



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Elko District Office

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Elko, Nevada 89801-4211

http://www.blm.gov/nv/st/en/fo/elko_field_office.html

In Reply Refer To:
4700(NVE0300)

September 17, 2010

Dear Reader:

The Bureau of Land Management (BLM) is seeking comments on the Environmental Assessment (EA) for the Antelope Complex Wild Horse Gather. The document (DOI -BLM-NV-N020-2010-0019) will be available to be viewed on September 20, 2010 online at: http://www.blm.gov/nv/st/en/fo/elko_field_office.html. Hardcopies are available upon request from the Elko and Ely District Offices. Comments will be accepted until 4:30 pm Pacific Daylight Time on October 19, 2010.

The Antelope Complex is located approximately 60 miles south of Wells, Nevada, within Elko and White Pine Counties. The Antelope complex includes the Antelope Herd Management Area (HMA) which is managed by the Schell Field Office in the Ely District and the Antelope Valley, Goshute, and Spruce/Pequop HMAs which are managed by the Wells Field Office in the Elko District. (Refer to the attached map for general location.) The Wells and Schell Field Offices are proposing to gather a combined total of approximately 1,268 to 1,659 wild horses from within the Complex and adjacent areas during the winter of 2011. These four HMAs have been gathered together as a complex in three previous gathers. (Refer to the enclosed map for the location of the HMAs.)

The appropriate management levels (AMLs) for the Antelope Complex is 427-788 wild horses. The proposed gather is tentatively scheduled to begin in January 2011.

The gather is needed to:

- Slow population growth and maintain population size within the Antelope Complex;
- Remove excess wild horses within the HMAs and wild horses that are permanently residing outside areas designated as HMAs;
- Reduce concerns about impacts caused by wild horses to limited perennial water resources within the Antelope Complex;
- Maintain a thriving herd as authorized under Section 3 (b) (2) of the 1971 Wild Free-Roaming Horses and Burros Act and Section 302(b) of the Federal Land Policy and Management Act of 1976.

By implementing the actions outlined in the proposed wild horse gather plan environmental assessment, the BLM will be able to improve vegetation, habitat, and watershed health; removing excess animals will continue to make significant progress toward achieving the

Standards for Rangeland Health identified by the Northeastern Great Basin Resource Advisory Council. The BLM will also collect information on herd characteristics and determine herd health during the gather.

In addition to the proposed gather and removal of wild horses, some wild horses would be released back into the HMAs. PZP-22 (Porcine Zona Pellucida) fertility control vaccine would be administered to mares prior to release. The number of stud horses to be released would be determined at the time of the gather. The stud to mare ratio may also be adjusted to a 60% male to 40% female populace prior to release to achieve population and resource objectives.

This EA is being provided to the interested public for review for 30 days. We welcome your feedback and encourage you to submit comments, issues, alternatives, and/or recommendations for inclusion into the Final EA. Comments will be accepted until October 19, 2010. In order to provide meaningful input, please submit your comments that are applicable to the proposed wild gather, referencing the EA where possible.

Interested individuals should mail written comments to the BLM Elko District Office, 3900 Idaho Street, Elko, NV 89801 Attn: Bryan Fuell, Wells Field Manager. Comments may also be provided through email to this address: antelope_complex_gather@blm.gov. Be advised that **only** the comments received by postal mail or to this specific e-mail address will be considered in the completion of the Final EA, Finding of No Significant Impact and Decision Record.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be publicly available at any time. While you may ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

If you would rather not remain on the mailing list for the Antelope Complex wild horse gather, and do not wish to receive subsequent documents, please submit your request in writing to the Wells Field Office.

All comments received during the public comment period will be fully considered and evaluated for preparation of the Final EA. If you have any questions on this matter, please contact Bruce Thompson, BLM Elko District Wild Horse and Burro Specialist, at (775) 753-0200 or Ben Noyes, BLM Ely District Wild Horse and Burro Specialist at (775) 289-1800.

Sincerely,

/S/

Bryan K. Fuell, Manager
Wells Field Office

Enclosure

United States Department of the Interior Bureau of Land Management

WELLS AND SCHELL FIELD OFFICES

Antelope Complex Capture Plan And Environmental Assessment



Wild horses at Deer Spring Conveyance (Antelope Valley HMA).

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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Cover Photo: Photo by Bruce Thompson Wild Horse Specialist, 2008.

Antelope Complex Gather Capture Plan and EA

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1 – INTRODUCTION

The Wells and Schell Field Offices (F.O.) are proposing to remove excess wild horses in the Antelope, Antelope Valley, Spruce-Pequop, and Goshute Herd Management Areas (HMA) in 2011. For this analysis, the four HMAs will be referred to as the Antelope Complex (Map1). This proposed action would restore a thriving ecological balance and prevent degradation of rangeland resources resulting from an overpopulation of wild horses.

This Environmental Assessment (EA) contains the site-specific analysis of potential impacts that could result from implementation of the Proposed Action as well as an analysis of the No Action Alternative. Based on the following analysis, a determination can be made whether to prepare an Environmental Impact Statement (EIS) or issue a “Finding of No Significant Impact” (FONSI). A FONSI documents why implementation of the selected alternative would not result in environmental impacts that significantly affect the quality of the human environment.

Under the law, BLM is required to remove excess animals immediately once a determination has been made that excess animals are present. The Interior Board of Land Appeals (IBLA) rendered several decisions (IBLA 88-591, 88-638, 88-648, and 88-679) which clarified that a wild horse herd size is to be established based on the concept of maintaining a thriving natural ecological balance

However, Bureau of Land Management wild horse and burro program goals have expanded beyond simply establishing and maintaining a “*thriving natural ecological balance*” (i.e. establishing appropriate management level (AML) for individual herds), to include achieving/maintaining population size within the established AML as well as managing for a healthy, self-sustaining wild horse population. The focus of wild horse 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 populations developed by the Northeastern Nevada Great Basin Resource Advisory Council (RAC). The destruction of healthy excess animals is prohibited; adoptions or sales or placement of excess wild horses in long-term holding are the primary means for caring for the animals removed from the range.

Background Information

The Antelope Complex is located approximately 60 miles south of Wells, Nevada, within Elko and White Pine Counties. The Antelope HMA is managed by the Schell F.O. in the Ely District and the Antelope Valley, Goshute, and Spruce/Pequop HMAs are managed by the Wells F.O. in the Elko District. (Refer to Map 1 for general location and Maps 2-5 for HMAs.) Table 1 shows the approximate acres of public and private lands in each HMA. The average annual wild horse population growth rate for each of these HMAs is approximately 18-20%.

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Table 1 Approximate Acres of the HMAs within the Antelope Complex

HMA	Public Acres	Private Acres	Total Acres
Antelope	331,000	0	331,000
Antelope Valley	496,356	6,553	502,909
Goshute	265,260	2,007	267,267
Spruce-Pequop	214,150	9,419	223,569
Total	1,306,766	17,979	1,324,745

1.1 Purpose and Need

The purpose of the Proposed Action (Alternative A) is to remove excess wild horses from the Antelope Complex to maintain the AML ranges for the HMAs and to restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 1333(b) of the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA).

The need for the proposed action is to prevent unnecessary or undue degradation of the public lands and to protect rangeland resources from deterioration associated with excess populations of wild horses within the HMAs and use of rangeland resources by wild horses outside the HMA boundaries.

1.2 Relationship to Laws, Policies and Land Use Plans

The Federal Land Policy and Management Act of 1976 (FLPMA) requires that an action under consideration be in conformance with the applicable BLM land use plan, and be consistent with other federal, state, local and tribal policies to the maximum extent possible. The Proposed Action (Alternative A) and Alternative B are in conformance with the *Wild Free-Roaming Horses and Burros Act of 1971* (as amended), applicable regulations at 43 CFR § 4700 and BLM policies, including:

- **43 CFR § 4710.4 Constraints on Management**
Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas. Management shall be at the minimum level necessary to attain the objectives identified in approved land use plans and herd management area plans.
- **43 CFR § 4720.1 Removal of excess animals from public lands**
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.
- **43 CFR § 4740.1 Use of motor vehicles or aircraft**
(a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses

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or burros for capture or destruction. All such use shall be conducted in a humane manner.

(b) Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

- **43 CFR § 8364.1 Closure and Restriction orders**

(a) To protect persons, property, and public lands and resources, the authorized officer may issue an order to close or restrict use of designated public lands.

(b) Each order shall:

(1) Identify the public lands, roads, trails or waterways that are closed to entry or restricted as to use;

(2) Specify the uses that are restricted;

(3) Specify the period of time during which the closure or restriction shall apply;

(4) Identify those persons who are exempt from the closure or restrictions;

(5) Be posted in the local Bureau of Land Management Office having jurisdiction over the lands to which the order applies;

(6) Be posted at places near and/or within the area to which the closure or restriction applies, in such manner and location as is reasonable to bring prohibitions to the attention of users;

(7) Include a statement on the reasons for the closure; and

(c) In issuing orders pursuant to this section, the authorized officer shall publish them in the Federal Register.

(d) Any person who fails to comply with a closure or restriction order issued under this subpart may be subject to the penalties provided in Sec. 8360.0-7 of this title.

The Proposed Action (Alternative A) and Alternatives B and C are in compliance with the Wells Resource Management Plan (RMP) approved July 16, 1985. Issue 7: Wild Horses, management decisions 1, 2, and 3 direct the management in the project area. An amendment to the Wells RMP for wild horses was approved in August 1993. This amendment further outlines the level of management for wild horses within the planning area including the Antelope Valley, Goshute and Spruce-Pequop HMAs. The Proposed Action and Alternatives B and C are in conformance with this Plan, as amended, and are consistent with federal, state, and local laws, and regulations.

The Proposed Action (Alternative A) and Alternatives B and C are in conformance with the 2008 Ely District ROD and Approved RMP (August 2008) goals and objectives.

The Proposed Action will achieve the wild horse management objectives identified in the Record of Decision (ROD) and Approved Ely District Resource Management Plan (August 2008). The application of fertility control and/or adjustment of the sex ratios to 60% males and 40% females within the Antelope Complex as described in the Proposed Action would slow population growth, maintain population size within AMLs and extend the time before another gather to remove excess wild horses is necessary. Removal of excess wild horses, combined with the implementation of population control measures for

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wild horses gathered and released back into the Complex would result in placing fewer excess wild horses in short or long-term holding or in the adoption or sale pipelines over the next 10 year period as compared to the No Action Alternative.

