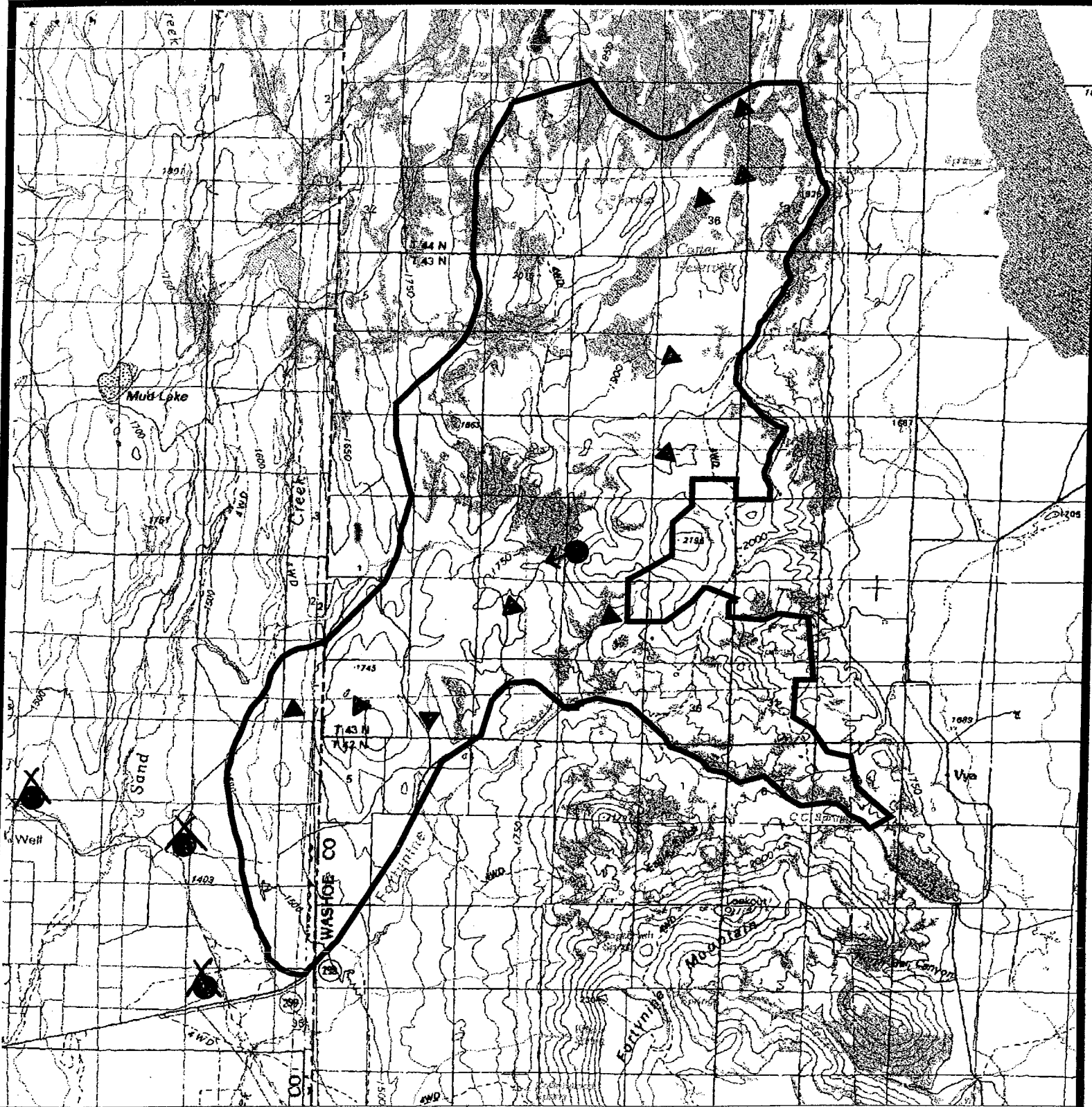


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May 29, 2001






Created by Surprise Field Office GIS Staff

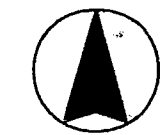



Carter Reservoir HMA

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KEY

-  Reservoirs
-  Wells
-  Spring



 Herd Management Areas

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May 29, 2001

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