

**BUCKHORN, COPPERSMITH
and CARTER RESERVOIR
WILD HORSE HERD MANAGEMENT AREAS
CAPTURE and REMOVE PLAN
ENVIRONMENTAL ASSESSMENT**

**DOI-BLM-EA # CA-N070-2009-011
August 2009**

SURPRISE FIELD OFFICE



Coppersmith HMA, July 2008

Introduction.....	3
Background Information	4
General Reference Map	6
Purpose and Need for Action.....	9
Conformance with Existing Land Use Plans	9
Relationship to Statutes, Regulations, Policies, Plans, or Other Environmental Analysis	9
RMP Goals and Objectives pertinent to the Proposed Action.....	10
Rangeland Health Standards.....	11
Scoping and Issue Identification.....	11
Alternatives, Including the Proposed Action.....	12
Actions Common to Alternatives 1 through 3. (Gather Alternatives).....	12
Actions Common to Proposed Action (Alternative 1) and Alternative 2	13
Alternative 1 (Proposed Action): Gather with Fertility Control, Gathering would be conducted using a Helicopter, and assisted with Feed Trapping.....	14
Table 2 – 2009 Wild Horses Age Structure from Win Equus Population Modeling	14
Alternative 2 (Gather without the use of Immuno-contraceptives)	14
Alternative 3 (Gather, Selective Removal).....	15
Table 3 – 2009 Wild Horses Age Structure from Win Equus Population Modeling.....	15
Alternative 4 (No Action).....	15
Alternatives Considered But Eliminated From Further Analysis	15
Affected Environment	15
Critical Environmental Elements	16
Table 4, Critical Elements and other resources affected by the proposed action & Alternatives ..	17
Description of the Affected Environment and Environmental Impacts.....	18
Wild Horses.....	18
Table 5 Carter Reservoir Growth Rates- 1997 to 2007	19
Watershed and Water Quality, Water Sources Availability	22
Soils, Vegetation, and Riparian/Wetlands.....	24
Vegetation, Soils, and Riparian/Wetlands affected Environment	26
Endangered, Threatened, Proposed, or Candidate Plant Species	28
Noxious Weeds and Invasive Non-Native Species	28
Wildlife Affected Environment.....	29
Threatened and Endangered Species	29
Cultural Resources	32
Livestock Management	33
Wilderness and Wilderness Study Area (WSA).....	33
Climate Change.....	34
Reasonably Foreseeable Future Actions	34
Cumulative Impacts (Proposed Action & Alternatives).....	36
Residual Impacts	37
Consultation and Coordination.....	37
List of Preparers	38
Persons, Groups, and Agencies Consulted.....	38
Works Cited	39
Appendices.....	40
Appendix A - Population Modeling	40
Appendix B - Standard Operating Procedures (Gather Operation)	40
Appendix C – Standard Operating Procedures (Fertility Control Treatment).....	40
Appendix D - Detailed Summary of Public Scoping.....	40

Appendix E – Resource Monitoring Information.....	40
Map 1 HMA General reference - Surprise Field Office (page 6)	40
Map 2 Buckhorn and Coppersmith HMAs (attached)	40
Map 3 Carter Reservoir HMA (attached)APPENDIX A, Summary of Population Modeling of Wild Horses	40
APPENDIX A, Summary of Population Modeling of Wild Horses.....	41
Population Model Overview	41
Initial Age Structure 2007 – Carter Reservoir HMA.....	42
Initial Age Structure 2009 – Carter Reservoir HMA.....	43
Survival Probabilities and Foaling Rates	44
Removal Criteria - Standard	44
Removal Criteria - Standard	44
Population Modeling Results	45
Population sizes in 20 years.....	46
Average Growth Rate (%) in 20 years.....	46
Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years.....	46
Population Modeling Results Buckhorn HMA	47
Population sizes in 20 years.....	47
Average Growth Rate (%) in 20 years.....	47
Buckhorn HMA Number of Horses Gathered, Removed, and Treated	47
Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years.....	47
Population sizes in 20 years.....	48
Average Growth Rate (%) in 20 years.....	48
Coppersmith HMA Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years	48
Population Modeling Summary - Carter Reservoir HMA	49
APPENDIX B, STANDARD OPERATING PROCEDURES	51
CAPTURE METHODS USED IN THE PERFORMANCE OF A GATHER	51
Appendix C. Fertility Control Treatment Operating Procedures (SOPs)	56
Appendix D- Scoping Comments Summary and BLM’s Response.....	57
Appendix E- Resource Monitoring Information.....	71
Map 2.....	80
Map 3.....	81

Introduction

This environmental assessment (EA) will analyze the impacts associated with Bureau of Land Management’s (BLM) proposal to maintain established Appropriate Management Levels (AML) by

removing excess wild horses from the Buckhorn Herd Management Area, Coppersmith Herd Management Area, and the Carter Reservoir Herd Management Area (HMAs). The EA will analyze a selective removal alternative and whether or not fertility control treatments should be applied to mares released back to the HMAs following the proposed gather. A no action alternative will also be analyzed. Refer to Map 1 (HMA General Reference Map, page 6).

Background Information

Buckhorn Herd Management Area

The Wild Horse Gather and Removal Plan Decision of November 1995, (environmental assessment #CA-370-94-08) established the Appropriate Management Level (AML) at 59-85 wild horses in the Buckhorn HMA and 50-75 wild horses in the Coppersmith HMA. The AMLs were established using monitoring and resource data collected on the HMAs from 1987 to 1995.

The east boundary of the Buckhorn HMA is Nevada Highway No. 447, at Duck Flat Valley (elevation of 4,700 feet), located in Washoe County, Nevada and extends west to the Cottonwood Mountains (elevation of 7,240 feet) in Lassen County California, as shown on attached map 2. The HMA contains approximately 76,550 acres of public lands and 9,388 acres of private lands. Some of this private land is fenced, but also includes unfenced and intermingled private land parcels varying in size from 40 acres to over 640 acres. The adjoining HMAs includes the Twin Peaks HMA, which is located to the south of the Buckhorn HMA. The Surprise/Eagle Lake Field Office division fence separates these two HMAs. The Buckhorn HMA is adjacent to the Coppersmith HMA. Tuledad Canyon and a pasture division fence within the Tuledad Allotment is the boundary between these two HMAs.

The Buckhorn HMA was last gathered in 2003, and a total of 147 horses were removed. The last aerial census for the Buckhorn Wild Horse Herd Management Area was conducted in July 2005, and a total of 239 wild horses were counted. The current population is estimated at 496 horses, based on a 20% annual recruitment rate since the 2005 census. The computer simulation Summary of Population Modeling of Wild Horses (Appendix A) predicts a current population of 564 horses.

Coppersmith Herd Management Area

The Coppersmith HMA is located in Lassen County, California and Washoe County, Nevada from Duck Lake, and NV highway 447, west to lower slopes of the Warner Mountains, as shown on attached map 2. The HMA consists of approximately 73,547 acres of public lands and 13,273 of other lands, which are mostly private. Elevations range from 4,700 feet on Duck Lake to 8,000 feet on the south end of the Warner Mountains.

The Coppersmith HMA was last gathered in July 2005, and a total of 194 horses were removed. The last aerial census for the Coppersmith HMA was conducted in July 2005, and a total of 65 wild horses were counted. The current estimated population is 136 horses based on a 20% annual recruitment rate since 2005. The computer simulation Summary of Population Modeling of Wild Horses (Appendix A) shows there could be 162 horses in the HMA. The AML for this HMA is 50 to 75 wild horses.

Carter Reservoir HMA

The Carter Reservoir Herd Management Area (HMA) is located about 6 miles east of Cedarville, CA, beginning at roughly the California/Nevada state line on the east side of Surprise Valley in Modoc

County and extending approximately 6 miles northeast into Washoe County, Nevada, as shown on attached map 3. The HMA consists of approximately 21,074 acres of public lands and 2,349 acres of fenced and unfenced private lands. The elevations vary from 4,500 feet in Surprise Valley to 6,300 feet on the Hays Mountain Range.

The Carter Reservoir Herd Management Area AML is 25-35 wild horses and was established by the Capture Plan and Environmental Assessment #CA-370-03-19, (June, 2003). The AML for the Carter Reservoir HMA was based on resource monitoring data collected on the HMA from 1990 through 2003. The key limiting factors for wild horses within this HMA include: 1) the use of privately owned riparian areas by wild horses, 2) a limited supply of available public water to support wild horses, and 3) areas of upland heavy utilization. Another consideration was the egress of wild horses to an adjacent allotment.

The Carter Reservoir HMA was last gathered in 2003, and a total of 198 horses were removed. The last aerial census of the Carter Reservoir HMA was conducted in September 2007, and a total of 104 horses (including foals) were counted in or adjacent to the HMA. The estimated population of 150 horses is based on a 20% annual recruitment rate since 2007. The computer simulation Summary of Population Modeling of Wild Horses (see Appendix A) shows there could be a current population of 166 horses.

General Reference Map

California BLM Wild Horse and Burro, Herd and Management Areas Surprise Field Office Resource Area, 2007



Location



Legend

- BLM Field Office
- California State Line
- BLM Herd Management Area
- Bureau of Land Management
- Forest Service
- National Park Service
- Bureau of Reclamation
- US Fish and Wildlife Service
- Military
- State Lands
- County / City / Regional
- Unclassified

Statistics

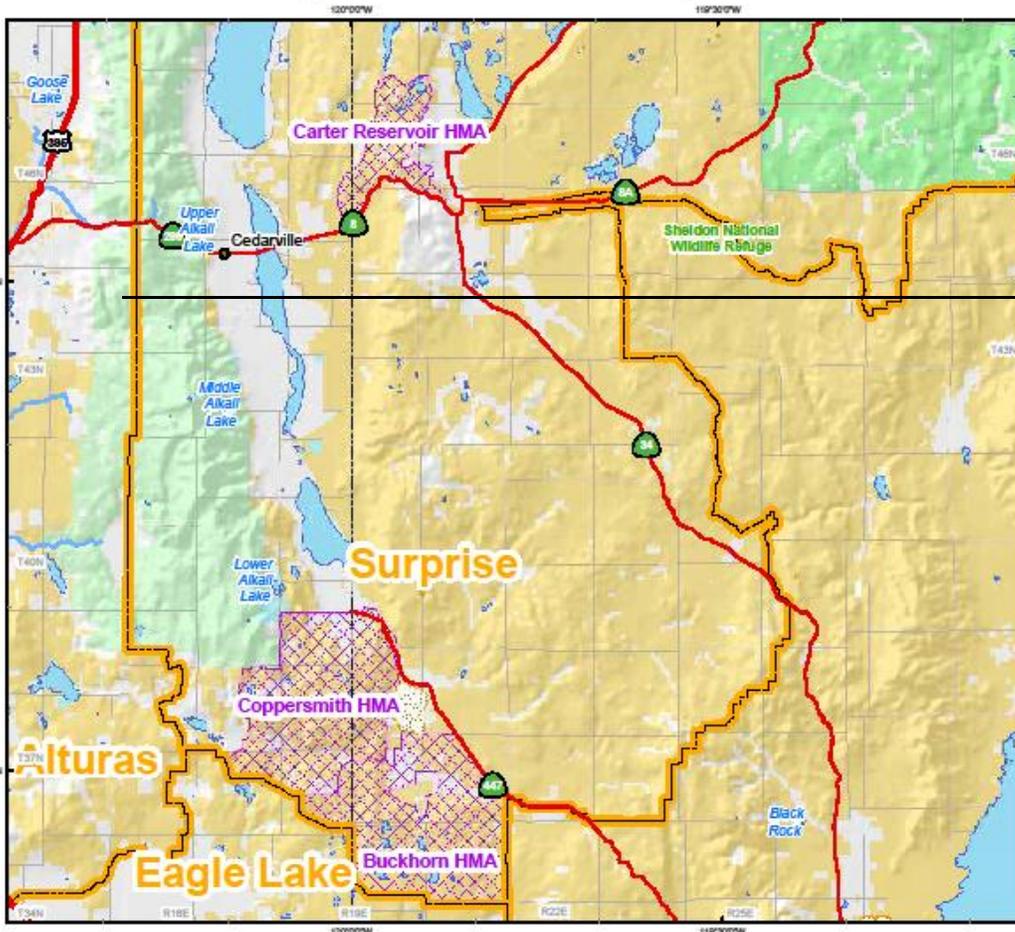
FO HA Acreage 942,285 Acres
 FO HA BLM Acreage 826,979 Acres
 FO HMA Acreage 533,979 Acres
 FO HMA BLM Acreage 486,978 Acres
 Calculations from CTA NAD 1983

Scales

1:568,354

Source

US Department of the Interior
BUREAU OF LAND MANAGEMENT
 California State Office
 Sacramento, California
 (916) 875-6444
 www.blm.gov
 Date Prepared: 11/16/2006
 Project: BLM_CA_surprise_200710.blm





Carter Reservoir HMA wild horses, August 2008 Buckhorn HMA wild horses, May 2008
Purpose and Need for Action

The purpose of the Proposed Action is to remove excess wild horses and to manage HMA population levels consistent with the AMLs. The Proposed Action is needed at this time to balance wild horse populations with wildlife, livestock, wilderness study areas values, cultural resources, soil and vegetation resources, and to protect the range from the deterioration associated with overpopulation of wild horses. The Proposed Action would be implemented as authorized under Section 3 (b) (2) of the 1971 Wild Free-Roaming Horses and Burros Act as amended and section 302 (b) of the Federal Land Policy and Management Act of 1976. Pertinent regulations that apply to the proposed action include 43 CFR 4720.1 which states that “Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.” Under the 1971 Wild Free-Roaming Horses and Burros Act, (WFRHBA), the authorized officer has the authority to determine whether appropriate management levels (AMLs) should be achieved by the removal of excess animals, and to select other options for population control method(s).

The BLM’s determination of excess wild horses is based on resource conditions and population monitoring in relation to use by wild horses, and other uses, including livestock in the Buckhorn and Coppersmith HMA. This data indicates current wild horse population levels are exceeding the individual HMA capacity to sustain wild horse use over the long term. Resource damage is occurring and is likely to continue to occur without timely action. Appendix E contains a summary of actual use, precipitation information for Buckhorn, and Coppersmith HMAs. Monitoring data includes a random sample of photos taken at riparian and water sources in the HMAs.

Applying fertility control measures as part of the Proposed Action would slow reproduction rates of mares returned to the HMAs following the gather, allowing vegetation resources time to recover. It would also decrease gather frequency and reduce any potential disturbance to individual animals or the herd. The need to gather wild horses from the Carter Reservoir HMA is based on water availability, and the egress of horses outside the HMA. A review of monitoring data and other information does not suggest that AMLs adjustments are needed at this time for the Buckhorn, Coppersmith, or the Carter Reservoir HMAs. Therefore this EA does not address the establishment of the AMLs for the HMAs. The actual number of wild horses removed from each HMA would be based on the current population. To ensure that the population is not less than low AML, a thorough helicopter census would be conducted following the gather to determine the number of wild horses within each HMA.

Conformance with Existing Land Use Plans

The Proposed Action is consistent with the objectives and decisions of the Surprise Field Office Resource Management Plan (RMP)/Record of Decision (ROD), April 2008 and established Herd Management Area Plan guidelines for the Buckhorn, Coppersmith, and Carter Reservoir HMAs.

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 as amended by the Section 302(b) of the Federal Land Policy and Management Act of 1976. This act provides for the management of wild horses at Appropriate Management Levels for the purpose of achieving a “thriving natural ecological balance” (TNEB) with other resources, while maintaining a healthy and viable population of wild horses.

The ROD for the Surprise Field Office RMP guides management for the Buckhorn, Coppersmith, and Carter Reservoir HMAs. The RMP states that “the Surprise Field Office (SFO) resource specialists have managed wild horses so as to maintain herd integrity in each of the eight herd management areas (HMAs) since the early 1980s. This has been done during periodic gather operations in which horses released back to the HMAs are selected for base-herd historical characteristics—including animal type, color, size and conformation. Wild horses in the SFO area are generally regarded as high-quality animals and animals removed during gathers are popular in the regular adoption program as a result of this practice.”

RMP Goals and Objectives pertinent to the Proposed Action

Goals

- Maintain and manage wild horse herds within established herd management areas, and at appropriate management levels, in order to support a thriving ecosystem in which healthy herds of wild horses can coexist with native plants and animals, as well as livestock, without degradation of the resource base or conflict with resource users.

Objectives

- Maintain and manage wild horse herds inside established HMAs; and in such a manner that significant, measurable progress is made toward achieving land health standards within the span of this RMP. Ecological balance will be achieved between wild horses and vegetation, wildlife, livestock and other resources.
- Maintain type, color, size, and confirmation of wild horses according to historical characteristics of animals resident in each of the eight Herd Management Areas.
- Manage wild horses in a manner which promotes economic development and tourism.

RMP Management Actions

1. Monitor and assess population size and habitat condition on an ongoing basis.
2. At least every three years, conduct an aerial census of wild horses in the SFO area.
3. Conduct regular gathers at three to four year intervals in order to maintain Appropriate Management Levels.
4. Animals found outside of HMAs will be removed as soon as practical.
5. During gathers, collect genetic data from each herd for the purpose of establishing baseline information.
6. Conduct fertility control research in some or all HMAs, as funding and other constraints permit.

Herd Management Area Plans

The Buckhorn, Coppersmith, and Carter Reservoir Herd Management Area Plans (HMAP) were signed in 1984, and these plans provide management parameters on such variables as wild horse conformation,

color of animal to be managed, and sex and age structure.

The HMAPs Objectives include:

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 inbreeding problems from occurring in the HMAs.

Rangeland Health Standards

The Surprise Field Office Resource Management Plan (RMP) and Record of Decision of April 2008 adopted the Northeastern California and Northwestern Nevada, Standards for Rangeland (Land) Health and Guidelines for Livestock Grazing Management of July 2000.

Land health assessment and determination was completed on the Tuledad allotment in 1999 (which includes the Buckhorn and Coppersmith HMAs) to determine conformance with Rangeland Health Standards. This assessment information, along with other monitoring information collected since 1990 indicates that riparian resources continue to be impacted by excessive utilization and trampling by livestock and wild horses. Many areas in the allotment lack the desired vegetation composition, and many are being impacted by juniper encroachment.

Land health assessment and determination was completed in 2004 for the Sand Creek Allotment. The Carter Reservoir pasture is approximately the same area as the Carter Reservoir HMA. For this allotment, Rangeland Health Standards not being met are riparian/wetland, biodiversity, and stream standard. Determination noted a slight upward trend towards meeting the standards.

The Proposed Action, and gather alternatives are consistent with making significant progress towards meeting Rangeland Health Standards.

Scoping and Issue Identification

Scoping letters were sent out on September 27, 2007 and May 15, 2009 notifying the interested publics of record, of the proposal to maintain established AMLs by the removal of excess wild horses. The May 15, 2009 added Coppersmith HMA to the proposal to maintain AML. Both letters also included the Massacre Lakes HMA AML determination, capture and removal plan, which is a separate BLM action and not addressed in this EA. The September 27, 2007 indicated that a preliminary EA would be issued. The May 15, 2009 did not address need for a preliminary EA. Comments were received from wild horse interests, livestock interests, permittees, State agencies, and other interested publics. A summary of comments, issues and BLM's responses to the comments are attached as Appendix D.

Several key issues summarized below were identified from public and internal scoping:

The need to maintain wild horse populations within AML ranges, and to preserve a thriving natural ecological balance.

Potential impacts to horse health (including stress or injury) as result of helicopter gathering.

How does BLM determine the difference between cattle, horse, and wildlife grazing use?

There are issues identified through Scoping that are not consistent with the EA purpose and need statement, and would not be in conformance with the Surprise RMP. The issues listed below were dropped from further consideration in this EA.

Re-assessing established Appropriate Management Levels.

Eliminating HMAs, or zeroing out populations in HMAs.

Alternatives, Including the Proposed Action

This chapter describes the Proposed Action and a reasonable range of alternatives based on the management goals, and objectives, BLM policy and issues identified through public and internal scoping.

Alternatives analyzed in detail:

Alternative 1: Proposed Action, Gather to low range AML with Fertility Control.

Alternative 2: Gather to low range AML without Fertility Control.