Leaving excess wild horses on the range under the No Action Alternative would not comply with the 1971 WFRHBA or applicable regulations and Bureau policy, or with either the Wells RMP nor would it comply with the Northeastern Great Basin Resource Advisory Council (RAC) Standards and Guidelines (February 12, 1997) for Rangeland Health and Healthy Wild Horse and Burro Populations (2000). However, it is included as a baseline for comparison with the Proposed Action Alternative, as provided for in the 1969 National Environmental Policy Act (NEPA). The No Action Alternative would allow continued deterioration of rangeland resources, including vegetative, soil and riparian resources, with potentially irreversible loss of native vegetative communities. Wild horses would continue to relocate in increasing numbers to areas outside the HMA boundaries due to competition for limited water and forage in the HMA, adversely impacting public land resources not designated for wild horse management

1.3 Conformance with Rangeland Health Standards

The initial four Standards and Guidelines for Rangeland Health developed by the Northeastern Great Basin Resource Advisory Council (NGBRAC) were approved by the Secretary of the Interior in 1997. The Standards and Guidelines for Wild Horse & Burros were approved in 2000. The NGBRAC Standards and Guidelines for wild horses can be accessed at http://www.blm.gov/nv/st/en/res/resource_advisory/northeastern_great/s_gs/wild_horses.html.

Antelope HMA

The Antelope HMA has been assessed for conformance with Rangeland Health Standards and Guidelines as part of North Spring Valley Steptoe Valley, North Antelope Valley, and Antelope Valley Watershed Assessments. The assessments state that wild horses are contributing to the non-attainment of the Standards and Guidelines for the Antelope HMA. The assessments also recommended that Appropriate Management Levels (AMLs) should be maintained for the Antelope HMA to help achieve rangeland health standards. The assessments also concluded that historical levels of grazing use by livestock and wild horses are factors that have contributed to not meeting the standards for rangeland health. The Cultural Standard was met for all HMAs. Health assessments are available for public review at the Ely District Office.

Antelope Valley HMA

The Antelope Valley HMA has been assessed for conformance with Rangeland Health Standards and Guidelines as part of the Currie, Spruce, Badlands/Goshute Mountain and Sheep Allotment Complex Standard and Guidelines Assessments and Allotment

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Evaluations. The assessments/evaluations state that livestock and wild horses are contributing to the non-attainment of the Standards and Guidelines for the Antelope Valley HMA. The assessment/evaluations/decisions recommended that AML should be maintained for the Antelope Valley HMA to help achieve rangeland health standards. The assessments also concluded that historical levels of grazing use by livestock and wild horses are factors that have contributed to not meeting the standards for rangeland health. The Cultural Standard was met for the HMA. Health assessments are available for public review at the Elko District Office.

Goshute HMA

The Goshute HMA has been assessed for conformance with Rangeland Health Standards and Guidelines as part of the Big Springs and Sheep Allotment Complex allotment evaluations. The assessments/evaluations state that livestock and wild horses are contributing to the non-attainment of the Standard and Guidelines for the Goshute HMA. The assessment/evaluations/decisions recommended that AML should be maintained for the Goshute HMA to help achieve rangeland health standards. The assessments also concluded that historical levels of grazing use by livestock and wild horses are factors that have contributed to not meeting the standards for rangeland health. The Cultural Standard was met for the HMA. Health assessments are available for public review at the Elko District Office.

Spruce/Pequop HMA

The Spruce/Pequop HMA has been assessed for conformance with Rangeland Health Standards and Guidelines as part of the Spruce Allotment Evaluation and recent monitoring completed from 2006 through 2009. The evaluation and decision recommended that AML should be maintained for the Spruce/Pequop HMA to help achieve rangeland health standards. The Cultural Standard was met for the HMA. The health assessment and monitoring data are available for public review at the Elko District Office.

1.4 Consistency with Non-BLM Authorities

The Proposed Action and Alternatives B and C described in chapter 2 of this EA are further consistent with other federal, state, and local laws and regulations, policies and plans to the maximum extent possible including the White Pine County Policy Plan for Public Lands (PPPL) as adopted by the Board of County Commissioners of White Pine County, May 1, 1985 and amended June 12, 1985. This plan states in part, "...wild horse herds should be managed at reasonable levels to be determined with public involvement and managed with the consideration of the needs of other wildlife species and livestock." The Proposed Action and alternatives are also in conformance with the White Pine County Elk Management Plan (EMP), approved March 1999.

The Proposed Action and Alternatives B and C described in chapter 2 of this EA are also consistent with the 2008 Elko County Public Lands Policy Plan. This plan states in part,

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“Manage wild horses to reduce detrimental impacts on other multiple uses and pursue resource enhancement where needed to correct wild horse caused damage.”

To promote the conservation of the greater sage grouse and its habitat which may occur on public lands in all of the wild horse HMAs, BLM follows the October 2000 “*Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada*” (Nevada Guidelines) and the Western Association of Fish and Wildlife Agencies guidelines to manage sage grouse populations and their habitats (WAFWA Guidelines). The Nevada Guidelines (page 8) recognizes grazing has altered sage grouse habitat over the last century, and that the management goal for wild horses is to manage them as components of the public land and to manage them in a manner that preserves and maintains a thriving natural ecological balance in a multiple-use relationship. The Proposed Action and the alternatives are in conformance with the Nevada Department of Wildlife (NDOW) and WAFWA guidelines.

1.5 Other NEPA Analyses

Numerous environmental analyses (EA) have been conducted in past years which have covered the impacts of various removal methods on wild horses and other elements of the human environment, to manage wild horses within the established AMLs for the Antelope Complex. These documents include:

- 1) Elko District Office Wild Horse Management Removal Plan and Environmental Assessment EA# NV-010-7-104, 1987
- 2) Antelope Valley Herd Management Area Plan, EA-NV-010-92-076, 1992
- 3) Spruce/Pequop Herd Management Area Wild Horse Plan and Environmental Assessment BLM/EK/PL-93/037, 1993.
- 4) Antelope Valley Herd Management Area Capture Plan and Environmental Assessment BLM/EK/PL-94/022, 1994.
- 5) Wells Resource Area Management Plan Wild Horse Amendment BLM/EK/PL/93-006, 1993.
- 6) Antelope Complex Wild Horse Gather Plan and Environmental Assessment BLM/EK/PL/2001/044, 2001
- 7) Antelope Complex Wild Horse Gather Plan and Environmental Assessment NV-040-01-077, 2001.
- 8) Antelope Complex Wild Horse Gather Plan and Environmental Assessment BLM/EK/PL/2005/001
- 9) Final Grazing Management Decision for the Sensitive Bird Species Environmental Impact Statement INT-FES-06, 2006.
- 10) Antelope and Antelope Valley Herd Management Areas Emergency Wild Horse Gather Plan Environmental Assessment NV-040-08-EA-04.

All the documents listed above are available in the Elko District Office for public review.

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The following table identifies elements of the human environment that are regulated by a statutory or regulatory authority, including those that the BLM determined would not be affected. Those elements that would potentially be affected are analyzed in Chapter 3 of this EA.

Table 2: Review of Statutory Authorities

ELEMENT/RESOURCE	Present	Affected	Comment
Air Quality	Yes	No	Any effects would be short term (temporary) and minimal.
Area of Critical Environmental Concern	No	No	No areas of critical environmental concern are within or affected by the proposed gather area.
Cultural Resources	Yes	Yes	Analysis and Discussion in Chapter 3 below
Environmental Justice	No	No	The Proposed Action would have no effect.
Farm Land -Prime/Unique	Yes	No	The Proposed Action would have no effect.
Floodplains	Yes	No	Resource is present; however, there would be no impacts to this resource from the proposed action or alternatives.
Human Health and Safety	Yes	Yes	Analysis in EA. A risk management worksheet would be prepared to mitigate any hazards that may present themselves.
Migratory Birds	Yes	Yes	Analysis and Discussion in Chapter 3 below under Wildlife.
Native American Religious Concerns	Yes	No	Various tribes and bands of the Western Shoshone have stated that federal projects and land actions could have widespread effects to their culture and religion because they consider the landscape as sacred and as a provider. However, the proposed action and alternatives have no known potential to impact any specific Native American religious aspect or Traditional Cultural Property.
Non-Native Invasive and Noxious Species	Yes	No	Any noxious weeds or non-native invasive weeds would be avoided when establishing Gather and/or holding facilities and would not be driven through. Noxious weed monitoring at gather/holding sites would be conducted and applicable treatment of weeds would occur as needed. Any areas disturbed from gathering operations would be reclaimed using a certified weed free native seed mixture to minimize any

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ELEMENT/RESOURCE	Present	Affected	Comment
			opportunity for invasive or noxious weeds to be established.
Threatened/Endangered Species	Yes	Yes	Analysis and Discussion in Chapter 3 below under Wildlife
Water Quality (Surface/Ground)	Yes	Yes	Analysis and Discussion in Chapter 3 below under Water
Wastes, Hazardous/Solid	No	No	Not Present
Fisheries and Riparian Zones	Yes	Yes	No fisheries within the Antelope Complex. However, analysis and Discussion for Riparian in Chapter 3 below.
Wild & Scenic Rivers	No	No	Not Present
Wilderness	Yes	Yes	Analysis and Discussion in Chapter 3 below under Wilderness.
Wildlife	Yes	Yes	Analysis and Discussion in Chapter 3 below under Wildlife.

2.0 –ALTERNATIVES

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Alternatives analyzed in detail including the following:

- Alternative A: Proposed Action: Selective removal of excess wild horses to the lower limit of AML, apply two year fertility control to released mares and/or adjust the sex ratio to 60% males and 40% females within the Antelope Complex, and removal of any wild horses residing outside the HMAs boundaries.
- Alternative B: Removal to lower limit of AML and Adjust Sex Ratio. – This alternative would include removal of wild horses within the HMA boundaries to the lower limit of AML, adjusting the sex ratio of remaining population to 60% males and 40% females and removal of any wild horses residing outside the HMAs boundaries.
- Alternative C: Removal Only to lower limit of AML – This alternative would include removal of wild horses above lower limit AML within the HMA boundaries and removal of any wild horses residing outside the HMAs boundaries.
- Alternative D – No Action Alternative (Defer gather and removal).

The Proposed Action (Alternative A) and Alternatives B and C were developed to meet the purpose and need (i.e. to remove excess wild horses and reduce herd growth rates, maintain AML, and ensure a thriving natural ecological balance). The Proposed Action and Alternatives B and C were developed in consideration of the issues identified during internal scoping and agency consultation. Although the No Action alternative does not comply with the 1971 WFRHBA (as amended) and does not meet the purpose and need for action, it is included as a basis for comparison with the Proposed Action.

