

**HOME ON THE RANGE:** A herd of wild horses gallops from some springs near High Rock Canyon.

Brian Beffort/Reno Gazette-Journal

RV  
travel

## g ahead for vibrations protects RV, sav



cloth, not the garment.

Screws, bolts and other threaded fittings are particularly vulnerable to the effects of vibration. Screws especially can work free of their holes and drop out. Periodically, we check the screws on our trailer's window frames, door hinges, door locks and other places where screws are used, and we usually find some that are loose. We also often check under our trailer to see if all screws and bolts are secure, paying special attention to the bolts of the suspension system.

Most propane leaks, other than those stemming from faulty

into consideration where a product will be used. Some RVs have residential-type wall lamps with a removable globe held in place by screws. Unless the screws are regularly checked for tightness before any traveling is done, it won't be long before they work loose and the globe falls off and perhaps breaks, if it is glass.

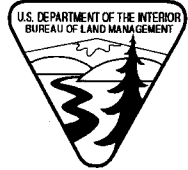
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# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Surprise Field Office

PO Box 460

Seamanville, CA 96104

[www.ca.blm.gov/surprise](http://www.ca.blm.gov/surprise)

In Reply Refer To:  
4700 (CA-370) P  
CA-264.

August 30, 2006

The Gather and Removal of Wild Horses  
From the [REDACTED] Management Area

Dear Interested Party:

Enclosed is my Finding of No Significant Impact (FONSI) and Decision Record for Environmental Assessment #CA-370-056-16, the gathering and removal of wild horses from the High Rock Herd Management Area. This is my final decision for this action and is effective upon issuance, in accordance with 43 CFR 4770.3(c).

Sincerely,

Owen Billingsley  
Surprise Field Manager

Enclosure,

Finding of No Significant Impact/Decision Record - EA-CA-370-06-16,

**United States Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment CA-370-06-16**

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**Finding of No Significant Impact and Decision Record**

**Gather and Removal of Wild Horses from the  
High Rock Herd Management Area**

**Surprise Field Office  
601 Cressler Street  
PO Box 460  
Cedarville, CA 96104**

**August 25, 2006**

## **Finding of No Significant Impact/Decision Record Surprise Field Office**

### **INTRODUCTION:**

The Bureau of Land Management (BLM) has prepared an environmental analysis (EA No. CA-370-06-16) for the gathering and removal of wild horses from the High Rock Herd Management Area in northern Washoe County, Nevada. The EA's Proposed Action would implement gathering and removal of wild horses, and maintenance of future populations at Appropriate Management Levels (AML) within the High Rock Herd Management Area. The underlying need for the proposal would be met while accomplishing the following objectives:

1. Restore herd numbers to levels consistent with the AML to maintain healthy self-sustaining wild horse populations,
2. Protect the range from deterioration associated with the overpopulation of wild horses, and
3. Implement fertility control on mares returned to the High Rock HMA.

The Appropriate Management Level (AML) of 120 wild horses and with a minimum level of 78 wild horses is based on monitoring data collected within the herd area and the impacts of wild horses on the natural resources, and was established by EA # CA-028-93-03 and CA-370-01-07. The Interior Board of Land Appeals in case number IBLA 94 94-163 *et al.* affirmed the AMLs in EA # CA-028-93-03 and previous removals of excess animals from the High Rock Herd Management Area (HMA).

The EA # CA-370-06-16 (EA) is posted on the Surprise Field Office web site, or is available from the Surprise Field Office by writing. This EA is incorporated by reference to this Finding of No Significant Impact (FONSI). A no action alternative and two action alternatives were analyzed in the EA.

### **PLAN CONFORMANCE AND CONSISTENCY:**

The Proposed Action has been reviewed and found to be in conformance with the High Rock HMA in the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area Resource Management Plan (Black Rock-High Rock RMP), and the Rangeland (Land) Health Standards and Guidelines for Northeastern California and Northwestern Nevada.

### **FINDING OF NO SIGNIFICANT IMPACT DETERMINATION:**

Based upon a review of the EA and the supporting documents, I have determined that the project is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as

defined in 40 CFR 1508.27 and do not exceed those effects described in the Black Rock-High Rock RMP, and Final Environmental Impact Statement.

**DECISION:**

The Proposed Action would implement population management for the High Rock HMA by maintaining Appropriate Management Levels (AML) which ranges from 78 to 120 wild horses. Therefore, the existing herd would be gathered to the low range AML (78 head), and then would be maintained at or below 120 head by subsequent gathers and removals.

The wild horses gathered would be examined to determine sex, age, and color; acquire blood samples for genetic analysis; and assess herd health (pregnancy, parasite loading, physical condition, etc.). BLM would determine which horses are returned to the range by an analysis of existing population characteristics and post-gather data: age, sex ratio, condition, conformation and color. The representation of age classes returned to the range may include horses under 5 years old, and a balanced representation of horses over 6 years old. In accordance with BLM policy, most wild horses less than 5 years old would be prepared for BLM's adoption program. The sex ratio of horses returned to the HMA would be approximately 50% studs, and 50% mares.

Fertility control, research and monitoring would be implemented as appropriate. Applying fertility control measures as part of the Proposed Action would slow the reproduction rate of mares returned to the HMA following the gather.

The Proposed Action would be conducted in accordance with Standard Operating Procedures (SOPs) described in Appendix B and C of the EA, and including compliance with the IM # 2005-206, Gather Policy & Selective Removal Criteria. Capture sites would be located outside of Wilderness Area boundaries.

The Proposed Action also includes repairing the existing fence in the East Fork High Rock Canyon Wilderness Area. This fence is the east boundary of the High Rock HMA, and the division fence between the Surprise and Winnemucca Field Offices.

**Authorities:** The authority for this decision is contained in Section 3(a) and (b) and in Section 4 of the Wild Free Roaming Horse and Burro Act (Public Law 92-195, as amended), and Title 43 CFR, Part 4700, Subpart 4720.

**Terms / Conditions / Stipulations:** Standard Operating Procedures (SOPs) are contained in Appendix B and C of the referenced EA. No additional mitigation measures were identified as a result of the environmental analysis.

### **Alternatives Considered:**

Alternative # 2 is the same as the Proposed Action except BLM would not conduct immunocontraceptive fertility control. The estimated 28 released mares would not be treated to inhibit reproduction. This alternative was not selected because it is projected to require an extra gather to maintain AML within a 15 year period, and would result in additional horses being placed into BLM's adoption program and into long-term holding facilities.

The No Action Alternative was not selected as it would not restore or maintain a thriving natural ecological balance. Available water would continue to be limited and season-long wild horse utilization and impacts on upland and riparian areas would continue to increase. Damage to the rangeland resources would result from continued increases in the wild horse population. This alternative therefore is not consistent with Land Health Standards, and Land Use Plan objectives.

### **Rationale for Decision:**

I have chosen to implement the Proposed Action because this alternative would lead to restoration of a thriving natural ecological balance between wild horses and their habitat. Implementation of the Proposed Action is consistent with land use planning goals and objectives, and it is in accordance with applicable laws and regulations. Ultimately, the use of fertility control will reduce the frequency of gathers needed to maintain wild horse herds at Appropriate Management Levels. This will reduce the number of wild horses to be handled, as well as the cost to the public to gather wild horses and maintain them in long-term holding facilities. In addition, the use of immunocontraceptives will contribute to research in the field of wild horse fertility control.

### **Public Participation**

Scoping for the Proposed Action included a Notice of Proposed Action mailed to 74 interested individuals, groups and agencies on June 7, 2006. During the 30 day comment period, several comments were received from Wilderness and Sportsman interests in support of the proposed gather and removal of wild horses.

The Preliminary EA # CA-370-06-16 was issued with a 30 day comment period of July 24, 2006, through August 23, 2006. The Surprise Field Office received over 60 comments in response to the Proposed Action in this EA. Most of the comments were short letters, faxes, or e-mails expressing opposition to the gather and removal of wild horses from the High Rock HMA. We also received several letters containing substantive comments that were also generally opposed to the Proposed Action. Several comments supported the proposed action. Many comments addressed issues outside the scope of the EA.

The comments, in order of number received, and responses are listed as follows (comment in italics; response in regular type):

*Many comments were made regarding the re-routing of water to livestock and big game.*

*Response:* This topic was addressed in a previous decision (EA). However, all water available to livestock on BLM lands is available to wild horses, and all wildlife species, which use those lands. The water sources addressed in the EA are rarely used by cattle within the High Rock HMA. Horses are not in any way stopped from utilizing the water developments. By protecting alternative water sources, riparian areas receive less concentrated impacts, and therefore experience less degradation. These allows for improved riparian conditions. Water re-routing or development would in fact provide for improved water for all animals in the area.

BLM receives no revenue through hunting tags, and cattle numbers are not being increased post-capture.

*Many comments were made about the Proposed Action being a waste of tax-payers money.*

*Response:* The BLM's policies and guidance on spending appropriated funding on gathers and other wild horse and burro program activities are outside the scope of this EA.

*Several comments refer to helicopter/gather procedures as well as alleged subsequent slaughter.*

*Response:* The gather and removal would be conducted in a humane manner, and at a time of year when negative impacts are minimized. The gather and removal will be in accordance with procedures stated in the EA and the Appendices. All wild horses removed from the HMA are placed into the BLM's adoption program or into long-term holding facilities, or returned to the HMA.

*Several comments objected to the implementation of fertility control, refer to the use of PZP, and allege that PZP is has known negative effects.*

*Response:* Through utilization of PZP we will be able to decrease the rate of growth of the herd, therefore minimizing future roundups, and resulting in fewer horses being handled in the future. There is no evidence that PZP permanently sterilizes mares.

*Several comments claim a bias by BLM against wild horses, and allege that the EA contains conflicting water availability statements. Some mentioned that if forage use is too high, why are livestock numbers not minimized as opposed to horse numbers?*

*Response:* The purpose and need for the EA is to maintain AMLs that were previously established by the analysis of monitoring data collected on the High Rock HMA. The information provided in EA is an analysis of the environmental effects of methods that may be used to gather and remove wild horses. The BLM manages rangelands for



multiple use and sustained yield and follows all laws and regulations governing the management of public lands, including the Wild and Free Roaming Horse and Burro Act.

In the High Rock HMA, wetland and riparian habitats are associated with two environmental settings. The High Rock canyon and associated tributaries are typically deep, rock-walled canyons that support narrow stringers of wet, semi-wet, and dry meadows. The other type of water sources are small springs, and the associated riparian areas often less than an acre in size. These spring sources occur on the open upland landscape that is considered preferred habitat for wild horses. There are about 20 of these small springs in the High Rock HMA. It is these small spring sources that receive heavy impacts from high wild horse numbers.

Livestock grazing has been significantly curtailed already - in most areas subject to this decision it has been only allowed by prescription for many years.

*Several comments objected to the AML as being too low for a genetically viable population and refer to a geneticist at Univ. of Kentucky that has projected genetically viable herds to have 150-200 individuals (the numbers cited from Dr. Cothran).*

*Response:* The High Rock HMA is located in a complex of 11 herd management areas which form a large metapopulation in northwest Nevada. The combined AML is 1,144 wild horses for these herds. There are horses from the High Rock HMA mixing with adjoining HMAs, particularly between the Fox-Hog HMA, and from Winnemucca's Warm Springs Canyon HMA. Based on a genetic analysis conducted on the High Rock HMA there is an adequate genetic pool for a self-sustainable herd, and there was no evidence of inbreeding (Genetic Analysis of the Little High Rock Canyon, CA Feral Horse Herd, E. Gus Cothran, March 21, 2002; Department of Veterinary Science, University of Kentucky).

*Several comments were supportive of the Proposed Action, including monitoring of fertility control, and repair of the division fence prior to gathering. One commenter was of the opinion that the HMA should be monitored for 10 years at AML prior to any adjustments to AML, and that at least a few new foals should be coming into the herd each year in spite of fertility control.*

*Many comments were outside the scope of the EA, topics include unauthorized off road vehicle use, wild horse management on the Sheldon National Wildlife Refuge, the status of wild horses (feral vs wild), the removal of livestock rather than wild horses, and weed control issues.*

### **Appeals:**

This decision shall take effect immediately upon the date it is signed by the authorized officer, (August 30, 2006) and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay.

Within 30 days of your receipt of this decision, you have the right of appeal to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulation at 43 CFR, Part 4, Subpart E and 43 CFR 4770.3 (a) and (c). Within 30 days after filing a Notice of Appeal, you are required to provide a complete statement of the reasons why you are appealing. The appellant has the burden of showing that the decision appealed from is in error. If you wish to file an Appeal and Petition for a Stay, the Petition for a Stay must accompany your Notice of Appeal and be in accordance with 43 CFR, Part 4, Subpart E and 43 CFR 4770.3 (c). Copies of the Notice of Appeal and Petition for Stay must be submitted to: (1) the Interior Board of Land Appeals, Office of Hearings and Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, VA 22203, (2) the Regional Solicitor's Office, Pacific Southwest Region, U.S. Department of the Interior, 2800 Cottage Way, room E-2753, Sacramento, CA 95825-1890, and (3) the Bureau of Land Management, Surprise Field Office, PO Box 460, Cedarville, CA 96104. The original documents should be filed with the Surprise Field Office.