Alternative 3: Helicopter Gather with Selective Removal

Alternative 4: No Action

Actions Common to All Alternatives

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

Actions Common to Alternatives 1 through 3. (Gather Alternatives)

Wild horses would be gathered by using a helicopter to herd horses into capture sites constructed of portable panels. Wild horses may also be gathered by bait trapping at sites constructed with portable panels. The gather operation would be conducted either by BLM employees, contractor, or a combination of both. Multiple capture sites may be used depending on gather methods used, weather conditions, and access limitations. A veterinarian may also be on site, as needed to examine animals and make recommendations to BLM for care or treatment of wild horses.

Any euthanizing of wild horses in the field would be in conformance with BLM policy (WO IM 2009-041).

Gathering by helicopter is estimated to be completed in less than 7 days for each HMA, and is tentatively scheduled to start in late FY 2009 and/or FY 2010. The gathering schedule could be adjusted or postponed for a variety of reasons, including the condition of animals (herd health), and other environmental conditions, or for reasons outside the control of the Surprise Field Office. Several gathers may be necessary depending on the effectiveness of the gather techniques, and it may take up to five years to achieve AML.

Bait trapping would be secondary gather/removal method for the three HMAs. This method is most effective during the winter months when forage is in short supply because of snow cover, poor range conditions, and/or during periods of extreme cold. Bait trapping would not be expected to capture more

than 5% of the population, and therefore would not achieve the EA’s purpose and need within a reasonable time frame. Bait trapping would be used where appropriate, and for discussion purposes relating to the impacts to wild horses, bait trapping is expected to have the same impacts as helicopter gathering. Water trapping is not effective within the HMAs due to limited access for vehicle with trailers to potential trapping sites.

BLM would prepare gathered wild horses for adoption, sale, or long-term holding facilities. When at the BLM facilities wild horses are examined to determine sex, age, and color; acquire hair samples for genetic analysis; and assess herd health (pregnancy, parasite loading, physical condition, etc.). Physical condition class would be determined by using the Henneke rating system.

Under the gather alternatives, a representative number of wild horses from each HMA would be sampled for genetic analysis. This information helps BLM determine if actions are necessary to keep the populations viable and self-sustaining. Any animals introduced into the herd would come from an adjacent HMA, and meet the general characteristics (color, size, type, etc.) as the existing population. Genetic analysis would be conducted in accordance with Washington Office IM 2009-062.

Capture sites would be located outside of Buffalo Hills Wilderness Study Area (WSA) boundaries. Motorized vehicle use in the WSA would be in conformance with interim management policy. No landing of aircraft will occur within a WSA except in the case of an emergency.

All capture sites, vehicle staging areas, and temporary holding facilities will be inventoried for cultural resources prior to the gather, in compliance with Section 106 of the National Historic Preservation Act. Capture sites would also be inventoried for sensitive and special status species.

All gather alternatives would also be in conformance with the “Gather policy & Selective Removal Criteria - Washington Office Instruction Memorandum (WO IM) 2005-206. All gathering and handling activities would be conducted in accordance with the Standard Operating Procedures (SOPs) described in Appendix B.

Table 1 has the current AML, SFO population estimates, gather and removal estimates needed to achieve AML.

Table 1 – Buckhorn, Coppersmith and Carter Reservoir HMAs Population Estimates

HMA	Appropriate Management Range	Estimated July 2009 Population	Estimated Number to Remove	Estimated horses Following implementation of the proposed action
Buckhorn	59-85	496	437	59
Coppersmith	50-75	136	86	50
Carter Reservoir	25-35	150	125	25

Actions Common to Proposed Action (Alternative 1) and Alternative 2

Following gathering, the actual number of horses returned to an individual HMA would be based on the AML, and the estimated number, sex and age of horses not gathered. Horses released back to the herd would meet HMAP objectives for conformation and color.

The age classes returned to the HMAs may include horses under 5 years old, and a balanced representation of horses over 6 years old. This overall age structure would maintain genetic viability, and healthy sustainable populations. BLM would maintain records of the age, sex, and physical condition of horses returned to the HMAs. The sex ratio is expected to slightly favor studs, over mares. Horses returned to the HMA would be marked to help track future distribution patterns and movements. In accordance with BLM policy, most wild horses less than 5 years old would be prepared for BLM's adoption program. Horses not returned to the HMA, which are generally older and/or unadoptable horses would be prepared for long term holding facilities.

Alternative 1 (Proposed Action): Gather with Fertility Control, Gathering would be conducted using a Helicopter, and assisted with Feed Trapping.

The Proposed Action would include the treatment of all returned mares, 2 years and older with a revised immuno-contraceptive vaccine, Porcine Zona Pellucida (PZP). The actual number of mares returned and treated with immuno-contraceptive to the individual HMAs would be based on a post gather population estimate by census. Approximately 50% of returned horses would be mares and 50% would be studs. Research indicates that the vaccine would reduce reproduction rates in mares by about 95% the first year. Effectiveness of the 1 year PZP treatment drops substantially by the third year. All treated mares would be freeze marked on the left shoulder to identify animals for the data collection and research phase. Post gather monitoring could include helicopter flights to locate treated mares to determine efficacy. Longer term monitoring would determine when mares have returned to fertility. This could be assisted by field monitoring that is routinely conducted as part of other resource monitoring activities.

Treated mares would not enter the adoption program for a minimum of three years. Record tracking include all pertinent data relating to freeze-mark identification of each mare, including photographs, date of treatment, type of treatment (1yr, 22 month and Adjuvant used) Herd Management Area (HMA), etc. The records are maintained by the field office, holding facility and NPO. Fertility control treatment operating procedures (SOPs) are in Appendix C, and would be conducted in accordance with WO IM 2009-074.

Table 2 shows the estimated number of wild horses to remove in order to reach AML based on the Win Equus population modeling for Alternatives 1 and 2.

Table 2 – 2009 Wild Horses Age Structure from Win Equus Population Modeling

HMA	Appropriate Management Range	2009 Population Modeling Estimate	Estimated Number to Remove	Estimated horses Following gather
Buckhorn	59-85	564	505	59
Coppersmith	50-75	162	112	50
Carter Reservoir	25-35	166	141	25

Alternative 2 (Gather without the use of Immuno-contraceptives)

This alternative would be the same as the Proposed Action; except none of the captured and released mares would be treated with an immuno-contraceptive to inhibit reproduction. BLM would not attempt

to control future reproduction rates of horses by other fertility control methods.

Alternative 3 (Gather, Selective Removal)

Selective removal under this alternative is primarily age based, but also considers population variables such as sex ratios/historic characteristics/ genetic viability/etc. Selective removal criteria can be structured to reduce the effects of specific population issues, such as correction of unusual population variables (skewed sex ratio, unbalanced age structure). Selective removal would be implemented to maintain herd structure, composition, and for maintenance of long term herd self sustaining populations.

Wild horse management under this alternative is to remove horses based on a Selective Removal Strategy, using age selective removal criteria of 0-5 years old. The capture techniques and processing protocols would be the same as for the Proposed Action.

Table 3 shows an example of selective removal using previous gather data to determine current population levels and estimated removal of 0-5 age classes, which averages 65% of the herd. For the purposes of this analysis, achieving AML is the secondary objective.

Table 3 – 2009 Wild Horses Age Structure from Win Equus Population Modeling

HMA	Current Population Estimate	AML	No. Animals 5 years & younger to remove	Population goal after gather
Buckhorn	564	85	282	59
Coppersmith	162	75	79	50
Carter Reservoir	166	35	73	25

Alternative 4 (No Action)

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

Alternatives Considered But Eliminated From Further Analysis

Re-evaluate the Current Established AMLs. The current AMLs were established by approved methods, following established monitoring protocols, and analysis in coordination with interested publics and state agencies. BLM has not had an opportunity to fully implement current AML and monitor its effectiveness for all three HMAs. In the future BLM will continue to conduct monitoring. If this data suggests adjustments in the AML are needed (either upward or downward), then changes in AML would be based on in-depth monitoring analysis, including reviewing wild horse habitat suitability, such as water conditions in the HMAs. Re-evaluation of AML would be completed in compliance with NEPA.

Affected Environment

This section of the EA discusses the relevant components of the environment that could be affected or potentially affected by the “Gather” Alternatives or the No Action alternative. Direct impacts are those that result from the management actions while indirect impacts are those that exist once the management action has occurred. The Buckhorn and Coppersmith HMAs are generally grouped for purposes of this

environmental analysis due to proximity, similar landscape, and resource conditions.

Critical Environmental Elements

To comply with the National Environmental Policy Act, the following elements of the human environment are subject to requirements specified in statute, regulation or executive order and must be considered.

Table 4, Critical Elements and other resources affected by the proposed action & Alternatives

Critical Elements	Comments	Critical Elements	Comments
Air Quality	The proposed gather area is not within an area of non-attainment or areas where total suspended particulates exceed Nevada or California air quality standards. Areas of disturbance would be minimal and temporary.	Soils	Discussed under soils.
Areas of Critical Environmental Concern (ACEC)	Resource not present.	Waste, Hazardous or Solid	Not present or affected.
Cultural Resources	A number of known cultural resources exist within the HMAs that would be avoided during the gather. Trap sites and holding facilities would be located in areas where previous disturbance has occurred to prevent any effects to cultural resources.	Water Quality, Surface and Ground	Discussed under Watershed/Water Quality/ Water Sources.
Environmental Justice	The proposed action or alternatives would have no effect on minority or low-income populations.	Wetlands/Riparian Zones	Discussed under Wetlands/Riparian, vegetation, wildlife.
Farmlands, Prime or Unique	Resource not present	Wild and Scenic Rivers	Resource not present
Flood plains	Resource not present	Wilderness/WSA	Discussed under Wilderness/WSA.
Invasive, Non-native Species	Discussed under Invasive, Non-native Species.	Migratory Birds/Wildlife	Discussed under wildlife.
Native American Concerns	There are no known Native American concerns	Wild horses	Discussed under wild horses.
Livestock Management	Discussed under livestock management	Climate Change	Discussed under climate
Recreation	Resource not affected.	Vegetation	Discussed under vegetation.
		Threatened and Endangered (T&E) Species	Discussed under T&E candidate and special status species.

Description of the Affected Environment and Environmental Impacts

Wild Horses

The Buckhorn and Coppersmith Herd Management Areas AMLs were established by EA #CA-370-94-08, and Decision Record of November 1995. The Carter Reservoir Herd Management Area AML was established by Capture Plan and EA #CA-370-03-19, June, 2003. These documents are incorporated into this EA by reference and are available from the Surprise Field Office for public review upon request.

Affected Environment-Buckhorn and Coppersmith HMA

In 2003, 173 head were gathered in the Buckhorn HMA and 26 head were released back into the herd management area, resulting in a total estimated population of 62 horses during the winter of 2004. There were 16 mares treated with a Porcine Zona Pellucida (PZP-22) vaccine (i.e., fertility control agent) and branded for future identification. The last census in 2005 for the Buckhorn counted 239 horses. This percentage of increase exceeds normal recruitment rates and explanations for this increase are contributed to ingress of horses from the Twin Peaks HMA, and/or census error following the 2003 gather. Census information is based on direct counts from a helicopter. Research indicates this practice typically undercounts the actual number of wild horses and burros by 10-25% (U.S.G.S., 1991). The HMAs contains considerable acreages of dense juniper woodland which also makes horses difficult to see, and which also contributes to census error.

The Surprise Field Office first initiated the collection of genetic data from herds during gathering operations in 2003. On December 12th 2003 a total of 28 blood samples from the Buckhorn HMA were sent to Gus Cothran at the Department of Veterinary Science, University of Kentucky for analysis. The results indicated the herd was founded from horses of North American stock and showed signs of being related to the North American Gaited breed group. Genetic variation in the Buckhorn HMA is typical of that seen in wild horse populations. Recommendations received from the Cothran report were that no current action is needed but the herd should be tested again in about five years. In 2005 when the Coppersmith HMA was last gathered no genetic testing was completed.

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 gather Alternatives, the general condition and appearance of the wild horses, as well as genetic analysis data would be used to determine which actions, if any, are necessary to maintain genetic viability. There is some degree of herd mixing between the Buckhorn, Coppersmith HMAs and the Twin Peaks HMA. It is believed this herd ingress and egress is adequate to maintain long-term genetic diversity population of wild horses. Following the 2003 gathers, genetic analysis indicated there were an adequate genetic pool and no evidence of in-breeding (Cothran, 2004). This analysis also recommended additional testing is conducted following subsequent gathers.

The last gather of the Coppersmith HMA was conducted in 2005, and 194 horses were removed. The post-gather census was 65 horses within the HMA, and within management ranges, consequently no horses were released back into the herd. The current estimated population of 162 horses is based on an annual recruitment rate of 20% per year.

Affected Environment-Carter Reservoir HMA

The Carter Reservoir HMA was last gathered in 2003. A total of 213 head were gathered out of the Carter Reservoir HMA and 14 head were released back to the herd management area. Of those animals gathered, 9 head were removed from outside and north of the HMA in the Crooks Lake Allotment. Another 11 head in the Crooks Lake Allotment were not captured.

The current estimated wild horse population for the Carter Reservoir HMA is 150 wild horses based on a helicopter census conducted in September 2007, counting 104 wild horses and a predicted 20% annual increase since 2007. The 2007 census reported that 30 wild horses were within the Carter Reservoir HMA and 74 wild horses were outside the Carter Reservoir HMA in the Crooks Lake Allotment. Table 5 contains information on herd growth rates since 1997.

Table 5 Carter Reservoir Growth Rates- 1997 to 2007

Date source Census (C) or Gather (G)	Carter Reservoir HMA Growth Rates		
	Adult	Foal	Rate (%)
(C) 1997	35	6	17.1
(C) 2001	133	30	22.5
(G) 2003	195	48	24.6
(C) 2005	79	16	20.3
(C) 2007	87	17	19.5

Information from past gathers indicates that sex ratios for wild horses within the Carter Reservoir HMA were approximately 65% female and 35% male. Generally for other HMAs in the Surprise Field Office, ratios are approximately 50/50 ratio, which is typically the sex ratio at birth. The balance tends to favor studs throughout the younger age classes. This pattern shifts again towards mares above 10 years of age.

On September 24th 2003 a total of 40 blood samples from the Carter Reservoir HMA were sent to the Department of Veterinary Science, University of Kentucky for analysis. The results indicated the herd is likely derived from North American stock but does appear to have some Old Spanish heritage. Old Spanish associations are quite rare in North American breeds. Genetic variation in the Carter Reservoir HMA was just below the mean for wild horse populations. Recommendations received from the University of Kentucky were that no immediate action is needed but in the future it may be necessary to introduce animals from another herd area.

The Carter Reservoir HMA does not mix with other herds in the Surprise Resource Area. The genetic analysis from the previous gather indicates that there is an adequate genetic pool, and there was no evidence of inbreeding in the Carter Reservoir HMA. In the future, if there is a need to augment the genetic pool by the introduction of animals from other herds, BLM would augment the population with young mares that will likely enter the breeding population, as indicated Dr. Gus Cochran's genetic analysis report (Cochran, 2004). Future genetic analysis of gathered horses would be used to determine actions necessary to keep the populations viable and self-sustaining. Any animals introduced into the herd would meet the general characteristics (color, size, type, etc.) as from the existing population.

Environmental Consequences

The long-term impacts of implementing the Proposed Action include maintaining an AML designed to achieve a thriving, natural ecological balance which would be a benefit to the wild horses in the

Buckhorn, Coppersmith, and the Carter Reservoir HMAs. Under the population range derived from the AML, wild horses would be assured adequate forage and water during even the hottest and driest periods of the year. The Proposed Action is consistent with meeting Rangeland Health Standards.

Additional benefits of implementing a Gather Alternative includes collecting information on herd characteristics, determining herd health, herd genetics, and marking returned horses to assist in determining future herd movements, and for improved census accuracy. Past capture data includes age, sex, color, and conformation found within the herd. Post gather data will be used to determine the sex ratio (%) and age structure within the herd.

Direct impacts to wild horses under the Action Alternatives may occur to either individual animals or the population as a whole. These impacts include handling stress associated with the herding, capture, processing, and transportation of animals from temporary trap sites to temporary holding facilities (if used), and to an adoption preparation facility. 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 does occur, however it is infrequent and typically is no more than one half to one percent of the animals captured.

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

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

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

The Proposed Action, including the use of immuno-contraception, would limit the number of mares that would conceive and deliver foals. This would reduce the genetic variability entering the population for the two years after treatment, and after each subsequent treatment. Animals from adjacent HMAs may 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 colors characteristic of the herd.

Based on past genetic information and apparent herd mixing between the Buckhorn, Coppersmith HMAs and the Twin Peaks HMA to the south, it is not anticipated that there would be a need to augment the genetic pool by the introduction of animals from other herds. The Twin Peaks AML is approximately 750 wild horses. The Carter Reservoir HMA is being managed for certain genetic types, specific color, and conformation type consistent with historic characteristics of the herd. If in-breeding is evident, then BLM will take the necessary actions to address the problem. An exchange of 2 or 3 breeding mares within a 10 year period is sufficient to maintain genetic diversity in a given herd (BLM, 1999).

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 AMLs are 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 AMLs. Alternative 3, Selective Removal, would not achieve AMLs during the initial gather, and is not expected to achieve AML within the next five years.

Selective removal under Alternative 3 would be primarily aged based, removing only the younger, more adoptable animals. The other wild horses gathered would be returned to the HMA. Selective removal of most but not all younger horses, would lead to an atypical age structure in the short term for the herd. If future selective removals occurred, the age of the population would continue to be skewed toward the older age classes. This could be somewhat mitigated by the selection and release of younger animals during the initial and each subsequent gather.

This alternative would negate the likelihood of placing un-adoptable, generally older animals in long term holding facilities; however AML would not be achieved.

Wild horses have been shown to be capable of a 16 to 25% increase in numbers annually. This can result in a doubling of the population about every 3 -4 years. Wild horses have no effective natural predators, and compete very successfully with other ungulates for food, water, and space. Under the No Action Alternative wild horse populations would be self limiting by starvation, disease, and as affected by the lack of water and forage. Habitat limitations would be pronounced during drought and severe winters, these conditions could lead to large-scale die-offs. Wildlife and other users within the HMA, as well as rangeland health would also suffer these periodic cycles as a result of declining habitat conditions.

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. Wild horse population dynamics were predicted using the computer simulation model developed by Dr. Stephen Jenkins of the University of Nevada, Reno (Jenkins, 1996). For each alternative, populations were predicted for the next 20 years (see

Appendix A).

Watershed and Water Quality, Water Sources Availability

The U.S. Drought Monitor currently classified northwest Nevada as moderately to abnormally dry (<http://drought.unl.edu/dm>, July 28, 2009). The U.S. Seasonal Drought Outlook indicates drought in northern Nevada is expected to persist. During June 2009 this region had above average precipitation, which improved forage production on the higher elevations. However, several years of below average rainfall has resulted in decreased forage production overall, and decreased water flows at most spring sources, and with little runoff to fill some small stock reservoirs.

Affected Environment-Buckhorn HMA

The majority of the Buckhorn HMA occurs within the Duck Flat watershed, which includes several ephemeral lakes or depressions, including Duck Flat. There is a small area south of the Buckhorn HMA (Rowland Spring in the extreme south and the Buffalo Hills on the extreme southeast corner of the HMA) that includes the Smoke Creek Desert watershed. There is also a small area around SOB Lake and to the southwest that is in the Madeline Plains watershed.

Generally, water supply is not a limiting factor for wild horses in the Buckhorn HMA, except during drought years when ephemeral lakes, reservoirs and small springs will go dry. There are several perennial creeks scattered across this HMA that are used by wild horses. These water sources and associated riparian areas occur on both private and public lands. Based on the past Rangeland Health Assessment, water quality within the HMA is generally adequate for the benefit of livestock, wildlife, and wild horse water.

Affected Environment-Coppersmith HMA

The majority of the Coppersmith HMA occurs within the Duck Flat and Lower Alkali Lake watershed and drains north and east into Duck Flat. One small portion of the Coppersmith HMA (Boot Lake, on the extreme west side of the HMA) is in the Madeline Plains watershed and drains south into Dodge Reservoir.

Most springs throughout the HMAs show heavy past and current livestock and horse use. Many springs are developed for stock water. These developments generally occur on smaller springs, and many have exclosures built around a spring or headbox and the water is piped off site to a trough. There are several exclosures that have been built to protect larger riparian resources including Bud Brown (506 acres), Lower Ant Spring (14 acres), and Nova Spring (8 acres). Water quality within the HMA is generally adequate for the identified benefit of livestock, wildlife, and wild horse water.

