



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

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In Reply Refer To:
4700(CA-370) P

June 8, 2001

Dear Interested Party:

Enclosed, for your review, is a copy of the Gather Plan/Environmental Assessment No. CA-370-01-07. This document addresses the impacts associated with establishing an appropriate management level and gathering wild horses to the established level for the Little High Rock Home Range of the High Rock Herd Management Area (CA-264).

I would appreciate any comments you might have being sent to the address above by July 5, 2001.

As you are probably aware, Northeastern California and Northwestern Nevada are experiencing, what appears to be, the driest year on record for the period of September through May. We are currently monitoring water conditions closely on all of our herd management areas. We are particularly concerned with the Little High Rock area, which has very limited water available for wild horses.

If you have any questions regarding the enclosed documents, please feel free to call me or Rob Jeffers, of my staff, at (530) 279-6101.

We appreciate your interest in the Wild Horse and Burro Program.

Sincerely,

Susan T. Stokke
Surprise Field Manager

Enclosures

**LITTLE HIGH ROCK
AML ESTABLISHMENT/
CAPTURE PLAN
ENVIRONMENTAL ASSESSMENT**

CA-370-01- 07

JUNE, 2001

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 Little High Rock Home Range of the High Rock Herd Management Area (HMA) to the established population level. This home range is more specifically described as that area south and west of High Rock Canyon. On that area north and east of High Rock Canyon is what is referred to as the East of Canyon Home Range of the High Rock HMA. See Map, Attachment 1. Past capture, census, and distribution data collected indicate some inter movement among the horses of these Home Ranges, especially in winter in the bottom of High Rock Canyon.

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.

An AML for the East of Canyon Home Range was previously established, based on monitoring data, and documented in EA No. CA-028-93-03 . The determination of this AML was also upheld in IBLA No. 94-163, dated July 18, 1995.

The proposed AML for the Little High Rock Home Range was established using observations of conditions since 1990, plus intensive monitoring data collected in 2000. The key limiting factor for wild horses within this home range is 1) the condition of riparian areas, and 2) a limited supply of available water to support wild horses. This AML was determined by calculating the optimum number of animals which could use this area, while lessening impacts to riparian areas. Also considered was availability of drinking water on that portion of the home range which is preferred by the bulk of the animals. A summary and analysis of this data is found in Appendix III, Evaluation.

Purpose and Need for Action

The Surprise Field Office proposes to implement a program of integrated wild horse management in the Little High Rock Home Range of the High Rock 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 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 in the project area, were approved on April 24, 1981. Decision No. 7 for the Subunit 1 states: "Establish the High Rock Herd Management Area and manage for a population of 70-100 wild horses, as long as monitoring shows that horses are not causing significant impacts on cultural resources with National Historic Register qualities. If wild horses do cause significant impacts on these sites, then remedial management action (i.e. herd reduction, removal, or relocation through fencing, etc.) will be taken to protect the particular sites that are being degraded." 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

An AML has been proposed utilizing detailed monitoring data collected during the 2000, and observations made for the last decade. During 2000, measurements were made on both water supply and utilization of forage species within riparian habitats.

Environmental Analysis (EA) No. CA-028-90-16, completed in 1990, analyzed the impacts of gathering and removing animals down to the planned management level of 30-40 animals in this home range. This analysis covered the impacts of a selective removal of wild horses to achieve the planned management level as established in the Cowhead/Massacre MFP.

The Surprise Field Office will begin supporting research aimed at controlling the reproduction rate of wild horses through a collaborative effort to develop an immunocontraceptive 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 HMA's in Nevada and will be used to develop management strategies implementing fertility control treatment. The analysis of the use of this vaccine on wild horses in the High Rock HMA is part of the Proposed Action.

The HMAP, past gather plans and environmental assessments 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 both the Proposed Action and alternatives, is the establishment of an appropriate management level for the Little High Rock Home Range of the High Rock HMA at 80 wild horses, with a range of 48 to 80 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.

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 10 year period. The plan outlines a 4 year gather cycle to manage wild horses Bureau wide. The strategy is 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.

Part of the Proposed Action for the Little High Rock Home Range would be to capture approximately 400 wild horses and remove 365 wild horses, determine sex, age, and color, acquire blood samples for genetic analysis, assess herd health (pregnancy/parasites loading/physical condition/etc.) conduct immunocontraceptive research and monitor results as appropriate, 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. This data was used to determine the estimated number of wild horses to be removed, and released back into the HMA.

Table I

| HMA | Estimated 2000 Population | Estimated #'s to Remove | AML Range | Estimated #'s to Release |
|---|---------------------------|-------------------------|-----------|--------------------------|
| Little High Rock Home Range/High Rock HMA | 413 | 365 | 48-80 | 35 |

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 (including capture site selections) 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.

The Proposed Action includes the treatment of released mares with a revised immunocontraceptive vaccine, Porcine Zona Pellucida (PZP).

The immunocontraceptive 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.

The Proposed Action would be implemented in the summer or fall of 2001.

Alternative 2 (Proposed Action without the use of Immunocontraceptives)

This alternative would be the same as the Proposed Action, however, would not employ the use of Immunocontraceptives for research purposes.

Alternative 3 (Selective Removal)

Wild horse management under this alternative would be to remove all animals utilizing a Selective Removal Strategy based on previously established "age selective removal" criteria (i.e. 0-5 year olds or 0-9 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.). Selective removal under this alternative would 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.

Table II shows an example of selective removal using May 2001 census data to determine current population levels and estimated removal for 0-9 age classes. For the purpose of this example, achieving AML is the major objective.

Table II

| HMA/Home Range) | Current Pop. Estimate | AML Range | No. Animals 9 years and younger to remove | Estimated Population after gather |
|------------------------------|-----------------------|-----------|---|-----------------------------------|
| High Rock (Little High Rock) | 413 | 48-80 | 241 | 172 |

As the example above shows, it is unlikely that it would not be possible to reach AML during the initial gather, even if all animals in the 0-9 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. Gather operations would continue at their current irregular interval.

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

High Rock Herd Management Area

The High Rock HMA is generally broken with ridges, upland plateaus, terraces, mountain tops and side slopes. Elevations range from 5,000 to 6,000 feet. Vegetation is typical of the Great Basin Shrub/grass community. The dominant shrub is low sagebrush with an understory of bunch grass. The most abundant grass associated with low sagebrush is Sandberg's bluegrass. There are some areas that support big sagebrush with larger bunch grass species such as Idaho fescue, bluebunch wheatgrass and squirreltail.

The area is comprised of approximately 48,729 acres.

The Little High Rock Home Range is contained within the Little High Rock and High Rock Wilderness Areas, and the Black Rock Desert- High Rock Canyon Emigrant Trails National Conservation area, as shown on Attachment 2

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 estimated wild horse population for the Little High Rock Home Range is currently estimated to be 413 wild horses based on a helicopter census conducted on May 22, 2001. During this census, there were 334 yearlings and adults and 79 foals counted. This represents a foal crop of over 19% for this season. With March - June being regarded as the primary foaling months, and with the entire month of June remaining, the foal crop this year may likely exceed 20%.

The Little High Rock Home Range 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 Little High Rock Home Range was conducted in 1990.

Past capture data will be used to determine the color and approximate percentage of each color within the herd. After the 1990 gather, the existing data indicate that colors were as follows: 35% palomino, 16% chestnut, 19% dun, 10% pinto, 3% buckskin, 10% sorrel, 3% strawberry roan and 3% white. These colors apply to only those animals prepared after the 1990 gather. For those animals released, data exists relating only ages and sexes.