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2.1 Management actions specific to Alternative A (Proposed Action)

The Proposed Action for the Antelope Complex is to gather 85% of the total estimated population of 2,086 wild horses (which includes the 2010 foal crop), selectively remove approximately 1,298 to 1,659 excess wild horses from within the HMAs and approximately 50 from outside the Goshute and Spruce/Pequop HMAs, apply two year fertility control to up to 214 gathered wild horses and/or adjust the sex ratio to 60% males and 40% females within the Antelope Complex. The gather would occur in January and February of 2011. If gather efficiencies do not allow for the attainment of the Proposed Action in Winter 2011, the Ely and Elko Districts would return to the Antelope Complex in Fall/Winter 2013 or 2014 to remove any additional wild horses necessary in order to achieve the low range of AML as well as to allow BLM to gather a sufficient number of wild horses so as to implement the population control component of the proposed action (fertility control treatments (PZP-22)). Any follow-up gather activities in either Fall/Winter 2013 or 2014 would be conducted in a manner consistent with those described for the Winter 2011 gather. A follow-up gather would be implemented at least two years later because the remaining and released wild horses would have a heightened response to human presence and be more difficult to gather in the year immediately following the initial gather. Funding limitations and competing priorities might also require delaying the follow-up gather and population control component of the Proposed Action to Fall/Winter 2013 or 2014.

Of the animals released post-gather, fertility control would be applied to all the released mares to decrease the future population growth rates. In order to effectively apply fertility control to mares, the gather operation would need to capture at least 81-90% of the entire wild horse population within the Antelope Complex. Fertility control treatment would be conducted in accordance with the Standard Operating Procedures (SOPs) and post-treatment monitoring requirements in Appendix C. Mares to be treated with fertility control (PZP contraceptive vaccine) would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Each released mare would receive a single dose of the two-year PZP contraceptive vaccine. When injected, PZP (antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's eggs, which effectively blocks sperm binding and fertilization (Zoo, Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible.

The highest success for fertility control has been obtained when applied during the timeframe of November through February. The efficacy for the application of the two-year PZP vaccine based on the proposed winter application is as follows:

Year 1¹	Year 2	Year 3
92%	84%	60%

¹Year one is the year following the gather and treatment.

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One-time application at the capture site would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in Year 1.

The injections would be controlled, handled, and administered by a trained BLM employee. Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the HMA, and none are expected to have long term consequences from the fertility control injections.

Of the animals released post-gather, fertility control would be applied and/or sex ratios would be adjusted to favor males. In order to effectively apply fertility control to mares and/or adjust sex ratios, the gather operation would need to capture at least 81-90% of the entire wild horse population within the Antelope Complex. Fertility control treatment would be conducted in accordance with the Standard Operating Procedures (SOPs) and post-treatment monitoring requirements in Appendix C. Mares to be treated with the fertility control vaccine would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Animals would be removed using a selective removal strategy: 1st priority – age 4 years and younger; 2nd priority – age 11-19; 3rd priority – age 5-10. Animals 20 years and older should not be removed from the Antelope Complex unless specific exceptions prevent them from being turned out and left on the range. In general, this age group can survive on the Antelope Complex but would have greater difficulty adapting to captivity and the stress of handling and shipping if removed.

As many as 427 wild horses in the Antelope Complex would be released back onto to the range following the gather. Post-gather, every effort would be made to return released animals to the same general area within the Complex from which they were gathered.

The following table shows the estimated number of wild horses to be removed and to be treated and released back into the HMAs.

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Table 3 Estimated Numbers

HMA	Estimated Population at gather time (this includes the 2010 foal crop)	AML Range for the HMA	Estimated maximum numbers to remove to reach Low/High AML	Estimated maximum number to be treated and released back to the HMA
Antelope	438	150-324	288-114	150
Antelope Valley	743	155-259	588-484	155
Goshute	479	74-123	405-356	74
Spruce/Pequop	376	48-82	328-294	48
Outside HMAs	50	n/a	50	n/a
Total	2,086	427-788	1,659-1,298	427

Under the Proposed Action alternative, of the maximum 427 wild horses released following the gather, approximately 171-214 would be breeding age mares treated with PZP-prior to their release. Because it is unlikely that BLM would be able to gather 100% of the wild horses remaining within the HMAs, the actual number of mares to be treated and released would almost certainly be less than 214. The exact number of mares treated would depend on the number of wild horses gathered. Fertility control would be conducted in accordance with the Standard Operating Procedures (Appendix A).

2.2 Alternative B – Removal to Lower Limit of AML and Adjust Sex Ratio

Under this alternative, the same numbers of wild horses would be gathered, removed, and released as in Alternative A. However, only sex ratio adjustments to reduce herd growth rates would be implemented with a 60% male to 40% female ratio implemented. The age groups for selecting wild horses for release would be used to determine those wild horses returned to the HMAs. No fertility control treatments would be implemented. Wild horses that are outside the HMAs would be permanently removed.

If gather efficiencies do not allow for the attainment of the numbers as outlined in the Proposed Action in the Winter of 2011, the Ely and Elko Districts would return to the Antelope Complex in Fall/Winter 2013 or 2014 to remove any additional wild horses necessary in order to adjust sex ratios and achieve the low range of AML as well as to allow BLM to gather a sufficient number of wild horses so as to implement the population control component of the proposed action (fertility control treatments (PZP-22)). Any follow-up gather activities in either Fall/Winter 2013 or 2014 would be conducted in a manner consistent with those described for the Winter 2011 gather. A follow-up gather would be implemented at least two years later because the remaining and released wild horses would have a heightened response to human presence and be more difficult to gather in the year immediately following the initial gather. Funding limitations and competing priorities might also require delaying the follow-up gather and population control component of the Proposed Action to Fall/Winter 2014.

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2.3 Alternative C – Removal Only to AML lower limit

Under this alternative, the same numbers of wild horses would be gathered, removed, and released as in the proposed action. However, there would not be any fertility control treatments or sex ratio adjustments to reduce herd growth rates. The Standard Operating Procedures outlined the following Instruction Memo would be used

http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-135.html

for selecting wild horses for release would be used to determine those wild horses returned to the Antelope Complex. Wild horses that are outside the Antelope Complex would be permanently removed.

If gather efficiencies do not allow for the attainment of Alternative C in Winter 2011, the Ely and Elko Districts would return to the Antelope Complex in Fall/Winter 2013 or 2014 to remove any additional wild horses necessary in order to achieve the low range of AML. Any follow-up gather activities in either Fall/Winter 2013 or 2014 would be conducted in a manner consistent with those described for the Winter 2011 gather. A follow-up gather would be implemented at least two years later because the remaining and released wild horses would have a heightened response to human presence and be more difficult to gather in the year immediately following the initial gather. Funding limitations and competing priorities might also require delaying the follow-up gather component of the Alternative C to Fall/Winter 2014.

2.4 Management Actions Common to Alternatives A, B and C

- The Proposed Action and Alternatives B and C would manage wild horses within their established AML ranges for the Antelope Complex.
- The gather operation on the Antelope Complex would be completed in about 31-40 days. Total operational time (continuous) would be 31 – 40 days.
- All wild horses outside the HMA boundaries would be permanently removed.
- All gathering and handling activities would be conducted in accordance with the Standard Operating Procedures (SOPs) described in Appendix A. Several factors such as animal condition, herd health, weather conditions, or other considerations may result in adjustments to the gather schedule.
- The helicopter drive-trapping method would be used and would include multiple gather sites. BLM would be responsible for contractor compliance to national contract specifications, including SOPs.
- All capture and handling activities (including capture site selections) would be conducted in accordance with SOPs (Appendix A).
- Gather sites and holding facilities would be located in previously disturbed areas where feasible. Undisturbed areas would be inventoried for cultural resources. If cultural resources are encountered, these locations would not be used unless modifications to avoid impacts to cultural resources are feasible. Gather sites and holding facilities would not be placed in known areas of Native American concern.
- Gather sites and holding facilities would not be located in riparian areas including streams, meadows and/or seeps and springs.

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- No gather sites would be set up in/or near sage grouse leks. Capture sites would be located at previously used sites, unless horses are found in areas that require selection of a new site.
- In the case of the Goshute HMA, a gather site would be located within the Bluebell Wilderness Study Area (WSA). The proposed site is located at Shafter Well, located at T33N, R67E, Section 12, NWSE (Map 14). The site is currently used as a livestock water development just inside the WSA boundary. The well was in existence prior to the WSA designation and is a grandfathered use. The proposed gather activities would not create any additional disturbance affecting wilderness values. No gather activities such as gather facilities and holding corrals would occur within the South Pequop WSA, Goshute Peak WSA, or Becky Peak Wilderness Area; however, herding of wild horses by helicopter would be allowed within these areas.
- Temporary closures of public lands may be implemented to ensure the safety and welfare of the public, contractors, and government employees, and to provide for the orderly implementation of authorized actions to gather excess wild horses.
- A veterinarian from the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) or licensed contract veterinarian may be consulted, as needed, to examine animals and make recommendations to BLM for care and treatment of wild horses. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Conditions requiring humane euthanasia occur infrequently and are described in more detail in Section 4.13 Current policy reference:
http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html
- Information such as: age, sex, color, body condition, or other characteristics would be recorded for captured animals.
- Excess animals would be sent to Bureau facilities for adoption, sale, or long-term holding.
- Noxious weed monitoring at gather sites and temporary holding facilities would be conducted in the spring and summer of 2012 by BLM.
- Vehicles would be limited to existing roads except where gather sites are established. However, gather sites would only be established in previously disturbed areas, where possible. If it is not possible to select a disturbed area for a gather site, the area would be seeded with a certified weed free mix. This mix would consist of site-adapted species that would be broadcasted and dragged prior to March 31, 2012 by the BLM. Weed treatments and inventories would continue in this area as part of regular duties of the Weeds Program.
- Monitoring of forage condition and utilization, water availability, aerial surveys of population and animal health of wild horses would continue post-gather as part of the normal Bureau wild horse and burro program monitoring.

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2.5 No Action (Alternative D)

Under the No Action Alternative, a gather to remove excess wild horses would not take place. There would be no active management to control the size of the wild horse population at this time. The current population of wild horses in the Antelope Complex would continue to increase at a rate of 18-20% annually. However, if the No Action Alternative were selected, a gather would have to occur at a later date to comply with WFRHBA, the land use plans of the Elko and Ely Districts, and the standards and guidelines for rangeland health.

2.6 Alternatives Considered But Eliminated from Detailed Analysis

Water/Bait Trapping Alternative

An alternative which was eliminated from detailed consideration was to water/bait trap wild horses within the Complex. Though water/bait trapping is an effective tool for specific management purposes, this alternative was dismissed from detailed study for the following reasons: (1) the size of the gather area is too large to make this a feasible method; (2) the presence of water sources on both private and public lands inside and outside the HMAs boundaries would make it almost impossible to restrict wild horse access to only selected water trap sites, which would extend the time required to remove the excess horses or make it impossible to capture all of the excess horses; and (3) access for vehicles necessary to safely transport gathered wild horses is limited. The large geographic area involved, the significant amount of time necessary for implementing this alternative, and the difficulty of ensuring wild horse use of only the water trap areas would make it difficult (if not impossible) to gather excess horses within a manageable gather time frame or without a significant increase in gather costs. In addition, vehicles could not access an adequate number of water/bait trap sites and safely transport these captured horses to allow for an effective gather. In summary, bait/water trapping would not be effective and would be much more costly and time-consuming. Given the impracticalities of implementing this alternative for such a large geographic area, this alternative was eliminated from detailed study.