In the HMAs, wild horses tend to prefer ephemeral lakes and reservoirs in the open areas, not within the juniper woodland thickets. Water supply is not ordinarily a limiting factor for wild horses in the HMA. However, on dry years, the lakes, reservoirs, and some of the seeps and springs go dry and wild horses tend to concentrate on a limited number of perennial watering sites, which are often on private lands.

Affected Environment-Carter Reservoir HMA

The majority of the Carter Reservoir HMA occurs within the Middle Alkali Lake watershed. Springs and seeps are located throughout the Carter Reservoir HMA, with the majority being under private ownership.

In addition, there are several wells and Carter Reservoir, a large, but intermittent lake on the north portion of the HMA. Numerous reservoirs are scattered throughout the area, however, these are considered reliable water sources only during the early spring period.

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

The Proposed Action would help ensure the wild horse population does not exceed the adequate water supplies to support animals during even the driest years, with minimal impacts to private lands. An inventory of water sources during the summer/fall of 2003 and 2008 showed that eight of the eleven public watering sources located on public lands in the upper pasture were dry or extremely low. In 2003, this resulted in wild horses utilizing private lands for their primary watering sources, leading to overuse of riparian vegetation and frequent complaints from private landowners. The private landowners have indicated that they will totally exclude wild horses from their private water sources unless their numbers are brought down to levels that would have limited impacts to their private lands and waters. The lack of waters would severely limit the number of animals that could occupy the HMA, or possibly necessitate complete removal. In the past, when animals were at AML, the private landowners did not take issue with wild horses utilizing their private lands or water sources.

Environmental Consequences

Implementation of actions to maintain AML will benefit riparian habitats. However, it is recognized that there may still be heavy use on some of the riparian areas. This will be due to wild horses continuing to congregate on preferred use areas. Under the Proposed Action and Alternative 2, and to a lesser degree Alternative 3, it is expected that trend on these riparian habitats would become upward as damage due to over-utilization and trampling is decreased.

The No Action Alternative would allow wild horse populations to continue to grow, resulting in increased use of private lands and waters by wild horses. At higher populations levels wild horses would utilize private water sources, increasing trampling damage to springs and utilization of riparian areas. It is likely that the private landowners would take action(s) to exclude the wild horses from their private waters and lands. On dry years, this would be a severe impact to wild horses as limited reliable public waters exist in the allotment, as noted above. With limited available sources of water, this may make partial emergency removals necessary or possibly complete removal of the wild horse populations if private land owners fenced their land and waters.

Indirect, long-term impacts are related to the wild horse population sizes and 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 three HMAs year-round, and they congregate around water sources and trail along drainages. They utilize primarily herbaceous vegetation, will trample and compact soils, especially when soils are wet. As wild horse numbers increase, utilization of vegetation and trampling/compaction of soils also 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, soil erosion increases and water quality and quantity are reduced.

Implementation of the Proposed Action would result in the slowest wild horse population growth rates, and the greatest period of time when wild horse numbers are at or below maximum AMLs. As a result, the Proposed Action would have the least negative impact on watershed health and water quality. Implementation of either Action Alternatives #'s 2 or 3 would have a slightly higher negative impact to watershed health and water quality than implementation of the Proposed Action. Implementation of Alternative #4, the No Action Alternative, would result in the most rapid increase in wild horse numbers. For example, the population modeling in Appendix A shows there is a 50% chance of having over 1,304 horses in the Carter Reservoir HMA, 1,329 horses in the Coppersmith HMA, and 4,396 horses in the Buckhorn HMA within 20 Years. As a result, Alternative #4 would have the greatest negative impact on watershed health and water quality.

Soils, Vegetation, and Riparian/Wetlands

Soil information for the HMAs is based on the Surprise Valley/Home Camp Soil Survey, CA #685/NV#617. This soil survey was updated in 2006 by the Natural Resources Conservation Service (NRCS) Reno State Office to meet current standards. This survey is available on the NRCS soil survey web site: <http://websoilsurvey.nrcs.usda.gov>.

Affected Environment Buckhorn and Coppersmith HMAs

The major landforms in the project area are mountains, mountain shoulders, summits and plateaus. Parent material is mainly volcanic ash and colluviums derived from volcanic rock. In general the soils vary in depth from shallow to deep and are well drained. The soils vary in texture from a very ashy sandy loam soil up on the Cottonwood Mountain, to an extremely cobbly ashy loam soil on the Coppersmith Hills. The following is a summary of the most common soil mapping units, and ecological sites; they are grouped by dominant vegetative type.

Big Sagebrush Vegetative Type

Typical vegetation of these ecological sites consists of bluebunch wheatgrass, Cusick's bluegrass, mountain big sagebrush, Idaho fescue, needlegrass, Basin wildrye, antelope bitterbrush, and perennial forbs.

Soil Mapping Units (SMU)

#338--Cavin-Nutzan-Snag association;
#418 - Harskel-Menbo association
#420 - Hart Camp-Menbo association
#533 - Redhome-Cowbell association
#477 Ninemile-Madeline-Crocán association

Ecological site number and name

R023XY061NV - Mountain Shoulders 14-18" P.Z;
R023XY066NV - Ashy Loam 14-16" P.Z;
R023XY019NV - Loamy 16+" P.Z.
R023XY016NV - South Slope 12-16" P.Z.

R023XY041NV - Loamy 12-14" P.Z.
R023XY015NV - Stony Loam 12-14" P.Z.
R023XY007NV - Loamy 14-16" P.Z.

Low Sagebrush Vegetative Type

Typical vegetation on these sites consists of bluebunch wheatgrass, low sagebrush, Thurber's needlegrass, bluegrass, and several perennial forbs.

Soil Mapping Unit #368 - Devada-Dosie-Softscrabble association
Soil Mapping Unit #476 - Ninemile-Karlo-Crocac association

Ecological site number: R023XY031NV - Claypan 10-14" P.Z.
Ecological site number: R023XY017NV - Claypan 14-16" P.Z.

Washoe Rubber Rabbitbrush Vegetative Type

Typical vegetation on this site consists of Sandberg's bluegrass, bottlebrush squirreltail, perennial forbs, low sagebrush, and Washoe rubber rabbitbrush.

Ecological site number: R023XY001NV - Churning Clay 10-14" P.Z.

Western Juniper Woodland

Typical vegetation consists of western juniper, with an understory of Idaho fescue, perennial grasses including Canby's bluegrass, Cusick's bluegrass, Thurber's needlegrass, western needlegrass, bluebunch wheatgrass, and low sagebrush.

Ecological site number: F023XY095NV – JUOC WSG: OR2003.

Mahogany Savanna

Typical vegetation consists of Curleaf mountain mahogany, Cusick's bluegrass, bluebunch wheatgrass, Idaho fescue, needlegrass, and mountain big sagebrush.

Ecological site number: R023XY026NV - Mahogany Savanna.

Soils Affected Environment -Carter Reservoir HMA

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

steeper 30-50% slopes.

Vegetation, Soils, and Riparian/Wetlands affected Environment

Affected Environment - The Buckhorn and Coppersmith HMAs

The lowest elevations (below 5,500') in the HMAs occur on the eastern and northern edges around Surprise Valley, Duck Lake Valley and Tuledad Canyon. Duck Lake is a dry lake bed on partly private lands, fenced, irrigated, and used for hay production. These areas are primarily deep loamy soils that support basin and Wyoming big sagebrush/Thurber's needlegrass dominated communities on the slopes, and alkali tolerant greasewood and saltgrass dominated communities on the lake flats. Wild horses often winter along the southern and eastern slopes of Duck Lake Valley when the higher elevations are snow covered.

The mid elevations (5,500' to 6,800') occupy the largest portion of the HMAs. These areas are loams and clay loams that support a complex mosaic of mountain big sagebrush/Idaho fescue/bluebunch wheatgrass/Thurber's needlegrass, low sagebrush/Sandberg's bluegrass, and western juniper dominated communities. There are small areas of heavy clay soils that grow rabbitbrush communities, ephemeral lakebeds with silver sagebrush and herbaceous dominated communities, rims with mountain mahogany, and a few small stands of quaking aspen. Wild horses spend the majority of the year at these elevations, from early spring to late fall, and they often winter on these sites during warm and open winters.

The highest elevations of the HMA (6,800'-8,000') are limited to the upper reaches of Cottonwood Mountain and the steep slopes on the east side of the Warner Mountains. The soils on these elevations support productive mountain big sagebrush and low sagebrush communities with strong mountain brush components, including bitterbrush, serviceberry, chokecherry, bittercherry, oceanspray, snowbrush, and mountain mahogany. Some timber (white fir and ponderosa pine) and larger aspen stands are also found at these elevations.

The majority of the drainages and springs in the HMAs support herbaceous plant communities including grasses, forbs, sedges, and rushes. Many of these systems also contain some woody riparian vegetation including willow, rose, aspen, and chokecherry.

Affected Environment - Carter Reservoir HMA

Vegetation types in this HMA can be classified generally into 4 main categories based on elevation and soils. They are: 1) the Desert Shrub Lowlands, 2) the Intermediate Range, 3) the Carter Reservoir Uplands, and 4) Stream/spring riparian habitats. These vegetation types are described below.

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

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

Carter Reservoir Uplands- This area has very diverse vegetation types. The flats and rolling hills are

comprised of low sagebrush with a Sandberg's bluegrass/forb under story. The drainages and slopes are comprised of western juniper and big sagebrush with a perennial grass under story. Perennial grass species include Idaho fescue, Thurber's needlegrass and Great Basin wildrye. Bitterbrush is found in conjunction with big sagebrush sites scattered throughout the area.

Stream/spring riparian habitats- A five mile reach of Sand Creek, a perennial stream which dissects the north end of the Intermediate range, is the western boundary of the HMA. Much of this creek has been fenced from cattle and wild horses to exclude grazing and allow improvement of the associated riparian habitat. There are two water gaps along Sand Creek that allow for wild horse and livestock watering. Private lands within the HMA tend to have water associated with them. These riparian habitats vary from dry to wet meadows. Dry meadows are dominated by Great Basin wildrye, wire grass, dry land sedges, and invading sagebrush and rabbitbrush. Examples of these sites include Carter Reservoir and American Flat areas. The remaining wet meadow sites are primarily dominated by sod forming grasses and a wide variety of perennial forbs. Wild horses from the Carter Reservoir HMA sometimes winter outside of and to the north of the HMA on the rabbitbrush and Wyoming sagebrush flats on the eastside of Surprise Valley.

Vegetation, Riparian/Wetlands Environmental Consequences

While there are juniper woodlands in the HMAs, there are also large areas of invasive juniper with little or no understory vegetation. Replacement of native vegetation by invasive junipers has detrimentally affected habitat quality in previously suitable areas. Juniper establishment has also caused decreases in shrub, perennial grass cover and forb composition that in turn has reduced habitat diversity and condition in some areas.

Soils in the Project Area are becoming increasingly vulnerable to surface erosion as understory vegetation beneath the canopies of western juniper stands is replaced by bare ground (Bates et al. 1998; Miller et al. 1994). Unvegetated soil surfaces are especially at risk of erosion during high intensity convective storms, or during periods when soil is frozen. BLM assessed the Tuledad allotment in 1999 to determine if the rangeland health standards were being met. The allotment was found to be meeting the Rangeland Health Standard for soils. Therefore, it is anticipated that the gather alternatives would not negatively affect soil conditions if AML are maintained.

Implementation of the Proposed Action would result in the slowest wild horse population growth rates, and the greatest period of time when wild horse numbers are at or below maximum AMLs. As a result, the Proposed Action would have the least negative impact on soils and vegetation, including riparian and wetland sites. Implementation of Alternative #2 would have a slightly higher negative impact on soils and vegetation, including riparian and wetland sites. Implementation of Alternative #3 would have a moderate to high growth rate, and the population is expected to remain over AML.

Direct, short-term impacts to vegetation and soils with implementation of the Action Alternatives (#1, #2, and #3) would include disturbance of native vegetation and soils immediately in and around temporary trap sites, holding, and processing facilities. These impacts would be a result of vehicle traffic, and the hoof action of penned horses, and can be localized to the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than ¼ acre) in size, outside of riparian and wetland zones, and away from populations of any sensitive plant species. Some capture sites are re-used during recurring wild horse gather operations, any impacts would remain site specific and isolated in nature. In addition, capture sites require access by transportation vehicles and logistical

support equipment; therefore would generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. The gather sites are watered down to control dust, and based on past experience most sites are re-vegetated in several years.

Implementation of Alternative #4, the No Action Alternative, would result in the most rapid increase in wild horse numbers, and populations may be at high levels until there was a large event, such as a die-off. This Alternative would have the greatest negative impact on soils and vegetation, including riparian and wetland sites. Under the No Action (Alternative #4) there would be no impacts to capture sites or transportation activities on soils or vegetation.

Endangered, Threatened, Proposed, or Candidate Plant Species

Affected Environment

There are no known populations of federally listed Endangered, Threatened, Proposed, or Candidate plant species in the HMAs. However, one federally listed sensitive species called Schoolcraft's cryptantha (*Cryptantha schoolcraftii*) occurs in the Coppersmith HMA on very dry, nearly barren soils in Tuledad Canyon and south of Duck Lake.

Environmental Consequences

There is no information that suggests grazing is impacting this species. The most common Schoolcraft's cryptantha site is fenced and excluded from grazing. Prior to setting up gather facilities, capture sites will be inventoried for sensitive species.

Noxious Weeds and Invasive Non-Native Species

Affected Environment

Noxious weed surveys, including invasive and non-native species, are ongoing in the HMAs. Several small populations of noxious weeds within the HMAs, including Scotch thistle, Russian knapweed, and yellow starthistle are being actively treated. With a few exceptions, these populations are associated with heavily disturbed areas, such as along roads, and around watering sites. All known populations are being actively treated. The presence of several heavily traveled routes (Nevada Highway 447, the Buckhorn Road, and the Tuledad Canyon Road.), both within and adjacent to the three HMAs, increase the risk of noxious weeds becoming established in the area. Vehicles and heavy equipment traveling on these routes and crossing the associated drainages along these routes increase the likelihood that several weeds found in region, including Dyer's woad, Russian knapweed, yellow starthistle, perennial pepperweed, Mediterranean sage, bull thistle, and Canada thistle, could become established in the HMAs.

In addition to noxious weeds, there are growing populations of invasive non-native species, including hoary cress along jeep trails, ephemeral drainages, and in campsites. Medusahead occurs on heavy, shrink/swell clay soils at several locations in the HMAs. BLM has a research and treatment site, adjacent to the Coppersmith HMA, where Medusahead is being actively treated. Cheatgrass is widespread, but tends to occur in burned areas and in vegetation communities with weakened perennial grass understory.

Environmental Consequences

Direct, short-term impacts associated with the potential to import or transport non-native species (noxious weeds) and/or spread existing noxious weed seeds and plant parts to new areas within the three HMAs.

These impacts would potentially occur if vehicles are carrying noxious weed seeds and plant parts when they arrive on site, or if they drive through existing infestations and spread seed into previously weed free areas.

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. Wild horses utilize primarily herbaceous vegetation and impacts would generally be associated with trampling and compaction of soils, especially during wet periods. There is a corresponding increase in utilization of vegetation and increase of soils impacts with population size. At congregation areas, plant vigor, production, and diversity are reduced and overall ecological site conditions are reduced. 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 would result in the slowest wild horse population growth rates, and the greatest period of time when wild horse numbers are at AML. As a result, the Proposed Action would less likely result in increased populations of noxious weeds and invasive non-native species. Implementation of either Gather Alternatives #'s 2 or 3 would have slightly higher negative impact on soils and vegetation, and a slightly higher risk of increased populations of noxious weeds and invasive non-native species, than implementation of the Proposed Action.

Implementation of the No Action Alternative would maintain wild horse populations above AML and result in the most rapid increase in wild horse numbers. The No Action Alternative would have the greatest negative impact on soils and vegetation, and would result in eventual increased populations of noxious weeds and invasive non-native species.

Wildlife Affected Environment

Threatened and Endangered Species

There are no known federally listed Endangered, Threatened, Proposed, or Candidate wildlife species using the areas in the HMAs. However, bald eagles (previously federally listed) have been observed near Newland Reservoir in the Coppersmith HMA. Based on a GIS analysis of soils only, a small amount of potential habitat for Carson wandering skipper (*Pseudocopaedes eunus obscures*) could exist at the north edge of the Buckhorn HMA and south end of the Coppersmith HMA. These potential habitats are just below and just above (respectively) the known elevational limit for this species and approximately 50 miles from the closest known populations in Lassen County, California. No potential habitat exists in the Carter Reservoir HMA. The USFWS provided discretionary conservation recommendations in the September 2007 Biological Opinion for the Proposed Resources Management Plan for the Surprise Field Office. The recommendation was to conduct surveys if potential habitat was located. Potential areas within the field office have been surveyed for saltgrass communities and Carson wandering skipper (CWS). While saltgrass has been found in some areas, many had few to no nectar sources. No CWS were found during surveys of the Field Office in 2008 and 2009. Potential habitat for CWS within the Coppersmith and Buckhorn HMAs was surveyed in July of 2009. No saltgrass was found in the Coppersmith HMA, some occurred in the Buckhorn HMA and no CWS were found. Current information indicates that Carson wandering skipper do not occur on the Surprise Field Office; therefore this species will not be discussed further. No other federally listed species are known or suspected to occur in the project area.

Buckhorn and Coppersmith HMAs

The wide range of elevation and habitat types in the HMAs results in a wide variety of wildlife habitat types. The mosaics of low sagebrush and big sagebrush communities provide spring, summer, and fall habitat for pronghorn antelope, mule deer, and Greater sage-grouse. The Nevada Department of Wildlife's (NDOW) population estimate in 2007 was: 500 mule deer in unit 015 and 4,000 pronghorn between units 011-015. Most of the Carter Reservoir HMA is included in unit 011. NDOW's 2007 wildlife report shows fluctuations for these populations over the last 31 years. In 2007, estimated populations throughout Nevada were above average for pronghorn antelope but below average for mule deer. No surveys are conducted for elk or bighorn sheep since neither species is generally found in these HMAs. There are no plans at this time to introduce any new species of fish or wildlife into these HMAs.

In the Buckhorn and Coppersmith HMAs, big sagebrush, mountain brush, and aspen communities on Cottonwood Mountain, the Coppersmith Hills, and the Warner Mountains provide spring, summer, and fall habitat for mule deer and for neotropical bird species. The canyons support several species of raptors, as well as chukar and quail. The 2006 Field Office survey for pygmy rabbit did not find any sign of pygmy rabbit use in the Coppersmith HMA.

One pronghorn kidding ground is located in the center of the Buckhorn HMA. Quail and chukar are found in the two HMAs and at least two artificial game bird watering devices (guzzlers) are found in the lower elevations of the Buckhorn HMA. The 2006 Field Office survey for pygmy rabbit did not find any sign of pygmy rabbit use in the Buckhorn HMA. Various raptors including, red-tailed hawks, golden eagles and prairie falcons regularly hunt within the HMAs. There are no recorded nests within the two HMAs boundaries. The riparian systems are important for all species of wildlife, with the perennial, low elevation systems being particularly important due to their scarcity.

Several creeks occur in the Coppersmith HMA, Bare Creek, Silver Creek, and North Creek. The 2003 stream survey of these creeks identified brown and red-band trout and speckled dace in Bare Creek, red-band and brown trout in Silver Creek and red-band only in North Creek. North and Silver creeks feed into Bare Creek. The perennial water in Newland Reservoir and Boot Lake provide significant waterfowl habitat along with other ephemeral water sources like Pilgrim Reservoir. In addition, several of the perennial to intermittent streams, including Tuledad Creek, Express Canyon, Post Canyon, and Worland Canyon, support populations of warm-water fish (dace).