Post gather data will be used to determine the sex ratio (%) and age structure within the herd. Of the animals gathered in 1990, 65% were five and younger, which appears to be average for a herd in Nor-Cal East. The sex ratio of those total animals gathered was 36% male and 64% female. Those animals, which were turned back out, were 46% male and 54% female.

After the 1990 gather, sex ratios for wild horses within the High Rock HMA were thought to be representative of other HMA's in the Surprise Field Office and the West at large. 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.

Riparian habitats, generally associated with springs and seeps, are located throughout the Little High Rock Home Range. These areas are generally small in size, however, provide critical habitat for wildlife species. Six riparian habitats have been identified in the Home Range which are of special concern. See Map, Appendix III.

These areas receive heavy to severe utilization annually, severe trampling, and, based on observations, are estimated to be either non-functioning or functioning at risk.

Wilderness

On December 21, 2000, legislation was passed which established the Black Rock/High Rock Canyon National Conservation Area (NCA). As part of this legislation, 10 wilderness study areas were designated as wilderness. The Little High Rock Home Range lies within the Little High Rock Canyon and High Rock Canyon Wilderness Areas (See Attachment 3 - Wilderness Map).

Cultural Resources

There are over 100 prehistoric and historic archaeological sites that have been recorded within the High Rock Herd Management Area. Previous cultural resource inventories have concentrated on the Little High Rock Canyon area, the High Rock Canyon area, and the area of Grassy Rock. The remaining portions of the High Rock Herd Management Area have not been surveyed for cultural resources. However, the possibility of additional cultural resources being identified within the management area are high considering the number of sites that were identified during previous limited surveys. Some of the archaeological sites located within the Little High Rock Canyon are associated with the nationally significant event of the Shoshone Mike incident. In addition to the Little High Rock sites, a number of the previously recorded archaeological sites located within other areas of the High Rock Herd Management Area are eligible for inclusion on the National Register of Historic Places.

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

Environmental Consequences (Proposed Action & Alternatives)

Vegetation and Soil

Implementation of the Proposed Action would be to establish an appropriate management level of 80 wild horses for the Little High Rock Home Range, and then reduce the wild horse population to 40% below AML (to 48 head) in the Little High Rock Home Range. These actions would help to promote the achievement and maintenance of a thriving natural ecological balance for a period of approximately four years. This would result in the maintenance of current range conditions, including forage availability, vegetation density, vigor,

reproduction, and productivity.

The Proposed Action or alternatives would lessen the impact of hoof action on the soil around unimproved springs and stream bank riparian areas which should lead to an improvement in stream bank stability and improved riparian habitat conditions. It would be expected that there would be a reduction in erosion caused by the heavy trailing occurring into spring areas and reduced competition for available water sources.

It is, however, expected that there would be some localized areas of over utilization still occurring from wild horses continuing to congregate around preferred water sources.

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 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 which were previously disturbed. The identified trap site for this removal, which has been previously used, is located outside of the wilderness, in the vicinity of Woodruff Camp.

Water Availability/Riparian Habitat

Water availability has been determined to be the key limiting factor for wild horses in the Little High Rock Home Range. Production on preferred springs is low with most of the water unavailable for drinking due to lack of any type of catchment. Refer to Table in Appendix III, Evaluation. On those springs, during drier years, the animals are forced to wait long periods to drink while small depressions or hoof prints fill up. At the same time, numerous bands have been observed loitering in the distance, waiting for their turn to water. The water that the animals have available is of poor quality, and in inadequate supply.

The Proposed Action would insure adequate water supplies to support animals during even the driest years. The data collected on water production during 2000, showed that the water sources were barely supplying enough water to support the

animals. On several of the sources, wild horses had to drink from hoof prints in the mud. Animals were seen standing in the vicinity of those springs for extended periods, waiting for water to fill those hoof prints, while other bands were seen waiting in the surrounding area. During 2000, the Surprise Field Office was very concerned about the possibility of animals perishing from lack of water, and was in the process of developing an emergency gather plan, when the weather cooled and animals dispersed. The 2001 year is substantially worse, with a production of just 56% of normal, which is second driest on record (for Cedarville, CA). An earlier environmental assessment indicated that during the 1990 season, almost all of the wild horses were using Cherry Springs as their primary water source, and there were also concerns about a possible die-off.

Data shows that current levels of utilization of riparian habitat vegetation, by wild horses, was severe on four areas and heavy on the other two areas which are preferred by the animals. On several of the springs (Cherry, Laxague and Powers Springs), trampling is so severe, there is only remnant vegetation between the hoof prints (See Attachment 3, Evaluation).

Because of the small size (up to one acre) of the riparian areas, it is estimated that approximately 10-15 head yearlong per water source would be the optimum use these areas could withstand and begin moving upwards in condition. Considering the six public water sources which are preferred by animals in this home range, that would equate to a maximum of 60-90 head of wild horses.

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 will likely still be heavy to severe use of some of the riparian areas. This will be due to wild horses continuing to congregate on preferred use areas.

It is estimated that riparian functionality for the primary water sources is:

| <u>Water Source</u> | <u>Estimated PFC Rating</u> |
|---------------------|-----------------------------|
| Cherry Spring | Non-Functioning |
| Powers Spring | Non-Functioning |
| Laxague Spring | Non-Functioning |
| Yellow Rock | Disturbed (Dug out) |
| Pappy's Corral | Functioning at risk |
| Mahogany Creek | Functioning at risk |

Under the Proposed Action, it is expected that trend on these riparian habitats would become upward as damage due to overutilization and trampling is decreased.

For those water sources functioning at risk, it is expected the trend would continue to be downward as the wild horse population increases.

Wildlife and Livestock

There is no livestock use in the majority of the Little High Rock Home Range. Although livestock use would be permitted, distance to the area along with poor water availability limits use to only the northern fringe of the Home Range.

The Proposed Action or alternatives would result in reduced competition with wildlife which would increase the quantity and quality of available forage. There would be less disturbance associated with wild horses along stream bank riparian habitat and adjacent upland habitat. Reduced competition for water between wildlife and wild horses 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.

Wilderness

No impacts to wilderness values are anticipated to occur in the High Rock HMA since all trap sites would be located outside of the High Rock and Little High Rock Wilderness Areas.

Wilderness values would be positively affected by implementation of the Proposed Action or alternatives as it would result in an improved ecological condition of the plant communities that are aesthetically more appealing to the public than the existing situation. Potential improvement of most of the riparian areas would be especially apparent. The condition of riparian habitats, at present, is estimated to be non-functioning or functioning at risk, with overutilization and extreme trampling by wild horses.

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.

Noxious weed impacts associated with the proposed action or alternatives include potential importation or transportation of new species of weeds to the High Rock area, spread of existing noxious weed seeds and plant parts to new areas in the complex, and increases in the size of existing weed infestation sites. These impacts would potentially be accomplished by contractor vehicles and livestock working in close proximity to the gather area and through possible feeding of contaminated hay to captured horses which 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.

Cultural

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.