Remove or Reduce Livestock within the HMAs

This alternative would involve no removal of wild horses and would instead address excess wild horse numbers through removal or reduction of livestock within the HMAs. In essence, this alternative would simply exchange use by livestock for use by wild horses. This alternative was not brought forward for analysis because it is inconsistent with the 1985 Wells RMP ROD, the 1993 Wells RMP Wild Horse Amendment, the Schell RMP ROD, and the WFRHBA which directs the Secretary to immediately remove excess wild horses. This alternative is also inconsistent with the BLM's multiple use management mission under FLPMA. Additionally, livestock grazing can only be reduced or eliminated following the process outlined in the regulations found at 43 CFR Parts 4100. Such changes to livestock grazing cannot be made through a wild horse gather decision. Furthermore, even with the current situation of significantly reduced

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levels of livestock grazing within the Antelope Complex from the levels outlined in the 1985 Wells RMP, there is insufficient habitat for the current population of wild horses. As a result, this alternative was not analyzed in detail.

Wild Horse Numbers Controlled by Natural Means

This alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to prevent the range from deterioration associated with an overpopulation of wild horses. It is also inconsistent with the 1985 Wells RMP and 1993 Wells RMP Wild Horse Amendment which directs that Elko District BLM conduct gathers as necessary to achieve and maintain AML. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. Since the last gather in 2007 within the Antelope Complex, wild horses within the Antelope Complex have increased to over 2,086 or more than four times the low end of the AML range within only four years. Wild horses in the Antelope Complex are not substantially regulated by predators or other natural factors. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95%, and they do not self-regulate their population growth rate. This alternative would result in a steady increase in numbers which would continually exceed the carrying capacity of the range until severe and unusual conditions that occur periodically-- such as blizzards or extreme drought-- cause catastrophic mortality of wild horses.

Gathering the Antelope Complex to Upper Range of AML

Under this Alternative, a gather would be conducted to gather and remove enough wild horses to achieve the upper level of the AML (788 wild horses) within the Antelope Complex. A post-gather population size at the upper level of the AML would result in AML being exceeded following the next foaling season (spring 2012). This would be unacceptable for several reasons.

The AML represents “that ‘optimum number’ of wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range.” (Animal Protection Institute, 109 IBLA 119 (1989).) The Interior Board of Land Appeals has also held that, “Proper range management dictates removal of horses before the herd size causes damage to the rangeland. Thus, the optimum number of horses is somewhere below the number that would cause resource damage” Animal Protection Institute, 118 IBLA 63, 75 (1991).

The upper level of the AMLs established for the Antelope Complex represents the maximum population for which thriving natural ecological balance would be maintained. The lower level represents the number of animals to remain in the Antelope Complex immediately following a wild horse gather in order to allow for a periodic gather cycle and prevent the population from exceeding the established AML between gathers.

Additionally, gathering only to the upper range of AML, would result in the need to follow up with another gather within one year and could result in continued overutilization of vegetation resources and damage to important wildlife habitats.

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Frequent gathers could increase the stress to wild horses, as individuals and as entire herds. For these reasons, this alternative was eliminated from further consideration.

3 -AFFECTED ENVIRONMENT/EFFECTS OF ALTERNATIVES

This chapter characterizes the resources that may be affected by the Proposed Action and the alternatives including the No Action alternative, followed by a comparative analysis of the direct, indirect and cumulative impacts of the alternatives. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

3.1 Scope of Analysis

General Description of the Affected Environment of the Antelope Complex

The Antelope Complex is located in southeastern Elko County and northeastern White Pine County approximately 60 air miles south of Wells, Nevada. The area is within the Great Basin physiographic region. This region is located in the Great Basin which is one of the largest deserts in the world. The Great Basin is effectively cut off from the westerly flow of Pacific moisture. Orographic uplift of crossing air masses by the Sierra and the Cascades provides cooling and precipitates much of the moisture out. The result is a Dry Steppe cold climate classification for most of the Great Basin. The climate is typical of middle latitude, semi-arid lands where evaporation potential exceeds precipitation throughout the year. Precipitation normally ranges from approximately five to seven inches on the valley bottoms to 16 to 18 inches on the mountain peaks. Most of this precipitation comes during the winter months in the form of snow occurring primarily in the winter and spring with the summers being quite dry. Temperatures range from greater than 90 degrees Fahrenheit in the summer months to minus 15 degrees or colder in the mountains in the winter. The Complex is characterized by long wide valleys and long narrow steep mountain peaks covered with heavy pinyon juniper woodlands. On many of the low hills and ridges that are scattered throughout the area, the soils are underlain by bedrock. Elevations within the Antelope Complex range from approximately 5,000 feet to 10,200 feet.

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Antelope Valley looking north (2010).

The area is also utilized by domestic livestock and numerous wildlife species. The area is bordered to the west by Hwy 93 and to the east by the Utah-Nevada state line.

The boundary between the Antelope HMA and that portion of the Antelope Valley HMA east of Alternate Highway 93 does not have a continuous fence or natural boundary and wild horses move regularly between the HMAs for water and forage. The boundaries between the Antelope Valley, Goshute, and Spruce/Pequop HMAs are not fenced nor do they have any natural boundaries. As a result, wild horses move regularly between the HMAs for water and forage.

The Antelope Complex is very dry with very few perennial waters (see maps 6-9). The majority of the limited water resources which are small seeps and springs are mainly found in the mountains.

In general, the vegetation consists of big sagebrush-grass and low sagebrush-grass, montane shrub, salt desert shrub, black sagebrush, winterfat, pinyon-juniper, and montane riparian communities.

The foothills and mountain areas are dominated by big sagebrush-grass and low sagebrush-grass types. Primary shrubs are big sagebrush, low sagebrush, and rabbitbrush. Major grass species include bluebunch wheatgrass, Indian ricegrass, Sandberg's bluegrass, needlegrass, and bottlebrush squirreltail. Forbs include milkvetch, arrowleaf balsamroot, lupine, phlox, and aster. The higher mountainous areas support mountain browse species that include serviceberry, snowberry, and antelope bitterbrush. Riparian areas at high elevations support cottonwood and wild rose.

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The valleys are dominated by salt desert shrub and black sagebrush communities which consist of winterfat, shadscale, bud sagebrush, black sagebrush, and rabbitbrush. Major grass species in the valleys include Indian ricegrass, Sandberg's bluegrass, needlegrass, and bottlebrush squirreltail. Forbs include milkvetch, lupine, phlox, and aster.

3.2.1 Wild Horses

Affected Environment

AML is defined as the maximum number of wild horses that can be sustained within a designated HMA which achieves and maintains a thriving natural ecological balance keeping within the multiple-use management concept for the area. The AML for the Antelope Complex HMA was established as a population range of 427-788 between 1990 and 2006 (Appendix E) through the Final Multiple Use Decisions (FMUDs) following an in-depth analysis of monitoring data collected over several years.

In the Antelope Complex, wild horse population growth rates average 18-20% per year. Population inventory flights have been conducted in the Antelope Complex regularly. These population inventory flights have provided information pertaining to: population numbers, foaling rates, and distribution.

Prior to and during the claiming period some wild horses were gathered in water traps (see picture below), and it was not until the late 1990's-early 2000's that the complex as a whole was gathered.



Summit Spring water trap 1974-1975 in the Goshute Mountains (Bluebell WSA).

To achieve and maintain AML, the entire Antelope Complex has been gathered three times in the last ten years. In 2001, 2,200 excess wild horses were removed from the

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Antelope Complex and in 2004-2005, 1,548 excess wild horses were removed. In 2007, an emergency gather was conducted gathering 847 excess wild horses.

The Antelope Complex last scheduled gather was in 2004-2005 where a total of 1,548 excess wild horses were removed. At that time, it was estimated that 473 wild horses remained on the range.

In 2001, the NDOT fenced the Highway 93 ROW (Right of Way) to improve public safety as numerous vehicle/horse collisions had occurred in previous years. This fence separated the western portion of the Antelope Valley HMA from the rest of the HMA. It was last gathered as part of the Buck and Bald Complex Gather in 2006. This portion of the Antelope Valley HMA is separated from the rest of the Antelope Valley HMA by the Highway 93 ROW fence. The wild horses in the western portion of the HMA move freely back and forth with wild horses from the Maverick/Medicine HMA.

In the spring of 2007, the Nevada Department of Transportation fenced the Alternate Highway 93 right-of-way to ensure public safety. This new fence divided the eastern 1/3 of the Antelope Valley HMA from the rest of the management area, with the result that the animals in this area could no longer migrate to their traditional winter range in the Dolly Varden Mountains. The Antelope Valley HMA is now separated into three different parts by these two highway right-of-way fences.

In October 2007, a population inventory flight found a total of 1,181 wild horses in the Antelope HMA and in the eastern portion of the Antelope Valley HMA (east of the Alternate Highway 93 fence). Coupled with the fence project, the area was also heavily impacted by continuing drought conditions and lack of available water in 2007. In December 2007 the BLM conducted an Emergency Gather of wild horses in the Antelope HMA and the eastern portion of the Antelope Valley HMA and removed a total of 847 excess wild horses.

Assessments for conformance with Rangeland Health Standards have been completed and are ongoing for the grazing allotments in the Antelope Complex. As assessments are updated, additional adjustments in livestock season of use, livestock numbers, wild horse numbers, and grazing systems may be made through the allotment evaluation/MUD process.

In December 2007, the Wells Field Office conducted a population inventory flight of the Antelope Valley HMA (west of the Alternate Highway 93 fence), Goshute and Spruce/Pequop HMAs and found 624 wild horses in the those HMAs.

Population inventories were completed for the Antelope Complex in 2009 and 2010. Based on the population inventories, the current estimated population for the Antelope Complex and areas outside of the Complex is approximately 2,086 wild horses (which includes the 2010 foal crop). These data indicate the current population is about four times the low range of the AML, or 1,659 wild horses above the low range AML. The BLM would conduct pre-inventory flights of the Antelope Complex this fall to verify

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numbers. Population estimates indicate an average annual growth rate for the Antelope Complex wild horse herd of 18-20% per year over the past several years.

Extensive on-the-ground monitoring in the Antelope Complex shows a very limited supply of water on public lands (see Maps 6-9). Many of these springs and seeps provide low flows with most of the sources producing well below a gallon per minute. Waters located on private lands are sustaining the existing wild horse population and are receiving significant resource impacts associated with this use. The Antelope Complex's limited water resources simply cannot support large numbers of wild horses above the AML range especially in dry years. Due to the lack of available year-round waters on public lands and the impacts by wild horses to the limited riparian areas, AMLs would be re-evaluated in the future to take water availability into account whereas water availability was not used in the establishment of previous AMLs. In 2007, 2008 and 2010, the BLM hauled water for wild horses in the Antelope Complex due to lack of available water. To illustrate the lack of water: in July 2010 the BLM found 80-100 wild horses around the Deer Spring conveyance while water flow was estimated at 4.7 gallons/hour (gph). In August 2010, with 80 wild horses at the spring, flow had decreased to three gph. To address the lack of water, the Elko BLM installed a guzzler in July 2010 near the spring and hauled water to the guzzler on several occasions after installation. In September 2010, a BLM specialist found that while the spring flow rate remained at three gph, the number of wild horses around the spring had increased to approximately 200. The current excess population of wild horses is resulting in increased demand for water and increased impacts to riparian areas. A reduction in wild horse numbers to the low range of the AML or 427 wild horses would reduce the demand for very limited water resources.