If you request a stay, you have the burden of proof to demonstrate that a stay should be granted. A petition for a stay of decision pending appeals shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied,
2. The likelihood of the appellant's success on the merits,
3. The likelihood of immediate and irreparable harm if the stay is not granted, and,
4. Whether the public interest favors granting the stay.

If a petition for stay is submitted with the notice of appeal, a copy of the notice of appeal and petition for stay must be served on each party named in the decision from which the appeal is taken, and with the Interior Board of Land Appeals (IBLA) at the same time it is filed with the authorized officer. Refer to attached form 1842-1.

Sincerely,



Owen Billingsley  
Surprise Field Manager

Date 8/30/06

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**INFORMATION ON TAKING APPEALS TO THE INTERIOR BOARD OF LAND APPEALS**

**DO NOT APPEAL UNLESS**

1. This decision is adverse to you,  
AND
2. You believe it is incorrect

**IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED**

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- 1. NOTICE OF APPEAL**..... A person served with the decision being appealed must transmit the notice of appeal in time for it to be filed in the office where it is required to be filed within 30 days after the date of service. If a decision is published in the FEDERAL REGISTER, a person not served with the decision must transmit a notice of appeal in time for it to be filed within 30 days after the date of publication (43 CFR 4.411 and 4.413).
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- 2. WHERE TO FILE NOTICE OF APPEAL**..... Bureau of Land Management, Surprise Field Office, PO Box 460, Cedarville, CA 96104
- WITH COPY TO SOLICITOR**..... Regional Solicitor, Pacific Southwestern Region, US Department of Interior, 2800 Cottage, Room E-2753, Sacramento, CA 95825-1890
- 
- 3. STATEMENT OF REASONS**..... Within 30 days after filing the Notice of Appeal, File a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. If you fully stated your reasons for appealing when filing the Notice of Appeal, no additional statement is necessary (43 CFR 4.412 and 4.413).
- WITH COPY TO SOLICITOR**.....
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- 4. ADVERSE PARTIES**..... Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the Notice of Appeal, (b) the Statement of Reasons, and (c) any other documents filed (43 CFR 4.413). If the decision concerns the use and disposition of public lands, including land selections under the Alaska Native Claims Settlement Act, as amended, service will be made upon the Associated Solicitor, Division of Land and Water Resources, Office of the Solicitor, U.S. Department of the Interior, Washington, D.C. 20240. If the decision concerns the use and disposition of mineral resources, service will be made upon the Associated Solicitor, Division of Mineral Resources, Office of the Solicitor, U.S. Department of the Interior, Washington, D.C. 20240.
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- 5. PROOF OF SERVICE**..... Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (43 CFR 4.401(c)).
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- 6. REQUEST FOR STAY**..... Except where program-specific regulations place this decision in full force and effect or provide for an automatic stay, the decision becomes effective upon the expiration of the time allowed for filing an appeal unless a petition for a stay is timely filed together with a *Notice of Appeal* (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Interior Board of Land Appeals, the petition for a stay must accompany your notice of appeal (43 CFR 4.21 or 43 CFR 2804.1). A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and Petition for a Stay **must** also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.
- Standards for Obtaining a Stay. Except as other provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards: (1) the relative harm to the parties if the stay is granted or denied, (2) the likelihood of the appellant's success on the merits, (3) the likelihood of immediate and irreparable harm if the stay is not granted, and (4) whether the public interest favors granting the stay.

Unless these procedures are followed your appeal will be subject to dismissal (43 CFR 4.402). Be certain that **all** communications are identified by serial number of the case being appealed.

**NOTE:** A document is not filed until it is actually received in the proper office (43 CFR 4.401(a)). See 43 CFR Part 4, subpart b for general rules relating to procedures and practice involving appeals.

### 43 CFR SUBPART 1821--GENERAL INFORMATION

Sec. 1821.10 Where are BLM offices located? (a) In addition to the Headquarters Office in Washington, D.C. and seven national level support and service centers, BLM operates 12 State Offices each having several subsidiary offices called Field Offices. The addresses of the State Offices can be found in the most recent edition of 43 CFR 1821.10. The State Office geographical areas of jurisdiction are as follows:

#### STATE OFFICES AND AREAS OF JURISDICTION:

Alaska State Office ----- Alaska  
Arizona State Office ----- Arizona  
California State Office ----- California  
Colorado State Office ----- Colorado  
Eastern States Office ----- Arkansas, Iowa, Louisiana, Minnesota, Missouri  
and, all States east of the Mississippi River  
Idaho State Office ----- Idaho  
Montana State Office ----- Montana, North Dakota and South Dakota  
Nevada State Office ----- Nevada  
New Mexico State Office ---- New Mexico, Kansas, Oklahoma and Texas  
Oregon State Office ----- Oregon and Washington  
Utah State Office ----- Utah  
Wyoming State Office ----- Wyoming and Nebraska

(b) A list of the names, addresses, and geographical areas of jurisdiction of all Field Offices of the Bureau of Land Management can be obtained at the above addresses or any office of the Bureau of Land Management, including the Washington Office, Bureau of Land Management, 1849 C Street, NW, Washington, DC 20240.

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(Form 1842-1, September 2005)



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Surprise Field Office  
PO Box 460  
Cedarville, CA 96104  
[www.ca.blm.gov/surprise](http://www.ca.blm.gov/surprise)



In Reply Refer To:  
4700 CA-264 (CA-370) P

July 24, 2006

Dear Interested Party:

The Bureau of Land Management, Surprise Field Office, has completed a Preliminary Environmental Assessment for the gather and removal of wild horses from the High Rock Herd Management Area.

A copy of the Preliminary Environmental Assessment is enclosed for your review and comment. Comments will be accepted through August 23, 2006, and can be either, mailed to the above address; or faxed to (530) 279-2171; or by to e-mail to: [ssurian@ca.blm.gov](mailto:ssurian@ca.blm.gov).

After the public review period, comments will be analyzed and taken into consideration in the decision making process. Our decision is expected to immediately follow the review period.

Sincerely,

Owen Billingsley  
Surprise Field Office Manager

Attachments: EA #CA-370-06-16 with map  
Appendixes A, B, C.



**United States Department of the Interior  
Bureau of Land Management  
Surprise Field Office**

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**July 2006**



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**Gather and Removal of Wild Horses from the  
High Rock Herd Management Area**

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***Preliminary Environmental Assessment CA-370-CA-370-06-16***

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**Surprise Field Office  
PO Box 460  
Cedarville CA 96104**

**Phone: 530-279-6101  
FAX: 530-279-2171**

## **1.0 Purpose and Need for the Proposed Action**

This environmental assessment (EA) will analyze the impacts of potential methods to maintain established Appropriate Management Levels for the High Rock Herd Management Area (HMA). The EA will also assess whether or not fertility control treatment should be applied to mares released back to the HMA following the gather.

The High Rock HMA is located in northern Washoe County, Nevada about 50 miles east of Cedarville. The HMA is entirely within the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area. The HMA consists of approximately 94,391 acres of public lands. Refer to Map 1.

An Appropriate Management Level (AML) of 120 wild horses and with a minimum level of 78 wild horses is based on upon monitoring data collected within the herd area and the impacts of wild horses on the natural resources, and was established by EA # CA-028-93-03 and CA-370-01-07. The Interior Board of Land Appeals in case number IBLA 94 94-163 *et al.* affirmed the AMLs in EA # CA-028-93-03 and previous removals of excess animals from the High Rock Herd Management Area. Consequently, this EA does not address the establishment of the AML. The current population is estimated at 482 horses, including foals. The population size has increased to the level that animals now have moved outside the HMA.

The primary goal for managing wild horses at AMLs is to achieve a thriving natural ecological balance of resources, while maintaining a healthy and self-sustaining population of wild horses. Recent information indicates that current populations of wild horses are significantly impacting riparian resources. Therefore, the key limiting factors for wild horses within the HMA continues to be riparian impacts by wild horses and the limited amount of water available for yearlong wild horse use.

The BLM has determined that there are excess wild horses present in the High Rock Herd Management Area and it is necessary to remove approximately 404 horses (including foals) from the current population of the HMA, and from adjacent public lands not managed for wild horses. Removal of wild horses would restore herd numbers to levels consistent with the AML, and is needed at this time to balance wild horse populations, with wildlife, livestock, wilderness, soil and vegetation resources, and to protect the range from the deterioration associated with overpopulation of wild horses.

### **1.1 Conformance with Existing Land Use Plan**

The principal land use plans for the High Rock HMA is the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area Resource Management Plan (Black Rock-High Rock RMP), and the Rangeland (Land) Health Standards and Guidelines for Northeastern California and Northwestern Nevada. The Proposed Action is in conformance with this plan and consistent with federal, state, and local laws, regulations, and plans to the maximum extent possible.

## **Land Use Plan Objectives**

The Black Rock – High Rock RMP objectives:

To manage sustainable populations of wild horses in nine Herd Management Areas (HMAs) and wild burros in two HMAs consistent with the intent of the NCA Act within established AMLs to maintain a thriving ecological balance among wild horse and burro populations, wildlife, livestock, vegetation resources, and other values and uses.

To maintain free roaming behavior of wild horses and burros.

The HMA Objectives:

Maintain a healthy, self-sustaining wild and free-roaming horse herds.

Strive to achieve 100% adoptability of all horses that are removed from the herds through the regular adoption program.

Prevent inbreed problems from occurring in the HMA.

The Proposed Action is consistent with the objectives and decisions of these plans.

### **1.2 Conformance with Rangeland Health Standards**

In 2000 and 2004, riparian and land health assessment data was collected on the Massacre Mountain Allotment (which includes the High Rock HMA) to determine conformance with Rangeland Health Standards. This assessment information, along with other monitoring information collected since 1998 indicates that while not all Rangeland Health Standards are being met, resource conditions are progressing toward meeting most standards. Field data indicates that riparian resources continue to be impacted by excessive utilization and trampling by wild horses at current population levels.

The Proposed Action is consistent with meeting Rangeland Health Standards.

### **1.3 Relationship to Statutes, Regulations, Policies, Plans, or Other Environmental Analysis**

The Proposed Action is authorized under Section 3(b) (2) of the 1971 Free-Roaming Wild Horses and Burros Act and Section 302(b) of the Federal Land Policy and Management Act of 1976.

The Herd Management Area Plans (HMAP) affected by the Proposed Action was signed in 1989. The HMAP provides general management parameters, and the 1993 and 2001 EA (CA-028-93-



03 and CA-370-01-07) Decision Records established the AML. The HMA also overlaps with Massacre Mountain Allotment.

The Cowhead-Massacre MFP, Wild Horse Herd Management Area Plan; EAs CA-028-93-03 and CA-370-01-07; and the Black Rock and High-Rock RMP are available from the Surprise Field Office for public review.

The Proposed Action is consistent with the provisions of the Wilderness Act of September 3, 1964 (P.L. 88-577, 78 Stat. 890; 16 U.S.C. 1121 (note), 1131-1136).

#### **1.4 Scoping and Issue Identification**

A Notice of Proposed Action was mailed to 74 interested individuals, groups, and agencies on June 7, 2006. Several comments were received in support of the "action alternatives" the removal of excess wild horses from the High Rock HMA.

#### **2.0 Alternatives, Including the Proposed Action**

##### **2.1 Actions Common to All Alternatives**

The wild horse population model "Win Equus version 1.4" was used to predict populations under each alternative. The information is summarized in Appendix A.

##### **2.12 Actions Common to Alternatives 1 & 2.**

Common to all alternatives, except the No Action Alternative, animals would be removed using the selective removal strategy in accordance with the Gather policy & Selective Removal Criteria, (Washington Office IM 2005-206).

Genetic information would be collected from animals captured to determine herd characteristics. This data would also be used to determine genetic variability in the herd, and would be the basis for periodic introduction of new animals into the population for the expansion of the genetic base of the herd. All gathering and handling activities would be conducted in accordance with the Standard Operating Procedures (SOP's) described in Appendix B. A veterinarian may also be on site, as needed, to examine animals and make recommendations to BLM for care or treatment of wild horses.

#### **2.2 Alternatives to be considered in detail**

##### **2.2.1 Alternative 1 (Proposed Action) Gather to Low Range AML with Fertility Control**

The Proposed Action would implement population management for the High Rock HMA and to manage horses within ranges for Appropriate Management Levels (AML) of 78 to 120 head. Therefore, the Proposed Action is to reduce the herd to the low range AML (78 head), and then maintain the herd at or below 120 head by subsequent gathers and removals.