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 drinking water during even the hottest and driest periods of the year. This would allow the animals to water in a reasonable time frame without having to wait prolonged periods while other bands drank. The reduced competition for available water should also help relieve the extreme trampling presently occurring on the spring sources, resulting in better water quality for those animals remaining. The possibility of a large scale die-off due to inadequate water supplies would be greatly reduced. Additionally, the potential for more frequent emergency gathers 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 immunocontraceptive fertility control vaccines, 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 which 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 results 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, reestablishment 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 includes modification of age or sex ratios to favor a particular class of animal.

All alternatives, including the Proposed Action, include the establishment of an AML at 80 head, and implementation of actions to reduce the number of animals to 40% below AML or 48 wild horses. As there is mixing between the Little High Rock Home Range and the East of Canyon Home Range, and between the East of Canyon Home Range and herds in the Winnemucca area of jurisdiction, the removal of animals to a low level initially wouldn't likely have adverse effects on viability of the population as a whole.

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. This flexible procedure (Appendix II SOP's) would allow for correction of any existing discrepancies in herd demographics which could predispose a population to increased chances for catastrophic impacts. The Proposed Action would also establish a standard for selection which would minimize the possibility for developing negative age or sex based selection effects to the population in the future.

Population-wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify. Population wide indirect impacts are 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. Again, with implementation of the Proposed Action, these impacts would be expected to be mitigated by an overall lessening of the need to impose fertility control treatments on a high proportion of the mare population, and all mares would be expected to successfully recruit some percentage of their offspring into the population.

Implementation of the Proposed Action and Alternative 1 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. However, water and forage would limit this growth, and could possibly lead to large scale die-offs.

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 1). For each alternative, populations are predicted for the next 10 years.

Cumulative Impacts (Proposed Action & Alternatives)

Cumulative impacts are impacts on the environment which 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 would reduce the wild horse population to AML in the Little High Rock Home Range of the High Rock HMA which would help to promote a thriving natural ecological balance. This would result in an increase in vegetation density, vigor, reproduction, productivity, forage availability and most importantly water availability.

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 which were previously disturbed. These common practices would minimize the cumulative effects of these impacts.

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. At the same time, horse herds would be expected to continue to adapt to these small changes to availability and distribution of critical habitat components (food, water, shelter, space). 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 incorporates proven standard operating procedures which 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 are not warranted.

Consultation and Coordination

List of Preparers

| | |
|-----------------|---|
| Rob Jeffers | Supervisory Natural Resource Specialist |
| Alan Uchida | Watershed Specialist |
| Roger Farschon | Acting NCA Manager |
| Dino Borghi | GIS |
| Penni Carmosino | Cultural |

Persons, Groups, and Agencies Consulted

Nevada Commission for the
Preservation of Wild Horses

Wild Horse Organized Assistance

The Fund for Animals, Inc

Nevada State Clearing House

White Pine Lumber Co.

Bunyard Family

Pyramid Lake Paiute Tribe

Redwing Horse Sanctuary

Nevada Division of Wildlife

Bill Phillips

Wildlife Management Institute

Fort Bidwell Tribal Council

Dan Heinz, N.E. California RAC

Summit Lake Paiute Tribe

Cedarville Rancheria

Winnemucca Indian Colony

The Fund For Animals, Inc.

Colorado Wild Horse and Burro Coalition

Appendix I- Population Modeling

High Rock HMA- Little High Rock Home Range Projected Populations

Number of horses, by year, for each alternative

| YEAR | Alternative 1 Proposed Action | Alternative 2 Proposed Action without Immuno- contraceptives | Alternative 3 Selective Removal | No Action Alternative |
|-------------|--|---|--|----------------------------------|
| 2001 | 413 | 413 | 413 | 413 |
| 2002 | 62 | 54 | 199 | 526 |
| 2003 | 69 | 69 | 237 | 653 |
| 2004 | 86 | 86 | 283 | 797 |
| 2005 | 108 | 102 | 314 | 943 |
| 2006 | 59 | 55 | 175 | 1167 |
| 2007 | 61 | 71 | 209 | 1434 |
| 2008 | 78 | 86 | 247 | 1762 |
| 2009 | 97 | 105 | 278 | 2080 |
| 2010 | 57 | 55 | 133 | 2424 |
| 2011 | 56 | 65 | 157 | 2834 |

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.

A. 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 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 not 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

B. BLM conducted Helicopter - 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 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 which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of 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 appraised 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.

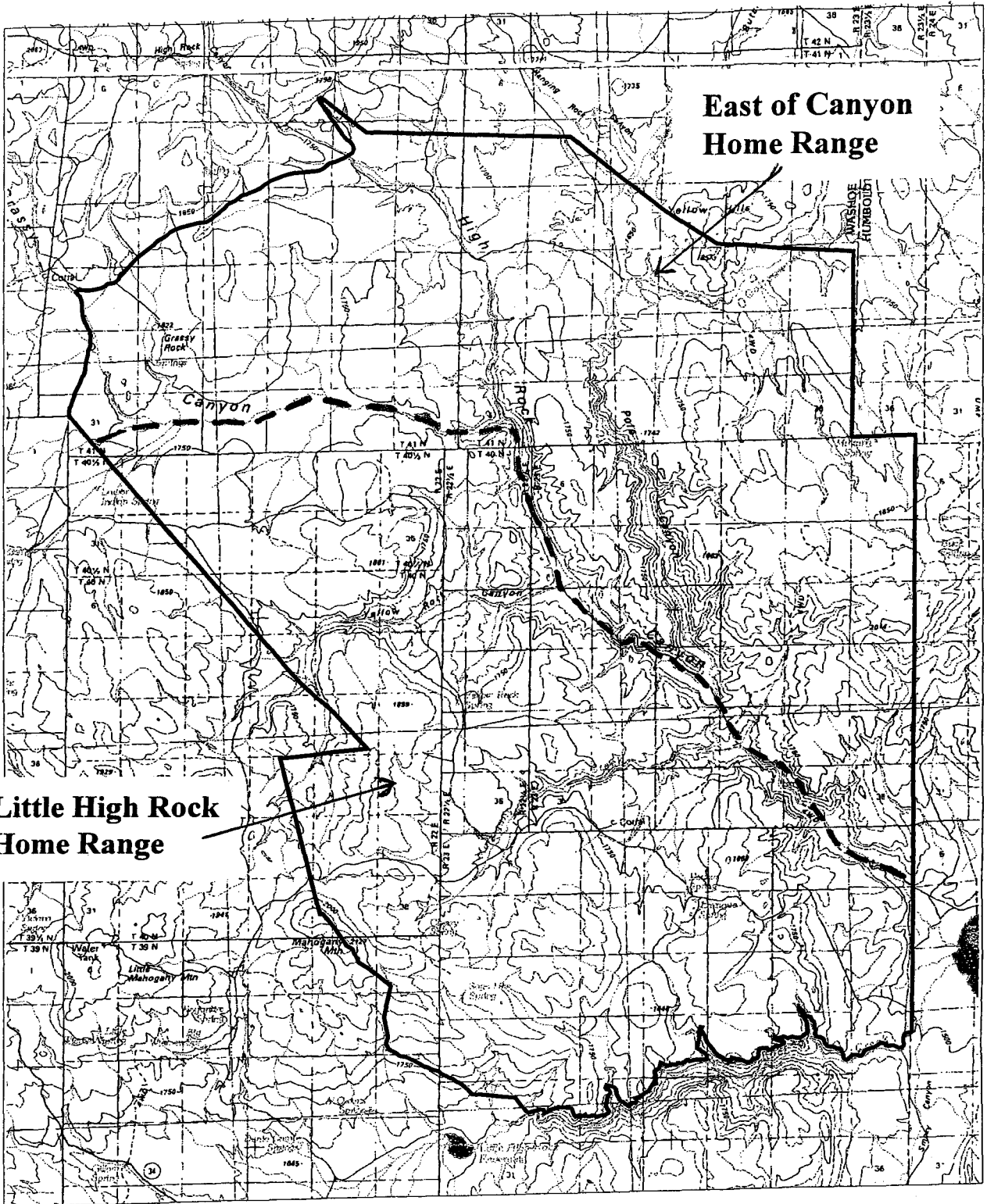
H. Responsibility and Lines of Communication

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.