Wild horse impacts at Deer Spring conveyance with guzzler and overflow hose (August 2010).

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Wild horses waiting for a chance to drink water at Deer Spring conveyance (September 2010).



Mare and foal at Deer Spring conveyance (September 2010).

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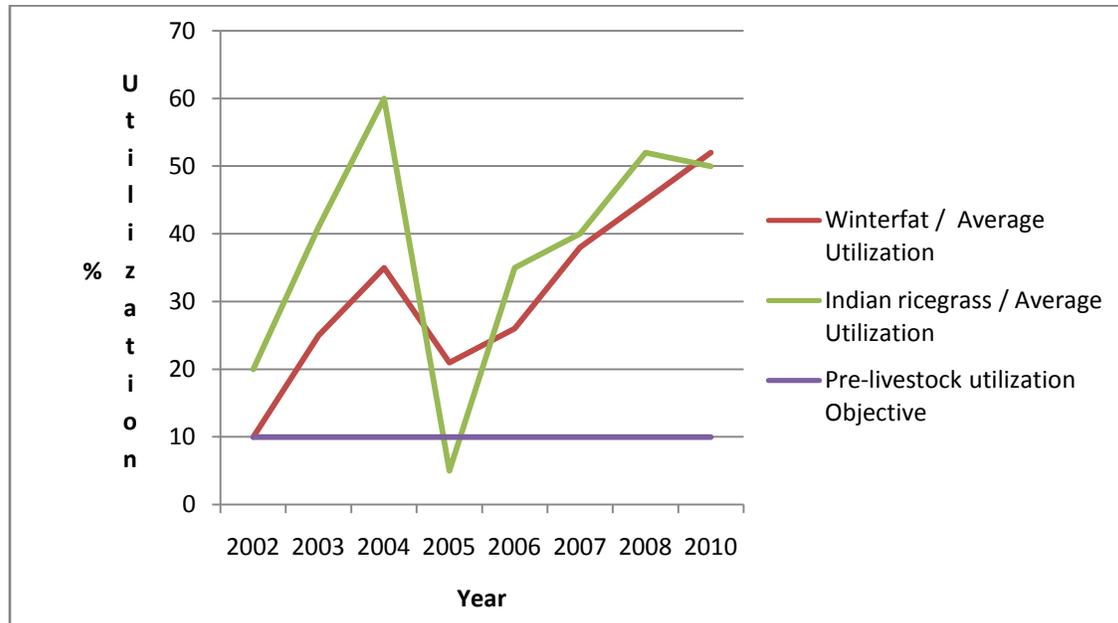


Deer Spring conveyance (2010) showing very limited available water and area vegetation denuded by wild horse use.

A Wild Horse amendment to the Wells Resource Management Plan was approved in August 1993. This amendment further outlined the level of management for wild horses within the planning area including the Antelope Valley, Goshute and Spruce-Pequop HMAs. The Amendment established wild horse pre-livestock allowable use levels at 10%. (Utilization of key forage species by wild horses in areas used in common will not exceed an average of 10 percent prior to entry by livestock). This objective has not been achieved due to dry conditions and excess wild horse numbers. Utilization by wild horses prior to entry by livestock has averaged 31.5% on winterfat and 38% on Indian ricegrass.

Analysis of 2006 through 2010 pre-livestock field monitoring data clearly demonstrates an excess of wild horses in the Antelope Complex. Measurements of upland utilization on key grass species ranged from 12 percent to 64 percent, including areas rested from livestock use and winter use areas. Measurements of upland utilization on the key shrub species winterfat (*Krascheninnikovia lanata*) ranged from 21 percent to 78 percent, including areas rested from livestock use and winter use areas. Analysis of pre-livestock field monitoring data clearly shows a correlation between high utilization levels and excessive wild horses (see graph below):

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The Antelope Complex was gathered in 2001-2002. The utilization chart above begins with pre-livestock utilization in the fall of 2002. The dip in utilization made by wild horses in the fall of 2005 correlates to the decreased wild horse numbers after the gather in late 2004-05.

Observations in the spring of 2009 showed excessive use by wild horses on winterfat in the Antelope Complex (see pictures below).



Excessive utilization on winterfat by wild horses in the Antelope Complex. (Spring 2009)

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Excessive utilization on winterfat by wild horses in the Antelope Complex. A quarter is used for scale. (Spring 2009)

In May 2010 monitoring measurements of upland utilization by wild horses on the key shrub species winterfat ranged from 34 percent to 52 percent on previous (2009) year's growth.

Heavy trailing by wild horses is evident at riparian areas, water developments and wilderness study areas (WSAs). (See pictures below.)



Trails made by wild horses to Rock Spring (located lower left) in the Bluebell WSA (2009).

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Excessive use by wild Horses at Rock Spring, Bluebell WSA (Spring 2009).



Unnamed spring in Bluebell WSA showing very limited flow and negative impacts by wild horses (2010).

There is growing concern about limited water and forage available to wild horses, livestock, and wildlife in the desert climate of the Great Basin. Heavy use of forage near available water and competition between wild horses, livestock, and wildlife for limited forage and water has increased. The livestock permittees haul water, provide water in water pipelines or pump wells for their livestock. When livestock are not turned out there is limited water for wild horses.

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The U.S. Drought Monitor continues to show abnormally dry conditions on portions of the Antelope Complex in early August 2010. Information can be found at the following link: <http://drought.unl.edu/dm/monitor.html>

Given the dry conditions and the expanding horse numbers along with the limited perennial water sources in the Antelope Complex, the BLM has a concern that wild horses could suffer from dehydration and possible death in the Antelope Complex. BLM is and will be actively monitoring this situation leading up to the proposed gather operation.

Fertility Control

Fertility control has been conducted within the Antelope Complex three times previously. The Antelope Valley HMA was used as the original case study for fertility control for BLM. The gather was conducted in 1992 and 132 mares were treated with Porcine zona pellucida (PZP). Twenty nine of those mares were treated with a one dose version which was being tested to determine if one year of fertility control could be achieved. Additionally, 103 mares were transported to the BLM holding facility in Palomino Valley. These mares were treated with the same one shot vaccine and then given a booster 14 days later. These 103 mares were then released back to Antelope Valley HMA. The two shot dose was being tested to determine if this treatment protocol boosted the efficacy of the one year vaccine compared to the one shot protocol. A Final Report on the Field Study can be found at the Elko District Office.

The entire Antelope Complex was gathered in 1998; 511 mares were treated and released with the one year shot. (46 mares originally from the 1992 gather were recaptured and treated as part of the 511 mares.) No extensive data were collected following the 1998 gather.

The Antelope Complex was also gathered in 2004, with 73 mares being treated and released.

Genetic Diversity

In the Antelope Complex wild horses have been part of the range environment in the Great Basin since contemporary livestock grazing began in the mid 1800's. The wild horses in the Antelope Complex are descendants from homesteaders, ranchers, and miners. There is some evidence that the Army Remount Service was active in at least part of the area during the early 1900's to the early 1940's. The dominant colors are bay, sorrel, black, brown, buckskin, gray and dun.

Blood samples were collected from 95 horses during the 2001 Antelope Complex gather to develop genetic baseline data (e.g. genetic diversity, historical origins of the herd, unique markers). The samples were analyzed by a geneticist (E. Gus Cothran) at the Department of Veterinary Science, University of Kentucky (currently at Texas A&M

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University) to determine the degree of heterozygosity for the herd. Past gathers in the Antelope Complex have not resulted in genetic diversity problems. These data would be incorporated into a Herd Management Area Plan(s) in the future. At this time, there is no evidence to indicate that the Antelope Complex animals suffer from reduced genetic fitness. Genetics analysis results are available at the Elko District Office.

The Antelope, Antelope Valley, and Goshute HMAs are all connected and separated by little fencing. Although the Spruce/Pequop HMA is not connected to the other three HMAs within the Antelope Complex, there are no barriers to prevent wild horses from moving into the nearby HMAs. Wild horses have been documented moving back and forth from the Spruce/Pequop HMA to the other HMAs within the Antelope Complex. A large amount of known movement does occur among these HMAs but no formal research has been completed to determine the amount of movement that does occur. This known movement helps to diversify these gene pools and contributes to the observed genetic diversity within the herds. Samples would again be collected during the proposed gather for genetics analysis.

Summary

Based upon the population inventory information available at this time, the BLM has determined that an estimated 1,298 to 1,659 excess wild horses from within the HMAs and approximately 50 from outside the Goshute and Spruce/Pequop HMAs would need to be removed.

The BLM's excess determination is based on a number of factors including, but not limited to:

- The current wild horse population is significantly over AML, at four times the lower range of AML in the Antelope Complex.
- There are limited water sources available for use by the current wild horse population within the Antelope Complex, resulting in damage to water resources and increasing the potential for an emergency situation.
- In contrast to excess wild horse numbers, livestock use has averaged only 47% of the active permitted use on the Antelope Complex over the past eight years. See Tables 6 and 7 in Section 3.2.6 for more information on permitted and actual livestock use.

Direct and Indirect Effects of Alternatives

Proposed Action and Alternatives B & C

The WinEquus program, developed by Dr. Steven Jenkins at the University of Nevada at Reno was designed to assist Wild Horse and Burro Specialists model various management options and project possible outcomes for management of wild horses. Population modeling was completed to analyze possible differences that could occur to the wild horse populations among alternatives. Included for this analysis was an assessment of the Proposed Action and removal of excess wild horses without fertility control. The No Action Alternative (no removal) alternative was also modeled. One

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objective of the modeling was to project if the Proposed Action would “crash” the population or cause extremely low population numbers or growth rates. Minimum population levels and growth rates were found to be within reasonable levels and adverse impacts to the population are not likely.

Since 2004, BLM Nevada has gathered just over 26,000 excess animals. Of these, mortality has averaged only 0.5%, which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. These data affirm that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses and burros from the public lands. BLM also avoids gathering wild horses by helicopter from March 1 through June 30.

Over the past 35 years, various impacts to wild horses from wild horse gathers have been observed. Individual, direct impacts to wild horses include handling stress associated with the roundup, capture, sorting, animal handling, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. The wild horse is a very adaptable animal and assimilates into the environment with new herd members quite easily. Observations made following the completion of gathers shows that captured wild horses acclimate quickly to the holding corrals and become accustomed to water tanks and hay, as well as human presence.