Therefore, the Proposed Action is to gather approximately 95% of the herd. Gathered wild horses would be examined to determine sex, age, and color; acquire blood samples for genetic analysis; and assess herd health (pregnancy, parasite loading, physical condition, etc.). BLM would determine which horses are returned to the range by an analysis of existing population characteristics and post gather data: age, sex ratio, condition, conformation and color. The representation of age classes returned to the range may include horses under 5 years old, and a balanced representation of horses over 6 years old. In accordance with BLM policy, most wild horses less than 5 years old would be prepared for BLM's adoption program. The sex ratio of horses returned to the HMA would be approximately 50% studs, and 50% mares. This overall age structure would maintain genetic viability, and healthy sustainable populations.

At this time it is not known if there is a need to augment the genetic pool by the introduction of animals from other herds. Under the Proposed Action and Alternative 2, the general condition and appearance of the wild horses, as well as data from blood drawn for genetic analysis would be used to determine actions necessary to keep the populations self-sustaining. Currently, some horses from the High Rock HMA are mixing with horses from the Fox-Hog HMA, and from Winnemucca's Warm Springs Canyon HMA. These interchanges may be providing an adequate genetic pool. Following the gather, any wild horses introduced into the HMA would be consistent with HMAP objectives for general characteristics of color, size, type, etc.

Wild horses would be gathered by using a helicopter to herd horses into capture sites constructed of portable panels. This operation would be accomplished either by BLM employees, contractor, or a combination of both. Access limitations may require multiple capture sites from the HMA and from lands adjacent to the HMA. Horses in the immediate vicinity of Mustang Springs, at the division fence between High Rock HMA and the Warm Springs Canyon HMA may also be gathered.

Capture sites would be located outside of Wilderness Area boundaries and whenever possible, sites would be located in previously disturbed areas. No motorized vehicles will be used in wilderness. No landing of aircraft will occur within a wilderness except in the case of an emergency. The Proposed Action and Alternative #2 also includes repairing the existing division fence between the High Rock HMA and the Warm Springs Canyon HMA. This fence is located in the East Fork High Rock Canyon Wilderness area. Repair and maintenance of this fence would not use motorized or mechanized transport or motorized equipment and would be consistent with BLM wilderness policy. This fence is also the division fence between the Winnemucca and Surprise Field Offices, and is necessary for the management of livestock on the Massacre Mountain Allotment and the Soldier Meadows Allotment.

The actual gathering process is estimated to be completed in less than 15 days, and is scheduled for September 2006. All gathering and handling activities would be conducted in accordance with the Standard Operating Procedures (SOP's) described in Appendix B. Several factors such as the condition of animals, herd health, weather conditions, or other environmental

considerations could adjust the gathering schedule. Physical condition class would be determined by using the Henneke rating system.

To implement the proposed action, there will be horses over 6 years old not returned to the herd and these horses would be prepared for long term holding facilities. For example, if the 95% of the horses are captured, then 402 horses would be permanently removed from the HMA, and 55 horses would be selected to be returned to the HMA, along with the un-gathered horses to maintain AMLs. Of the 402 horses removed, an estimated 75% or 301 head would be prepared for BLM's adoption program, and about 101 horses would be prepared for long term holding facilities. The age, sex, temperament, and physical condition of the estimated 28 mares and 28 studs horses returned to the HMA would be recorded to track future population trends.

The Proposed Action also includes immuno-contraceptive fertility control, research and monitoring as appropriate. Applying fertility control measures as part of the Proposed Action would slow the reproduction rate of mares returned to the HMA following the gather. Among other things, this would decrease the gather frequency. With fertility control implementation, gathers are projected to occur on four year intervals, requiring one less gather within a 15 year period

The estimated 28 mares selected for return to the HMA would be treated with an immuno-contraceptive vaccine or Porcine Zona Pellucida (PZP). This vaccine would slow down reproduction of captured, treated, and released mares for up to three breeding seasons. All treated mares would be freeze marked on the right hip with two letters assigned by National Program Office for tracking purposes to enable researchers to positively identify animals in the research project during the data collection phase. Monitoring could include helicopter flights conducted in years 2 through 4 intervals to determine efficacy of treated mares. The purpose of the flight scheduled in year-4 is to determine the percentage of mares that have returned to fertility. In addition, field monitoring would be routinely conducted as part of other regular monitoring activities.

Treated mares (as identified by the hip freeze marking) would not enter the adoption market for a minimum of three years following treatment. Field data will be forwarded to the National Program Office (NPO) prior to treatment. Pertinent data includes the identification of each mare (including a photograph when possible), date of treatment, type of treatment (1yr, 2yr- and Adjuvant used) Herd Management Area (HMA), etc. This information and any photos will be maintained at the field office and a copy of the completed form will be sent to the NPO.

NPO maintains a tracking system detailing the PZP criteria, and the number of treated mares by HMA, FO and State along with the freeze-mark applied. In the vast majority of cases, the released mares will never be gathered sooner than the mandatory three-year holding period. In those rare instances when, due to unforeseen circumstances, that treated mare(s) are removed from an HMA, they will be maintained either in a BLM facility or a contracted Long Term Holding Facility until the expiration of the three-year holding period. In the event that it is necessary to remove treated mares, their removal and disposition will be coordinated through

NPO. After expiration of the three-year holding period, treated animals may be placed in the adoption system. Appendix C contains additional SOP for fertility controls treatments.

Following the attainment of wild horse AMLs, BLM would conduct monitoring of resource conditions to provide data to reaffirm or reestablish AML numbers to achieve and maintain a thriving natural ecological balance and multiple-use relationship. Any adjustments to AML would be accomplished with sufficient utilization, trend, actual use, climatic and rangeland health assessment information, and through a reasoned interdisciplinary analysis and Environmental Assessment, including public involvement. Adjustments to AML would occur if monitoring indicates wild horses to be a causal factor in non-attainment of resource objectives and/or rangeland health standards.

### **2.2.2 Alternative 2: Gather to Low Range AML without Fertility Control**

Alternative 2 is the same as the Proposed Action except, BLM would not conduct immuno-contraceptive fertility control as part of the Proposed Action. The estimated 28 released mares would not be treated to inhibit reproduction. This alternative would also capture about 458 horses and remove 402 horses from the High Rock HMA, and areas adjacent to the HMA not managed for wild horses.

### **2.2.3 Alternative 3 (No Action) Do Not Gather at this time**

This alternative consists of not gathering and removing wild horses from the HMA. Wild horse populations would be allowed to self-regulate their numbers naturally through the affects of forage availability, disease, water, space availability, predation, and climatic variability, such as severe winters or prolonged drought. These factors could result in herd size from 1107 to 1730 head in 10 years, based on population modeling for the High Rock Herd (see Appendix A).

Recent monitoring information indicates that No Action Alternative is not in conformance with the Land Health Standards, Black Rock-High Rock RMP, and the High Rock Herd Management Plan. No action alternative is also not in conformance with the 1971 Free-Roaming Wild Horses and Burros Act which mandates the BLM 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**

The HMA is located in relatively remote areas of northern Washoe County, Nevada about 50 miles east of Cedarville CA. The HMA is approximately 94,391 acres of public lands. The High Rock HMA adjoins the Winnemucca Field Office boundary and the Warm Springs Canyon HMA to the east. The Nut Mountain and Wall Canyon East HMAs is located to the north, and the Fox-Hog HMA is located on the south side. There are no fences or natural boundaries to the immediate northwest side of the HMA to limit horse movements, but historically horses

infrequently moved to that direction until populations exceed AML. The elevations vary from 4,900 feet at the canyon bottoms to about 6,500 feet on the higher ridges. The HMA is dissected by several major canyons, and this topography allows for sufficient yearlong habitat for wild horses. (See attached HMA Map).

The affected environment is also described in environmental assessment EA No. CA-028-93-03, and CA-370-01-07 and are incorporated into this EA by reference.

**3.0 Environmental Consequences (Proposed Action & Alternatives)**

| <b>Critical Elements</b>                       | <b>Affected</b> | <b>Critical Elements</b>                                   | <b>Affected</b> |
|--|-----------------|--|-----------------|
| Air Quality                                    | No              | Soils  | Yes             |
| Areas of Critical Environmental Concern (ACEC) | No              | Waste, Hazardous or Solid                                  | No              |
| Cultural Resources                             | Yes             | Water Quality, Surface and Ground                          | Yes             |
| Environmental Justice                          | No              | Paleontological Resources                                  | No              |
| Farmlands, Prime or Unique                     | No              | Wild and Scenic Rivers                                     | No              |
| Flood plains                                   | No              | Wilderness/WSA   | Yes             |
| Native American Concerns                       | No              | Threatened and Endangered Species (Special Status Species) | Yes             |

**Other Issues Analyzed**

Riparian, vegetation, recreation, wild horses, livestock management, wildlife, and noxious weeds.

### **3.1 Cultural Resources**

#### Affected Environment

There are numerous cultural resource sites throughout the HMA, mainly in the vicinity of permanent and intermittent water sources (i.e., riparian areas) have the highest potential for cultural resource sites. These range from prehistoric temporary and permanent occupation sites, to historic ranching, homesteading and trail sites.

#### Environmental Consequences

Direct impacts to cultural resources are not anticipated to occur due to implementation of the Proposed Action and Alternative #2 (action alternatives) because gather sites and temporary holding facilities would have been inventoried for cultural resources prior to construction. All proposed and previously used gather sites and temporary holding facility locations would be reviewed to determine if these have had a cultural resources inventory and/or if a new inventory is required. If cultural resources were encountered at proposed gather sites or temporary holding facilities, these locations would not be utilized unless they could be modified to avoid impacts. There would no direct impacts associated with No Action Alternative.

However, the No Action Alternative would have the most adverse impacts to cultural resource sites from overgrazing and trampling, including the modification and displacement of artifacts and features as well as erosion of organic middens containing valuable information. Since wild horse tend to concentrate in these areas, these areas are likely to be impacted by trampling and erosion. Indirect impacts associated with each of the Alternatives would be related to wild horse population size. Impacts would be the least with implementation of the Proposed Action.

### **3.2 Soils/Watershed**

#### Affected Environment

The watersheds within the HMA are dissected by a number of intermittent and ephemeral creek systems, including High Rock Canyon and Pole Canyon that drain east within NCA and into High Rock Lake.

The soils within the HMA are described in the Soil Survey for Washoe County Nevada, North part, and issued in 1999. The primary soils that grow Wyoming or Lahontan sagebrush include Bonbadil, Ceejay, and HangRock. Widespread soils that grow big and mountain sagebrush include Bitner, and Ashcamp. The low sagebrush sites are often associated with the Grassycan soils.

#### Environmental Consequences

Wild horse use under the Proposed Action would have the least negative impact on soils and watershed health. Implementation of the No Action Alternative, would have indirect, long-term impacts on soils, and is related to the wild horse population size and the growth rates associated. As wild horse numbers increase, utilization of vegetation and trampling/compaction of soils

increase. Over utilization of vegetation, soil trampling and compaction would increase soil erosion.

Implementation of the Proposed Action when compared with Alternative #2 would have slightly lower population growth rates and the greatest period of time when wild horse numbers are at or below maximum AML.

### **3.3 Water Sources and Water Quality (Surface and Ground)**

#### Affected Environment

Availability of water sources has been determined to be one of the key limiting factors for wild horses in the HMA. The vast majority of the water and riparian habitat are associated with High Rock Canyon creek and scattered springs in the HMA. In addition to natural water sources, there are several small reservoirs in the HMA. Typically, by late summer and during dry years, many of the reservoirs are dry and consequentially large portions of the HMA are poorly watered. Nevertheless, when wild horse populations are at AML water quality on the HMA is expected to meet the needs of beneficial uses.

#### Environmental Consequences

Under the Proposed Action and Alternative #2, riparian habitat conditions on most sites are expected to be maintained as utilization and trampling by wild horses would be reduced from present levels. Water quality is expected to meet the needs of beneficial uses for livestock, wild horses and wildlife.

Under the No Action Alternative, wild horse populations would continue to grow, resulting in continued heavy use of water sources. Higher wild horse numbers would increase trampling damage to springs and utilization of riparian areas. The increased numbers of wild horses would cause more disturbances to soils, increasing silt load. Pollutants such as animal feces would also be increased.

### **3.4 Wetlands/Riparian Zones**

#### Affected Environment

The majority of the drainages and springs support herbaceous plant communities, including grasses, forbs, sedges, and rushes. Most of the higher elevation drainages and a few of the most perennial lower elevation drainages, particularly High Rock Canyon Creek, and several tributaries contain some woody riparian vegetation, including willow, rose, and aspen. Although riparian areas represent very small acreages in the HMA, they generally have the potential to contain diverse plant species and vegetation structure. In 2000, 6 key upland spring riparian sites in the Little High Home Range were assessed for properly functional condition, and all sites were at risk or in non-functional condition due to impacts from wild horses. Similar conditions have been documented in the East of the Canyon Home Range.