**East of Canyon
Home Range**


**Little High Rock
Home Range**




■ Home Management Areas

High Rock HMA

No Warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be update without notice.



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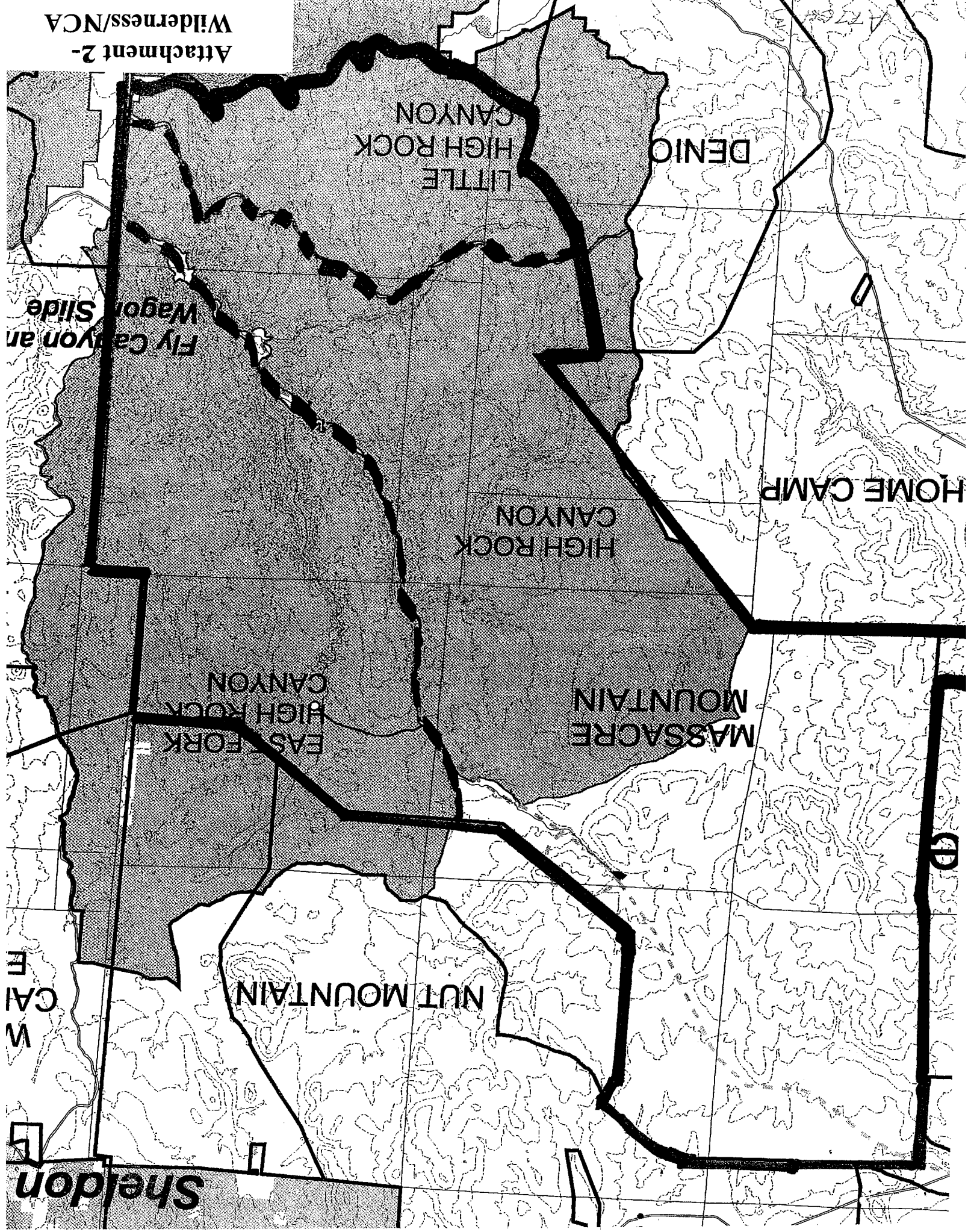


4 Miles

Created by Surprise Field Office GIS Staff

May 29, 2001

Attachment 1- HMA MAP



Attachment 2-
Wilderness/NCA

DENIO

LITTLE
HIGH ROCK
CANYON

HOME CAMP

HIGH ROCK
CANYON

MASSACRE
MOUNTAIN

EAST FORK
HIGH ROCK
CANYON

NUT MOUNTAIN

Fly Canyon and
Wagon Slide

W
CA
E

Sheldon

**HIGH ROCK HERD
MANAGEMENT AREA
(CA-264)**

**LITTLE HIGH ROCK
HOME RANGE**

**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
CEDARVILLE, CA 96104**

JUNE, 2001

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 Little High Rock Home Range of the High Rock HMA. The goal is to set and maintain an Appropriate Management Level which will lead to the management of wild horses in an natural ecological balance.

2. BACKGROUND INFORMATION

The High Rock HMA is administered by the Surprise Field Office, Cedarville, California. The High Rock HMA consists of two home ranges, separated by High Rock Canyon. The two ranges are the East of Canyon Home Range and the Little High Rock Home Range. The entire HMA is 114,500 acres. The East of Canyon HMA has an established AML of between 40 and 50 head of wild horses.

The primary issues in the Little High Rock Home Range are the poor condition of riparian areas and lack of reliable water sources. During the 2000 season, the wild horses occupying the home range were monitored very closely along with available water sources. During the hottest and driest portion of the year, water availability became a major concern. Several of the preferred water sources, which are small springs, provided minimal water to sustain the current number of animals present. Some animals appeared obviously stressed by inadequate water supplies.

3. LOCATION OF AREA

The Little High Rock Home Range of the High Rock HMA is located approximately 35 miles east of Cedarville, California in Northern Washoe County, Nevada. See Attachment 1, General Location Map and Attachment 2, Map of High Rock HMA. The HMA is bordered to the south by Little High Rock Canyon, which is the northern border of the Fox Hog HMA.

4. EXISTING ENVIRONMENT

Soils

Soils can be assigned to five general categories, based upon topographic position.

Soils of upland benches and terraces are shallow, often rocky with bedrock at 3-6". These soils saturate quickly, with heavy runoff.

Soils of upland swales and recent fans are generally loamy with depths from 6-36". The

soils have a good water holding capacity by often saturate due to the passage of runoff from shallow soils above them.

Soils of mountain slopes occur at upper elevations in the southwestern corner of the HMA. These are deep, loamy soils with a strong rock component. Depths range from 8 to 24". Water holding capacity is high, however, so is runoff, due to generally steep slopes.

Soils of canyon walls are generally characterized as small pockets of soil, interspersed among talus and rock rubble. Depth, water holding capabilities and runoff are highly variable.