Direct impacts include injuries sustained by wild horses during gathers, such as nicks and scrapes to legs, face, or body from brush or tree limbs while being herded to the gather corrals by the helicopter. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are not fatal and can be treated with medical spray at the holding corrals until a veterinarian can examine the animal. During the actual herding of wild horses with a helicopter, injuries are rare, and consist of scrapes and scratches from brush, or on rare occasions broken legs from wild horses stepping into a rodent or badger hole.

Most injuries are sustained once the wild horse has been captured and is either within the gather corrals or holding corrals, or during transport between the facilities and during sorting. These injuries result from kicks and bites, and from animals making contact with corral panels or gates. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and to move the wild horses into the large holding pens where they can settle in with hay and water. Injuries received during transport and sorting consist of superficial wounds of the rump, face, or legs. Despite precautions, occasionally a wild horse will rear up or make contact with panels hard enough to sustain a fatal neck break, though such incidents are rare. There is no way to reasonably predict any of these types of injuries. On many gathers, no wild horses are injured or die. On some gathers, due to the genetic background of the wild horses, they are not as calm and injuries are more frequent. Overall, however, injuries and death are not frequent and usually average less than 0.5% of gathered horses.

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Though some members of the public have expressed the view that helicopter gathers are not humane, most injuries occur once the wild horses are captured, and similar injuries would also be sustained if horses were captured through bait trapping, as the animals would still need to be sorted, aged, transported and otherwise handled. Serious injuries requiring euthanasia could occur in less than 5 wild horses per every 1000 captured based on prior gather statistics.

Temporary Holding Facilities During Gathers

Wild horses gathered would be transported from the gather sites to a temporary holding corral within the Antelope Complex in goose-neck trailers. Holding facilities and gather sites have historically been located on private lands due to road access and available water (i.e. private land around Dolly Varden spring has been used for a holding site since the mid 1980's) and may be located on private lands again during this proposed gather. At the temporary holding corral, wild horses would be sorted into different pens based on sex. The horses would be aged and fed good quality hay and water. Wild horses selected for return to the HMAs after the application of fertility control and/or near the end of the gather operation would be kept in pens separate from horses that would be removed. Mares and their un-weaned foals would be kept in pens together.

Transport, Short Term Holding, and Adoption Preparation

About 1,298 to 1,659 excess horses would be removed. Wild horses removed from the range would be transported to the receiving short-term holding facility in a goose-neck stock trailer or straight-deck semi-tractor trailers. Animals would be transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s). From there, they would be made available for adoption or sale to qualified individuals or to long-term pastures (LTPs).

Vehicles are inspected by the BLM COR or PI prior to use to ensure wild horses can be safely transported and that the interior of the vehicle is in a sanitary condition. Wild horses are segregated by age and sex and loaded into separate compartments to the extent possible. A small number of mares may be shipped with foals or smaller, younger, and/or weaker mixed sex groups of horses may be shipped together. Transportation of recently captured wild horses is limited to approximately 8 hours. During transport, potential impacts to individual horses can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to be seriously injured or die during transport.

Upon arrival at the short term holding facility, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are fed good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. At the short-term holding facility, a veterinarian examines each load of horses and provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe

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tooth loss or wear, club feet, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA). Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to feed. Some of these animals are in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some mares may lose their pregnancies. Every effort is taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freeze-marking the animals with a unique identification number, drawing a blood sample to test for equine infectious anemia, vaccination against common diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses are similar to those that can occur during handling and transportation. Serious injuries and deaths from injuries during the preparation process are rare, but can occur.

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% per year (GAO-09-77, Page 51), and includes animals euthanized due to a pre-existing condition; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation.

Adoption or Sale with Limitations, and Long Term Pastures

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall for horses over 18 months of age. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse for one year and the horse and the facilities are inspected to assure the adopter is complying with the BLM's requirements. After one year, the adopter may take title to the horse after an inspection from a humane official, veterinarian, or other individual approved by the authorized officer, at which point the horse becomes the property of the adopter. Adoptions are conducted in accordance with 43 CFR 4750.

Potential buyers must fill out an application and be pre-approved before they may buy a wild horse. A sale-eligible wild horse is any animal that is more than 10 years old; or has been offered unsuccessfully for adoption three times. The application also specifies that buyers are not to re-sell the animal to slaughter buyers or anyone who would sell the animal to a commercial processing plant. Sales of wild horses are conducted in accordance with Bureau policy.

Between 2007 and 2009, nearly 62% of excess wild horses or burros were adopted and about 8% were sold with limitation (to good homes) to qualified individuals. Animals 5 years of age and older are generally transported to LTPs. Each LTP is subject to a

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separate environmental analysis and decision making process. Animals in LTPs remain available for adoption or sale to individuals interested in acquiring a larger number of animals and who can provide the animals with a good home. The BLM has maintained LTPs in the Midwest for over 20 years.

Potential impacts to wild horses from transport to adoption, sale or LTP are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or LTP, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18-24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and about 25 pounds of good quality hay per horse with adequate bunk space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested. The rest period may be waived in situations where the travel time exceeds the 24-hour limit by just a few hours and the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

LTPs are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. There wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 22,700 wild horses, that are in excess of the existing adoption or sale demand (because of age or other factors), are currently located on private land pastures in Iowa, Kansas, Oklahoma, and South Dakota. Located in mid or tall grass prairie regions of the United States, these LTP are highly productive grasslands as compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 8-10 acres per animal). The majority of these animals are older in age.

Mares and castrated stallions (geldings) are segregated into separate pastures except one facility where geldings and mares coexist. No reproduction occurs in the long-term grassland pastures, but foals are born to mares that were pregnant when they were removed from the range and placed onto the LTP. These foals are gathered and weaned when they reach about 6-10 months of age and are then shipped to short-term facilities where they are made available for adoption. Handling of wild horses in LTP by humans is minimized to the extent possible although regular on-the-ground observation and weekly counts of the wild horses to ascertain their numbers, well-being, and safety are conducted. A very small percentage of the animals may be humanely euthanized if they are in very thin condition and are not expected to improve to a Body Condition Score (BCS) of 3 or greater due to age or other factors. Natural mortality of wild horses in LTP averages approximately 8% per year, but can be higher or lower depending on the average age of the horses pastured there (GAO-09-77, Page 52). The savings to the American taxpayer which results from contracting for LTP averages about \$4.45 per horse per day as compared with maintaining the animals in short-term holding facilities.

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Euthanasia and Sale without Limitation

While humane euthanasia and sale without limitation of healthy horses for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004 and again in 2010 for this purpose. It is unknown if a similar limitation will be placed on the use of FY2011 appropriated funds

Wild Horses Remaining or Released into the Antelope Complex following Gather

Under the Proposed Action and Alternatives B and C, the post-gather population of wild horses would be about 427 wild horses, which is the low range of the AML for the Antelope Complex. Reducing population size would also ensure that the remaining wild horses are healthy and vigorous, and not at risk of death or suffering from starvation due to insufficient habitat coupled with the effects of frequent drought (lack of forage and water).

The wild horses that are not captured may be temporarily disturbed and move into another area within the Antelope Complex during the gather operations. With the exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of when wild horses are released back into the Antelope Complex. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

As a result of lower density of wild horses across the Antelope Complex following the removal of excess horses, competition for resources would be reduced, allowing wild horses to utilize preferred, quality habitat. Confrontations between stallions would also become less frequent, as would fighting among wild horse bands at water sources. Achieving the AMLs and improving the overall health and fitness of wild horses could also increase foaling rates and foaling survival rates over the current conditions.

The primary effects to the wild horse population that would be directly related to this proposed gather would be to herd population dynamics, age structure or sex ratio, and subsequently to the growth rates and population size over time.

The remaining wild horses not captured would maintain their social structure and herd demographics (age and sex ratios). No observable effects to the remaining population associated with the gather impacts would be expected except a heightened shyness toward human contact.

Impacts to the rangeland as a result of the current overpopulation of wild horses would be reduced under the three gather and removal alternatives. Fighting among stud horses would decrease since they would protect their position at water sources less frequently; injuries and death to all age classes of animals would also be expected to be reduced as competition for limited forage and water resources is decreased.

Indirect individual impacts are those impacts which occur to individual wild horses after the initial stress event, and may include spontaneous abortions in mares, and increased

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social displacement and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs among older studs following sorting and release into the stud pen, which lasts less than two minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual.

A few foals may be orphaned during gathers. This may occur due to:

- The mare rejects the foal. This occurs most often with young mothers or very young foals,
- The foal and mother become separated during sorting and cannot be matched,
- The mare dies or must be humanely euthanized during the gather,
- The foal is ill, weak, or needs immediate special care that requires removal from the mother,
- The mother does not produce enough milk to support the foal.

Oftentimes, foals are gathered that were already orphans on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized.

Nearly all foals that would be gathered during the winter season would be about seven months of age and older and would be ready for weaning from their mothers. In private industry, domestic horses are normally weaned between four and six months of age.

Winter is often the preferred time to gather horses, particularly for the Antelope Complex due to the terrain and elevations that would make it difficult to gather wild horses from the higher elevations of the Antelope Complex during summer months. Winter gathers typically result in less stress to wild horses as the cold and snow does not affect horses during the gather to the degree that heat and dust would during summer gathers. Wild horses are able to travel farther and over terrain that is more difficult during winter gathers provided snow does not cover the ground. Water intake requirements are less during winter months, making this timeframe less apt to cause distress from heat exhaustion. During summer months, horses may be travelling long distances between water and desired forage areas, and may therefore be more easily dehydrated during gathers.

Oftentimes, wild horses are located at the highest elevations during the summer months, and must travel over steep terrain to the gather sites. Dense tree cover further increases the difficulty of gathering wild horses during summer months. Wild horses are often located in lower elevations, in less steep terrain during winter gathers due to snow cover in the higher elevations. Subsequently, the horses are closer to the potential gather sites, and would need to maneuver less difficult terrain in many cases. However, snow cover can increase fatigue and stress during winter gathers. The helicopter pilot allows horses to travel slowly at their own pace. The contractor may plow trails in the snow leading to the

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gather sites to make it easier for horses to travel to the gather site. As much as possible, gather activities would be limited to periods of time when temperatures are above 0 degrees Fahrenheit.

During summer months, foals are typically small, and average 4 months old. Newborn foals are often gathered, and many foals are too young to wean. By fall and winter, most foals are of good body size and sufficient age to be easily weaned. Fall and winter time-frames are much less stressful to foals than summer gathers. Not only are young foals in summer months more prone to dehydration and complications from heat stress, the handling, sorting and transport is a stress to the young animals and increases the chance for them to be rejected by their mothers. To reduce any potential heat related issues, summer gather activities are limited to periods of the day when temperatures are below 90 degrees Fahrenheit. By gathering wild horses in the Antelope Complex during the winter, any potential stress associated with summer gathers can be avoided.