Greater sage-grouse, a BLM sensitive species which has been petitioned for federal listing throughout its range, uses the low sagebrush, riparian, and mountain big sagebrush communities year-round. According to NDOW data, up to 13 sage-grouse leks (strutting grounds) occurred in the Buckhorn HMA. Both aerial and ground surveys conducted by NDOW and this office over several years confirm that only one lek, the Garden Lake lek, is now active. No exact cause is known as to why these leks disappeared; however changes in habitat from fire and possibly juniper encroachment appear to be some of the causal factors. Like other arid regions, riparian systems are particularly important to wildlife in this area. Most of the scarce riparian areas within this HMA are made up of ephemeral drainages and some perennial springs. Sage-grouse harvest data from the late 1950's and early 1960's showed that the Buckhorn HMA and in particular riparian areas were and still are important to sage-grouse during the fall. The 2006 Field Office survey for pygmy rabbit did not find any sign of pygmy rabbit use in the Buckhorn HMA.

Data from NDOW and the California Department of Fish and Game (CDFG), indicate that four historic sage-grouse leks still occur in the Coppersmith HMA, although two leks have changed position about ½ mile. One lek, the Wire Lakes lek has very few birds in attendance. Ground observations indicate that

scattered use occurs on the lek site with sage-grouse found on adjacent meadow systems in the summer. It is believed that recent juniper encroachment may be one of the causal factors for the small numbers of birds on this lek.

Carter Reservoir HMA

In the Carter Reservoir HMA wildlife values vary; mule deer and pronghorn antelope utilize the lowland area in winter and early spring. An identified antelope kidding ground occurs on the western edge of the area, in the lower pasture. Pronghorn are known to winter in this area and data from NDOW indicates that bighorn sheep occur along the eastern half of the HMA.

In the Intermediate range area, there is year-long use by both mule deer and antelope, but the major use period is during the winter and early spring. Chukar, quail, dove, golden eagles and prairie falcons are common in the area. Bighorn sheep populations in unit 011 will likely be lower for some time due to a die-off in unit 013. Until 2007, bighorn sheep populations were slowly growing in units 011 and 013. An augmentation of bighorn sheep may occur in the near future to off-set bighorn sheep deaths in unit 013 to the south. There are no plans at this time to introduce any new species of fish or wildlife into this HMA.

This area also contains a two mile stretch of Sand Creek that is important to game and non-game species. According to the 2003 stream survey of Sand Creek (surveyed downstream of the HMA) only speckled dace occur in Sand Creek. Golden eagles and prairie falcons hunt throughout the HMA and one golden eagle nest was known to be active in 2002 at the very edge of the HMA. Other active nests were found in 2002 adjacent to this HMA.

No active or historic sage-grouse leks are known to occur within the Carter HMA; however sage-grouse are known to use the HMA based on sign found along its southern edge and brood and harvest data collected by NDOW from 1956 to 1991. One active pygmy rabbit burrow was found along the southern edge of the HMA. This burrow represents the farthest extent west of either active or inactive burrows found in the Surprise Field Office.

Environmental Consequences

Direct, short-term impacts to wildlife with implementation of the Gather Alternatives would consist primarily of disturbance and displacement to wildlife 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. Some mammals, reptiles, and birds may be temporarily displaced by the construction and use of temporary gather sites and holding facilities. These impacts would be minimal, temporary, and of short duration. A slight possibility exists that non-mobile or site-specific animals would be trapped by feed trapping for wild horses. No direct impacts are expected to sage-grouse or other upland birds in the Coppersmith and Carter Reservoir HMAs since the Gather Alternative trapping would occur outside of the nesting season. No impacts would be expected to pronghorn kidding as well.

Since there are likely a few possible pygmy rabbit burrows in the Carter Reservoir HMA, they may benefit slightly from the Proposed Action by lessened soil compaction and increased hiding cover. Raptors may benefit from increased feeding opportunities as populations and songbirds and some rodents increased, particularly near water sources.

Wild horses compete directly and indirectly with wildlife for available cover, space, forage, and water. As wild horse numbers increase, utilization of cover, space, forage, and water increases. 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 used continuously, heavily, and annually, and soils are trampled and compacted, 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 at nesting sites, and by reducing the diversity and quantity of forbs available on uplands in the early spring and on riparian areas season-long. Setting horse populations back to AMLs would provide reduced competition for water and forage especially for big game species like bighorn, mule deer, and pronghorn antelope. Sage-grouse brood rearing habitat, mule deer fawning and pronghorn kidding habitat would be expected to improve due to increases in cover. Ground nesting birds like sage-grouse and dove would be expected to benefit first; then large ungulates as hiding cover and forage increased.

Cultural Resources

Affected Environment

The Buckhorn HMA contains 47,293 acres of the Tuledad/Duck Flat Cultural Resource Management Area (CRMA). In the Buckhorn HMA approximately 16,000 acres have been inventoried for cultural resources. The inventories have resulted in the discovery of 193 cultural resource sites. The majority of these sites are prehistoric and associated with hunting, resource processing and gathering, temporary camps, extended habitation sites, and Petroglyphs. Historic sites represented are associated with homesteading, historic trails, and ranching.

The Coppersmith HMA contains 13,130 acres of the Tuledad/Duck Flat CRMA. Approximately 5,619 acres have been inventoried for cultural resources in the HMA, which resulted in the recordation of over 50 cultural resource sites. These range from prehistoric temporary and permanent loci to historic ranching, homesteading and trail sites.

Within the Carter Reservoir HMA there are 1,105 acres designated as the North Hays Range CRMA. The Carter Reservoir HMA has had approximately 1,200 acres inventoried for cultural resource. There were 14 prehistoric sites that were recorded as a result of this inventory. The sites are associated with pre-contact hunting and resource processing.

Environmental Consequences

Direct impacts to cultural resources are not anticipated to occur due to implementation of any of the Action Alternatives because gather sites and temporary holding facilities would be inventoried for cultural resources prior to construction. The Surprise Field Office archeologist would review all proposed and previously used gather sites and temporary holding facility locations to determine if these have had a cultural resources inventory and/or if a new inventory is required. If cultural resources are encountered at proposed gather sites or temporary holding facilities, these locations would not be utilized.

Direct impacts to cultural resources occur from trampling, and bedding in areas where there are concentrations of animals. Indirect impacts occur from loss of vegetation through overgrazing, which increases soil erosion. Adverse impacts to cultural resource sites from overgrazing and trampling include modification and displacement of artifacts and features as well as erosion of organic middens containing valuable information. Areas in the vicinity of permanent and intermittent water sources (i.e., riparian areas) have the highest potential for cultural resource sites. Since wild horses concentrate in these areas year round, these areas are most 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. Impacts are anticipated to increase with each successive Alternative, and with the No Action Alternative likely to have the most negative impacts.

Livestock Management

Affected Environment

The Buckhorn and the Coppersmith HMAs are located within the Tuledad livestock grazing allotment. This allotment is divided into North and South pastures, which are further divided by separate use areas. The Buckhorn HMA occurs in the South Pasture, and the Coppersmith HMA occurs in the North Pasture. There are seven grazing permittees who are authorized up to 9,591 Animal Unit Months (AUMs) annually during a six-month season of use (April 1 to September 30). Cattle and sheep are rotated through nine use areas and distributed to stay within the carrying capacity of each of the two pastures.

The Carter Reservoir HMA is located within the Sand Creek livestock grazing allotment. Wild horse and cattle grazing overlap in the Carter Reservoir pasture during the grazing period of July 15 to September 30. The allotment has eight grazing permittees authorized to utilize up to 3,647 active AUMs annually during a five & one half month season of use (April 15 to September 30). The livestock are grazed in accordance with the Sand Creek Allotment Management Plan (AMP), as amended. The desert Shrub Lowlands and intermediate are normally used by cattle from April 15 to May 30.

Environmental Consequences

Indirect, long-term impacts are related to the wild horse population sizes and growth rates associated with each of the Alternatives. Wild horses compete directly with livestock and wildlife for available forage and water. As wild horse numbers increase, utilization of forage and water increases. 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 used continuously, heavily, and annually, and soils are trampled and compacted, plant vigor, production, and diversity are reduced, and the potential carrying capacity for livestock production is reduced.

Implementation of the Proposed Action would result in the slowest wild horse population growth rates, and the greatest period of time when wild horse numbers are at or below maximum AMLs. As a result, the Proposed Action would have the least negative impact on livestock operations, and on the social and economic values associated with livestock grazing. Implementation of the No Action Alternative would result in the most rapid increase in wild horse numbers. As a result, the No Action Alternative would have the greatest negative impact on livestock operations, and on the social and economic values associated with livestock grazing. Implementation of either Action Alternative #2 or #3 would have a slightly higher negative impact on livestock operations, and on the social and economic values associated with livestock grazing, than implementation of the Proposed Action.

Wilderness and Wilderness Study Area (WSA)

Affected Environment

Approximately 8,011 acres of the Buffalo Hills Wilderness Study Area (WSA) occurs within the south end of the Buckhorn HMA. There are no WSAs in the Carter Reservoir HMA. In addition, the South

Warner Wilderness Area is northeast of the Coppersmith HMA. There are no wilderness areas, or other special designated areas in these three HMAs

Environmental Consequences

Direct, short-term impacts to the wilderness values within the Buffalo Hills WSA with implementation of the gather alternatives would consist of the sight and noise of the helicopter used to herd wild horses to gather sites located outside of wilderness study area. During the time frame of the proposed gather, 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 and relatively short term in nature.

Implementation of the Proposed Action would result in the slowest wild horse population growth rates, and the greatest period of time when wild horse numbers are at or below maximum AMLs. Consequently the proposed action would have the least negative impact on wilderness values in the Buffalo Hills HMA. The No Action Alternative would have the greatest negative impact on wilderness values in the Buffalo Hills HMA. Implementation of either Action Alternative #2 or #3 would have a slightly higher negative impact on wilderness values in the Buffalo Hills HMA, compared with Proposed Action.

Environmental Consequences

Direct, short-term impacts to recreation with implementation of the gather alternatives would consist primarily of disturbance of hunting activities by the low-flying helicopter. These impacts would be temporary, with short duration, and minimal. No direct impacts are associated with the No Action Alternative.

Climate Change

Rising greenhouse gas (GHG) levels are likely contributing to global climate change. In the project area, climate change is typically expected to result in warmer, drier conditions and potentially more extreme weather events. Natural processes such as volcanic eruptions contribute to the increasing levels of GHGs in the atmosphere. Human activities related to the proposed action, livestock grazing, also contribute GHGs in the form of methane.

The assessment of GHG emissions and climate change remains in its formative phase. The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of climate change on resources in the project area. In addition, while the proposed action may involve some future contribution of GHGs, these contributions would not have a noticeable or measurable effect, independently or cumulatively, on a phenomenon occurring at the global scale believed to be due to more than a century of human activities.

Reasonably Foreseeable Future Actions

Resource monitoring would continue, including, but not limited to: utilization information, rangeland health assessments, riparian functioning assessment, water availability, precipitation, and vegetative trend conditions.

BLM would continue to conduct ground and aerial census on the HMAs at approximately 3-5 year intervals. The survey techniques may change or be modified based on research.

BLM will continue to evaluate herd viable management alternatives for conserving or enhancing genetic diversity, consistent with LUP and HMAP goals and objectives.

In accordance with BLM regulations and policy, the Buckhorn, Coppersmith, and Carter Reservoir HMAs, impacts of excess wild horses would continue to be analyzed in the future. The Proposed Action is expected to have a future gather cycle of 5-6 years. Alternatives 2 and 3 are expected to have a future gather cycle of 3-4 years. Under Alternative 3 and the No Action Alternative AML would not be reached for each HMA in the foreseeable future.

The Proposed Action is based in part on the BLM's 2001 Wild Horse Strategy, which includes gathering all HMAs to reach AMLs within a ten-year period. The Strategy outlines a four-year gather cycle to manage wild horses Bureau-wide. This Strategy implements population management for each HMA where wild horses will continue to be managed in a range from 40% below AML, to AML (AML is the maximum number of wild horses for the HMA).

Any future proposed projects within an individual HMA would be analyzed in an appropriate environmental document following site specific planning. Future project planning would also include public involvement.

The authorized officer will select the population control method(s) to be implemented to achieve and maintain the established AML each HMA. This action prevents further deterioration of the range resulting from the current overpopulation of wild horses. The Proposed Action does not establish any precedence for future actions with significant effects and does not represent a decision in principle about future considerations. All future wild horse actions outside the term of this EA would be subject to the same environmental assessment standards as well as an independent decision making process.

Rangeland health assessments and determinations are expected to be completed in the future, as well as evaluations livestock and wild horses in areas affected by this EA. Cumulatively over the next 5-15 year period, continuing to manage wild horses within the established AML range would result in improved vegetation condition (i.e. forage availability and quantity), which in turn would positively impact vegetation and other habitat resources.

The BLM Surprise Field Office (SFO) has received two low impact Type II wind energy applications from two companies for testing and monitoring wind speed and consistency within the Coppersmith HMA. These two applications have proposed eight meteorological towers. One company also submitted a low impact Type II wind energy application for testing and monitoring wind speed and consistency within the Buckhorn HMA. This application could have a minimum of three meteorological towers.

The BLM SFO is proposing 4,616 acres of hazardous fuels reduction and habitat restoration treatments in the Tuledad Allotment which encompasses 138,618 acres of public lands in the south western portion of the Surprise Field Office. There are 9 proposed individual treatments varying in size from 28 acres to 1,036 acres. These projects would reduce hazardous fuels, treat western juniper in sage steppe plant communities which are decadent or declining in vigor as a result of competition and would develop fuel breaks to protect priority habitat areas. The Buckhorn and Coppersmith HMAs are within the Tuledad Allotment and 8 of the 9 proposed treatments are within the HMAs. The 28 acre treatment is to the north and outside of the Coppersmith HMA.

Grazing authorizations for the Sand Creek and Tulead Allotment are generally issued on a ten year basis. These grazing authorizations are periodically reviewed to ensure conformance with Rangeland Health Standards, LUP objectives and NEPA requirements.

Cumulative Impacts (Proposed Action & Alternatives)

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

Implementation of the Proposed Action and Alternative 2 is intended to maintain the wild horse population at AML in the Buckhorn, Coppersmith and Carter Reservoir HMAs. The achievement and maintenance of AML would result in an increase in vegetation density, vigor, reproduction, productivity, diversity, and forage availability.

Adverse impacts to vegetation with implementation of any Gather Alternatives would include disturbance of small areas of native vegetation and soils immediately in and around temporary capture sites, and slight increase vehicle traffic. Since most trap sites and holding facilities are re-used during recurring wild horse gather operations, any impacts would remain site specific and isolated in nature. In addition, most trap sites or holding facilities are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. These common practices would minimize any potential cumulative effects.

The removal of animals and 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. Wild horse program goals have expanded beyond establishing a “*thriving natural ecological balance*” (i.e. establishing AML for individual herds), to achieving/maintaining population size within the established AML as well as managing for healthy, self sustaining wild horse (or burro) populations. The destruction of healthy excess animals is prohibited, therefore; adoptions, sales¹ or placement of excess wild horses and burros in long term holding are the primary means for caring for the animals removed from the range. The focus of wild horse and burro management has also expanded to place emphasis on achieving rangeland health as measured through the standards and guidelines for rangeland health and healthy wild horse and burro populations developed by the Northeast California and Northwest Nevada Resource Advisory Council (RAC).

Under the No Action Alternative, the cumulative impacts will amplify as the population increases and remains above AML. The impacts would affect all of the resources that depend on stable soils and intact vegetative communities such as; wilderness, cultural resources, water quality, and the social and economic values associated with livestock grazing.

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 herds at AML, and

¹ Under authority provided by the Congress of the United States in December 2003, sales of excess animals to individuals who can provide the animals with a good home are limited to animals over age 10 or that have been offered unsuccessfully for adoption three times.

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.

Residual Impacts

Irreversible and Irretrievable 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 HMAs and on adjacent HMAs 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 any impacts to wilderness resources or values, and including impacts to wildlife species and recreation.

Mitigation Measures

Herd Management includes research or implementation of methods intended to control the reproduction rate of wild horses and the frequency of wild horse gathers. Currently an immuno-contraceptive vaccine has been proved as a safe, humane and relatively inexpensive tool that has reduced rate of population increases. Management strategies for implementing fertility control treatments are continuing for a varied group of HMAs in Nevada. The analysis of the use of this vaccine on wild horses in the Buckhorn, Coppersmith and Carter Reservoir HMAs is part of the Proposed Action. Appendix C contains SOPs for implementing fertility control.

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 mitigation measures have been incorporated into the alternatives.

Consultation and Coordination

California's Northern California District will hold an annual public hearing regarding the use of helicopters and motorized vehicles to capture wild horses and burros. This meeting will probably be held in either Susanville or Cedarville CA. During the public notification process, the public is given the opportunity to present new information and to voice any concerns regarding the use of helicopter to capture wild horses and burros. The meeting would be held prior to any helicopter gathering operations. , as indentified in the Decision Record for this EA.

Comments were received during the two 30 day Scoping periods of September/October 2007 and May/June 2009. A list of the individuals, groups and agencies notified of the proposed action during scoping is shown below. In response to public scoping, a total of 19 letters or e-mails were received. Many of these comments and questions contained overlapping issues/concerns which have been consolidated. Refer to Appendix D has a list of these comments/questions and describes how BLM used these comments in preparing this environmental assessment.

List of Preparers

Steve Surian	Supervisory Rangeland Management Specialist
Richard Knox	Rangeland Management Specialist
Jerry Bonham	Range Technician
Elias Flores	Wildlife Biologist/Riparian
Dino Borghi	GIS Specialist
Penni Borghi	Archaeologist
Leisyka Parrott	Environmental Coordinator/Wilderness

Persons, Groups, and Agencies Consulted

Modoc/Washoe ESP
Aaron Townsend, Chair, Ft. Bidwell Tribal Council
NW Great Basin Association
Rose Strickland, Sierra Club
Jeff Fontana, N.E. California Resource Advisory Council (RAC)
Jessie Harris, Nevada Cattlemen's Association, North Washoe Unit
Marjorie Sill, Sierra Club
Jim Gifford, USDA NRCS, Minden Service Center
Larry Johnson, Coalition for Nevada's Wildlife
Sean Curtis, Modoc Land Use Committee
Modoc Cattlemen's Association
Great Old Broads for Wilderness Org.
Mary Conelly, US Senator Harry Reid Office
Paul C. Clifford, Jr.
Dr. Michael J. Conner, Western Watersheds Project
John Davis
Pyramid Lake Paiute Tribal Council
Mike Harper, Washoe Co. Dept. of Comprehensive
Clint Garrett, Nevada Department of Wildlife
Glen Miller
Terry Williams
Cherie Rhoades, Chair, Cedarville Rancheria
California State Office
Bryan Lamont, Rocky Mountain Elk Foundation
Craig Downer
Dave Pulliam, NV Dept. of Wildlife
Susan Lynn, Nevada Water Network
Valley Horse Owners Association
Stephen Smith, BLM, Nevada State Office
Kody Menghini
Steve Tabor, Desert Survivors
Elnoma Reeves
Cathy Barcomb, Commission – Preservation Of Wild Horses
Dawn Lappin, Wild Horse Organized Assistance
Ed & Anita Wagner, Coalition for Nevada Wildlife
Roy Leach, Nevada Department of Wildlife

Nevada State Clearinghouse
Johanna Wald, Natural Resources Defense Council
Barbara Flores, Colorado WH&B Coalition
Leah Brasher
Debbie Sease, Sierra Club
Shaaron Netherton, Friends of Nevada Wilderness
Sheldon National Wildlife Refuge
Vicky Hoover, Sierra Club
Canvasback Gun Club
Judi Caron, Washoe Co. Advisory Board to Man.
Wilderness Watch
Nevada Bow Hunters Association
Northern Nevada Native Plant Society
Ralph Albright
Greg Aplet, The Wilderness Society
Sarah Barth, The Wilderness Society
Oregon Natural Desert Association
Tony Diebold, Nevada Trophy Hunts
Dennis Rechel, Walker river bowmen
The Masseys
Gale Dupree, NV Wildlife Federation
Central Office, California Wilderness Coalition
Bill Phillips
AZ Wilderness Coalition
Cindy MacDonald
Stu Brown, Double Horseshoe Ranch
Tim Lawson
Lavor Smith, 7Z Ranch
Michael Bunyard
Nina Heard

Tuledad, Sand Creek and Crooks Lake Allotments Grazing Permittees: Pacific Livestock Inc., Owen Schafer, Fee Ranch Inc., Estill Ranches LLC, Washoe Livestock & Water Co. LLC, Angela & Ryan Schliesser, Oral R. Choate, Ray Page, Kurt Stodtmeister, Scott Gooch, Katherine Zandstra, Dale & Myrtle Steward, Joe Stevenson, Brian Darst, and Vivian Kemble.