### Environmental Consequences

Under the Proposed Action and Alternative #2, current riparian habitat conditions are expected to be maintained as utilization and trampling by wild horses would be reduced from existing population levels.

The No Action Alternative #3 would allow wild horse populations to continue to grow, resulting in increased use on public waters by wild horses. As the wild horse population continues to grow, there would be an equivalent increase in trampling damage to springs and utilization of riparian areas outside the HMA.

## **3.5 Wilderness**

### Affected Environment

The HMA occurs with the Black Rock Desert/High Rock Canyon NCA, and approximately 95% of the HMA is located within portions of the East Fork High Rock, High Rock Canyon, and the Little High Rock Canyon Wilderness Areas (WA).

The High Rock Canyon, East Fork High Rock Canyon and Little High Rock Canyon Wilderness Areas consist of a large area of broad volcanic uplands dissected by deeply cut drainages. Elevations in the Wilderness range from 4,900 to 6,600 feet. The main vegetation type is sagebrush, with willows and one small stand of aspens occurring in the canyons. The canyons are relatively well watered and support meadow complexes and other riparian vegetation. Remnants of early homesteads can be found in canyons. Wildlife in the area includes California bighorn sheep, mule deer, pronghorn antelope, mountain lions, coyotes, and sage grouse. The canyons also provide outstanding habitat for nesting raptors. The Applegate-Lassen Emigrant Trail is located in High Rock Canyon. The area provides outstanding opportunities for solitude and primitive recreation. The National Desert Trail is located in High Rock Canyon, and Pole Canyon and Little High Rock Canyon provide good opportunities for day hikes, backpacking and horseback trips.

The Wilderness Act of 1964 mandates that wilderness areas be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

The Wilderness Act also mandates that wilderness areas be managed in such a manner as to maintain or enhance the values of naturalness, untrammeled character, opportunities for solitude, opportunities for primitive or unconfined recreation, and any special features found in the areas. Several special features of the area were specifically mentioned in the BRHR NCA Act of 2000. They include; wagon ruts, historic inscriptions, evidence of early homesteading, prehistoric and historic Native American sites, sensitive plants, a broad representation of Great Basin land forms and plant and animal species, and a largely untouched emigrant trail view shed.



### Environmental Consequences

Direct, short-term impacts of the Proposed Action and Alternative #2 on wilderness values would consist of the sight and noise of the helicopter used to herd wild horses to gather sites located outside of wilderness area. During the time frame of the proposed gather (about 15 days) solitude and primitive recreation may be negatively impacted for recreationists who would be subjected to the sight and sound of the helicopter. This impact would be temporary, relatively short term in nature and likely to effect less than 20 visitors. Gathering facilities would not be located in the WA boundaries, but could be located on cherry stemmed roads within the WA boundary.

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. As wild horse numbers increase there would be a loss of plant vigor, production, and diversity from over-grazing. Overall, ecological site conditions would decline. Ecological sites in degraded condition detract from the natural character of wilderness areas. Therefore, No Action Alternative would have the greatest long-term negative impact on wilderness values.

### **3.6 Wildlife, including Threatened and Endangered Species**

#### Affected Environment

The assortment of elevation and habitat types in the HMA results in a diversity of wildlife habitat types. The mosaics of low sagebrush and big sagebrush communities provide spring, summer, and fall habitat for pronghorn antelope and Greater sage-grouse. Bitterbrush and several big sagebrush species help provide yearlong habitat for mule deer. Sagebrush also provides habitat for migratory non-game bird species such as Brewer's sparrow and Sage thrashers. The canyons and remote ridges provide habitat for bighorn sheep, and the canyons also support several species of raptors, as well as chukar and quail. The riparian systems are important for all species of wildlife, with the perennial systems being particularly important due to their scarcity.

There are no known federally listed Endangered, Threatened, Proposed, or Candidate wildlife species using the areas in the HMA. However, Greater sage-grouse, a sensitive species is found throughout HMA, and use riparian areas and the sagebrush communities for year-round habitat.

#### Environmental Consequences

Direct, short-term impacts to wildlife with implementation of the Proposed Action or Alternative #2 would consist primarily of disturbance and displacement to wildlife, including migratory non-game bird species by the low-flying helicopter. Typically, the natural survival instinct response of wild animals to this type of disturbance results in fleeing from the perceived danger. This impact would be very localized and of short-duration.

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. The largest horse numbers would occur under the No Action Alternative, which would result in heavy to severe grazing on vegetation. Trampled and compacted of soils would increase, while plant vigor, production, diversity, and the value of

plant communities for wildlife habitat are reduced. Excessive wild horse numbers also have impacts on greater sage-grouse by consuming herbaceous cover needed in nesting sites, and by reducing the diversity and quantity of forbs available on uplands in the early spring and on riparian areas season-long.

The No Action Alternative would have the greatest negative impact on wildlife habitat, including sensitive animal species populations. Implementation of the Proposed Action and Alternative #2 is not expected to have a negative impact on wildlife habitat, including sensitive species populations.

### **3.7 Wild Horses**

#### Affected Environment

The proposed action is in conformance with BLM's 2001 Wild Horse Strategy, which is to implement population management for each HMA and to manage within low and high ranges of the Appropriate Management Levels (AML). The HMA would be gathered on a three - four year cycle, based on annual reproduces rates of 16% to 20%. Therefore, the Proposed Action is to reduce the herd to the low range AML (78 head), and then allow the herd to grow to the AML (120 head). The current populations are estimated at 482 wild horses (including foals), based on a helicopter census conducted in May 2001, and adjusted for the 2002 - 2006 foaling seasons. Past gathers and census information indicates that the HMA increases at a fairly consistent rate of about 16-20% per year (See Appendix A, page 12, Average Growth Rates)

The herd management plan was completed in 1985, and revised in 1989 to incorporate herd management. The High Rock HMA is managed as two separate home ranges: the area east of High Rock Canyon is the East of Canyon Home Range, and the area west of High Rock Canyon is the Little High Rock Home Range.

Both home ranges have been managed by the structured management, with generally older animals selected as the base herd. The Proposed Action would incorporate this removal strategy. Following the 2000 gather of the East of the Canyon Home Range, all animals older than 5 years were returned to the HMA and the AML was not reached. In 2001 a partial gather was conducted in Little High Rock Home Range under the new gathering strategy. This gather was also necessary due to severe water storages, and concern that horses would perish due to drought conditions. Based on a helicopter census in 2001, the overall HMA population was 26 head above AML.

The following Table 1 shows recent gather population information by home range.

**Table 1, HMA Recent Gather Information**

| High Rock HMA                 | Appropriate Management Levels | Last Gathered | Number Gathered | Estimated Population after Gather and Turnouts |
|-------------------------------|-------------------------------|---------------|-----------------|--|
| East of the Canyon Home Range | 30-40                         | August, 2000  | 210             | 95 (2000)                                      |
| Little High Rock Home Range   | 48-80                         | July, 2001    | 386             | 51 (2001)                                      |
| Totals                        | 78-120                        |               |                 | 146  |

Environmental Consequences

The long-term impacts of maintaining an AML is designed to achieve a thriving, natural ecological balance that would be a benefit to the wild horses in the HMA. At this population level, wild horses would be assured adequate forage and water during even the hottest and driest periods of the year. This would lead to wild horses in better physical condition, and better able to endure severe winters and drought. Direct impacts to wild horses under the Proposed Action and Alternative #2 (action alternatives) may occur to individual animals. These impacts include:

- 1) 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 in either Litchfield or Fallon. Animals selected for return to the HMA would be transported back to the HMA. The advantages of transporting all of the animals to an improved holding facilities include access to better veterinary care for immunizations, genetic work, and treatment of injuries; access to better sorting facilities (chutes, pens, etc.) that allow for safer and more humane handling of horses; and access to larger and safer pens, water, and forage facilities for horses to be kept in while gather and processing operations are conducted.
  
- 2) When wild horses are transported to the adoption preparation facility, exposure of wild horses to domestic horse diseases, such as strangles is possible. Domestic horses used during gather operations would be present at the capture sites. The trucks, chutes, and panels used at the capture sites have been used to handle horses in the past and may harbor disease agents. Domestic and wild horses from other areas are also present and may transmit diseases to the HMA wild horses, even though horses from the herd would not be kept in the same corrals as the other horses.

The effect of removing wild horses from the population are not expected to have an 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.

Under the Proposed Action and Alternative #2, blood would be drawn for genetic analysis. This data would be used to determine actions necessary to keep the populations self-sustaining. The Proposed Action includes the use of immuno-contraception which would limit the numbers of mares that would conceive and deliver foals. This could reduce the genetic variability entering the population for several years after treatment, and after each subsequent treatment. Animals from other HMA's in the region could be used to add to the breeding population if necessary to ensure genetic viability. Animals selected for population augmentation would be selected to adhere to the type and color 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 B 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.

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 is achieved, and potential genetic issues regarding the control of contributions of mares to the gene pool, especially in small populations

Implementation of the Proposed Action or Alternative # 2 would allow immediate achievement of AML. Population-wide impacts include the temporary 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.

Following administration of the immuno-contraceptive fertility control vaccines, as called for in the Proposed Action, 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 varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality of wild horses captured during a gather may occur, however it is infrequent and typically is no more than one half to one percent of the animals captured.

Impacts that could 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.

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 vary from 1107 to 1730 head). However, water and forage could limit 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 2002). For each alternative, populations were predicted for the next 4, 10, and 15 years (see Appendix A).

### **3.8 Vegetation,**

#### Affected Environment

The lowest elevation in the HMA is 4,900 feet which occurs at the bottom of High Rock Canyon, and highest elevation is about 6,300 feet which occurs on the ridges above this canyon. There are a variety of soils in the HMA that are capable of supporting primarily big sagebrush, and Thurber's needlegrass dominated communities.

The most productive sites in the HMA include the Loamy 10-12" ecological sites which support communities dominated by Mountain sagebrush, bluebunch wheatgrass, and Thurber's needlegrass. The Scabland 10-14" ecological sites that support low sagebrush and Sandberg's bluegrass dominated communities. The Shallow Loam ecological sites that support low sagebrush and Idaho fescue dominated communities.

The majority of the drainages and springs at the mid and lower elevations support herbaceous plant communities, including grasses, forbs, sedges, and rushes. Most of the higher elevation drainages and a few of the most perennial lower elevation drainages, especially High Rock Canyon Creek, also contain some woody riparian vegetation, including willow, rose, and aspen.

#### Environmental Consequences

Direct impacts to vegetation with implementation of the Proposed Action or Alternative #2 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, would occur in the immediate vicinity of the corrals or holding facilities. Generally, these sites would be small (less than one half acre) in size. Since most trap sites are 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 direct impacts of trapping or transportation activities on soils or vegetation under the No Action Alternative.

Indirect, long-term impacts on vegetation are related to the wild horse population size and the growth rates associated with each of the Alternatives. Wild horses are large ungulates with few natural predators. They are present in native plant communities within the HMA year-round, and they congregate around water sources and trail along drainages. They utilize primarily herbaceous vegetation and trample and compact soils, especially when soils are wet. As wild horse numbers increase, utilization of vegetation and trampling/compaction of soils increase. These impacts are greatest where wild horses tend to congregate; however, when wild horse numbers become excessive, the impacts become noticeable on the slopes and tables at greater distances from water and trail corridors. When vegetation is heavily used and soils are trampled and compacted, plant vigor, production, and diversity are reduced.

The No Action Alternative #3 would allow wild horses to increase to the highest populations. 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 resources. The Proposed Action and Alternative #2 would maintain wild horse numbers at a level that would limit the majority of the negative effects of wild horse grazing to areas where wild horses congregate, around water sources, and along drainages.

### **3.9 Livestock Grazing,**

#### Affected Environment

The High Rock HMA overlaps with the Massacre Mountain Allotment and is managed under the guidance of the Technical Review Teams (TRT, written in the 1980's. This TRT included members of the Modoc-Washoe Stewardship committee, which represented a variety of interests and the Surprise Field Office BLM personnel.

The Massacre Mountain Allotment (149,000 acres) is permitted for two cattle operations. Active Use or preference is 5,823 animal unit months (AUMs), and the grazing period is for up to six months, or from April 15 to October 1. Typically both operators normally turnout cattle by May 1, one operator uses the allotment for the entire period, and while the other operator removes their cattle from the allotment by August 1. The allotment has few internal pasture fences; consequently livestock are managed by rotating through unfenced use areas with specific periods of use with the intention of meeting utilization guidelines and resource objectives. The majority of the cattle grazing occur outside of the HMA, and cattle rarely use the east one-half

(approximately) of the HMA because of a lack of sufficient water sources. The Rock High Canyon area has been managed for long term rest from livestock grazing, although in the future grazing may be prescribed to meet certain resource objectives.