Through the capture and sorting process, wild horses are examined for health, injury and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM-2009-041 is used as a guide to determine if animals meet the criteria and should be euthanized (refer to SOPs Appendix A). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or which prevent them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical defects such as club foot, or sway back and should not be returned to the range.

No Action (Alternative D)

All impacts from this alternative would be indirect. The current population of wild horses on the Antelope Complex equates to over 25,032 AUMs, which exceeds the identified carrying capacity of 9,252 AUMs (high end of AMLs) for wild horses established through prior decisions and land-use planning. Wild horses require more forage supply as they use the forage less efficiently than cattle (An Approach for Setting the Stocking Rate, Rangelands 10(1), February 1988 Holechek). Without a gather to control the population, these figures could increase to nearly 36,048 AUMs within two years, which would be 3.89 times the carrying capacity established for wild horses.

Based on current studies, a horse requires 12 to 15 gallons of water per horse per day on the range (Stoddart, Laurence A., et al, and USDA Forest Service Technology Development Center, John F. Valentine). This equates to 25,032 to 31,290 gallons of water per day required by the current population of wild horses within the Antelope Complex. The limited water resources in the Antelope Complex do not have the capacity to provide adequate dependable water for the current population.

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Under the No Action Alternative, wild horses would not be removed and the AMLs would not be achieved in the Antelope Complex. Individual horses as well as the herd would not be subject to any direct or indirect impacts which may result during a gather operation as described for the Proposed Action. However, the current population of 2,086 wild horses would continue to increase at rates of 18 to 20 percent per year. Without a gather and removal now, the wild horse population in the Antelope Complex would exceed 5,000 head within 4 years based on annual population rate of herd increase trends. According to the population modeling results, the highest average expected population within the Antelope Complex at the end of 10 years would approximate 11,814 wild horses at one time.

Because wild horses are a long-lived species with documented survival rates exceeding 92% for all age classes, predation and disease do not substantially regulate wild horse population levels. As a result, wild horse numbers would be expected to continue to increase, which in turn would continue to exceed the carrying capacity of the range.

Individual horses would be at risk of death by starvation and lack of water. Competition among wild horses for the available forage and water would increase, affecting mares and foals most severely. Social stress would increase. Fighting among stud horses would increase as they protect their position at scarce water sources. As populations continue to increase beyond the capacity of the habitat, more bands of wild horses would be expected to leave the boundaries of the HMAs seeking forage and water. This would in turn impact range conditions and other range users (i.e., native wildlife) outside the HMAs boundaries.

While some members of the public have advocated “letting nature take its course,” allowing horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses. The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau to “*protect the range from the deterioration associated with overpopulation,*” “*remove excess animals from the range so as to achieve appropriate management levels,*” and “*to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.*”

Promulgated Federal Regulations at Title 43 CFR § 4700.0-6 (a) state, “*Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*” (emphasis added). Allowing excess wild horses to remain ungathered would be inconsistent with the mandates of the WFRHBA and implementing regulations.

It is anticipated that emergency removals would be necessary in the future under this No Action Alternative to prevent individual animals from suffering or death as a result of insufficient water if excess horses are not removed. These emergency removals could occur as early as this winter season if the area experiences normal or above-normal snow depths. There is also a high likelihood that emergency actions would be needed beyond the winter season if the current drought conditions persist through the upcoming summer.

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During emergency conditions, competition for available forage and water resources is heightened and generally impact the older and youngest horses as well as lactating mares first. These groups would experience significant weight loss and diminished health, which could result in prolonged suffering and their eventual death. If emergency actions are not taken (prior to or in response to these events), the overall population could be affected by severely skewed sex ratios towards stallions (generally the strongest and healthiest portion of the population) and a significantly altered age structure. In addition, habitat resources would be over-utilized and progress toward achieving rangeland health standards would not be possible.

3.2.2 Water Resources

Affected Environment

The scarce water resources in the Antelope Complex include springs/seeps (springs), ephemeral/intermittent streams, ephemeral ponds, and water wells. The Antelope Complex is within the terminal basins of Independence Valley, Goshute Valley, Deep Creek Valley, Steptoe Valley, Currie, Butte Valley, Clover Valley, North Spring Valley, Antelope Valley and Pilot Creek Valley. There are some small intermittent streams associated with large springs, but these do not flow more than several hundred feet. There are no perennial streams within the Antelope Complex. Water resource inventory data collected from 1979 to 2009 along with Proper Functioning Condition Assessments provide much of the following information regarding flow, condition, and other characteristics of these water resources. Detailed water resource information is only available and summarized for sources on BLM administered lands.

Discharge from springs/seeps ranges from no overland flow to a maximum of 12 gallons per minute (gpm). Spring flow varies by season and yearly, reflecting climatic variables. Most listed springs in the Antelope Complex have flows that drop to nearly zero during dry conditions. Most springs discharge less than one gpm. These discharge measurements are not a quantification of total water produced by the spring since a portion or all water coming from a spring is evaporated, utilized by nearby vegetation, or seeps into groundwater near the spring source. A summary of flow rates for public land springs is presented in Appendix H. Springs with no discharge rate shown are sources that express indications of a spring source as evidenced by riparian vegetation and/or surface ponding, but do not have any measurable overland flow (see pictures below of some springs with limited flows).

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Unnamed spring in Dolly Varden Range. Flow measured at 6.5 gallons/hour (2010).



Dead Cedar Spring. Spring flow measured at 1 gph (.0015 gpm) (2010).

Many springs within the Antelope Complex are developed to make surface water available for wild horses, livestock, and/or wildlife. There are also numerous undeveloped springs, many of which discharge surface water which is also available for utilization. Spring development was usually accomplished by piping a portion of spring water a short distance from the source into troughs or by constructing an earthen dam for water collection. Spring developments where water is piped longer distances are listed as “conveyance” in Appendix H. The fraction of total spring water made available by the diversion or conveyance depends upon the type and extent of the development as well as

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spring source topography and substrate. For example, the “Mud Spring” development located in the Goshute Mountains diverts a small portion of available water while the nearby “Sheep Camp Spring” diverts nearly all available water (photo MD1 and MD2).



Photo MD1. Sheep Camp Spring, Goshute Mountains, spring development diverting most of available flow to a trough for wild life and wild horses.



Photo MD2. Mud Spring, Goshute Mountains, spring development diverting a small portion of available flow.

There are no known water contaminations within the Antelope Complex that have resulted in an inability to use water resources for their known beneficial uses (typically

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wildlife, livestock and wild horse use). Some water quality data have been collected, but these data are insufficient to determine trends at local springs and do not include any nutrient or bacteria data. For purposes of evaluation, riparian condition assessments can be used to determine whether and to what extent water quality is under anthropogenic influence. In general, a spring is more likely to have issues with water quality if its riparian area has been rated as non-functional, than if it is rated at proper functioning condition. A summary of riparian condition assessments is presented in the Riparian/Wetlands section of this document. The results of riparian condition assessments are included in Appendix H. Other anecdotal data such as presence of moss, or lack of vegetation at a spring source could indicate problems with water quality. While there have been some recorded observations of high water temperature, moss, and sedimentation for springs in the Antelope Complex, this has not resulted in any contamination which preclude use by wild horses, livestock, and wildlife. The Nevada Division of Environmental Protection has not listed any of the water bodies within the Antelope Complex on the State of Nevada List of Impaired Water Bodies (Section 303(d) of the Clean Water Act).

Quantity of available water within the Antelope Complex is limited and heavy use by wild horses likely results in less available water for other beneficial uses such as riparian vegetation and wildlife. Most springs within the complex have little flow and most available flow is consumed directly by wild horses. Impacts to beneficial users of water resources has not been quantified.

There are an estimated 22 operating water wells on public land within and near the Antelope Complex that provide water to wild horses, livestock and/or wildlife. These wells are operated at the discretion and expense of the various livestock grazing permittees for allotments that intersect the Antelope Complex. Locations of these wells are shown on Maps 6, 7, 8 and 9.

Direct and Indirect Effects of Alternatives

Use of spring sources by wild horses can impact spring water quality directly through physical disturbance, as well as bacterial, nutrient, and sediment loading and indirectly through impacts to riparian health as described in the riparian/wetlands section of this document. These impacts are most likely to occur on undeveloped springs with available surface water. Livestock and especially wild horses tend to spend a lot of time at spring sources resulting in direct negative impacts to water quality and riparian health. On springs with low flow, wild horses will sometimes attempt to access additional water by digging at the source with their hooves (see photos MD3 - MD6). This action has the potential to break through impermeable soil layers that are vital to the ability of the spring to discharge water at the surface. Less water could be available at the surface as a result. These physical impacts are more likely to occur at springs on hillsides than those located lower on the slope.

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Proposed Action and Alternatives B & C

Removal of wild horses would reduce negative impacts to water quality and may result in some short term improvement. Wild horse impacts would decrease but there would continue to be heavy pressure on water resources. Decreased impacts would only affect water quality in the short term since increases in wild horse population over the next several years would result in the same level of impacts that has resulted in the current condition. There would be no substantive direct impacts to water quality.

No Action (Alternative D)

Leaving excess wild horses in and adjacent to the HMAs would increase degradation to water quality as wild horse populations continue to increase each year that a gather is postponed. Water quality would remain in a degraded state on heavily grazed spring sources and as a result of the continued removal of standing vegetation, compaction, and deposition of animal wastes from wild horses. The increasing population of wild horses would exacerbate use on existing limited waters and compound impacts described here.

3.2.3 Soils

Affected Environment

Soils within the Antelope Complex are Aridisols that vary in depth, texture, erosion potential, and other characteristics based upon several soil forming factors. These soils typically have a mesic or frigid temperature regime and aridic soil moisture regime. Most are well drained, are either moderately deep or very deep and have a coarse surface texture ranging from silt loam to cobbly loam. Detailed information for soils within these allotments can be found in the Soil Survey of Elko County, Southeast Part 1. and White Pine County, Nevada, East Part 1.