Soils of canyon floors and spring meadows are well developed, deep soils with high organic content. Erosion is often severe due to lack of vegetative cover and extremely high stream flow levels.

Vegetation

Although the vegetation patterns are complex, the number of major vegetation types are fairly limited.

The upland benches and terraces are dominated by low sagebrush and scattered Wyoming big sagebrush. Other species common are Sandberg's bluegrass, squirreltail, Thurber's needlegrass, Phlox spp., Astragalus spp., Erigonum spp., and a wide variety of cushion forbs.. Conditions of these sites is mostly good, with some of the rockiest sites rated excellent. These sites are used extensively by antelope and sage grouse as water availability allows.

Upland swales and recent fans are interspersed among the terraces. These sites are dominated by Wyoming and Basin big sagebrush sites. Other species associated with these sites are Thurber's needlegrass, squirreltail, and a wide range of perennial forb species.

The southwestern portion of the Home Range is the only area where the elevation exceeds 6000 feet. Major species include bitterbrush, curl-leaf mountain mahogany, mountain big sagebrush, Idaho fescue, needlegrasses, onion grass and a wide variety of perennial herbaceous forbs.

Meadow types occupy the canyon floors and spring overflow areas. 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 dominated by willows, sod forming grasses and a wide variety of perennial forbs.

Livestock

This High Rock HMA is located within the Massacre Mountain Allotment. The East of Canyon Home Range is closed to livestock grazing, except on a prescriptive basis. Livestock grazing in the rest of the allotment has been limited to the very northern fringe of the home range. No cattle grazing has occurred in the Little High Rock Home Range for a number of years.

Wildlife

The Home Range supports such big game animals as mule deer, pronghorn antelope and bighorn sheep.

A relatively small population of about 100 mule deer are on the HMA year round. Numbers of mule deer generally increase during the winter as migrants move into the HMA.

Pronghorn antelope are the most visible game species inhabiting the HMA. Antelope are common year round on the upland benches. The year round herd is relatively small, with numbers near 150 head. In winter antelope populations in the HMA can swell to near 1000 animals. California Bighorn were reintroduced in the HMA. They prefer to inhabit the steep, rough country typified by the canyons within the HMA. During overflights on May 23, 2001, seven bighorn rams were seen just south of Little High Rock Canyon.

Wilderness

On December 21, 2000, legislation was passed which established the Black Rock/ High Rock Canyon National Conservation Area (NCA). As part of this legislation, 10 wilderness study areas were designated as wilderness. The Little High Rock Home Range lies within the Little High Rock Canyon and High Rock Canyon Wilderness Areas (See Attachment 3 - Wilderness Map).

Cultural Resources

There are over 100 prehistoric and historic archaeological sites that have been recorded within the High Rock Herd Management Area. Previous cultural resource inventories have concentrated on the Little High Rock Canyon area, the High Rock Canyon area, and the area of Grassy Rock. The remaining portions of the High Rock Herd Management Area have not been surveyed for cultural resources. However, the possibility of additional cultural resources being identified within the management area are high considering the number of sites that were identified during previous limited surveys.

Stream/Riparian Habitat

There are several springs occurring in the Little High Rock Home Range. These areas receive severe use by wild horses. Several such as Laxaque, Powers and Cherry Springs have little remaining vegetation, having been turned up by trampling. These springs also produce very little water, especially during the warmer times of the year. In addition, there is severe trailing into these spring areas by horses, which in turn is causing accelerated erosion.

Recreation

Recreation in this area is dispersed, generally limited to hunting of upland birds and big game species such as mule deer and antelope. With the designation of wilderness, and the closure of several ways, vehicle traffic will be limited to the roads which form wilderness boundaries.

Wild Horses and Burros

The Cowhead Massacre Management Framework Plan, completed in 1980, set a planned management level of 70-100 head for the High Rock Herd Management Area. The Herd Management area was further broken down into two home ranges with a planned management level of for each home range. An appropriate management level of 30-40 head was established for the East of Canyon Home Range in 1993. This level was upheld by the Interior Board of Land Appeals in 1995. During 2000, a gather was conducted in the East of Canyon Home Range. During this gather, 210 wild horses were gathered and 148 were permanently removed from the range. Due to the selective management criteria in place at the time, 62 animals were returned to the range. During a census conducted on May 22, 2001, 134 wild horses (119 adults, 15 foals) were counted in the Home Range.

The last gather in the Little High Rock Home Range was conducted in November, 1990, when 55 wild horses were gathered and 31 were removed. It was estimated a total of 40 wild horses were left remaining on the Home Range at that time. A census conducted on May 22, 2001 revealed there are now 413 wild horses occupying the home range. Of these, 79 were identified as 2001 foals.

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. Maintain primitive values and scenic resources in the High Rock area.
4. Protect and maintain a population of 270 wild horses in the Cowhead/Massacre area.

Applicable Specific Land Use Goals for Subunit 1, High Rock

1. Maintain the High Rock Complex in a primitive state by preservation of the natural characteristics of the area.
2. Manage all ecological sites in within Subunit 1 to achieve site potential.
3. Establish the High Rock Herd Management Area and manage for a population of 70-100 wild horses (HMA wide) as long as monitoring shows that horses are not causing significant impacts on cultural resources with National Register qualities. If wild horses do cause significant impacts on these sites, then remedial action (i.e. herd reduction, removal, or relocation through fencing, etc.) will be taken to protect the particular sites that are being degraded.

6. ANALYSIS OF MONITORING DATA

Based on field inspections, the two primary limiting factors affecting wild horses and their habitat in the Little High Rock Home range are 1) the conditions of riparian habitat and 2) water availability. Based on this, below is an description of both factors.

Water Availability

Below is a listing of available water sources in the Little High Rock Home Range (See Attachment 4-Map), along with observations made during 2000. The area was inspected several times during 2000, because of drought conditions and the potential need for an emergency gather. The measurement of water production was made by confining the water to a single outflow and determining volume produced over time.

The data below shows the production of those springs which were measurable, along with the date they were measured. Also shown is the numbers of wild horses observed being in close proximity to each water source and the date they were observed. An assumption is being made that those animals in close proximity to each water source are utilizing that source.

PRIMARY WATER SOURCES IN LITTLE HIGH ROCK HOME RANGE

| Water Source | Production | Number of Wild Horses in Vicinity | Utilization/ Remarks |
|----------------------------------|--|---|---|
| Woodruff Camp | Not determined-good water source | 9/21/00- 5 adults/2 foals 9/25/00- 12 adults/5 foals | Heavy utilization by both wild horses and cattle. This is a private field. |
| Cherry Spring | Unmeasurable 9/21/00 Measured 37.5 GPH on 9/25/00 | 9/21/00- 18 adults/6 foals 9/25/00- 12 adults/4 foals | Severe trampling by wild horses. Animals water from one small pool and hoof prints. This spring received severe use earlier in the year. No use by domestic livestock. Trailing by wild horses very evident and causing severe erosion. |
| Pappys Corral | Not measured 9/21/00 Measured 128 GPH on 9/25/00 | 9/21/00- 15 adults/2 foals 9/25/00- 22 adults/4 foals | Heavy use by wild horses 9/25/00. No use by domestic livestock. |
| Powers Spring/ Laxague Spring | Powers Spring-measured 19.5 GPH on 9/25/00 Laxague Spring not measurable but significantly less than Powers Spring. | 9/21/00- 81 adults/15 foals 9/25/00- 40 adults/6 foals | Severe trampling by wild horses. Water only available in hoof prints at Laxague Spring. 24 head of antelope seen at Powers Spring on 9/21/00. No use by domestic livestock. |
| Mahogany Creek | Unmeasurable-good water source | 9/21/00- 27 adults/8 foals 9/25/00- 9 adults/2 foals | Severe use by wild horses. No use by livestock. |
| Yellow Rock Spring Reservoir. | Unmeasurable-good water source | 9/25/00- 30 adults/2 foals | Severe use by wild horses. No use by livestock. |

There are no livestock utilizing this area and competing for available water. However, mule deer, bighorn sheep and antelope are common in the area.