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Appendices

Appendix A - Population Modeling

Appendix B - Standard Operating Procedures (Gather Operation)

Appendix C – Standard Operating Procedures (Fertility Control Treatment)

Appendix D - Detailed Summary of Public Scoping

Appendix E – Resource Monitoring Information.

Map 1 HMA General reference - Surprise Field Office (page 6)

Map 2 Buckhorn and Coppersmith HMAs (attached)

Map 3 Carter Reservoir HMA (attached)

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 additional 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 cannot 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.

Results - Population Modeling of the HMAs

Note: The following summary contains core information from the WinEquus computer software program population modeling for Carter Reservoir HMA, and includes a summary for predicted population models results for the Buckhorn and Coppersmith HMAs. The entire population modeling document is incorporated into this EA by reference is available upon request from the Surprise Field Office.

Objectives of Population Modeling

To complete the population modeling for the HMAs, 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 2009 herd was developed from age structure data collected during the 2003 gather of the Carter Reservoir HMA. The age distribution of the horses that were returned to the HMA, coupled with assumptions (based on the 2003 age distribution) that were made about the animals that were not captured, result in the following estimate of the herd structure as of 2007, when a census found 104 head (87 adults, 17 foals), within and outside the HMA boundary.

Initial Age Structure 2007 – Carter Reservoir HMA

Age Class	Horses in the Carter Reservoir HMA, following the 2007 census		
	Females	Males	Total
Foals	7	10	17
1	5	6	11
2	8	5	13
3	5	4	9
4	2	5	7
5	2	2	4
6	4	4	8
7	2	3	5
8	2	4	6
9	0	0	0
10-14	12	8	20
15-19	3	0	3
20+	1	0	1
Total	53	51	104

A simulation, using the estimated 2007 population as the initial age structure was then run for the years 2007 to 2009 under the “no management” management option. The most typical trial obtained from this simulation was used to represent the 2009 age structure of the herd. This model was used to represent the current age structure of the Carter Reservoir HMA for all of the Alternatives.

Initial Age Structure 2009 – Carter Reservoir HMA

Age Class	Females	Males	Total
Foals	17	16	33
1	21	12	33
2	6	9	15
3	5	7	12
4	6	4	10
5	5	5	10
6	2	3	5
7	2	3	5
8	4	3	7
9	2	4	6
10-14	10	9	19
15-19	6	2	8
20+	2	1	3
Total	88	78	166

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	
Foals	.917	.917	--
1	.969	.969	--
2	.951	.951	.35
3	.951	.951	.40
4	.951	.951	.65
5	.951	.951	.75
6	.951	.951	.85
7	.951	.951	.90
8	.951	.951	.90
9	.951	.951	.90
10-14	.951	.951	.85
15-19	.951	.951	.70
20+	.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
Foal	100%	100%	7	100%	100%
1	100%	100%	8	100%	100%
2	100%	100%	9	100%	100%
3	100%	100%	10-14	100%	100%
4	100%	100%	15-19	100%	100%
5	100%	100%	20+	100%	100%
6	100%	100%			

Removal criteria utilized in the population model for Alternative #3

Removal Criteria - Standard

Age	Percentages for Removals		Age	Percentages for Removals	
	Females	Males		Females	Males
Foal	100%	100%	7	0%	0%
1	100%	100%	8	0%	0%
2	100%	100%	9	0%	0%
3	100%	100%	10-14	0%	0%
4	100%	100%	15-19	0%	0%
5	100%	100%	20+	0%	0%
6	0%	0%			

Population Modeling Criteria

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

- Starting Year: 2009
- Sex ratio at birth: 50% male, 50% female
- Foals are included in the AML
- Simulations were run for twenty years with 100 trials each
- Initial gather year: 2009
- Gather interval: minimum interval of three years
- Gathers to be triggered by the population reaching maximum AML (35 head for the Carter Reservoir HMA).
- Percent of the population that can be gathered: 90%
- Target population size following gathers is the minimum AML (25 for the Carter Reservoir 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 twenty years

Out of 100 trials in each simulation, the model tabulated minimum, average, and maximum population sizes. The model was run for twenty years to determine what the potential effects would be on population size for all Alternatives (#1 - #4). 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.

Population Modeling Results Carter Reservoir HMA

Population sizes in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	min	med	max	min	med	max	min	med	max	min	med	max
Lowest	6	26	166	12	36	166	21	48	166	147	543	1551
10%	18	36	169	19	39	170	25	58	168	170	855	2430
25%	20	37	173	22	40	174	27	65	172	175	1037	2982
Median	23	38	182	24	42	180	32	71	178	180	1304	4068
75%	25	39	192	26	43	188	37	80	186	188	1587	4931
90%	26	40	206	27	44	205	44	87	202	199	1766	5852
Highest	29	43	279	31	47	251	62	134	230	232	2151	7330
Gather years (20--)	09,13,18,23,26			09,12,15,18,21,24,27			09,12,15,18,21,24,27			NA		

Average

Growth Rate (%) in 20 years

Trial	Carter Reservoir HMA			
	Alt. #1	Alt. #2	Alt. #3	Alt. #4
Lowest	-3.2	6.1	6.7	11.6
10%	6.0	11.6	13.8	13.7
25%	8.0	13.8	15.8	14.9
Median	9.4	16.4	18.3	16.8
75%	10.7	18.1	20.9	17.7
90%	12.2	20.7	22.6	18.9
Highest	14.7	25	27.4	20.4

Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	G	R	T	G	R	T	G	R	T	G	R	T
Lowest	203	143	12	183	170	0	323	220	0	0	0	0
10%	248	163	26	206	190	0	440	283	0	0	0	0
25%	265	170	32	225	208	0	482	314	0	0	0	0
Median	282	182	39	241	224	0	536	348	0	0	0	0
75%	301	193	46	257	241	0	609	393	0	0	0	0
90%	326	208	51	272	254	0	652	418	0	0	0	0
Highest	380	278	62	318	297	0	1007	660	0	0	0	0

Population Modeling Results Buckhorn HMA

Population sizes in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	min	med	max	min	med	max	min	med	max	min	med	max
Lowest	21	81	568	45	99	568	58	124	567	501	1918	5959
10%	46	97	582	51	103	578	66	165	588	577	3200	9096
25%	52	99	594	56	105	591	70	184	598	587	3644	10840
Median	58	101	616	60	108	612	78	206	616	609	4396	14034
75%	62	104	636	62	111	638	96	226	660	637	5519	17093
90%	66	107	662	64	113	672	114	253	714	678	6645	22112
Highest	69	116	771	70	118	819	144	281	788	778	9215	36937
Gather years (20--)	09,12,16,20,24			09,12,15,18,21,24, 27			09,12,15,18,21,24, 27			NA		

Average Growth Rate (%) in 20 years

Trial	Buckhorn HMA			
	Alt. #1	Alt. #2	Alt. #3	Alt. #4
Lowest	4.6	8.1	12.2	12.4
10%	7.7	12.8	15.6	14.6
25%	9.1	14.6	18.3	15.4
Median	10.3	16.3	19.5	16.8
75%	11.7	18.4	22.0	17.9
90%	13.0	19.8	23.3	19.7
Highest	14.0	22.2	25.6	21.4

Buckhorn HMA Number of Horses Gathered, Removed, and Treated

Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	G	R	T	G	R	T	G	R	T	G	R	T
Lowest	667	554	46	643	624	0	995	743	0	0	0	0
10%	775	602	65	700	675	0	1359	954	0	0	0	0
25%	828	622	75	726	700	0	1520	1052	0	0	0	0
Median	852	642	88	755	730	0	1668	1142	0	0	0	0
75%	890	666	95	792	764	0	1835	1254	0	0	0	0
90%	930	693	106	830	802	0	2028	1409	0	0	0	0
Highest	1082	814	133	890	854	0	2267	1577	0	0	0	0

Population Modeling Results Coppersmith HMA

Population sizes in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	min	med	max	min	med	max	min	med	max	min	med	max
Lowest	31	63	163	33	67	162	30	67	162	146	593	1224
10%	36	65	166	43	71	166	46	77	165	164	774	2202
25%	44	67	170	48	73	169	51	79	170	169	1044	3112
Median	50	70	177	51	75	174	53	83	177	176	1329	3958
75%	53	72	186	54	77	181	56	86	186	188	1543	5035
90%	55	73	198	55	78	190	59	90	196	195	1948	6401
Highest	58	77	222	58	83	274	66	98	225	231	2713	9393
Gather years (20--)	09,14,17,21,24			09,12,16,19,22,25, 28			09,12,15,18,21,24, 27			N/A		

Average

Growth Rate (%) in 20 years

Trial	Coppersmith HMA			
	Alt. #1	Alt. #2	Alt. #3	Alt. #4
Lowest	6.0	9.2	11.1	10.5
10%	7.1	13.2	16.5	13.1
25%	8.4	14.6	18.2	15.3
Median	10.0	17.0	20.1	16.8
75%	11.4	18.4	22.3	18.1
90%	12.1	19.4	23.9	19.4
Highest	13.2	21.6	29.9	21.9

Coppersmith HMA Number of horses Gathered (G), Removed (R), and Treated (T) in 20 years

Trial	Alternative #1			Alternative #2			Alternative #3			Alternative #4		
	G	R	T	G	R	T	G	R	T	G	R	T
Lowest	279	158	42	211	203	0	357	264	0	0	0	0
10%	343	186	62	262	249	0	434	322	0	0	0	0
25%	361	203	71	286	273	0	477	346	0	0	0	0
Median	406	217	82	309	297	0	520	380	0	0	0	0
75%	432	235	91	332	320	0	572	412	0	0	0	0
90%	454	255	100	354	342	0	618	440	0	0	0	0
Highest	501	272	116	413	413	0	746	515	0	0	0	0

Population Modeling Summary - Carter Reservoir HMA

To summarize the results obtained by simulating the range of Alternatives for the Carter Reservoir 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 Carter Reservoir HMA population. The minimum population level for Alternative #1 was 6 horses in the HMA under the extreme lowest trial. Alternative #1 showed an 80% chance that the minimum population will range from 18 head to 26 head. The minimum population level for Alternative #2 was 12 horses in the HMA under the extreme lowest trial. Alternative #2 showed an 80% chance that the minimum population will range from 19 to 27 head. The minimum population level for Alternative #3 was 21 in the HMA under the extreme lowest trial. Alternative #3 showed an 80% chance that the minimum population will range from 25 to 44 head. Median growth rates are all within reasonable levels, and adverse impacts to the population are not likely. The No Action Alternative #4 could result in a crash. If no horses are removed from the HMA, the maximum population would have an 80% chance of ranging from 2,430 head to 5,852 head by 2029. Before 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) reflects the lowest overall growth rate. The growth rate for Alternative #1 showed an 80% chance of ranging from 6.0% to 12.2%, as compared to Alternative #2 which showed an 80% chance of ranging from 11.6% to 20.7%, and the No Action Alternative #4 which showed an 80% chance of ranging from 13.7% to 18.9%. The highest expected growth rate occurred under Alternative #3 which showed an 80% chance of ranging from 13.8% to 22.6%, because selectively removing only the youngest horses leaves behind a herd in which nearly all of the mares would be expected to foal the following year.

- 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 similar. Implementation of Alternative #3 would result in median population numbers that are above AML, with a 50% chance that the minimum population would ever get down to the established maximum AML within the 20 year period. Implementation of Alternative #4 would result in population sizes that would exceed the carrying capacity of the HMA well before the 20 year period used for this model..

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

Implementation of the No Action Alternative #4 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 thru #3), implementation of Alternative #1 would result in the fewest number of horses being removed from the HMA with an 80% chance of 163 to 208 head, vs. Alternative #2, with an 80% chance of 190 to 254 head. Alternative #3 would result in the greatest number of horses being removed from the HMA with an 80% chance of 283 to 418 head. In addition, Alternative #1 would require five gathers over the next 20 years to meet and maintain AML, vs. the seven gathers needed under Alternatives #2. The seven gathers needed in Alternative #3 would only have a 50% chance that the minimum population would ever get down to the established maximum AML. Implementation of Alternative #2 would result in the fewest number of horses being handled with an 80% chance of 206 to 272 horses vs. an 80% chance of 248 to 326 horses under Alternative #1. Alternative #3 would result in the greatest number of horses being handled with an 80% chance of 440 to 652 head.

APPENDIX B, STANDARD OPERATING PROCEDURES

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

Gathers are normally conducted for one of the following reasons:

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

CAPTURE METHODS USED IN THE PERFORMANCE OF A GATHER

1. Helicopter - Drive Trapping

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

- a. A minimum of two saddle horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be used as determined by the BLM. Under no circumstances shall animals be tied down for more than one hour.
- b. The contractor/BLM shall assure that bands remain together, and that foals shall not be left behind.
- c. A domestic saddle horse(s) may be used as a pilot (or "Judas") horse to lead the wild horses into the trap site. Individual ground hazers are often used to assist in the gather.

2. Helicopter - Roping

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

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

3. Bait Trapping

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

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

2. BLM- Non-Contract Operations

1. Gather operations will be conducted in conformance with the Wild Horse and Burro Aviation Management Handbook (March 2009).
2. Two-way radio communication between the helicopter and the ground crew will be maintained at all times during the operation

A. Safety and Communications

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

C. Trapping and Care

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:
 - a. All trap and holding facilities locations must be approved by the BLM prior to construction. The Contractor may also be required to change or move trap locations as determined by the BLM. All traps and holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the BLM who will consider terrain, physical barriers, weather, condition of the animals and others factors.
3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:
 - a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered with plywood (without holes) or like material.
 - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable restraining chute to restrain, age, or provide additional care for animals shall be placed in the runway in a manner as instructed by or in concurrence with the BLM.
 - d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses. Eight linear feet of this material shall be capable of being removed or let down to provide a viewing window.
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No fence modifications will be made without authorization from the COR/PI. The Contractor/BLM shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor/BLM shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, and estrays from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age or other similar practices. In these instances, a portable restraining chute will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires the animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the Contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the BLM.
7. The Contractor/BLM shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day.

8. It is the responsibility of the Contractor/BLM to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
9. The Contractor/BLM shall restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction shall be done by the most humane method available. Authority for humane destruction of wild horses (or burros) is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed in WO IM No.. 2009-041.

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

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

D. Motorized Equipment

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

the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the BLM.

5. Floors of tractor- trailers, stock trailers, and the loading chute shall be covered and maintained with wood shavings to prevent the animals from slipping.
6. Animals to be loaded and transported in any trailer shall be as directed by the BLM and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

11 sq. ft. per adult horse (1.4 linear ft. in an 8ft. wide trailer);
8 sq. ft. per adult burro (1.0 linear ft. in an 8ft. wide trailer);
6 sq. ft. per horse foal (.75 linear ft. in an 8ft. wide trailer);
4 sq. ft. per burro foal (.50 linear ft. in an 8ft wide trailer);

7. Prior to any gathering operations, the BLM will provide for a pre-capture evaluation of existing conditions in the gather areas. The evaluation will include animal condition, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine the level of activity likely to cause undue stress to the animals, and whether such stress would necessitate a veterinarian be present. If it is determined that capture efforts necessitate the services of a veterinarian, one would be obtained before capture would proceed. The Contractor will be apprised of all the conditions and will be given directions regarding the capture and handling of animals to ensure their health and welfare is protected.
8. If the BLM determines that dust conditions are such that animals could be endangered during transportation, the Contractor will be instructed to adjust speed.
9. Trap sites will be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites will be located on or near existing roads. Additional trap sites may be required, as determined by the BLM, to relieve stress caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.).

E. 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.

F. Public Participation

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

G. Responsibility and Lines of Communication

If a contractor is used for gathering operations, the BLMs assigned Contracting Officer's Representative, and/or Project Inspectors have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Surprise Field Office Manager will take an active role to ensure that appropriate lines of communication are established between the field, District Office, State Office, and National Program Office. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times. All publicity,

formal public contact and inquiries will be handled through the Surprise Field Manager, and the District Office. 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. Fertility Control Treatment Operating Procedures (SOPs)

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

1. PZP vaccine would be administered by trained BLM personnel.
2. 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 jab-stick 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.
3. 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 jab-stick for the second injection. With each injection, the liquid and pellets would be propelled into the left hindquarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.
4. 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.
5. 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.
6. 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 NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the district office.
7. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, and disposition of any unused PZP, the number of treated mares by HMA, district office, and state along with the freeze-mark applied by HMA.
8. The field and district 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.

Appendix D- Scoping Comments Summary and BLM's Response

Buckhorn, Copper Smith, and Carter Reservoir 2007 and 2009 Scoping Comments, and Questions, and BLM response, and how the comments were used in the EA. This Appendix contains two sections. This addresses Scoping comments received to the September 27, 2007 scoping letter. Section addresses the 2009 scoping letter. Note: not addressed in this Appendix is comments/questions specific to the Massacre Lakes HMA.

Comment No.	Name	Comment/Question	BLM Response
1	Cindy MacDonald	What is the total acreage of the Tuledad, Sand Creek, and Crooks Lake grazing allotment?	Tuledad - 160,400 acres Sand Creek – 62,030 acres Crooks Lake – 44,185 acres
2	Cindy MacDonald	What is the total acreage of the Tuledad, Sand Creek, and Crooks Lake grazing allotment that falls within the HMA boundaries?	Tuledad - 76,780 Crooks Lake – 0 acres Sand Creek – 23,423 ac.
3	Cindy MacDonald Gerald MacDonald (SolSoul)	What is the total Animal Unit Months authorized for the Tuledad, Sand Creek, and Crooks Lake grazing allotment?	Tuledad 9,502 AUMs Sand Creek- 3,647 AUM's Crooks Lake- 3,093 AUM's
4	Cindy MacDonald Gerald MacDonald (SolSoul)	What is the total number of livestock authorized annually in the Tuledad, Sand Creek, and Crooks Lake grazing allotment?	Tuledad - 4,000 Sheep Tuledad - 1,412 Cattle Sand Creek- 758 cattle Crooks Lake- 436 cattle
5	Cindy MacDonald	What is the authorized season of use?	Tuledad Sheep 3/26-6/30 9/20-10/15 Tuledad Cattle 4/1-9/30 Sand Creek-4/1 – 9/30 Crooks Lake-4/1-10/30
6	Cindy MacDonald	Who is the permittee (s) for the Tuledad, Sand Creek, and Crooks Lake grazing allotment and when was the permit last renewed?	Tuledad Washoe Livestock Water Co. LLC – 2007 Estill Ranches LLC – 2007; There are 5 other permits within the Tuledad Allotment with permit issue dates that vary from 1999 to 2006. These names are protected by the DOI's Privacy Act. Sand Creek Double Horseshoe Ranch - 1999 There are 7 other permits within the Sand Creek Allotment with permit issue dates that vary from 1999 to 2006. These names are protected by the DOI's Privacy Act. Crooks Lake There are 2 permits within the Crooks Lake Allotment with permit issue dates that vary from 2004 to 2007. These names are protected by the DOI's Privacy Act.
7	Cindy MacDonald	Are there any other grazing allotments that effect the Buckhorn or Carter Reservoir HMAs and if so, please provide the same specific information requested for the Tuledad, Sand Creek, and Crooks Lake grazing allotment?	The Buckhorn HMA is entirely located within the Tuledad Allotment. The Carter Reservoir HMA is entirely located within the Sand Creek Allotment. Also refer to the EA
8	Cindy MacDonald Gerald MacDonald	Are there any proposed Range Improvement Projects within the Buckhorn or Carter Reservoir HMAs including fencing proposals and water	There are none proposed at this date.