#### Environmental Consequences

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. As wild horse numbers increase, utilization of forage and water increases and there would be greater competition between cattle and livestock. The action alternatives would have least impacts to livestock operations, and on the social and economic values associated with livestock grazing. The No Action Alternative would result in the most rapid increase in wild horse numbers, and simply would not be consistent with livestock operations on public lands. Since horses are on the range year-long there would be severe grazing and tramping damage to riparian areas and wild horses would continue to move lands outside the HMA.

In summary, implementation of the Proposed Action, and Alternative #2 would be compatible with livestock grazing, and on the social and economic values associated with livestock grazing.

### **3.10 Noxious Weeds and Invasive, Non-native Species,**

#### Affected Environment

Noxious weeds and invasive non-native species introduction and proliferation are a growing concern among local and regional interests. Noxious weed surveys have been conducted in portions of the HMA, and several small sites of Perennial Pepper weed, Bull and Scotch thistle have been found. These known populations of noxious weeds tend to occur at riparian sites or along roads and are being treated and monitored.

Vehicles and OHV traveling on various routes, and crossing the associated drainages along these routes, increase the likelihood that several other species of noxious weeds may be spread in the HMA in the near future.

#### Environmental Consequences

Direct, short-term impacts associated with the Proposed Action and alternative #2 includes the potential to import or transport noxious weeds and/or spread existing noxious weed seeds and plant parts to new areas in the HMA. Weed free hay would be fed to domestic horses used for the gather operations and weed free hay would be fed to wild horses held at the portable corrals. There are no direct impacts associated with the Proposed Action or Alternatives #2.

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. Disturbed areas and areas in poor ecological condition are much more susceptible to having noxious weeds and invasive non-native species populations establish and expand in size. Implementation of the Proposed Action and Alternative #2 would result in the highest possibility that wild horse populations are at AML. Therefore, the Proposed Action would be the least likely to result in increased populations of noxious weeds and invasive

non-native species. Implementation of No Action Alternative would produce the most rapid increase in wild horse numbers. As wild horse numbers increase, utilization of vegetation and trampling/compaction of soils would increase. Eventually, plant vigor, production, and diversity would be reduced and overall ecological site conditions would decline. Population modeling indicates there could be up to 1,730 horses in the HMA within 10 years. Appendix A contains an in-depth population analysis. As a result, No Action Alternative would have the greatest negative impact on soils and vegetation, and would be the most likely to result in increased populations of noxious weeds and invasive non-native species.

The Proposed Action and Alternative # 2 may have about the same impacts to soils and vegetation, or the spread of noxious weeds and invasive non-native species, because only an estimated 28 mares would be treated for fertility control under the Proposed Action.

### **3.11 Recreation,**

#### Affected Environment

The HMA is a popular destination for pronghorn antelope, big horn sheep, mule deer, and upland game bird (chukar, quail, dove, and sage-grouse) for Nevada resident hunters and non-resident hunters. The Proposed Action gather was scheduled for September, in part, to reduce potential conflicts with hunting seasons, and other recreation users.

The main access road to the HMA is by NV Highway 8A, and Highway 34. Common recreation uses in the HMA consist of off-highway driving, camping, hiking and wildlife/wild horse viewing. There are several roads accessible to four-wheel drive vehicles in or near the HMA. These roads reach some of the higher elevation areas and, as a result, they afford recreational users the opportunity to view wildlife, wild horses, or to enjoy the solitude.

#### Environmental Consequences

Direct, short-term impacts to recreation with implementation of the Proposed Action and Alternative #2 would consist primarily of disturbance from a low-flying helicopter, particularly if the gather occurred during the big game hunting seasons. These big game hunts are highly sought after, and in most cases hunters wait up to 5 or more years to draw a tag. A low-flying aircraft is often considered intrusive to hunting activities, and to wilderness characteristics.

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. As wild horse numbers increase, utilization of cover, space, forage, and water increases. As the amount and quality of habitat is reduced, wildlife populations are also reduced, as is opportunities for hunting and wildlife viewing. Conversely, as wild horse numbers increase, the likelihood of recreational users seeing wild horses from the main roads and trails increases.

The actual gather activities are expected to be completed in 15 days, which would reduce the possibility of conflicting with outdoor activities. Compared with Alternative #2, implementation of the Proposed Action would result in slightly lower wild horse population growth rates, and the



greatest period of time when wild horse numbers are at or below maximum AML's. Therefore, the Proposed Action would have slightly less impacts on recreation activities by increasing the gather cycle to 4 years, instead of 3 years, and over a 15 year period there would be one less gather.

In summary, the No Action Alternative would result in the most rapid increase in wild horse numbers and the greatest negative impact on recreation involving hunting, camping, and wildlife viewing and the greatest positive impact on recreation involving wild horse viewing.

#### **4.0 Residual Impacts**

##### **Irreversible and Irrecoverable Commitment of Resources**

The implementation of "action alternatives" is not likely to result in significant impacts that may be characterized as irreversible and irretrievable commitments. Several gathers have occurred on the High Rock HMA, and on adjacent HMA within the last 25 years and there is no indication of genetic isolation or that the herd is not self-sustaining.

##### **Unavoidable Adverse Impacts**

The implementation of actions associated with the Proposed Action or Alternative #2 were designed to reduce to any impacts to wilderness resources or values, and including impacts to wildlife species and recreation.

#### **5.0 Cumulative Impacts (Proposed Action & Alternative)**

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 Alternative #2 would reduce the existing wild horse population to AML, and this would help promote a thriving natural ecological balance. The achievement and maintenance of AML would maintain or increase in vegetation density, vigor, reproduction, productivity, diversity, and forage availability. Subsequent removals would sustain animal populations in a thriving natural ecological balance and would contribute to retain ecological sites condition.

Adverse impacts to vegetation with implementation of Proposed Action or Alternatives #2 would include disturbance of small quantities of native vegetation and soils immediately in and around temporary trap sites, holding, and processing facilities. Impacts created by vehicle traffic, and hoof action of penned horses, can be severe in the immediate vicinity of these facilities, and the impacts would re-occur each time horses were gathered. Since most trap sites and holding

facilities are used during recurring wild horse gather operations, any impacts would remain site specific and isolated in nature. Based on past experience these impacts are inconspicuous within several years. Also, 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 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, cumulative impact of large numbers of wild horses would increase each year that horses are not gathered. These impacts would affect all of the resources that depend on stable soils and intact vegetative communities, including wildlife viewing, and hunting, wilderness, cultural resources, water quality, and the social and economic values associated with livestock grazing. The HMAP objectives, NCA decisions, and Land Health Standards can not be met under the No Action Alternative.

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.

A related action is the proposal to Construct Wildlife Water Developments in the East Fork High Rock Canyon Wilderness Area within the Black Rock-High Rock NCA (EA CA-370-06-02). The EA discusses the issues expressed by NDOW and others over the wild horse impacts to riparian conditions in the HMA, and the limited water resources for wildlife. The Decision Record for this project confirms continued monitoring of wild horse populations and habitat use to ensure that unacceptable adverse affects are not occurring from wild horse use to the bighorn populations.

## **6.0 Mitigation Measures**

The Proposed Action and Alternatives incorporate proven standard operating procedures that have been developed over time. These SOP's (Appendix B) represent the "best methods" for reducing impacts associated with gathering, handling, and transporting wild horses, and collecting herd data. Additional impact reducing mitigation measures have been incorporated into the alternatives. Therefore no additional mitigation measures are proposed.

## **7.0 Consultation and Coordination**

A Notice of Proposed Action was mailed to 74 interested individuals, groups, and agencies on June 7, 2006. Several comments were received in support of the proposed removal of excess wild horses from the High Rock HMA. Consultation and coordination with affected interests will also occur during the 30 day comment period for this preliminary EA. Any comments will be considered in BLM decision for this EA.

### **7.1 List of Preparers**

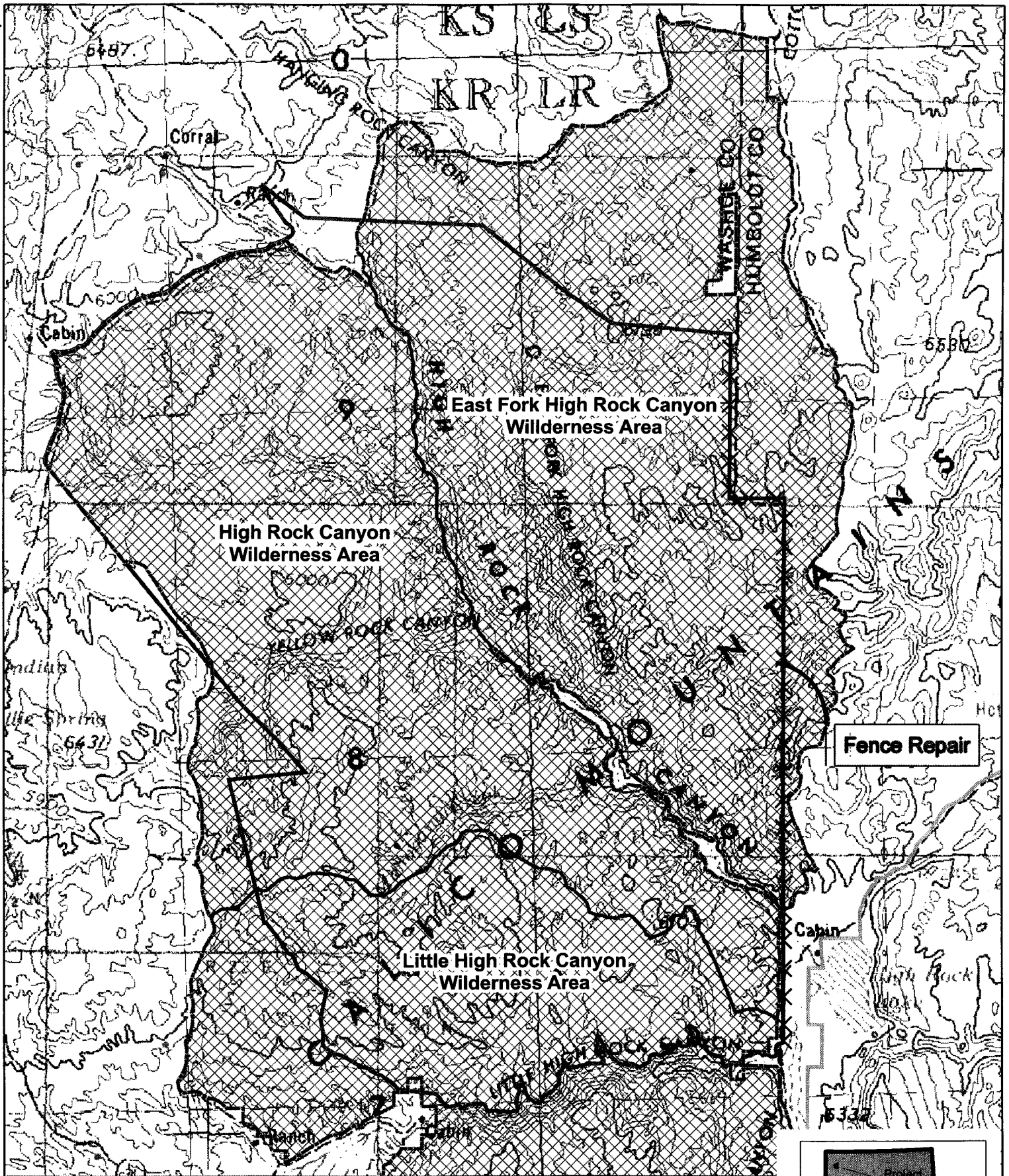
|              |   |
|--------------|---|
| Steve Surian | Supervisory Rangeland Management Specialist/Environmental Coordinator |
| Jerry Bonham | Range/Wild Horse Technician   |

### **7.2 Persons, Groups, and Agencies Consulted**

Copies of this environmental assessment will be sent by first class mail to the following groups and individuals for review and comment:

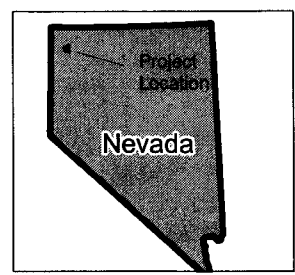
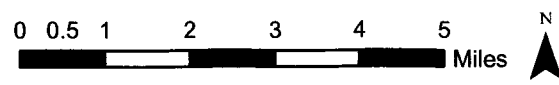
Bill Phillips; Nevada State Clearinghouse; Cathy Barcomb, Nevada Commission for the Preservation of Wild Horses; Dawn Lappin, Wild Horse Organized Assistance; Roy Leach, Dave Pulliam, Clint Garrett, Nevada Department of Wildlife; Bryan Lamont, Rocky Mountain Elk Foundation; The Fund For Animals, Inc.; Frances Benally, Chair, Ft. Bidwell Tribal Council; Ms. Virginia Lash, Chair, Cedarville Rancheria; Ms. Anne Martin, American Lands Alliance Wes Finley, N.E. California RAC; Lee Chauvet, Chair, N.E. California RAC; Nevada Cattlemen's Association, North Washoe Unit, c/o Jesse Harris; Northwest Great Basin Association; Barbara Flores, Colorado Wild Horse and Burro Coalition; Barbara Burhans; France Benally, Chair Fort Bidwell Tribal Council, NRCS, USDA, Jim Gifford; Mr. Mike Harper; MS Vicky Hoover; James Jurad; Bryan Lamont; White Pine Ranch; Bunyard Ranches. Susan Lynn, Nevada Water Network; James Morefield, NV Natural Heritage Program; Shaaron Netherton Friends of the Nevada Wilderness; Marjorie Sill, Debbie Sease, Rose Strickland, Vicki Hoover, Sierra Club; Stephen Smith, Nevada State Office; Mr. Steve Tabor; Ed and Anita Wagner; Johanna Wald, NRCD; John Walker; Ed & Anita Wagner, Coalition for NV Wildlife; Great Old Broads for Wilderness Org.; Wilderness Watch; Northern Native Plants Society Northwest Great Basin Association; Tribal Council Pyramid Lake Paiute Tribe; Dennis Rechel, Walker River Bowmen; California Wilderness Coalition Central Office; AZ Wilderness Coalition; Silver Arrow Bowmen; Canvasback Gun Club; Nevada Bow Hunters Association; Oregon Natural Desert Assoc.; Ralph Albright, Greg Aplet, Sarah Barth, The Wilderness Society; Joel Blakeslee, Judi Caron, Washoe County Wildlife Advisory Board; Karen Boeger; Leah Brashear; Mr. Paul C. Clifford JR.; Ms. Mary Connelly; John Davis, Robert Davison Wildlife Mgt. Institute; Nevada Trophy Hunters c/o

Mr. Tony Diebold; Mr. Gale, NV Wildlife Federation Dupree; Mr. Bob Ellis; Tina Nappe, Bill Vasconi, Fraternity for the Desert Bighorn; Larry Johnson, Coalition for Nevada's Wildlife; Nevada Bighorns Unlimited; Reno Fly Shop, Bob Ellis, Desert Survivors, Rocky Mountain Coordinator- Fund for the Animals, Inc.; Kody Menghini; LeRoy Perks, Craig Stevenson; Clint Bentley; Jim Shepard; William L. Retzer; Terry Williams.



- ✕✕ Fence to be Repaired
- ▭ Herd Management Area (HMA)
- ▨ Wilderness Area

**High Rock Herd Management Area  
And Wilderness Area Map**



# APPENDIX A

## Summary of Population Modeling of Wild Horses

### *Population Model Overview*

WinEquus is a computer software program designed to simulate population dynamics based on various management alternatives concerning wild horses. It was developed by Stephen H. Jenkins of the Department of Biology, University of Nevada at Reno. For further information about the model, please contact Stephen H. Jenkins at the Department of Biology/314, University of Nevada, Reno, NV 89557.

The following data was summarized from the information provided within the WinEquus program. It will provide background about the use of the model, the management options that may be used, interpretation of modeling results, and the types of output that may be generated.

The population model for wild horses was designed to help wild horse and burro specialists evaluate various management strategies that might be considered for a particular area. The model uses data on average survival probabilities and foaling rates of horses to project population growth for up to 20 years. The model accounts for year-to-year variation in these demographic parameters by using a randomization process to select survival probabilities and foaling rates for each age class from a distribution of values based on these averages. This aspect of population dynamics is called environmental stochasticity, and reflects the fact that future environmental conditions that may affect a wild horse population's demographics can not be established in advance. Therefore, each trial will give a different pattern of population growth. Some trials may include mostly "good" years, when the population grows rapidly; other trials may include a series of several "bad" years in succession. The stochastic approach to population modeling uses repeated trials to project a range of possible population trajectories over a period of years, which is more realistic than predicting a single specific trajectory.

The model incorporates both selective removal and fertility treatment as management strategies. A simulation may include no management, selective removal, fertility treatment, or both removal and fertility treatment. Wild horse and burro specialists can specify many different options for these management strategies such as the schedule of gathers for removal or fertility treatment, the threshold population size which triggers a gather, the target population size following a removal, the ages and sexes of horses to be removed, and the effectiveness of fertility treatment.

To run the program, one must supply an initial age distribution (or have the program calculate one), annual survival probabilities for each age-sex class of horses, foaling rates for each age class of females, and the sex ratio at birth. Sample data are available for all of these parameters. Basic management options must also be specified.

### **Population Data: Age-Sex Distribution**

An important point about the initial age-sex distribution is that it is NOT necessarily the starting population for each of the trials in a simulation. This is because the program assumes that the initial age-sex distribution supplied on this form or calculated from a population size that the user enters is not an exact and complete count of the population. For example, if the user enters an initial population size of 100 based on an aerial survey, this is really an estimate of the population and not a census. Furthermore, it is likely to be an underestimate because some horses will be missed in the survey. Therefore, the program uses an average sighting probability of approximately 90% (Garrott et al. 1991) to "scale-up" the initial population estimate to a starting population size for use in each trial. This is done by a random process, so the starting population sizes are different for all trials. An option does exist to consider the initial population size to be exact and bypass this scaling-up process.

### **Population Data: Survival Probabilities**

A fundamental requirement for a population model are data on annual survival probabilities of each age class. The program contains files of existing sets of survival or it is possible to enter a new set of data in the table. In most cases, Wild Horse and Burro Specialists do not have data on survival probabilities for their herd populations, so the sample data files provided with WinEquus are used and assume that average survival probabilities in the populations are similar. These data are more difficult to get than is often assumed, because they require keeping track of known individuals over time. A "snapshot" of a population, providing information on the age distribution at a single gather, can NOT be used to estimate survival probabilities without assuming a particular growth rate for the population (Jenkins, 1989). More data from long-term studies of marked horses are needed to develop estimates of survival in various habitats.

### **Population Data: Foaling Rates**

Foaling rates are the proportions of females in each age class that produce a foal at that age. Files are available within the program that set foaling rates or the user may enter a new set of data in the table. The user may also enter the sex ratio at birth, another necessary parameter for population simulation.

### **Environmental Stochasticity**

For any natural population, mortality and reproduction vary from year to year due to unpredictable variation in weather and other environmental factors. This model mimics such environmental stochasticity by using a random process to increase or decrease survival probabilities and foaling rates from average values for each year of a simulation trial. Each trial uses a different sequence of random values to give different results for population growth. Looking at the range of final population sizes in many such trials will give the user an indication of the range of possible outcomes of population growth in an uncertain environment.

How variable are annual survival probabilities and foaling rates for wild horses? The longest study reporting such data was done at Pryor Mountain, Montana by Garrott and Taylor (1990).

Based on 11 years of data at this site, survival probability of foals and adults combined was greater than 98% in 6 years, between 90 and 98% in 3 years, 87% in 1 year, and only 49% in 1 year of severe winter weather. These values clearly are not normally distributed, but can be approximated by a logistic distribution. This pattern of low mortality in most years but markedly higher mortality in occasional years of bad weather was also reported by Berger (1986) for a site in northwestern Nevada. Therefore, environmental stochasticity in this model is simulated by drawing random values from logistic distributions. If desired, different values can be entered to change the scaling factors for environmental stochasticity.

Because year-to-year variation in weather is likely to affect foals and adults similarly, this model makes foal and adult survival perfectly correlated. This means that when survival probability of foals is high so is the survival probability of adults, and vice versa. By contrast, the correlation between survival probabilities and foaling rates can be adjusted to any value between -1 and +1. The default correlation is 0 based on the Pryor Mountain data and the assumption that most mortality occurs in winter and winter weather is not highly correlated with foaling-season weather.

The model includes another form of random variation called demographic stochasticity. This means that mortality and reproduction are random processes even in a constant environment (i.e., a foaling rate of 40% means that each female has a 40% chance of having a foal). Because of demographic stochasticity, even if scaling factors for both survival probabilities and foaling rates were set equal to 0, different runs of the simulation would produce different results. However, variation in population growth due to demographic stochasticity will be small except at low population sizes.

### **Gathering Schedule**

There are three choices for the gather schedule: gather at a regular interval, gather at a minimum interval (the default), or gather in specific years. Gathering at a minimum interval means that gathers will be conducted no more frequently than a prescribed interval (e.g., 3 years), but will not be conducted if the time interval has passed unless the population is above a threshold size that triggers a gather.

### **Gather Interval**

This is the number of years between gathers.

### **Gather for fertility treatment regardless of population size?**

If this option is selected (the default), then gathers occur according to the gathering schedule specified regardless of whether or not the population exceeds a threshold population size. One effect of this is that a minimum-interval schedule really functions as a regular interval.

### **Continue gather after reduction to treat females?**

Continuing a gather after a reduction to treat females (with fertility control management options)



means that, if a gather for a removal has been triggered because the population has exceeded a threshold population size, then horses will continue to be processed even after enough have been removed to reduce the population to the target population size. As additional horses are processed, females to be released back will be treated with an immunocontraceptive according to the information specified in the Contraceptive Parameters form.

### **Threshold for Gather**

The threshold population size for triggering a gather is the actual population size in a particular year estimated by the program. This is NOT the same as the number of horses counted in an aerial census, but closer to an estimate of population size taking into account the fact that an aerial census typically underestimates population size.

### **Target Population Size**

This is the goal for the population size following a gather and removal. Horses will be removed until this target is reached, although it may not be possible to achieve this goal, depending on the removal parameters (percentages of each age-sex class to be removed) and gathering efficiency.

### **Are foals included in AML?**

In most field offices, foals are counted as part of the appropriate management level (AML).

### **Gathering Efficiency**

Typically, some horses will successfully resist being gathered, either by hiding in habitats where they can not be seen or moved by a helicopter, or by following escape routes that make it dangerous or un-economical for them to be herded from the air. These horses are not available for removals or fertility treatment. The default gathering efficiency is 80%, meaning that the program assumes that 20% of the population will successfully resist being gathered. This value may be changed.

Note that the program assumes that horses of all age-sex classes are equally likely to be gathered. This is an unrealistic assumption because bachelor males, for example, may be more likely to successfully avoid being gathered than females or foals or band stallions.

### **Sanctuary-bound Horses**

Age-selective removals typically target younger age classes such as 0 to 5 year-olds or 0 to 9 year-olds because these horses are more easily adopted. However, it may not be possible to reduce the population to a target size by restricting removals to these younger age classes, especially if age-selective removals have been conducted in the past. In this case, an option is available to remove older animals as well, who may be destined for permanent residence in a long term holding facility rather than for adoption. The minimum age of these long term holding facility horses is specified for this element. When older age classes as well as younger age classes are identified for removal on the Removal Parameters form, horses of these older age

classes are selected along with younger age class horses as the population is reduced to the target value. If a minimum age for long term holding facility horses is specified, then older animals are only removed if the population can not be reduced to the target population size by removing the younger ones.

### **Percent Effectiveness of Fertility Control**

These percentages represent the percentage of treated females that are in fact sterile for one year, two years, etc. (i.e., the efficacy or effectiveness of fertility treatment). The default values are 90% efficacy for one year. However, the user may specify the effectiveness year by year for up to five years.

### **Removal Parameters**

This allows the user to determine the percentages of horses in each sex and age class to be removed during a gather. The program uses these percentages to determine the probabilities of removing each horse that is processed during a gather. If the percentage for an age-sex class is 100%, then all horses of that age-sex class that are processed will be removed until the target population size is reached. If the percentage for an age-sex class is 0%, then all horses of that age-sex class will be released. If the percentage for an age-sex class is greater than 0% but less than 100%, then the proportion of horses of that age-sex class removed will be approximately equal to the specified percentage.

### **Contraception Parameters**

This allows the user to specify the percentage of released females of each age class that will be treated with an immunocontraceptive. The default values are 100% of each age class, but any or all of these may be changed.

### **Most Typical Trial**

This is the trial that is most similar to each of the other trials in a simulation

### **Population Size Table**

The default is both sexes and all age classes, but summary results may also be chosen for a subset of the population. The table identifies some key numbers such as the lowest minimum in all trials, the median minimum, and the highest minimum. Thinking about the distribution of minima for example, half of the trials have a minimum less than the median of the minima and half have a minimum greater than the median of the minima. If the user was concerned about applying a management strategy that kept the population above some level because the population might be at risk of losing genetic diversity if it were below this level, then one might look at the 10th percentile of the minima, and argue that there was only a 10% probability that the population would fall below this size in x years, given the assumptions about population data, environmental stochasticity, and management that were used in the simulation.