Observations during the 2000 field season indicated that many of the animals had to wait prolonged periods to drink at the above sources.

It is estimated that between 10-15 wild horses (or 60-90 head) could make use of each of the six public water sources yearlong. This would insure an adequate water availability for horses on all areas, in even the driest years. This level of animals should also allow improvement of these areas.

Riparian Habitat

During the 2000 field season, utilization at each of the water sources in the Little High Rock Home Range was heavy to severe (See Appendix A- Photos). Trampling is causing severe mechanical damage to riparian habitats in this home range. This effect is more pronounced during hotter months and drier years. The current population of wild horses is also causing severe trailing to and from these spring sources. This is especially apparent at springs such as Cherry Springs where many trails occur, resulting in increased erosion.

7. CONCLUSIONS

Upland Habitat- Uplands habitat does not appear to be a limiting factor for wild horses in the Little High Rock Home Range. No major areas of heavy utilization have been identified in the Little High Rock Home Range.

Water Conditions- Based on data collected during the 2000 field season, there was only enough water to supply the minimal needs of the animals at many of the water sources. Observations indicate that many of the bands had to wait for prolonged periods while other bands congregated on the limited water sources. Of particular concern is the hotter summer months. At this time animals can be stressed due to the lack of drinking water. What water is available to them, at many of the springs, is of poor quality and taken from hoof prints. Due to the extremely dry conditions during 2001, there are serious and increasing concerns about the lack of water for the current populations and that there is a potential for animals to perish due to lack of adequate water.

Riparian Habitat- In all riparian habitats, there is heavy to severe utilization of riparian vegetation species. In several of the spring areas, including Laxague, Cherry, and Powers Springs, there is little vegetation present due to severe trampling and over use. Yellow Rock Reservoir and Pappys Corrals, also received heavy utilization, however, there is some perennial herbaceous riparian vegetation still remaining. Heavy trailing into the limited water sources is also a concern, as it is causing accelerated erosion and damaging adjacent cultural resource sites.

Cultural Resources- Many cultural resource sites have been identified within the Little High Rock Home Range. These are normally associated with perennial water sources such as springs and associated creeks. Due to the heavy and severe utilization levels and resultant trampling occurring at these sites, damage to cultural resources is also occurring. Land use decisions require actions up to and including total removal of animals if damage is found to be taking place.

7. APPROPRIATE MANAGEMENT LEVEL DETERMINATION

It is difficult to determine an appropriate management level utilizing water sources, when there are various sources present. Besides production, there are other factors, such as recharge, animal distribution, basin or trough size, social dynamics, etc., which determines how many animals can be watered on a certain area. For example, a spring may produce enough water to supply 1000 head of horses over a 24 hour period. However, if a band of animals must spend 30 minutes at the water source to obtain adequate water, there might be inadequate time for all bands to obtain adequate water that day. Another factor which makes an AML based on water production difficult, is that inspections revealed that animals changed between the water sources they used during the season.

For the above reasons, the appropriate level has been determined by applying a utilization formula on the most preferred and used riparian sources within the Home Range.

| <u>Water Source</u> | <u>2000 utilization (Midpoint)</u> | <u>Average</u> |
|---------------------|------------------------------------|----------------|
| Laxague Spring | Severe (90%) | |
| Powers Spring | Severe (90%) | |
| Cherry Spring | Severe (90%) | 83% |
| Yellow Rock Spring | Heavy (70%) | |
| Mahogany Creek | Severe (90%) | |
| Pappys Corral | Heavy (70%) | |
| Woodruff Camp | pvt | |

The riparian zones are approximately the same size for each water source, therefore, a weighted average is not found to be necessary.

Then, applying the simple utilization formula,

$$\frac{4008 \text{ AUMs (334 adult wild horses X 12 Months)}^*}{83\%} \quad \text{X} \quad \frac{\text{AUMs}}{20\%}^{**}$$

$$\frac{4008 \text{ AUMs X } 20\%}{83\%} = 965 \text{ AUMs}$$

For potential stocking rate:

965 AUMs = 80 wild horses maximum
12 months

* 4008 AUMs is determined to be the amount of use made on both the uplands and riparian. The amount of AUMs on just the riparian could not be broken out. It is assumed that 334 head (the number of adults counted during the 2001 census) contributed to the utilization levels found during 2000 since utilization occurs preferentially in riparian areas.

** 20% utilization is the maximum utilization desired in the riparian areas. At this level it is expected improvement would occur.

80 wild horses is considered the upper limit of the appropriate management level range. The lower limit of this range is determined as follows:

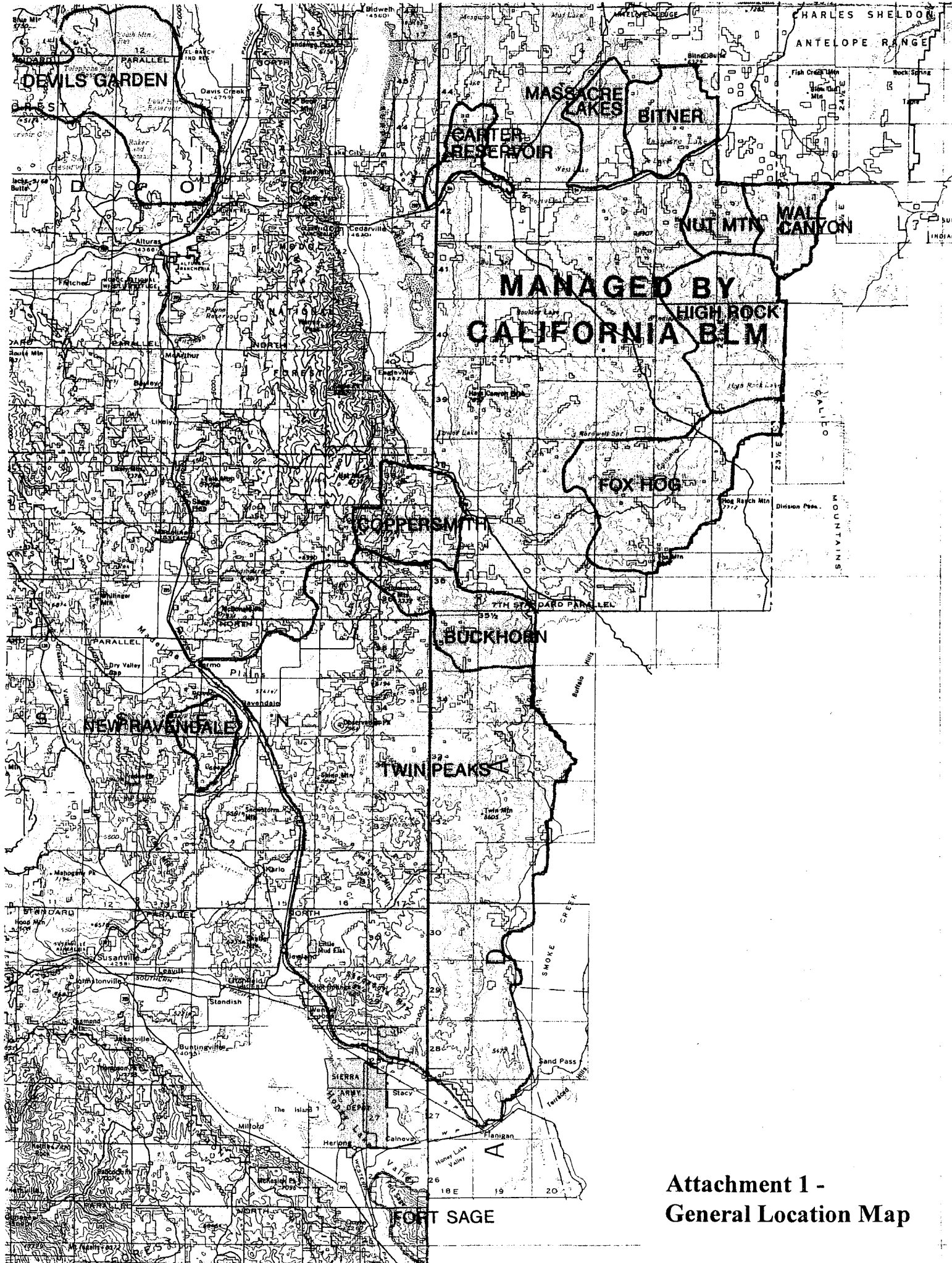
80 wild horses (AML) X 60% = 48 wild horses