	(SolSoul)	developments?	
9	Cindy MacDonald Gerald MacDonald (SolSoul)	What is the amount of miles of fencing placed throughout the Buckhorn and Carter Reservoir HMAs?	There is approximately 126 miles of fence within the Buckhorn and Coppersmith HMAs. Most of this fence is along the HMA boundaries. But includes some private lands fences and enclosure fencing around riparian areas. There is approximately 31 miles of fence within the Carter Reservoir HMA. Most of this fence is along the HMA boundaries. But includes some private lands fences.
10	Cindy MacDonald	What is the Nevada Department of Wildlife's Unit Number (s) for wildlife management within the Buckhorn and Carter Reservoir HMAs?	Addressed in the EA wildlife section, page 30.
11	Cindy MacDonald Gerald MacDonald (SolSoul)	What are the 2007 estimated populations of these species of wildlife found within the Buckhorn and Carter Reservoir HMAs: mule deer, pronghorn antelope, elk, and big horn sheep?	BLM does not conduct wildlife population surveys; this type of information is available from state wildlife agencies. In 2007 NDOW's reported population estimate for the species questioned was: 500 mule deer in unit 015 and 4,000 pronghorn between units 011-015. BLM has no information on surveys conducted for elk or bighorn sheep. Carter Reservoir HMA According to the 2007 big game status report, in 2007, estimated populations for mule deer were 2,500 in units 011-013, 4,000 pronghorn antelope in units 011-015, and 110 bighorn sheep in units 011 and 013. No estimates were made for elk. Although elk could occur in this HMA they are not common in unit 011.
12	Cindy MacDonald Gerald MacDonald (SolSoul)	What are the authorized AUMs and population objectives for these big game species within Buckhorn and Carter Reservoir HMAs so as to examine the thriving ecological balance being managed?	The Surprise RMP does not authorize AUM's or establish population objectives for wildlife, but instead addresses wildlife habitat conditions with vegetative objectives, in the context of rangeland health standards. BLM also works cooperatively with the state game agencies, and other interested publics in establishing habitat objectives, (desired plant communities) based on rangeland health standards.
13	Cindy MacDonald	What are the histories and known populations of wildlife occurring within the Buckhorn and Carter Reservoir HMAs for mule deer, pronghorn antelope, elk, and big horn sheep?	BLM does not inventory wildlife populations, but relies on state wildlife agency reports for this type of information. For example, the NDOW's 2007 report show fluctuations for these populations over the last 31 years. The 2007 report estimated populations throughout Nevada were above average for pronghorn antelope but below average for mule deer. Bighorn sheep in unit 011 will likely be lower for some time due to a die-off in unit 013 to the south in 2007. Until 2007, bighorn sheep populations were slowly growing in units 011 and 013.
14	Cindy MacDonald Gerald MacDonald (SolSoul)	Are there any plans to introduce new species of fish or wildlife to the Buckhorn or Carter Reservoir HMAs?	BLM has no plans at this time to introduce any new species of fish or wildlife into these HMA. An augmentation of bighorn sheep will likely occur in the near future to off-set bighorn sheep deaths in unit 013 to the south. According to data from NDOW, the Carter Reservoir HMA has some

			bighorn use along its eastern portions.
15	Cindy MacDonald	Please provide a complete list of water sources within the Buckhorn and Carter Reservoir HMAs including riparian areas and whether they have been fenced, livestock water developments, big game water developments, current flow rates since these may be effected by current drought conditions and the latest water quality data to indicate if wild horse use is excessive within the HMA at current populations.	Buckhorn -Refer to the EA affected environment section, pages 26-28. A list of water sources on public lands includes: 16 Unnamed Springs/Reservoirs, 10 Unnamed Borrow Pits, and 2 Unnamed Wells. Named projects include: Borrow Pit #9, Borrow Pit #182, Borrow Pit #181, Borrow Pit #180, Burnt Lake South, Borrow Pit, Borrow Pit #8, Borrow Pit #7, Express Canyon, Steer Res. #2 (North), Greasewood Well, Cottonwood Fire Res. #1, #2, & #3, Cottonwood Res. #1 & #2, Sprangletop Res., Two Mile Pit, Head Pit, Rye Patch #1, #2 & #3, Stipa Res., White Horn Res., Timothy Res., Quarter Corner Res., Switch Res., Rana Res., Three Way Res., Peraphyllum Res., Mustango Res., Worland Res. #1, Four Lakes Res., Middle Lake Res., Cana Pit Res., Wasted Walk Res., Steer Res. #1 (South), Burnt Lake (North), Upper Pilgrim Res., SOB Res. #2, Populus Pit, SOB Pit #2, Cedar Canyon Well, Chimney Canyon Spring, Chalk Hill Spring, Sudan Res., Toadstool Res., Spike Res., Three Awn Res., 5 Hole Spring, Sergio Res., Garden Lake Res. (North), Garden Lake Res. (South), Kitchen Spring. North Lake is fenced. Carter Reservoir - Iris Spring, Upper American Flat Res, Lower American Flat Res, Carter Lake Pit, Three "C" Spring, Doubtful Res, Arm Pit, Iris Res, Cherokee Pit #1, Cherokee Pit #2, Peters Gulch Pit, Trick Pit, Stormy Pit.
16	Cindy MacDonald Gerald MacDonald (SolSoul)	Please provide current photos of all natural water sources within the Buckhorn and Carter Reservoir HMAs, not just a select few, photos of wild horses to indicate their current body condition, photos of livestock grazing within the authorized allotments and photos of vegetation utilizations throughout the Buckhorn and Carter Reservoir HMAs to clearly illustrate wild horse impacts to rangeland resources and how BLM determines wild horse use versus livestock and big game use in the areas.	The EA's Appendix E provides a random sample of riparian areas photos for each HMA. Also refer to the EA's riparian affected environment section on pages 26-28.
17	Cindy MacDonald Gerald MacDonald (SolSoul)	Please include the dates of all monitoring information offered within the EA that establish wild horse use on HMA resources. Since it has been four years since any rangeland data was released to the public for review, AMLs may need to be evaluated based on data collected since 2003 removals. Please avoid general descriptions such as "recent" and provide specific dates, reports, measurements, vegetation conditions, and water analysis.	Comment noted. Refer to EA's Appendix E.
18	Cindy	Please provide a complete copy of the	Surprise RMP is available on the Surprise Field

	MacDonald	current guided Resource Management Plan/Land Use Plan Section on Wild Horse and Burro management in the Buckhorn HMA.	Office web site.																																																							
19	Cindy MacDonald	Please provide a complete removal history of the Buckhorn and Carter Reservoir HMAs including years wild horses were removed including emergency roundups, number of wild horses and burros taken, gender ratios of those returned to the HMA, and estimated remaining wild horse populations after the removal operations were complete.	<p>Buckhorn</p> <table border="1"> <thead> <tr> <th>Date</th> <th>Horses Gathered</th> <th>Horses Remaining</th> <th>Horses Released</th> <th>Horses Removed</th> </tr> </thead> <tbody> <tr> <td>1983</td> <td></td> <td>15</td> <td>27M 8S</td> <td></td> </tr> <tr> <td>1986</td> <td>105</td> <td>3</td> <td>32M 15S</td> <td>58</td> </tr> <tr> <td>1989</td> <td>87</td> <td>23</td> <td>28M 9S</td> <td>52</td> </tr> <tr> <td>1995</td> <td>173</td> <td>15</td> <td>25M 24S</td> <td>124</td> </tr> <tr> <td>1997</td> <td>68</td> <td>57</td> <td>10M 12S</td> <td>48</td> </tr> <tr> <td>2003</td> <td>173</td> <td>36</td> <td>17M 9S</td> <td>147</td> </tr> </tbody> </table> <p>Carter Reservoir</p> <table border="1"> <thead> <tr> <th>Date</th> <th>Horses Gathered</th> <th>Horses Remaining</th> <th>Horses Released</th> <th>Horses Removed</th> </tr> </thead> <tbody> <tr> <td>1985</td> <td>32</td> <td>8</td> <td>9M 4S</td> <td>18</td> </tr> <tr> <td>1988</td> <td>35</td> <td>1</td> <td>9M 5S</td> <td>21</td> </tr> <tr> <td>2003</td> <td>213</td> <td>12</td> <td>6M 7S</td> <td>198</td> </tr> </tbody> </table>	Date	Horses Gathered	Horses Remaining	Horses Released	Horses Removed	1983		15	27M 8S		1986	105	3	32M 15S	58	1989	87	23	28M 9S	52	1995	173	15	25M 24S	124	1997	68	57	10M 12S	48	2003	173	36	17M 9S	147	Date	Horses Gathered	Horses Remaining	Horses Released	Horses Removed	1985	32	8	9M 4S	18	1988	35	1	9M 5S	21	2003	213	12	6M 7S	198
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20	Cindy MacDonald	Please provide information, statistics and data compiled regarding the experimental use of the fertility control drug PZP on wild populations, noted impacts, reproduction rates, unexpected results, birth defects, impacts to stallions regarding continuous estrus cycles causing repetitive mating behaviors and challenges to herd dynamics, noted differences in impacts to different age classes of mares, etc.	While PZP was used for the Buckhorn HMA in 2003 on 17 mares that were turned to the herd. The Surprise Field Office has no specific information related to the questions. PZP has not been used on the Coppersmith and Carter Reservoirs HMAs. On a national level, BLM is conducting research related to your questions. Also refer to the EA's wild horse affected environment section on pages 17-18.																																																							
21	Cindy MacDonald	Please provide specific limits on distance wild horses will be driven during capture operation if helicopters are use to conduct wild horse removals. Also include limits on climactic conditions such as extreme temperatures (such as wild horses will not be driving if temperatures exceed 100 degrees or fall below 40 F).	Refer to the EA's Appendix B- "Standard Operating Procedures", it is noted that the terrain, physical barriers, weather, condition of the animals, and other factors will be considered when setting limitations for the rate of movement and distance the animals will travel. If the distance from where the animals are to the trap site is too great considering the above factors, another trap site would be selected closer to the animals. Temperatures rarely exceed 90degrees during dates of scheduled gathers in this area.																																																							
22	Cindy MacDonald	If drought conditions are present during removal operations, please include how BLM plans to prevent the excessive dust stirred up by the helicopter driving and wild horse concentrations in capture pens that resulted in the respiratory condition and pneumonia related deaths of several wild horses at the Palomino Valley Holding Facility in Nevada last month.	Refer to the EA's Appendix -"Standard Operating Procedures", it is noted that when dust conditions occur within or adjacent to the trap or holding facility, the ground is watered to control dust.																																																							
23	Cindy MacDonald	Please provide detailed information on alternative trap sites for use in lure trap options for wild horse populations as there is a great deal of evidence that this form of capture is significantly more humane and less traumatic, both physically and mentally to wild horse and burro	Bait trapping is included in the EA's proposed action. Refer to the EA proposed action pages 10-13 and wild horse affected environmental section: pages 17-19.																																																							

		populations.	
24	Cindy MacDonald	If BLM believes this form of capture option is not feasible within the HMA, please provide specifics and a detailed description of why BLM believes they cannot utilize a more human capture and removal method for wild horse population.	Discussed in the EA proposed action pages 10-13; and wild horse affected environmental section pages 17-19.
25	Cindy MacDonald	If using the Jenkins Population Modeling Program to justify wild horse management actions, please include all parameters entered into the program as the software program allows a wide variety of input to conduct test runs – without reporting what input was used to run the tests, the information becomes useless for analysis. Also, please make sure that the current established wild populations are used within all trail runs versus random numbers of wild horses and reproduction rates.	All of the parameters that were used in running the Jenkins Population Modeling Program for the HMAs are included in the EA's Appendix A.
26	Cindy MacDonald	Please include a projected analysis of the proposed project including fees paid to hire contractors.	Current estimated contractor costs for the Buckhorn HMA would be \$247/head, not including other associated gather costs, such as trucking to a BLM facility, over-night feeding, etc. If BLM gathers in house the costs would be less.
27	Cindy MacDonald	The continued contracting of Cattoor Livestock Roundups Inc is vehemently opposed due to a long history of questionable adherence to Standard Operating Procedures, guilty pleas to inappropriate uses of aircraft to capture wild horses and blatant and documented disregard for humane handling procedures of wild horses and burros during capture operations.	Comment noted. The proposed action would conform to Standard Operating Procedures in the EAs Appendix B and C.
28	Cindy MacDonald	BLM National Herd Statistics report wild horses were removed in November 2003 with a post-gather population being reported of 61 wild horses. Between 2005 and 2006 BLM then reported a stunning leap in population estimates occurring in the Buckhorn HMA, jumping from 71 wild horses in 2005 to 239 wild horses.	Comment noted; Also refer to comment response # 29, and 34.
29	Cindy MacDonald	Please address how the Surprise Field Office reported such a low post-gather population after the 2003 removals and why BLM believes wild horse populations skyrocketed in the area between 2005 and 2006.	Reasons for the large population increase include: census error following the 2003 gather. Egress from the adjacent Twin Peaks HMA. Also refer to the EA affected environment pages 15-18. Please refer to BLM's response to comment 34.
30	Bill Phillips	It is good that these herds are to be brought down within the AML range before they grow any larger.	The EA proposed action would gather excess wild horses, which would reduce the horse population growth in the future; refer to the EA Appendix A for population modeling.
31	Bill Phillips	Make your best effort to leave the Base Herd with half males and half females.	A 50/50 ratio is a typically herd within this area. The ratio of horses selected to be returned will

		This would include an estimation of the sex of any horses not gathered.	have taken into consideration the estimated ratio of males to females of the horses that were not gathered.
32	Bill Phillips	An accurate count before gathering is not essential if you have a close estimation before gathering. The helicopter time used to count may be better used for gathering. The important thing is to have an accurate count of horses left in the Base Herd.	We concur; however it is important when conducting contractor gathers to have a good estimate of horse numbers, and locations prior to gather operations. This assists in determining number of horses remaining in the HMA following the gather. A post gather census would be conducted to determine horses remaining on the HMA after the gather.
33	Roy Leach	Our agency encourages the Field Office to prepare environmental assessments to re-evaluate the herd area carrying capacities and allocate forage. Appropriate management levels are over ten years old and obsolete.	Monitoring Data collected in the HMA since the Appropriate Management Level was established in 1995/2003 does not suggest that a change in AML is needed at this time.
34	Roy Leach	Census data of wild horses provide for herd recruitment and age structure, but census data requires population modeling to determine the actual herd numbers.	Comment noted. Currently populations are based on direct counts during a helicopter census. This generally undercounts the actual population, and results in census error up to 20%, and sometimes greater error occurs in juniper woodlands. BLM is currently reviewing several population models in an effort to improve census accuracy. Age structure is determined following the gather, and when horses are at BLM handling facilities. Also refer to the Jenkins Population Modeling program in the EA's Appendix A, which includes information on HMA age structure from past gathers.
35	Roy Leach	Wild horse herds require adequate adults and composition to sustain a genetic viable herd. We suggest that the best science be applied to assure viable herds.	Following the 2003 gathers of the Buckhorn/Carter Reservoir HMAs, a Genetic Analysis was conducted by the Department of Veterinary Science at the University of Kentucky. In summary, the report stated that genetic variation in the Buckhorn herd is typical of that seen in feral horse populations. Allelic diversity is fairly high but a large proportion of the variation is based upon variants at low frequency. Report recommendations were that no action currently needed, however this herd should be tested again in about 5 years because of the low frequency of 25% of the variants, which were at risk of loss.
36	Jim & Darice Massy	Your proposal appears to be on target for herd numbers. I feel that impacts in these areas mentioned will be minimal partially due to the fact that the herds have been gathered from these areas before, and are currently permitted for cattle grazing.	For your comment on herd numbers, please refer to comment response # 30, and EA's Appendix E.
37	Jim & Darice Massy	We support BLM in selecting those horses with the best traits to place back after they have been gathered. This keeps the herds viable and also more appealing to potential adopters.	The horses selected to be returned to the HMA will have the characteristics that have been historically present in the HMA, to maintain the integrity of the herd.
38	Jim & Darice	Maybe a concerted concentration of really	Please refer to BLM's response to comment

	Massy	getting the numbers down would be appropriate for this area.	number 30 above.
39	Ray Page	Buckhorn HMA is different because it involves a much larger area and horses might commingle with horses from Observation and Twin Peaks herds on the Susanville side of the fence.	Please refer to comment response # 28, and to the EA wild horse affected environment section on pages 17-18.
40	Ray Page	We support the BLM in keeping this herd within the parameters of the established AML.	Comment noted.
41	Ray Page	Leave as many of the horses near the Buckhorn road where they can be viewed by the public.	Comment noted, horses would be released on the Buckhorn road, near water.
42	Ray Page	The damage to the riparian areas near the road are somewhat less because they are not natural riparian areas.	Comment noted. EA's Appendix E contains a sample of riparian sites within the Buckhorn and Coppersmith HMAs. Reservoir water conditions are noted for Carter Reservoir HMA.
43	Ray Page	Burnt Lake and SOB Lake are good places for horses due to a hardy plant community.	Comment notes; Burnt Lake and SOB Lake are areas in the HMA that horses typically occupy during the spring, summer and fall.
44	Craig C. Downer	It would seem that these HMAs-already reduced from the greater legal HA's that contain them-should accommodate a greater, more viable wild horse population than these low AML's, especially considering the original HA's by law are supposed to be principally managed for the benefit of the wild horses, not for livestock or big game animals. Indicate the areas of the original HA's from which the present HMA's were reduced.	This is a RMP planning level decision, outside the scope of this environmental analysis. The HA/HMA boundaries were previously decided in the Surprise RMP/ROD, which was developed in full public participation, with an opportunity for administrative review at the time the decisions were issued. The laws and regulations governing wild horses, in particular 43CFR 4700.0-6 states "Wild horses and burros shall be considered comparably with other resources values."
45	Craig C. Downer	Clearly identify and spell out to the public the relative proportions among livestock, big game animals and wild horses as it pertains to food resource and water allocation.	Refer to comment responses 1 to 14; and to EA Appendix E, which includes an actual use table for Wild horses and livestock.
46	Craig C. Downer	Other survival necessities for the wild horses such as adequate shelter requirements both for winter and also summer conditions, elevational gradients available for seasonal migration, etc, should also be evaluated in your EA.	Habitat suitability was addressed when AMLs and HMAs were established. This issue is outside the scope of the EA's proposed action. The Buckhorn HMA contains higher elevation areas where the horses historically summered, and mid to lower elevation areas where the horses historically are during the winter. There is juniper tree cover throughout the upper elevations, which provides shelter.