### **Gather Table**

The default is both sexes and all age classes, but summary results may be for a subset of the population. The table shows key values from the distribution of the minimum total number of horses gathered, removed, and (if one elected to display data for both sexes or just for females) treated with a contraceptive across all trials. This output is probably the most important representation of the results of the program in terms of assessing the effects of your management strategy because it shows not only expected average results but also extreme results that might be possible. For example, only 10% of the trials would have entailed gathering fewer animals than shown in the row of the table labeled "10th percentile", while 10% of the trials would have entailed gathering more than shown in the row labeled "90th percentile". In other words, 80% of the time one could expect to gather a number of horses between these 2 values, given the assumptions about survival probabilities, foaling rates, initial age-sex distribution, and management options made for a particular simulation

### **Growth Rate**

This table shows the distribution of the average population growth rate. The direct effects of removals are not counted in computing average annual growth rates, although a selective removal may change the average foaling rate or survival rate of individuals in the population (e.g., because the age structure of the population includes a higher percentage of older animals), which may indirectly affect the population growth rate. Fertility control clearly should be reflected in a reduction of population growth rate.

## *Results - Population Modeling of the High Rock HMA*

### **Objectives of Population Modeling**

To complete the population modeling for the High Rock HMA, version 1.40 of the WinEquus program, created April 2, 2002, was utilized. Review of the data output for each of the simulations provided many useful comparisons of the possible outcomes for each Alternative. The developer, Stephen Jenkins, recommends thinking about the range of possible outcomes and not just focusing on one average or typical trial. Some of the questions that need to be answered through the modeling include:

- Do any of the Alternatives “crash” the population?
- What effect does fertility control have on population growth rate?
- What effect do the different Alternatives have on the average population size?
- What effect do the different Alternatives have the number of horses handled and/or removed from the HMA?

### **Population Data, Criteria, and Parameters utilized for Population Modeling**

The initial age structure for the 2006 herds was developed from age structure data collected during the 2000 and 2001 gathers of the High Rock HMA. The age distribution of the horses that were returned to the HMA, coupled with assumptions (based on the 2000 and 2001 age distributions) from the HMA that were made about the animals that were not captured, result in the following estimate of herd structure as of 2001:

#### **Initial Age Structure 2001 – High Rock HMA**

| Age Class    | Horses remaining in the HMA, following the 2001 gather<br>(not captured or returned) |           |            |
|--------------|--|-----------|------------|
|              | Females  | Males     | Total      |
| Foals        | 15   | 14        | 29         |
| 1            | 17   | 7         | 24         |
| 2            | 11   | 7         | 18         |
| 3            | 8  | 5         | 13         |
| 4            | 9  | 3         | 12         |
| 5            | 2  | 1         | 3          |
| 6            | 6  | 5         | 11         |
| 7            | 12   | 10        | 22         |
| 8            | 5  | 6         | 11         |
| 9            | 2  | 3         | 5          |
| 10-14        | 10   | 16        | 26         |
| 15-19        | 4  | 7         | 11         |
| 20+          | 3  | 6         | 9          |
| <b>Total</b> | <b>104</b>   | <b>90</b> | <b>194</b> |

A simulation, using the estimated 2001 population as the initial age structure was then run for the years 2001 to 2006 under the “no management” management option. The most typical trial obtained from this simulation was used to represent the 2006 age structure of the herd. This model was used to represent the current age structure of the High Rock HMA for all of the Alternatives.

**Initial Age Structure 2006 – High Rock HMA**

| <b>Age Class</b> | <b>Females</b> | <b>Males</b> | <b>Total</b> |
|------------------|----------------|--------------|--------------|
| Foals            | 60             | 65           | 125          |
| 1                | 38             | 43           | 81           |
| 2                | 32             | 28           | 60           |
| 3                | 21             | 18           | 39           |
| 4                | 29             | 27           | 56           |
| 5                | 13             | 9            | 22           |
| 6                | 13             | 7            | 20           |
| 7                | 12             | 4            | 16           |
| 8                | 6              | 4            | 10           |
| 9                | 5              | 1            | 6            |
| 10-14            | 20             | 21           | 41           |
| 15-19            | 6              | 11           | 17           |
| 20+              | 3              | 12           | 15           |
| <b>Total</b>     | <b>258</b>     | <b>250</b>   | <b>508</b>   |

All simulations used the survival probabilities and foaling rates supplied with the WinEquus population model for the Granite Range HMA. Survival and foaling rate data were extracted from, *Wild Horses of the Great Basin*, by J. Berger (1986, University of Chicago Press, Chicago, IL, xxi + 326 pp.). Rates are based on Joel Berger’s 6 year study in the Granite Range HMA in northwestern Nevada.

Survival probabilities and foaling rates utilized in the population model for each Alternative are as follows:

**Survival Probabilities and Foaling Rates**

| Age Class    | Survival Probabilities |       | Foaling Rates |
|--------------|------------------------|-------|---------------|
|              | Females                | Males |               |
| <b>Foals</b> | .917                   | .917  | --            |
| <b>1</b>     | .969                   | .969  | --            |
| <b>2</b>     | .951                   | .951  | .35           |
| <b>3</b>     | .951                   | .951  | .40           |
| <b>4</b>     | .951                   | .951  | .65           |
| <b>5</b>     | .951                   | .951  | .75           |
| <b>6</b>     | .951                   | .951  | .85           |
| <b>7</b>     | .951                   | .951  | .90           |
| <b>8</b>     | .951                   | .951  | .90           |
| <b>9</b>     | .951                   | .951  | .90           |
| <b>10-14</b> | .951                   | .951  | .85           |
| <b>15-19</b> | .951                   | .951  | .70           |
| <b>20+</b>   | .951                   | .951  | .70           |

Removal criteria utilized in the population model for Alternatives #1 and #2:

**Removal Criteria - Standard**

| Age         | Percentages for Removals |       | Age          | Percentages for Removals |       |
|-------------|--------------------------|-------|--------------|--------------------------|-------|
|             | Females                  | Males |              | Females                  | Males |
| <b>Foal</b> | 100%                     | 100%  | <b>7</b>     | 100%                     | 100%  |
| <b>1</b>    | 100%                     | 100%  | <b>8</b>     | 100%                     | 100%  |
| <b>2</b>    | 100%                     | 100%  | <b>9</b>     | 100%                     | 100%  |
| <b>3</b>    | 100%                     | 100%  | <b>10-14</b> | 100%                     | 100%  |
| <b>4</b>    | 100%                     | 100%  | <b>15-19</b> | 100%                     | 100%  |
| <b>5</b>    | 100%                     | 100%  | <b>20+</b>   | 100%                     | 100%  |
| <b>6</b>    | 100%                     | 100%  |              |                          |       |

## **Population Modeling Criteria**

The following summarizes the population modeling criteria that are common to all of the Alternatives (as applicable):

- Starting Year: 2006
- Sex ratio at birth: 50% male, 50% female
- Foals are included in the AML
- Simulations were run for five, ten and fifteen years with 100 trials each
- Initial gather year: 2006
- Gather interval: minimum interval of three years
- Gathers to be triggered by the population reaching maximum AML's (120 for the High Rock HMA).
- Percent of the population that can be gathered: 90%
- Target population size following gathers is the minimum AML's (78 for the High Rock HMA). Target may not be reached at each gather, depending upon the Alternative.
- For Alternative #1, fertility control effectiveness for treated mares is assumed to be 94% the first year, 82% the second year, and 68% the third year after treatment.
- For Alternative #1, the HMA's would not be gathered for fertility control regardless of population size. However, ongoing gathers would continue after population goals are met to secure additional mares for fertility treatment.

## **Population Modeling Results**

### **Population size in five, ten, and fifteen years**

Out of 100 trials in each simulation, the model tabulated minimum, average, and maximum population sizes. The model was run for five, ten, and fifteen years to determine what the potential effects would be on population size for all Alternatives (I-III). These numbers are useful to make relative comparisons of the different Alternatives and of the potential outcomes under different management options. The data displayed within the tables are broken down into different levels. The lowest trial, highest trial, and several percentile trials are displayed for each simulation completed. According to the model developer, this output is probably the most important representation of the results in terms of assessing the effects of proposed management. The trials show not only the expected average results, but also extreme high and low results of the modeling scenario.

## High Rock HMA

### Population sizes in 6 years

| Trial         | Alternative #1 |            |            | Alternative #2 |            |            | Alternative #3 |            |             |
|---------------|----------------|------------|------------|----------------|------------|------------|----------------|------------|-------------|
|               | min            | med        | max        | min            | med        | max        | min            | med        | max         |
| Lowest        | <b>47</b>      | 151        | 508        | <b>42</b>      | 150        | 510        | <b>411</b>     | 598        | 842         |
| 10%           | 76             | 170        | 522        | 70             | 170        | 520        | 520            | 752        | 1010        |
| 25%           | 80             | 175        | 532        | 79             | 174        | 528        | 530            | 793        | 1112        |
| <b>Median</b> | <b>85</b>      | <b>178</b> | <b>552</b> | <b>86</b>      | <b>178</b> | <b>544</b> | <b>558</b>     | <b>876</b> | <b>1278</b> |
| 75%           | 90             | 184        | 574        | 91             | 187        | 582        | 586            | 940        | 1388        |
| 90%           | 93             | 191        | 614        | 96             | 194        | 634        | 607            | 1026       | 1476        |
| Highest       | 108            | 204        | <b>689</b> | 104            | 209        | <b>710</b> | 771            | 1264       | <b>1887</b> |
| Gather years  | 06,10          |            |            | 06,09          |            |            | n/a            |            |             |

### Population sizes in 11 years

| Trial         | Alternative #1 |            |            | Alternative #2 |            |            | Alternative #3 |             |             |
|---------------|----------------|------------|------------|----------------|------------|------------|----------------|-------------|-------------|
|               | min            | med        | max        | min            | med        | max        | min            | med         | max         |
| Lowest        | <b>51</b>      | 121        | 512        | <b>57</b>      | 126        | 509        | <b>349</b>     | 613         | 993         |
| 10%           | 64             | 134        | 522        | 75             | 141        | 518        | 516            | 1107        | 1793        |
| 25%           | 77             | 140        | 535        | 80             | 144        | 536        | 532            | 1252        | 2312        |
| <b>Median</b> | <b>83</b>      | <b>145</b> | <b>555</b> | <b>84</b>      | <b>150</b> | <b>554</b> | <b>555</b>     | <b>1417</b> | <b>2820</b> |
| 75%           | 87             | 147        | 586        | 87             | 153        | 576        | 584            | 1562        | 3142        |
| 90%           | 91             | 153        | 635        | 90             | 156        | 606        | 625            | 1730        | 3680        |
| Highest       | 97             | 161        | <b>748</b> | 93             | 167        | <b>722</b> | 761            | 2128        | <b>4559</b> |
| Gather years  | 06,10,15       |            |            | 06,09,12,15    |            |            | n/a            |             |             |

### Population sizes in 16 years

| Trial         | Alternative #1 |            |            | Alternative #2 |            |            | Alternative #3 |             |              |
|---------------|----------------|------------|------------|----------------|------------|------------|----------------|-------------|--------------|
|               | min            | med        | max        | min            | med        | max        | min            | med         | max          |
| Lowest        | <b>43</b>      | 109        | 510        | <b>46</b>      | 116        | 509        | <b>411</b>     | 1234        | 2565         |
| 10%           | 67             | 124        | 522        | 68             | 129        | 518        | 518            | 1618        | 3622         |
| 25%           | 72             | 127        | 536        | 74             | 132        | 530        | 530            | 1830        | 4252         |
| <b>Median</b> | <b>79</b>      | <b>131</b> | <b>555</b> | <b>80</b>      | <b>136</b> | <b>550</b> | <b>555</b>     | <b>2237</b> | <b>5342</b>  |
| 75%           | 84             | 134        | 584        | 84             | 139        | 577        | 581            | 2643        | 6737         |
| 90%           | 88             | 138        | 646        | 87             | 141        | 631        | 618            | 2983        | 7829         |
| Highest       | 95             | 146        | <b>744</b> | 90             | 155        | <b>753</b> | 830            | 3864        | <b>10236</b> |
| Gather years  | 06,10,15,20    |            |            | 06,09,12,15,18 |            |            | n/a            |             |              |



## Average Growth Rates

### Average Growth Rate (%) in 5 years

| Trial         | High Rock HMA |             |             |
|---------------|---------------|-------------|-------------|
|               | Alt. #1       | Alt. #2     | Alt. #3     |
| Lowest        | 0.3           | -3.1        | 6.8         |
| 10%           | 7.8           | 9.4         | 12.5        |
| 25%           | 11.2          | 12.9        | 15.1        |
| <b>Median</b> | <b>13.0</b>   | <b>15.9</b> | <b>17.3</b> |
| 75%           | 15.4          | 18.4        | 19.4        |
| 90%           | 16.8          | 21.0        | 21.6        |
| Highest       | 20.1          | 24.7        | 23.4        |