Thus, it is determined a population range of 48-80 wild horses is appropriate for the Little High Rock Home Range.

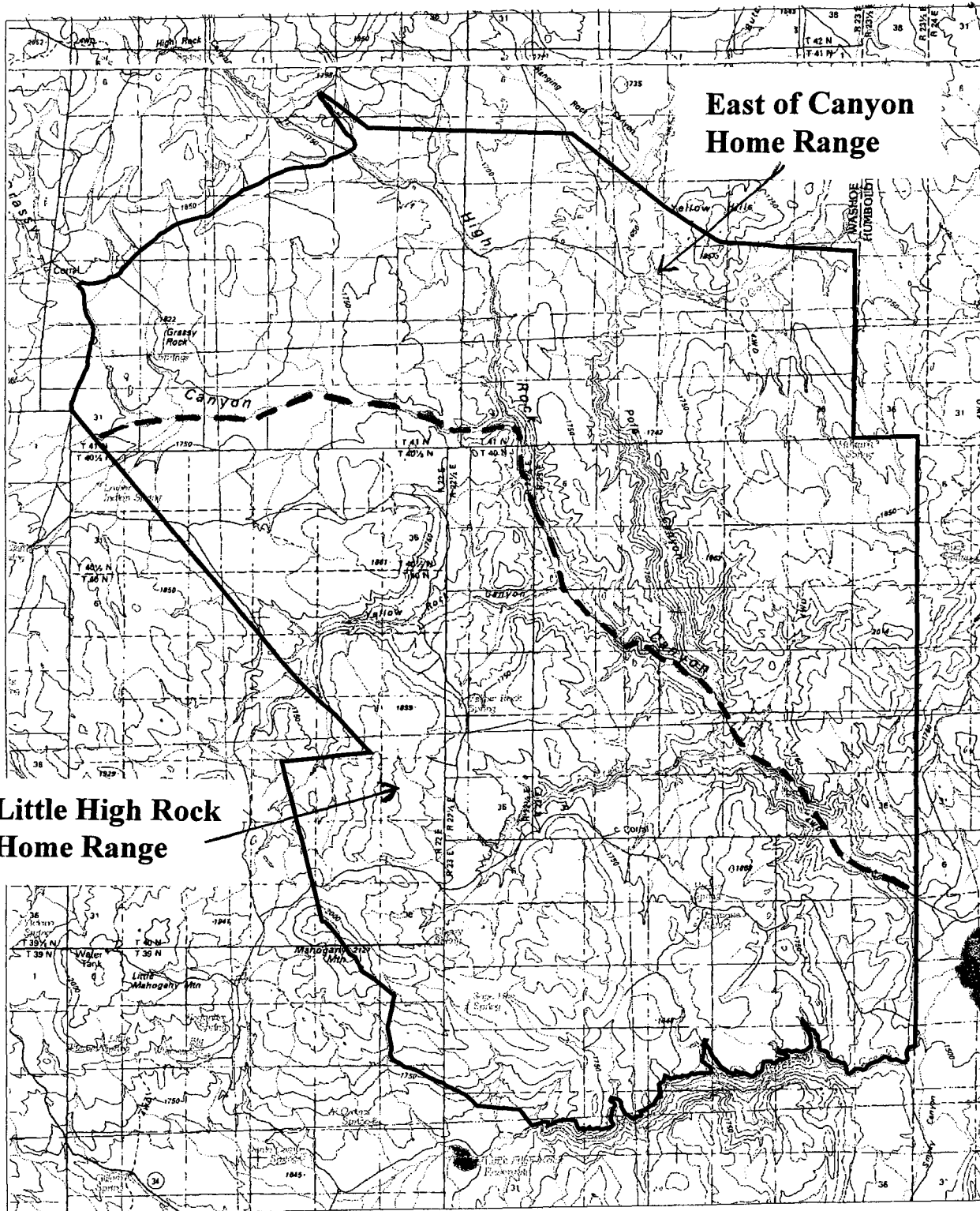
The low range is 60% of the appropriate management level and is the level which the population would be gathered to so that in 4 years, it would be at the maximum level.

Note: It is recognized that the maintenance of the above population range may not result in the improvement of all riparian areas to PFC. For this reason, it is recommended that monitoring continue to further define the optimum numbers.

Attachments




Attachment 1 -
General Location Map



**Little High Rock
Home Range**


**East of Canyon
Home Range**



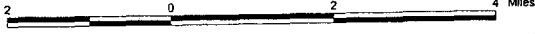
■ Hard Management Area

High Rock HMA

No Warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be update without notice.