This section address Scoping comments received from the May 15, 2009 letter and NOPA. Note: not addressed are comments specific to the Massacre Lakes HMA

47	Virginie L. Parant/Linda Springer	Present data that separates wild horse and livestock impacts on the range.	Refer to the EA's wild horse affected environment section, starting on pages 17-18, 35. Also refer actual use tables for wild horses and livestock in Appendix E.
48	Virginie L. Parant/Linda Springer	Set wild horse appropriate management levels to ensure genetically viable herds – a minimum of 150 for each HMA in the proposal area.	Refer to the EA's affected environment section, pages 17-18.
49	Virginie L. Parant/Linda Springer	Reduce livestock grazing and fencing in the HMAs until enough forage and water is made available to support self-sustaining herds. The current allocations give over 5 times more forage to livestock than wild horses, and existing fences prevent access to critical resources or block migratory routes.	Comment noted. Refer to comment responses numbers 44-46.
50	Virginie L. Parant/Linda Springer	Over 70,000 acres have already been removed from wild horse use by former management plans. Please implement protective measures to mitigate this loss of habitat.	This comment is outside the scope of the proposed action. Also refer to comment responses numbers 44-46.
51	Virginie L. Parant/Linda Springer	The plans should ensure a “thriving ecological balance”, not just for livestock and big game animals but wild horses too.	Comment noted, refer to comment responses numbers 44. Taking the numbers from an aerial census conducted in 2005, wild horse numbers have increased to an estimated 404% of the maximum AML. Therefore, the proposed gather is needed to return wild horse numbers to the AML, to ensure a “thriving ecological balance”.
52	Sarah Chisholm	I would like to see native wildlife and health watersheds. I strongly support the removal of feral horses from all public lands under your jurisdiction. Please remove these feral pests from our public lands. If nobody wants to adopt them, these pests should be exterminated using humane methods, if possible.	The proposed action would gather remove and excess wild horses, as stated in the EA wild horses affected environment section on page 17 and 18. Currently unadoptable wild horses are placed in long-term holding facilities.
53	State Historic Preservation Office	Proposal supported as written	Comment noted.
54	Gale Dupree	I concur with SFO proposal to remove excess wild horses from Massacre Lakes HMA, Carter Reservoir, Buckhorn, and Coppersmith HMAs to	Comment noted.

		reach AML's.	
55	Friends of NV Wilderness	We support the management activities as outlined in the document receive 5/19/09 regarding wild horses. We agree that these actions are necessary to protect both the ecological health of the land as well as the health of the horse herds. We are particularly interested as these actions impact the Buffalo Hills and Massacre Rim WSAs through your efforts to reduce herd size through fertility control and removal of excess horse numbers. These actions will only serve to enhance the wilderness and special habitat values of these WSAs. As always, please ensure that gather facilities where possible are located outside of the WSAs. Should impacts to the WSAs occur from the gather, please ensure that they are promptly rehabilitated.	Comment noted; refer to the EA's wilderness affected environment section on page 36.
56	Roy Leach NDOW, Cathy Barcomb Nevada Wild Horse Commission	AMLs are the essential factors in achieving a natural ecological balance. Pervious land use plans allocated forage from a onetime rangeland inventory, which established population goals for wild horses. These forage allocations were abandoned by the BLM and replaced with the ongoing rangeland monitoring studies required to validate stocking rates and wild horse numbers. Several of these wild horse herds have AMLs established through various environmental assessments and several of these wild horse herds carry population goals without the benefit of rangeland monitoring data. These	Comment noted; Reviewing existing AMLs is outside the scope of the proposed action. Genetic viability testing is a component of the proposed action, and alternatives 2 and 3 (gather alternatives). While the oldest AML determination document is approximately 15 years, and the rangeland health determination is completed in 1999. BLM plans to conduct a follow-up rangeland health determination and carrying capacity review for the Tuledad in the future, using recent rangeland monitoring data. The AML review is outside the scope of the proposed action. Also refer to comment response # 35.

		matters require immediate attention. We suggest that the present environmental assessment conduct the appropriate habitat assessments and genetic viability tests affecting these limited herds. In light that many of the allotments are under 10 year review and issuance, BLM has monitored for over 24 years, and the need to validate or adjust AML is well overdue.	
57	Cindy MacDonald	Have historical migratory routes been recently altered via fencing, highways, etc. that would cause a change in wild horse reproduction to begin recently accelerating?	There have not been any new fences that have altered historical migratory routes.
58	Cindy MacDonald	What method has BLM established to distinguish wild horse use from, livestock and wildlife within the proposal area?	Site specific monitoring information, along with actual use data.
59	Cindy MacDonald	Based on the guidelines established in the new RMP/ROD, BLM has only approved a reduction of wild horse AMLs but has provided no possibility of increasing AML based on current inventory and monitoring. Am I understanding this correctly?	The LUP does not preclude AML adjustments in the future, either upward or downward. Future reviews of AML would be conducted in full public participation.
60	Cindy MacDonald	In the new RMP/ROD, BLM stated that no preference would be given to either livestock or wild horses in forage and resource allocations. Yet within the framework of the RMP, livestock allocations FAR exceed wild horse allocations. How does BLM reconcile these two opposing management plans?	The Surprise RMP/ROD carried forward existing livestock permitted uses and AMLs. BLM would equitably adjust livestock and wild horse forage allocation using monitoring data and site-specific resource evaluation. If monitoring data finds adverse ecosystem impacts as a result of livestock or wild horse use, the specific class of use (i.e. cattle or wild horse) would be adjusted. In the absence of class-specific monitoring data, adjustments in forage allocation would be proportional to applicable livestock active animal unit months (AUMs) and wild horse AMLs.
61	Cindy MacDonald	Does the Surprise FO intend to consider the relationship with uses of the public and adjacent private lands as provided in	CFR Sec. 4710.3-1. Discusses delineating herd management areas for the establishment and maintenance of each AML. Since the Public Law 92-195 does not apply to private lands, then habitat requirements of wild horse need to be considered in the context of public lands only. For example if the available water sources on

		CFR4710.3, specifically the authorization of exclusive livestock allocations outside HMA boundaries to provide fair and equitable resource allocations to wild horse herds limited to within the HMA boundaries alone?	private lands then the AML would be set according. CFR Sec. 4710.3-2, applies to wild horse and burro ranges, not HMAs. Wild horse ranges can be managed principally, but not necessarily exclusively, for wild horse or burro herds.
62	Cindy MacDonald	In the PRMP/FEIS the last document available for review by the public, BLM's "preferred alternative" incorporated the goal of managing all wild horse herds within their jurisdiction for conformance to historically significant traits. However, after the RMP Protest Period, BLM approved of a "new" strategy that would manage only one herd, the Carter Reservoir HMA, for historically significant traits while the rest of the herds are now to be managed based on those traits BLM believes will contribute exclusively towards their "adoptability".	While all the herds in the Surprise Field Office area are derived from North American stock, Carter Reservoir herd has several markers for old Spanish heritage, these associations are quite rare in North American breeds. The term historically significant traits, pertains to the old Spanish heritage according to the genetic analysis. Horses in the other herds would be managed to maintain type, color, size, and confirmation of wild horses according to historical characteristics of that HMA.
63	Gary Stacey CDFG	Current horse levels within the HMAs identified by the SVFO are on average four times their AMLs, resulting in degraded rangeland health, decreased availability of forbs, and adverse impacts to desert water sources. The Department supports management strategies proposed by the SVFO, including horse removal and fertility control, to maintain horse numbers at or below management objectives. If these levels cannot be achieved, we recommend that livestock numbers in allotment within HMAs be reduced accordingly to maintain rangeland health and avoid impacts to wildlife.	Comment noted. Implementation of the EA proposed action, the gathering and removal of excess wild horses is being selected to ensure a "thriving natural ecological balance" as well as preserve the multiple use relationship within the Buckhorn, Coppersmith, and Carter Reservoir Wild Horse Herd Management Areas immediately and over the next several years. Further, this proposed action is would help prevent vegetative and riparian resource from deterioration associated with an overpopulation of wild horses.
64	Barbara Warner	The present AML of only 25-35 wild horses is not	Implementation of the Proposed action or any of the gather alternatives would allow for BLM to evaluate the genetic diversity

		<p>sustainable or genetically viable. It has only reached an estimated population of 156 now which is sub sustainable now but barely so. None of these wild horses should be removed. The same goes for Carter Reservoir and Coppersmith HMAs. The WH&B Act mandates a healthy viable population and to remove any of these horses will violate this mandate. All the AMLs for all of the HMAs including the Buckhorn are too low and must be at least 150 or more. It has taken years for these horses to reach sustainable and genetically viable numbers. These herds must not be destroyed by rounding them up. These gathers must be cancelled.</p>	<p>and self sustaining nature of managed herds with a lower AML. The Buckhorn and Coppersmith HMAs appear to part of a larger metapopulations, with the Twin Peaks HMA. Currently there is no information specific to the herds discussed in this EA to suggest they are not sustainable and genetically viable, and that AML of 150 is needed.</p>
65	Bill Phillips	<p>What the BLM is trying to do is to obtain ecological balance by controlling the population of a herd. To duplicate nature the bulk of the harvest should come from the young leaving the older horses on the range. I feel that you should make an effort to bring all herds down to the low range of AML. Then after that only young should be gathered from the herds, leaving only enough selected young in the herds to replace death loss. I do not see the Fee Reservoir horses being addressed. These horses have been in limbo status for a long time.</p>	<p>Comment noted; refer to the EA's proposed action starting on page 10. The Fee Reservoir horses are the same as the Crooks Lake horses, and addressing these horses is also part of the proposed action.</p>
66	Bill Phillips	<p>The dun and grulla markings in the Carter Reservoir HMA are primitive horse colors and an effort should be made to eliminate other colors from the herd.</p>	<p>This comment is addressed by the Carter Reservoir HMA plan and the Surprise RMP objective: Maintain type, color, size, and confirmation of wild horses according to historical characteristics of animals resident in each of the eight Herd Management Areas."</p>
67	Cathy Barcomb Nevada Wild	<p>It is unacceptable to have AML's that are 14 years old and no attempt by your</p>	<p>The Carter Reservoir AML determination was completed in 2003. The Buckhorn and Coppersmith AML determinations are about 14 years old, these HMAs are within the Tuledad Allotment. The last</p>

	Horse Commission	Field Office to re-evaluate those AML's. Especially since you are in the process of issuing new 10 year grazing permits and are required to meet.	rangeland health determination was completed in 1999.
68	Cathy Barcomb Nevada Wild Horse Commission	To issue those permits, the American public expects that they are being issued with full disclosure and evaluation of the habitats to ensure that established standards and guidelines are being met and/or making significant progress towards repairing areas of concern.	The upcoming rangeland health standard assessment and determination for the Tuledad allotment will be completed in full consultation and coordination with interested publics, permittees, and state agencies. Part of process will be to identify evaluate monitoring data, and to determine causal factors for standard (s) not met.
69	Cathy Barcomb Nevada Wild Horse Commission	How can you possibly meet those goals of Rangeland Health Standards and Guidelines for Northeast CA and Northwest NV when all you reference is gathers? No evaluations, no carrying capacity or assurances that the AML's are appropriate in conjunction with intended livestock permits and other uses of the habitat.	The proposed action, the capture and removal of excess wild horses supports meeting rangeland health standards. A review of recent monitoring data that at current population levels wild horses, which are currently significantly above established AML, are contributing to excessive utilization and trampling by wild horses and livestock. The EAs Appendix E contains an actual use summary of wild horses and livestock. This table provides a relative indication of cause and effect relationship, along with site specific field monitoring information.
70	Cathy Barcomb Nevada Wild Horse Commission	HMA suitability assessments were not conducted in the Surprise Field Office Resource Management Environmental Impact Statement.	Comment noted.
71	Cathy Barcomb Nevada Wild Horse Commission	AML's suggest that a viable genetic pool to sustain these herds is inadequate and the herd's genetic needs must be addressed to insure long term sustainability of the individual herds.	Genetic testing is part of the proposed action gather alternatives #'s 2 & 3. Refer to EA affected environment section starting
72	Cathy Barcomb Nevada Wild Horse Commission	Old AML's for these herds were determined by use pattern mapping of specific riparian habitats recognized as Key Areas used only by horses. This allotment has always been used by wild horses and livestock. While the strategy to determine AML may be accurate, the past decisions is seriously flawed and not supported with rangeland health or	Refer to comment response # 69 and 70.

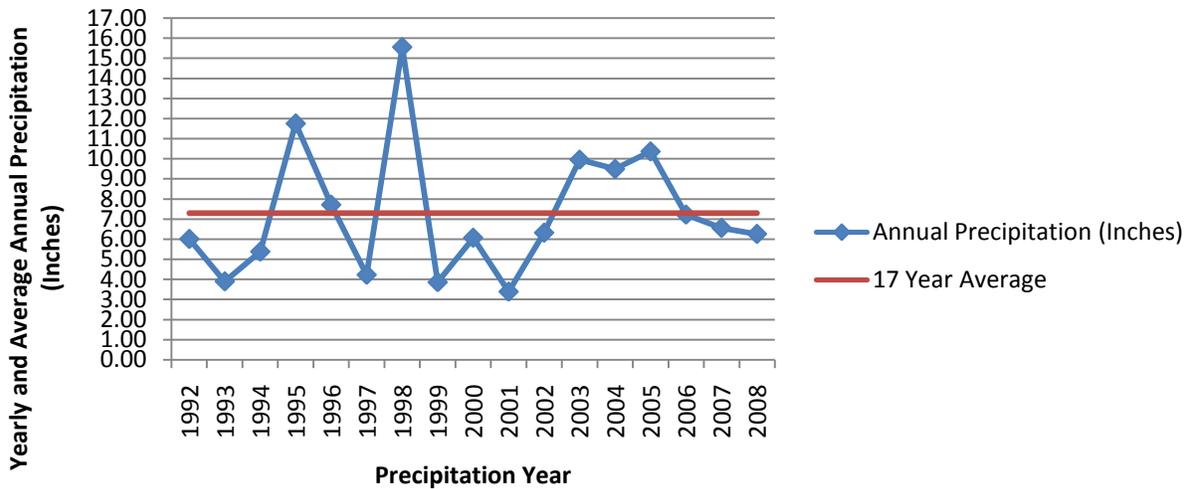
		rangeland monitoring data.																																																																																																																																																		
73	Cathy Barcomb Nevada Wild Horse Commission	Throughout your reference to various HMA's you refer to using a "20% estimated populations increase since the census". Can you please provide us with the historical data showing recruitment to justify using a 20% figure vs any other. Recruitment estimates were to be justified with data which should be readily available using past gather and census comparisons.	<p>The foal crop percentage varies from year to year within any given herd depending on the weather, forage production, female to male ratio, age ratio, condition of the wild horses, etc. The most accurate method to determine the average foal crop percentage is from census data, and gather data (when horses are aged at handling facilities), and a post gather census documents the number of foals remaining in the HMA. There have been gathers conducted by a contractor where a post gather census was not conducted, and gathers where the post gather census only noted the total number of horses remaining on the HMA and did not reflect the number of foals. The data for those gathers was not used. The following is census data, and gather data combined with post gather census data where the number of foals remaining in the HMA was noted. The average foal crop percentage for these censuses and gathers averaged 20.8%.</p> <table border="1"> <thead> <tr> <th>YEAR</th> <th>HMA</th> <th>Census/Gather</th> <th>Adults/Foals</th> <th>Foal Crop %</th> </tr> </thead> <tbody> <tr><td>1993</td><td>Buckhorn</td><td>Census</td><td>123/22</td><td>17.9</td></tr> <tr><td>1993</td><td>Wall Canyon/Nut Mountain/Bitner</td><td>Gather</td><td>144/8</td><td>5.6</td></tr> <tr><td>1993</td><td>High Rock</td><td>Gather</td><td>57/14</td><td>24.6</td></tr> <tr><td>1994</td><td>High Rock</td><td>Census</td><td>97/25</td><td>25.8</td></tr> <tr><td>1994</td><td>Fox Hog</td><td>Census</td><td>161/32</td><td>19.9</td></tr> <tr><td>1995</td><td>Buckhorn</td><td>Census</td><td>149/27</td><td>18.1</td></tr> <tr><td>1995</td><td>Coppersmith</td><td>Census</td><td>120/17</td><td>14.2</td></tr> <tr><td>1996</td><td>Fox Hog</td><td>Census</td><td>248/66</td><td>26.6</td></tr> <tr><td>1997</td><td>High Rock</td><td>Census</td><td>241/64</td><td>26.6</td></tr> <tr><td>1997</td><td>Buckhorn</td><td>Census</td><td>108/17</td><td>15.7</td></tr> <tr><td>1997</td><td>Fox Hog</td><td>Census</td><td>283/60</td><td>21.2</td></tr> <tr><td>1997</td><td>Coppersmith</td><td>Census</td><td>85/16</td><td>18.8</td></tr> <tr><td>1997</td><td>Carter Reservoir</td><td>Census</td><td>35/6</td><td>17.1</td></tr> <tr><td>1997</td><td>Massacre Lakes</td><td>Census</td><td>21/6</td><td>28.6</td></tr> <tr><td>1997</td><td>Wall Canyon/Nut Mountain/Bitner</td><td>Census</td><td>175/43</td><td>24.6</td></tr> <tr><td>2000</td><td>Wall Canyon/Nut Mountain/Bitner</td><td>Gather</td><td>201/53</td><td>26.4</td></tr> <tr><td>2001</td><td>High Rock</td><td>Census</td><td>458/95</td><td>20.7</td></tr> <tr><td>2001</td><td>Fox Hog</td><td>Census</td><td>344/67</td><td>19.5</td></tr> <tr><td>2001</td><td>Wall Canyon/Nut Mountain/Bitner</td><td>Census</td><td>116/27</td><td>23.3</td></tr> <tr><td>2001</td><td>Buckhorn</td><td>Census</td><td>132/30</td><td>22.7</td></tr> <tr><td>2001</td><td>Coppersmith</td><td>Census</td><td>78/14</td><td>17.9</td></tr> <tr><td>2001</td><td>Carter Reservoir</td><td>Census</td><td>133/30</td><td>22.6</td></tr> <tr><td>2001</td><td>Massacre Lakes</td><td>Census</td><td>46/8</td><td>17.4</td></tr> <tr><td>2001</td><td>High Rock</td><td>Gather</td><td>339/84</td><td>24.8</td></tr> <tr><td>2003</td><td>Carter Reservoir</td><td>Gather</td><td>195/48</td><td>24.6</td></tr> <tr><td>2005</td><td>Fox Hog</td><td>Census</td><td>434/99</td><td>22.8</td></tr> <tr><td>2005</td><td>Buckhorn</td><td>Census</td><td>199/40</td><td>20.1</td></tr> <tr><td>2005</td><td>Carter Reservoir</td><td>Census</td><td>79/16</td><td>20.3</td></tr> </tbody> </table>	YEAR	HMA	Census/Gather	Adults/Foals	Foal Crop %	1993	Buckhorn	Census	123/22	17.9	1993	Wall Canyon/Nut Mountain/Bitner	Gather	144/8	5.6	1993	High Rock	Gather	57/14	24.6	1994	High Rock	Census	97/25	25.8	1994	Fox Hog	Census	161/32	19.9	1995	Buckhorn	Census	149/27	18.1	1995	Coppersmith	Census	120/17	14.2	1996	Fox Hog	Census	248/66	26.6	1997	High Rock	Census	241/64	26.6	1997	Buckhorn	Census	108/17	15.7	1997	Fox Hog	Census	283/60	21.2	1997	Coppersmith	Census	85/16	18.8	1997	Carter Reservoir	Census	35/6	17.1	1997	Massacre Lakes	Census	21/6	28.6	1997	Wall Canyon/Nut Mountain/Bitner	Census	175/43	24.6	2000	Wall Canyon/Nut Mountain/Bitner	Gather	201/53	26.4	2001	High Rock	Census	458/95	20.7	2001	Fox Hog	Census	344/67	19.5	2001	Wall Canyon/Nut Mountain/Bitner	Census	116/27	23.3	2001	Buckhorn	Census	132/30	22.7	2001	Coppersmith	Census	78/14	17.9	2001	Carter Reservoir	Census	133/30	22.6	2001	Massacre Lakes	Census	46/8	17.4	2001	High Rock	Gather	339/84	24.8	2003	Carter Reservoir	Gather	195/48	24.6	2005	Fox Hog	Census	434/99	22.8	2005	Buckhorn	Census	199/40	20.1	2005	Carter Reservoir	Census	79/16	20.3
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74	Cathy Barcomb Nevada Wild Horse Commission	This document is scoping for multiple gather plans in Surprise but they make no mention of new AML's, assessing for genetic viability of the herds and herd area suitability, you stayed with the grossly outdated AML's and are intended to issue a 10 year permit based on what? We cannot accept that.	In the genetic analysis was completed on the Buckhorn and Carter Reservoir HMA following the 2003. The Gus Cothran, report stated no immediate action is needed, and recommended testing continues in the future. Also refer to the EA wild horse affected environment section starting on pages 17-18.				
75	Cathy Barcomb Nevada Wild Horse Commission	We would urge the Surprise Resource Area to evaluate and update the AML's in these HMA's prior to any unjustified gathers, to establish herd management area plans (HMAP's) to include herd management objectives, sustainability/genetic diversity, suitability, and habitat assurances for a properly managed herd.	HMAP have previously been established for HMAs discussed in this EA. The Surprise RMP/ROD also implemented goals and objective for wild horses. The Proposed action is consistent and in conformance with these Plan.				