### Average Growth Rate (%) in 10 years

| Trial         | High Rock HMA |             |             |
|---------------|---------------|-------------|-------------|
|               | Alt. #1       | Alt. #2     | Alt. #3     |
| Lowest        | 1.2           | 7.1         | 6.5         |
| 10%           | 6.7           | 11.5        | 12.1        |
| 25%           | 9.4           | 13.7        | 14.9        |
| <b>Median</b> | <b>11.2</b>   | <b>15.8</b> | <b>17.4</b> |
| 75%           | 13.1          | 18.5        | 18.7        |
| 90%           | 14.3          | 19.6        | 20.1        |
| Highest       | 15.6          | 23.3        | 23.4        |

### Average Growth Rate (%) in 15 years

| Trial         | High Rock HMA |             |             |
|---------------|---------------|-------------|-------------|
|               | Alt. #1       | Alt. #2     | Alt. #3     |
| Lowest        | 3.2           | 7.5         | 10.0        |
| 10%           | 7.9           | 11.7        | 13.2        |
| 25%           | 9.5           | 13.7        | 14.6        |
| <b>Median</b> | <b>10.8</b>   | <b>15.7</b> | <b>16.3</b> |
| 75%           | 12.3          | 17.9        | 17.8        |
| 90%           | 13.1          | 19.0        | 18.9        |
| Highest       | 14.5          | 22.1        | 20.5        |

### Historic Reproductive Rates

| Gather/Census | High Rock HMA |      |          |
|---------------|---------------|------|----------|
|               | Adult         | Foal | Rate (%) |
| 1994          | 97            | 25   | 20.5     |
| 1997          | 242           | 64   | 20.9     |
| 2001          | 452           | 104  | 18.7     |

## Number of Horses Gathered, Removed, and Treated

### High Rock HMA

#### Number of horses Gathered (G), Removed (R), and Treated (T) in 6 years

| Trial         | Alternative #1 |            |           | Alternative #2 |            |          | Alternative #3 |          |          |
|---------------|----------------|------------|-----------|----------------|------------|----------|----------------|----------|----------|
|               | G              | R          | T         | G              | R          | T        | G              | R        | T        |
| Lowest        | 446            | 403        | 7         | 408            | 391        | 0        | 0              | 0        | 0        |
| 10%           | 534            | 442        | 14        | 464            | 443        | 0        | 0              | 0        | 0        |
| 25%           | 562            | 456        | 35        | 475            | 454        | 0        | 0              | 0        | 0        |
| <b>Median</b> | <b>578</b>     | <b>474</b> | <b>39</b> | <b>492</b>     | <b>470</b> | <b>0</b> | <b>0</b>       | <b>0</b> | <b>0</b> |
| 75%           | 600            | 493        | 44        | 531            | 508        | 0        | 0              | 0        | 0        |
| 90%           | 635            | 532        | 46        | 576            | 552        | 0        | 0              | 0        | 0        |
| Highest       | 716            | 621        | 54        | 653            | 627        | 0        | 0              | 0        | 0        |

#### Number of horses Gathered (G), Removed (R), and Treated (T) in 11 years

| Trial         | Alternative #1 |            |           | Alternative #2 |            |          | Alternative #3 |          |          |
|---------------|----------------|------------|-----------|----------------|------------|----------|----------------|----------|----------|
|               | G              | R          | T         | G              | R          | T        | G              | R        | T        |
| Lowest        | 548            | 443        | 26        | 465            | 443        | 0        | 0              | 0        | 0        |
| 10%           | 574            | 470        | 35        | 520            | 500        | 0        | 0              | 0        | 0        |
| 25%           | 607            | 488        | 39        | 554            | 529        | 0        | 0              | 0        | 0        |
| <b>Median</b> | <b>682</b>     | <b>518</b> | <b>64</b> | <b>585</b>     | <b>560</b> | <b>0</b> | <b>0</b>       | <b>0</b> | <b>0</b> |
| 75%           | 719            | 553        | 70        | 619            | 590        | 0        | 0              | 0        | 0        |
| 90%           | 758            | 592        | 76        | 648            | 621        | 0        | 0              | 0        | 0        |
| Highest       | 856            | 699        | 108       | 759            | 732        | 0        | 0              | 0        | 0        |

#### Number of horses Gathered (G), Removed (R), and Treated (T) in 16 years

| Trial         | Alternative #1 |            |           | Alternative #2 |            |          | Alternative #3 |          |          |
|---------------|----------------|------------|-----------|----------------|------------|----------|----------------|----------|----------|
|               | G              | R          | T         | G              | R          | T        | G              | R        | T        |
| Lowest        | 568            | 466        | 35        | 505            | 481        | 0        | 0              | 0        | 0        |
| 10%           | 684            | 510        | 62        | 580            | 553        | 0        | 0              | 0        | 0        |
| 25%           | 710            | 533        | 72        | 616            | 588        | 0        | 0              | 0        | 0        |
| <b>Median</b> | <b>800</b>     | <b>569</b> | <b>94</b> | <b>650</b>     | <b>624</b> | <b>0</b> | <b>0</b>       | <b>0</b> | <b>0</b> |
| 75%           | 822            | 591        | 100       | 698            | 668        | 0        | 0              | 0        | 0        |
| 90%           | 874            | 648        | 105       | 724            | 696        | 0        | 0              | 0        | 0        |
| Highest       | 982            | 753        | 121       | 926            | 885        | 0        | 0              | 0        | 0        |

## Population Modeling Summary

To summarize the results obtained by simulating the range of Alternatives for the High Rock HMA wild horse gather, the original questions can be addressed.

- Do any of the Alternatives “crash” the population?

None of the Action Alternatives indicate that a crash is likely to occur in the High Rock HMA population. The minimum population level was 42 horses in the High Rock HMA under the extreme lowest trial. Median growth rates are all within reasonable levels, and adverse impacts to the population are not likely. The No Action Alternative #3 could result in a crash. If no horses are removed from the HMA, the population would have an 80% chance of ranging from 1107 head to 1730 head by 2016. By that time, horses would be causing serious impacts on soil stability, vegetation, water sources (springs and creeks), wildlife habitat, and livestock operations. Horses would begin running out of forage and water, and would be in poor shape going into winter. At some point the populations would crash, probably during an unusually cold or snowy winter.

- What effect does fertility control have on population growth rate?

The alternative implementing fertility control along with gate-cut gathers (Alternative #1, Proposed Action) reflects the lowest overall growth rates. Median growth rates for Alternative #1 ranged from 10.8 to 13.0, as compared to Alternative #2 which ranged from 15.7 to 15.9. The highest expected growth rates (16.6 to 17.4) occurred under the no action alternative, Alternative #3.

- What effect do the different Alternatives have on the median population size?

Implementation of Alternative #1 or #2 would result in stable median population numbers that are close to AML's over the long term. The impacts of these two Alternatives on long term populations are virtually identical. Implementation of Alternative #3 would result in population sizes that would exceed the carrying capacity of the HMA within 10 years (probably by 2016).

- What effect do the different Alternatives have the number of horses handled and/or removed from the HMA's?

Implementation of the No Action Alternative #3 would result in the fewest numbers of horses being handled or removed. Under this Alternative no horses would be gathered, removed, or treated for fertility control. Of the Action Alternatives (#1 and #2), implementation of Alternative #1 would result in the fewest number of horses being removed from the HMA (80% chance of 510 to 648 head, vs. an 80% chance of 553 to 696 head under Alternative #2). In addition, Alternative #1 would require four gathers over the next 15 years to meet AML, versus the five gathers needed under Alternative #2. Implementation of Alternative #2 would result in the fewest number of horses being handled (80% chance of 580 to 724 horses vs. 80% chance of 684 to 874 horses under Alternative #1).

**APPENDIX B**  
**STANDARD OPERATING PROCEDURES - HIGH ROCK HMA**

Gathers would be conducted by BLM personnel, or by utilizing contractors from the Wild Horse and Burro Gathers-Western States Contract. The following procedures for gathering and handling wild horses and burros would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse and Burro Aviation Management Handbook* (March 2000).

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that capture operations necessitate the services of a veterinarian, one would be obtained before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

Trap sites and temporary holding sites will be located to reduce the likelihood of undue injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads.

The primary capture methods used in the performance of gather operations include:

1. Helicopter Drive Trapping. This capture method involves utilizing a helicopter to herd wild horses and burros into a temporary trap.
2. Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.
3. Bait Trapping. This capture method involves utilizing bait (water or feed) to lure wild horses and burros into a temporary trap.

The following procedures and stipulations will be followed to ensure the welfare, safety and humane treatment of wild horses and burros in accordance with the provisions of 43 CFR 4700.

**A. Capture Methods used in the Performance of Gather Contract Operations**

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. 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 COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other 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, plywood, metal without holes.
  - 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 fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.
  - 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, plastic snow fence, 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
  - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor 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 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, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the

Contractor to hold animals if the specific gathering requires that 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 COR.

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. An animal that is held at a temporary holding facility after 5:00 p.m. and on through the night, is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.
8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if injured animals must be destroyed and provide for destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
10. Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the COR/PI 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 COR/PI. 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 COR/PI. 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 COR. 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 COR.

## **B. CAPTURE METHODS THAT MAY BE USED IN THE PERFORMANCE OF A GATHER**

1. Capture attempts may be accomplished by utilizing bait (feed or water) to lure animals into a temporary trap. If the contractor selects this method 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 COR/PI prior to capture of animals.
    - c. Traps shall be checked a minimum of once every 10 hours.
  2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method 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 COR/PI. Under no circumstances shall animals be tied down for more than one hour.
    - b. The contractor shall assure that foals shall not be left behind, and orphaned.
  3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor with the approval of the COR/PI selects this method the following applies:
    - a. Under no circumstances shall animals be tied down for more than one hour.
    - b. The contractor shall assure that foals shall not be left behind, or orphaned.
    - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

### **C. USE OF 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 COR/PI 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 COR/PI.
5. Floors of tractor-trailers, stock trailers and loading chutes 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 COR/PI 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 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
  - 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
  - 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
  - 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).
7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

#### **D. SAFETY AND COMMUNICATIONS**

1. The Contractor shall have the means to communicate with the COR/PI 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 contracting officer or COR/PI 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 Contracting Officer or his/her representative.

- b. The Contractor shall obtain the necessary FCC licenses for the radio system
- c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

2. Should the contractor choose to utilize a helicopter the following will apply:

- a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.
- b. Fueling operations shall not take place within 1,000 feet of animals.

## **G. SITE CLEARANCES**

Personnel working at gather sites will be advised of the illegality of collecting artifacts.

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary clearances (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up. Said clearance shall be arranged for by the COR, PI, or other BLM employees.

Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

## **H. 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.

## **I. PUBLIC PARTICIPATION**

Opportunities for public viewing (i.e. media, interested public) of gather operations will be made available to the extent possible; however, the primary consideration will be to protect the health and welfare of the animals being gathered. The public must adhere to guidance from the on site BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized 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.

## **J. RESPONSIBILITY AND LINES OF COMMUNICATION**

### **Surprise Field Office - Contracting Officer's Representatives/Project Inspectors**

Steve Surian  
Jerry Bonham

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Surprise Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and Litchfield Corral 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 or BLM's Public Information Officers. This individual will be the primary contact and will coordinate the contract with the BLM Corrals to ensure animals are being transported from the capture site in a safe and humane manner and are arriving in good condition.

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.

## APPENDIX C

### Standard Operating Procedures for Fertility Control Treatment

The following management and monitoring requirements are part of the Proposed Action:

- PZP vaccine would be administered by trained BLM personnel.
- The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18 gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14 gauge needle. These are loaded on the end of a trocar (dry syringe with a metal rod) which is loaded into the jabstick which then pushes the pellets into the breeding mares being returned to the range. The pellets and liquid are designed to release the PZP over time similar to a time release cold capsule.
- Delivery of the vaccine would be as an intramuscular injection while the mares are restrained in a working chute. 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid and pellets would be propelled into the left hind quarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.
- All treated mares would be freeze-marked on the hip to enable researchers to positively identify the animals during the research project as part of the data collection phase.
- At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years 2 through 4 by checking for presence/absence of foals. The flight scheduled for year 4 will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.
- A field data sheet will be used by the field applicators to record all the pertinent data relating to identification of the mare (including a photograph when possible), date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and HMA, etc. The original form with the data sheets will be forwarded to the authorized officer at National Program Office (NPO) (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
- A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and state along with the freeze-mark applied by HMA.
- The field office will assure that treated mares do not enter the adoption market for three years following treatment. In the rare instance, due to unforeseen circumstance, treated mare(s) are removed from an HMA before three years has lapsed, they will be maintained in either a BLM facility or a BLM-contracted long term holding facility until expiration of the three year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three year holding period, the animal may be placed in the adoption program or sent to a long-term holding facility.