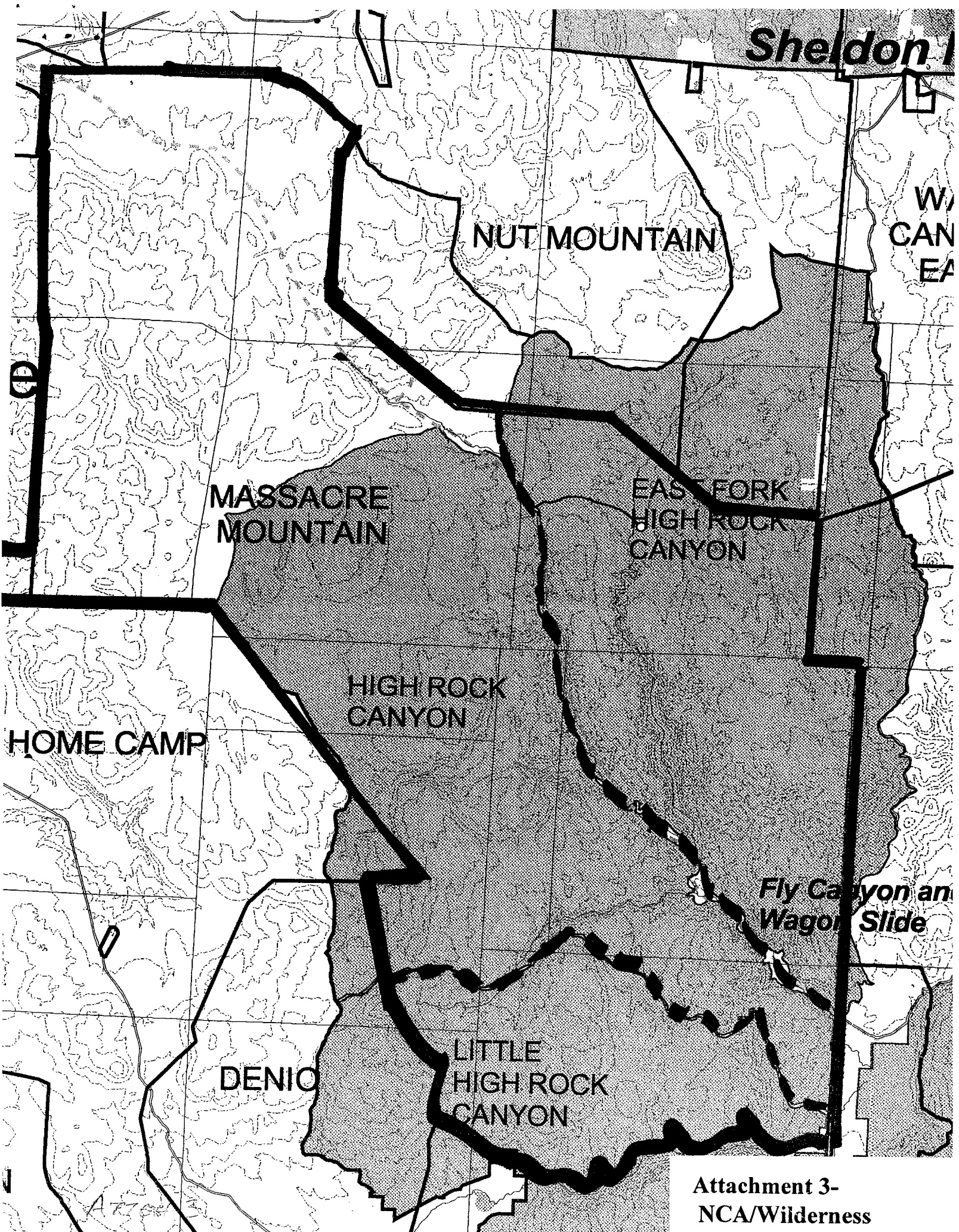
1:100000



May 29, 2001

Created by Surprise Field Office GIS Staff

**Attachment 2-
HMA Map**



Sheldon

NUT MOUNTAIN

W
CAN
EA

MASSACRE
MOUNTAIN

EAST FORK
HIGH ROCK
CANYON

HOME CAMP

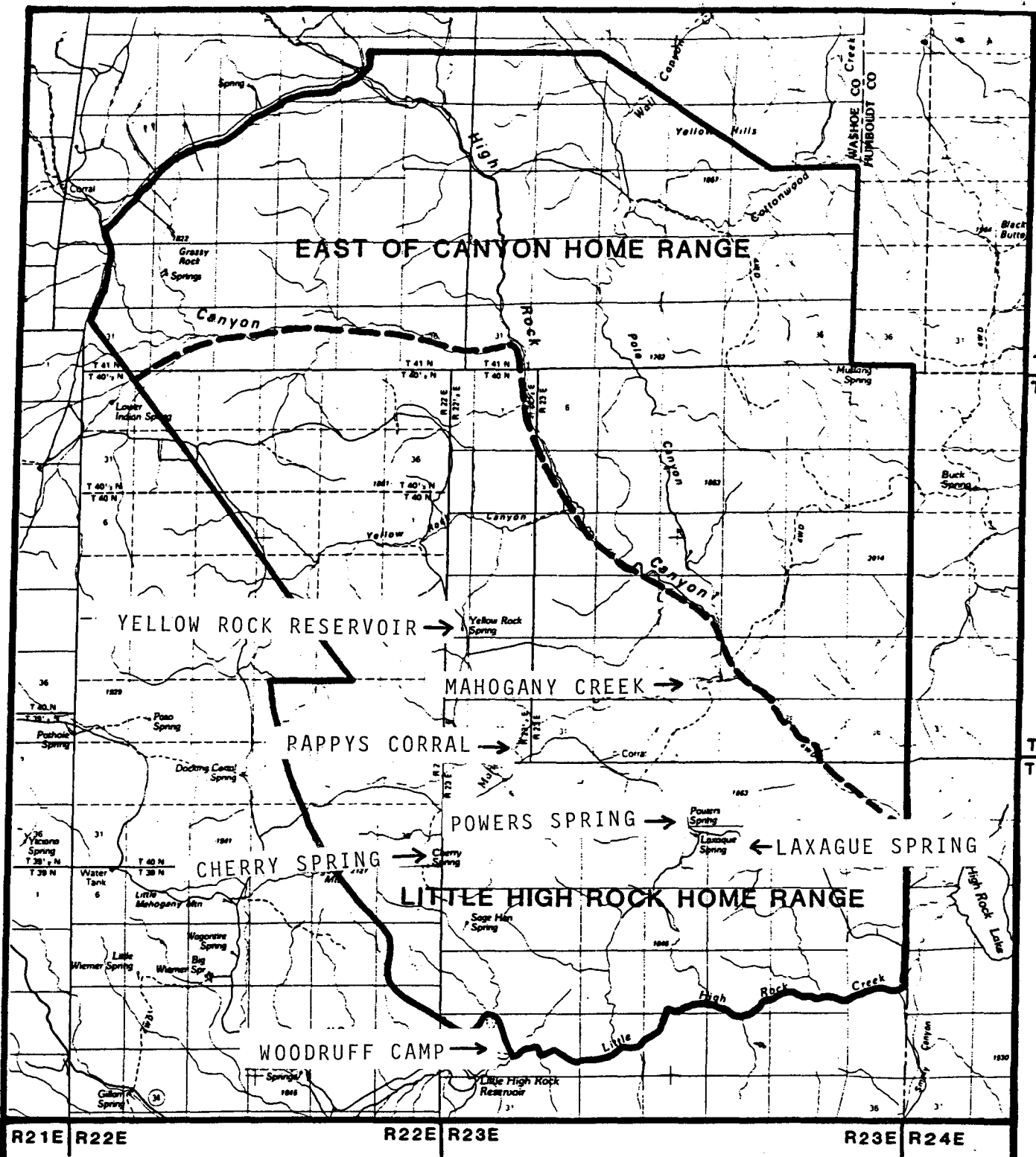
HIGH ROCK
CANYON

*Fly Canyon and
Wagon Slide*

DENIO

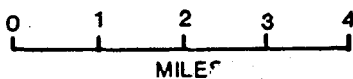
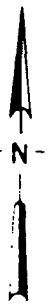
LITTLE
HIGH ROCK
CANYON

Attachment 3-
NCA/Wilderness



— Herd Management Area boundary

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 CALIFORNIA STATE OFFICE
 HERD MANAGEMENT AREA



Attachment 4-
 Primary Water Sources