Appendix E- Resource Monitoring Information

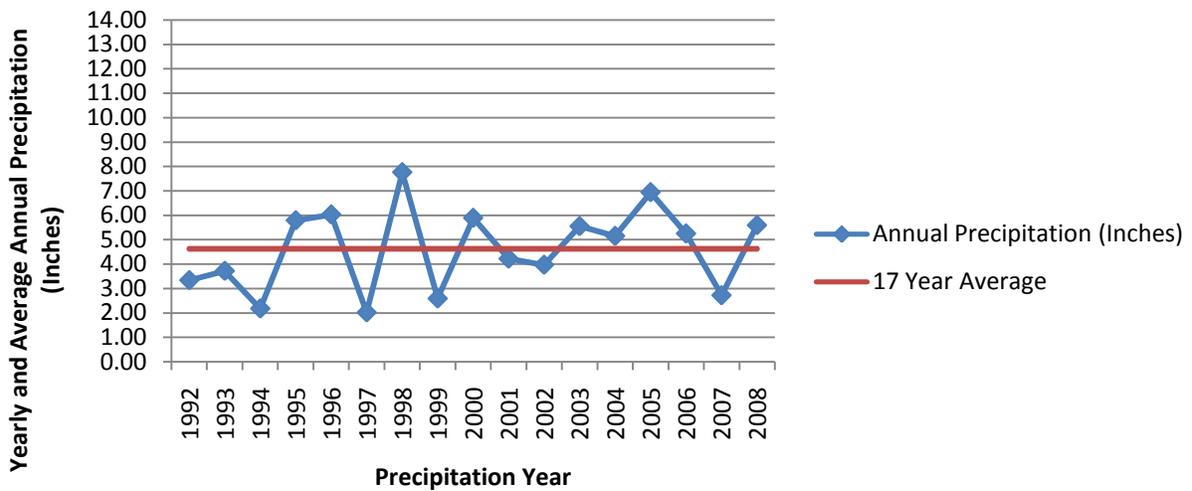
Fox Mountain RAWS - 17 year average 7.29 inches

Fox Mountain RAWS Annual and Average Yearly Precipitation (Inches)



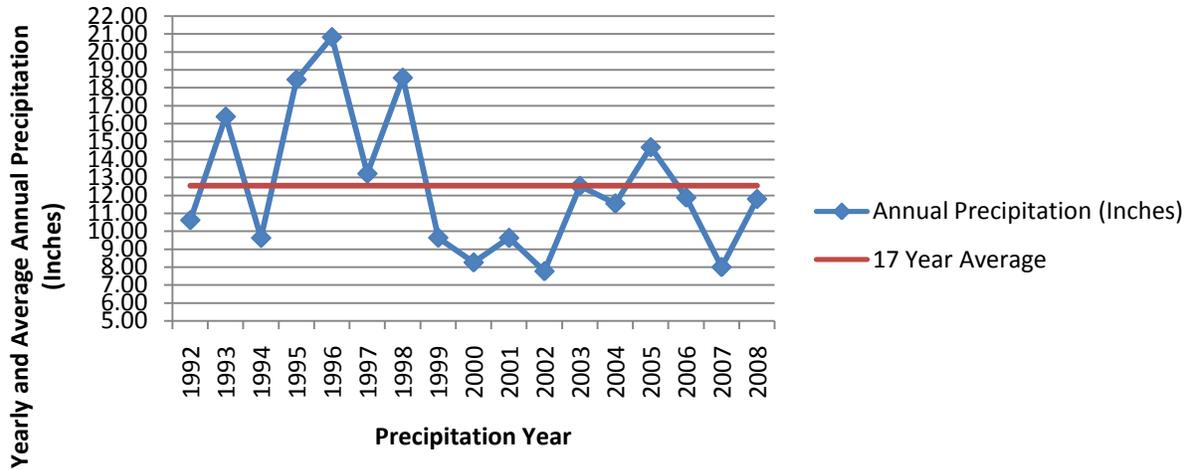
Juniper Springs RAWS - 17 year average 4.63 inches

Juniper Springs RAWS Annual and Average Yearly Precipitation (Inches)



Cedarville Precipitation Gauge -17 year average 12.54 inches

Cedarville Annual and Average Yearly Precipitation (Inches)



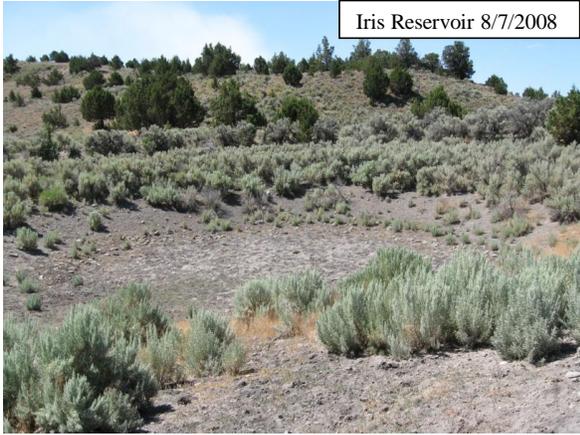
Tuledad Actual Use Animal Unit Months (AUMs) by Herd Management Area for Cattle and Sheep

Year	Coppersmith AUMs	Buckhorn AUMs
2008	2478	2238
2007	3506	3382
2006	3463	5522
2005	3899	1964
2004	2190	2037
2003	3515	1470

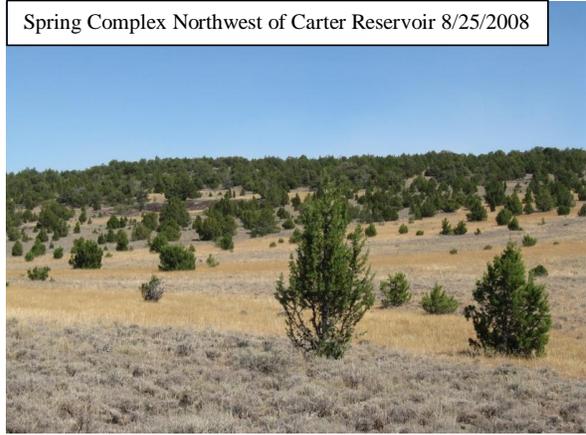
Tuledad Actual Use Animal Unit Months (AUMs) by Herd Management Area for Horses

Year	Coppersmith AUMs	Buckhorn AUMs
2009	1,632	5,952
2008	1,356	4,956
2007	1,128	4,128
2006	936	3,444
2005	780	2,868
2004	3,024	888
2003	2,520	744

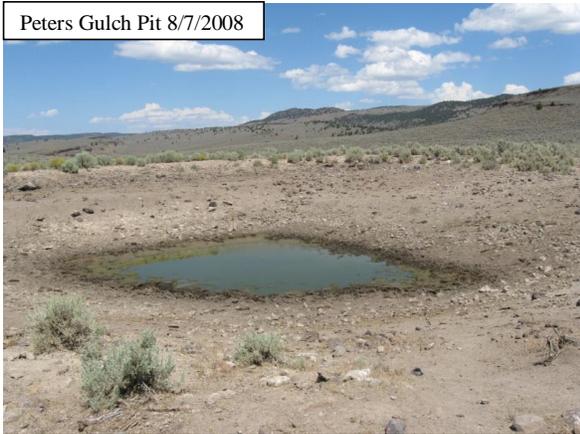
Carter Reservoir Herd Management Area public water sources



Iris Reservoir 8/7/2008



Spring Complex Northwest of Carter Reservoir 8/25/2008



Peters Gulch Pit 8/7/2008



Cherokee Pit #1 10/7/2008



Doubtful Reservoir 4/22/2009



Lower American Flat Reservoir 10/6/2008

Doubtful Reservoir 4/22/2009

Buckhorn Herd Management Area spring sources

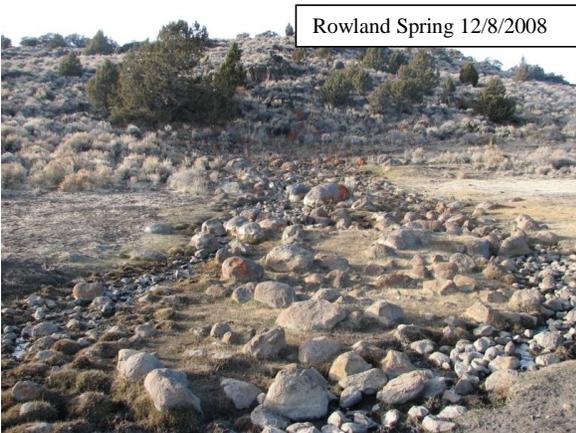
SE Garden Lake #2 11/20/2008



W of Cabin #2 11/24/2008



Rowland Spring 12/8/2008



Garden Lake #4 11/20/2008



Worland Drainage/Riparian 12/10/2008



Chalk Hill Spring 11/18/2008



Coppersmith Herd Management Area spring sources

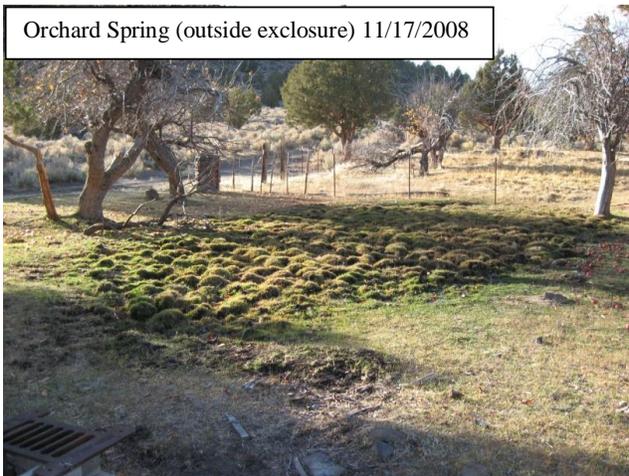
Birdbath Spring (inside enclosure) 11/17/2008



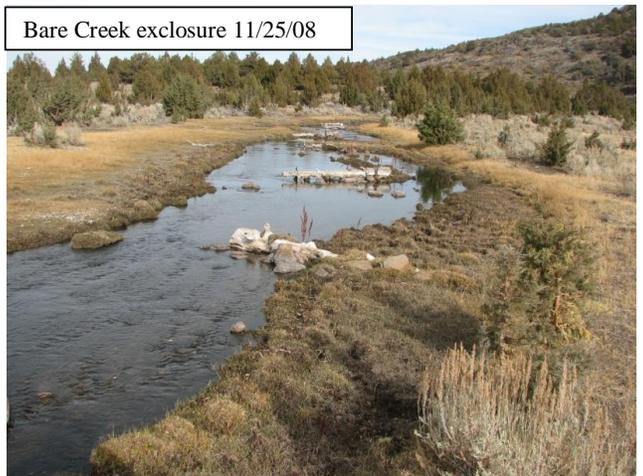
Below Apple Orchard #1 12/2/2008



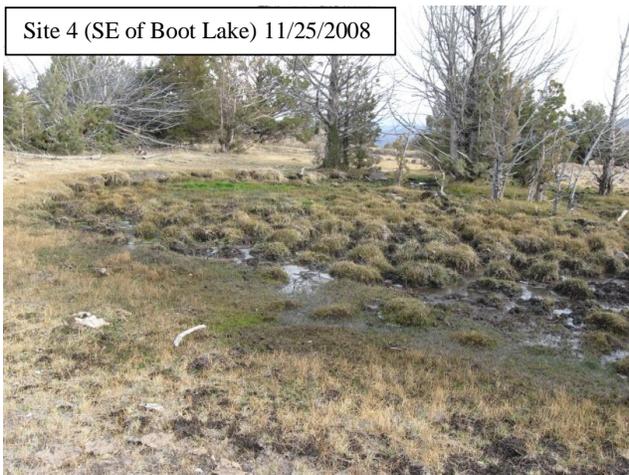
Orchard Spring (outside enclosure) 11/17/2008



Bare Creek enclosure 11/25/08



Site 4 (SE of Boot Lake) 11/25/2008



Site 5-8 (NW of Wire Lakes #3) 12/1/2008



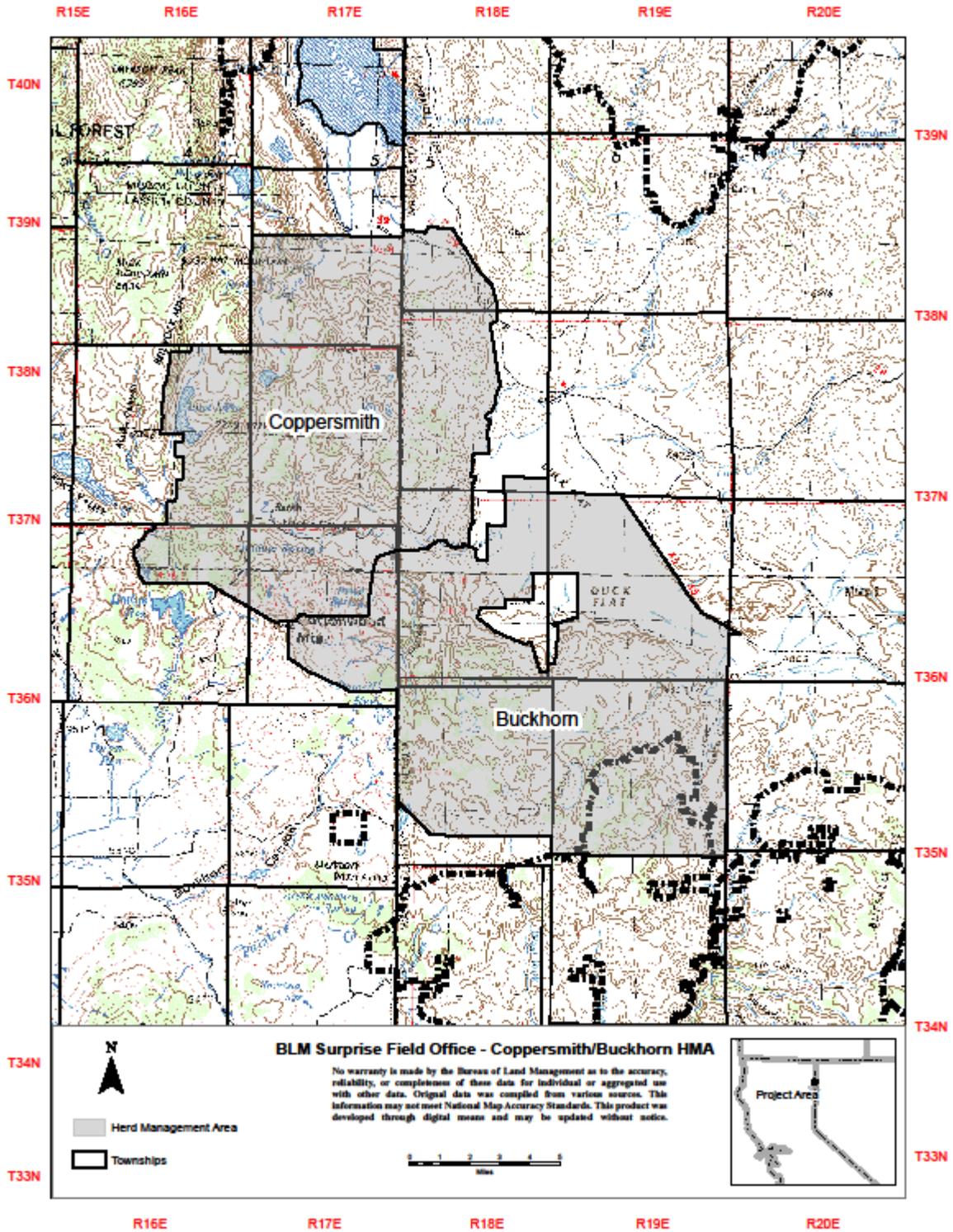
Tuledad Allotment Riparian Functional Assessment (Random Sample of Sites visited in 2008)

Riparian Name	HMA	Pasture	Source_ID # or Legal	Lotic/ Lentic	Miles or Acres	Assessment Notes Summer and Fall 2008
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Sandstone Spring	Coppersmith	North	124523	Lentic	< 1 acres	Exclosure fence around headbox is in disrepair, stock tank is leaking, riparian area below tank is trampled by horses
unnamed	Coppersmith	North	T37N, R17E, Sec17, SESW	Lentic	0.1 acres	Heavily grazed & trampled by horses & cattle
SE Orchard # 2	Coppersmith	North	T37N, R17E, Sec 34	Lotic	100 yds	Bare banks with down cutting. Sagebrush, Juniper, & annual grass encroachment
Below Apple Orchard #1	Coppersmith	North	U00263	Lentic	.25 acre	Heavy horse & cattle hoof action creating hummocks, nick points or head cutting at top of spring, Juniper and sagebrush encroachment
Orchard Spring outside exclosure	Coppersmith	North	U0261A	Lentic	.25 acre	Heavy hoof action from horses & cattle is creating hummocks, Juniper encroachment
Above Orchard Spring #2	Coppersmith	North	U01041	Lotic	20'x12' Spring 200yds long	Nick points and head cutting is present along with hummocks and heavy hoof action from horses & cattle
Orchard Spring Upper Most	Coppersmith	North	U0261B T37N, R17E, Sec33, NENE	Lotic	1/8 acre	Head cut is present, very little vegetation, Juniper encroachment
Orchard Spring Lower @ Road	Coppersmith	North	T37, R17E, Sec34 SWSE	Lotic	250 yds	Heavy hoof action from horses & cattle, lot of bare ground, some degradation of channel banks and nick points
North of Orchard #1	Coppersmith	North	01035A	Lotic	50 yds	Moderate to heavy hoof action causing banks to erode, bare soil, cattle use
Bare Creek Exclosure	Coppersmith	North	01035A	Lotic	1.2 miles	Some bank cutting and nick points, hoof action & hummocks along stream banks caused by horses and cattle Juniper & sagebrush encroachment
Base of Little Hat Mnt	Coppersmith	North	01025A T37N, R17E, Sec18 NESW	Lotic	.25 Miles	Cattle hoof action, some signs of cutting & removal of soils
Little Hat Mnt #3	Coppersmith	North	U00269 T37N, R17E, Sec 18 SWSE	Lotic	1.5 Acres	some hoof action, head cut seem to be revegetating, Juniper & sagebrush encroachment
South of Boot Lake	Coppersmith	North	01031A T37N, R16E, Sec 26 NWSE	Lentic	2 Acres	Spring is dry, hummocks and a head cut is present

unnamed off of Buckhorn W. of switchback	Coppersmith	North	T35N, R19E, Sec 15	Lotic	50 yds	spring is developed with a reservoir, horse & cattle hoof action probably is a lentic source
Riparian Name	HMA	Pasture	Source_ID # or Legal	Lotic/Lentic	Miles or Acres	Assessment Notes
Pryor Spring	Coppersmith	North	T37N, R17E, Sec19	Lotic	3 acres	Severe hummocking & hoof action caused by horses & cattle, hummocks are drying out & growing annual vegetation, Juniper encroachment, road development alters riparian channel
NW of Wire Lake #3 the 4 springs	Coppersmith	North	01016A 01016B 01016C 01016D	Lentic	4 acres	springs were dry, upland vegetation is encroaching, no hoof action or hummocks present
SE of Boot Lake	Coppersmith	North	D00296 T37N, R16E, Sec 26 SESE	Lotic	4 Acres	Heavy hummocking & hoof action, head cut is present
Birdbath Spring	Coppersmith	North	T37N, R17E, Sec34	Lentic	.25 acre	Spring has an enclosure around it & it has been developed
Ant Spring (inside enclosure)	Coppersmith	North	T38N, R17E, Sec 28	Lentic	5 acres	Sagebrush & Juniper encroachment, spring is within an enclosure
SE Garden Lake #2	Buckhorn	South	U00229	Lotic	3 acres	Cattle & horse hoof action creating hummocks, very little vegetation present
Rowland Spring	Buckhorn	South	T35N, R18E, Sec35 NWNE	Lotic	0.3 acres	Heavy hoof action and hummocking caused by horses and cattle, bare ground, nick points and head cutting throughout the system
West of Cabin #2	Buckhorn	South	U0231D T35N, R18E, Sec11 SESW	Lotic	150 yds	Heavy hoof action and hummocking caused by horses and cattle, bare ground around the spring
West of Willow Lake	Buckhorn	South	T35N, R18E, Sec4	Lentic	1-2 acres	Severe hoof action and hummocking caused by horses and cattle altering flow pattern, cutbacks are present and bare
West of Cabin #1	Buckhorn	South	U00028 T35N, R18E, Sec10 SENE	Lentic	.25 Acres	Sagebrush & Juniper encroachment, some hoof action creating hummocks, spring appears to be developed with a reservoir
Garden Lake # 4	Buckhorn	South	U00227	Lentic	1 acre	Hoof action & hummocks caused by horse & cattle, Juniper & sagebrush encroachment
Garden Lake # 3	Buckhorn	South	U00228	Lentic	.25 acre	Heavy hoof action & hummocking creating excessive bare ground, head cutting & bank cutting
SE of Garden Lake #1	Buckhorn	South	D00234	Lentic	2 acres	Heavy hoof action & hummocking, sagebrush encroachment, some nick points & headhunting around spring
Chalk Hill Spring	Buckhorn	South	121029 T35N, R19E Sec 14	Lentic	.25 Acres	Spring is dry, some hoof action, some annual vegetation
Worland Drainage/ Riparian	Buckhorn	South	T36N, R19E, Sec 30	Lotic	500 yds of H2O	Juniper encroachment, some hoof action & stream bank alteration, this section of the drainage is lacking willows

Map 2 Buckhorn and Coppersmith HMAs



Map 3 Carter Reservoir HMA