Detailed information for these soils can be found in applicable USDA soil survey publications and be found at:

<http://websoilsurvey.nrcs.usda.gov/app/homepage/htm>

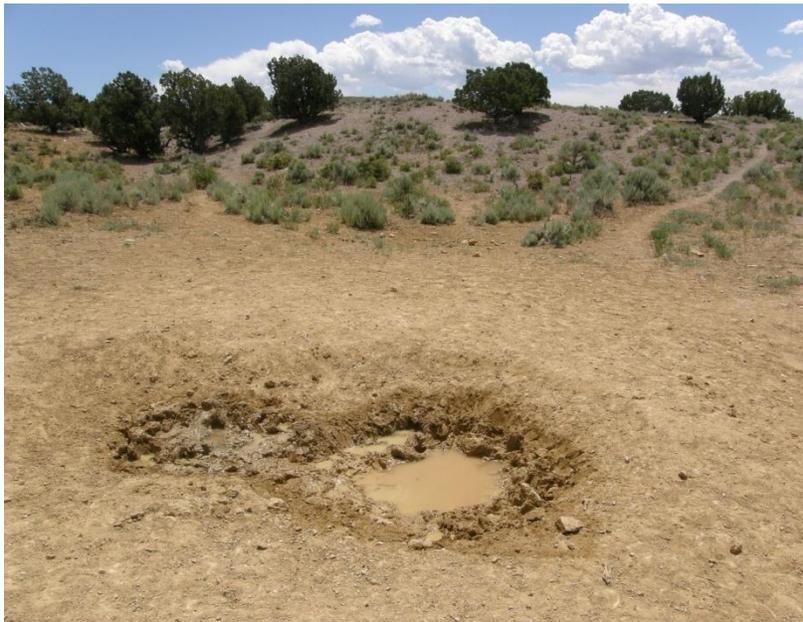
Biological soil crusts are likely to be present within the Antelope Complex. Presence of these crusts increases soil cohesiveness and reduces the hazard of erosion by wind and water. The extent and influence of biological soil crusts within the Antelope Complex is not known.

Monitoring of soil quality within the Antelope Complex has not been completed, but due to the large area and many uses it can be assumed that a wide variety of soil quality conditions exist. Soil quality in the Antelope Complex is affected by a variety of land uses including livestock grazing, wild horse use, and vehicular travel. Impacts from wild horses and livestock are typically concentrated at and between water resources. (See pictures below.)

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Impacts to soils by wild horses near Deer Spring conveyance October 2009.



Impacts to soils by wild horses near Ayarbe Spring conveyance July 2010.

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Impacts to soils by wild horses near Dolly Varden Spring (private land) (June 2010).

Impacts from vehicular use are concentrated near existing roads and race areas near the Goshute Mountains. Trailing and hoof action by wild horses has accelerated erosion especially following intense storms or snow melt. Aerial monitoring indicates heavy and increasing trailing by wild horses between limited water sources and foraging areas. Heavy wild horse utilization and trailing are occurring in the Antelope Complex and are decreasing vegetative cover, particularly in areas of water sources, resulting in increased compaction which increases run off and soil erosion and decreased soil productivity.

Direct and Indirect Effects of the Alternatives

Proposed Action and Alternatives B & C

Direct impacts associated with the action alternatives would consist of disturbance to soil surfaces immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site specific and isolated in nature. Impacts would be minimal as herding and gathering would have a short-term duration (typically only a few days at any one site).

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, they are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the long-term effects of these impacts.

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Implementation of the proposed action and alternatives would reduce the current wild horse population. Reduced concentrations of wild horses would contribute to reducing soil erosion. This reduction would be most notable and important in the vicinity of water resources with high levels of disturbance and bare ground.

No Action (Alternative D)

No direct impacts are expected under this alternative. In the absence of a wild horse gather, soil loss from wind and water erosion, and invasion of undesired plant species would occur as a result of over-utilization of vegetation, loss of perennial native grasses and continued and increased heavy trailing. This loss would be most notable in the vicinity of small spring meadows and other water sources with high levels of wild horse use.

3.2.4 Wetlands and Riparian Zones

Affected Environment

The Antelope Complex has scattered riparian areas which are associated with springs/seeps (springs) and associated springs. These small springs provide water, forage and habitat diversity for native wildlife, livestock and wild horses. These systems occupy less than 0.1% of the landscape but are disproportionately important for biodiversity and users of the landscape including humans.

Riparian condition assessments were conducted between 2004 and 2009 to evaluate condition of riparian condition of selected areas. Riparian condition assessments are qualitative assessment of riparian areas based on quantitative science. The methodology evaluates the functionality of riparian areas based on hydrological, vegetation, and soils/erosional factors, within the context of the geologic setting and the potential of the area. Prichard et al. (1994) suggests the following definitions for spring and lentic areas: “Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to:

- 1) dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality;
- 2) filter sediment and aid floodplain development;
- 3) improve flood-water retention and ground-water recharge;
- 4) develop root masses that stabilize islands and shoreline features against cutting action;
- 5) restrict water percolation;
- 6) develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, water bird breeding, and other uses;
- 7) and support greater biodiversity.”

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Riparian condition assessments conducted at 31 riparian areas throughout the Antelope Complex resulted in ratings that span the full range of riparian functionality. It was determined that there were five (16%) riparian areas at proper functioning condition, four (13%) riparian areas functioning at risk with no apparent trend, nine (29%) springs functioning at risk with downward trend, and 13 (42%) non-functioning riparian areas. A list of riparian condition assessment ratings is presented in Appendix H.

Data recorded at spring sites indicated that poor riparian condition in the Antelope Complex is caused by impacts related to wild horse use and water diversion. The cause of disturbance (e.g. livestock vs. wild horse) was determined when clear evidence to distinguish the use was observed (e.g. hoof prints, viewing animals, or droppings). When clear evidence was not available to distinguish between livestock or wild horses, no assignment of disturbance could be made. Water diversion was determined to be a causal factor where riparian areas were small or lacking key components yet water was available or abundant in the diversion. A list of these determinations is presented in Appendix H.

Riparian condition assessments and other observations indicate that presence of wild horses is negatively impacting riparian resources within the Antelope Complex. In general, wild horses impact riparian areas by compacting and disturbing riparian soil making them less productive and less stable. Subsequent erosion of riparian soils results in shrinkage of the riparian area and decreased riparian value. These impacts increase when more wild horses are present. During summer months wild horses compete for scarce water resources and spend a lot of time near water resources and associated riparian zones. Additional impacts occur when wild horses dig at spring sources with their hooves to try to obtain more water. This results in a depression of the water table at spring sources and further reduction of riparian area. Photos MD3 – MD7 and other photos below are typical of riparian areas in the Antelope Complex that have been negatively impacted by wild horse use.

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Photo MD3. Sidehill Spring, Goshute Mountains. Wild horse use has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil (2007).



Sidehill Spring, Goshute Mountains showing continued impacts by wild horses and reduced flow in 2010.

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Photo MD4. Rock Spring, Goshute Mountains. Wild horse use has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil (2007).



Photo MD5. F. B. Springs, Spruce Mountain (2009). Wild horse and cattle use has decreased spring head vegetation resulting in lowered water table. Continued use at this level could lead to conditions similar to those shown in MD4 above.

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Photo MD6 – unnamed spring, Dolly Varden Mountains (2008). Wild horse use has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil.



Same unnamed spring, looking towards the spring source, Dolly Varden Mountains (2010). Continued excessive wild horse use has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil.

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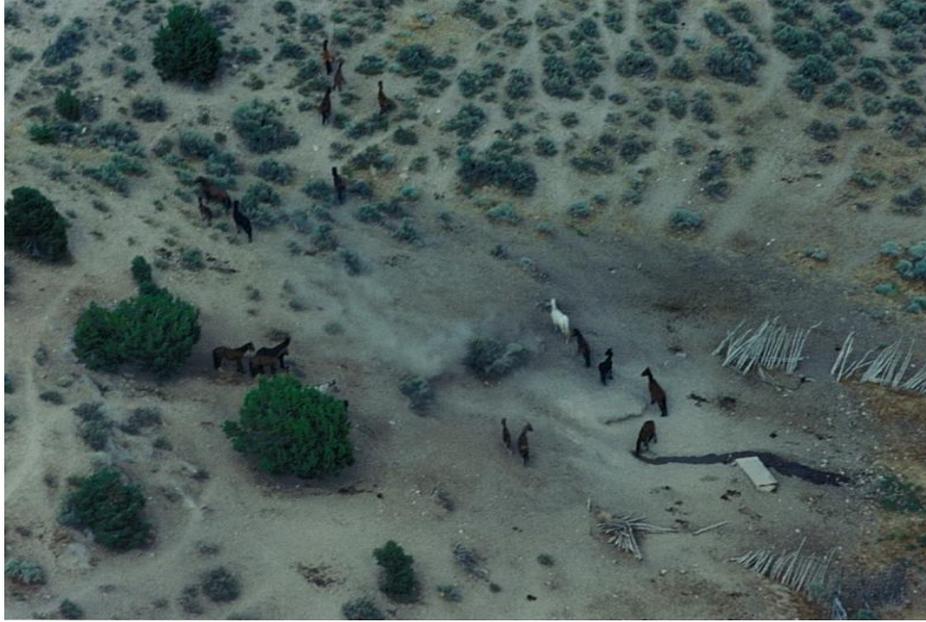


Photo MD7. Erickson Spring, Goshute Mountains, (2010). Long term wild horse use has drained former spring area indicated by darker soils.



Erickson Spring, (2010). showing impacts to soils around spring.

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Impacts by wild horses at Dolly Varden Spring (on private land) June 2010.



Unnamed spring in the Dolly Varden range with very limited flow showing excessive use by wild horses (2010).

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Unnamed spring in the Dolly Varden range with very limited flow showing excessive use by wild horses (2010).

Direct and Indirect Effects of the Alternatives

Proposed Action and Alternatives B & C

Removal of wild horses under the Proposed Action and Alternative B would reduce negative impacts to riparian areas and may result in some improvement of areas that are still functioning. Wild horse impacts would decrease but there would continue to be heavy pressure on existing riparian areas. Decreased utilization of riparian resources over the long term could result in improvement of riparian areas that are still functioning. Non-functional areas could experience some recovery but would not likely reach a functioning state without some additional management. The gather would not result in any substantive direct impacts to riparian resources.

Under Alternative C, decreased impacts would only affect riparian areas in the short term since increases in wild horse population over the next several years would result in the same level of impacts that has resulted in the current poor condition. The gather would not result in any substantive direct impacts to riparian resources.

No Action (Alternative D)

Deferring a wild horse gather in the Antelope complex and allowing populations to increase would result in continued and intensified impacts to riparian areas. Functionality of riparian areas would decrease as more wild horses compete for scarce water resources.

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3.2.4 Vegetation

Affected Environment

In general, the vegetation communities consist of big sagebrush-grass, low sagebrush-grass, montane shrub, salt desert shrub, black sagebrush, pinyon-juniper, and montane riparian.

The foothill and mountain regions are dominated by big sagebrush-grass and low sagebrush-grass communities but also have areas of pinyon-juniper community. The shrub species typically found in the big sagebrush-grass and low sagebrush-grass communities are big sagebrush, low sagebrush and rabbitbrush. Typical grass species include bluebunch wheatgrass, Indian ricegrass, Sandberg's bluegrass, needlegrass and bottlebrush squirreltail. Forbs include milkvetch, arrowleaf balsamroot, lupine, phlox, and aster.

The pinyon-juniper community is primarily composed of Utah juniper, Rocky Mountain juniper and singleleaf pinyon. The understory in pinyon-juniper communities can range from no vegetation to the same species found in big sagebrush-grass and low sagebrush-grass communities.

The higher mountainous areas support mountain browse species including serviceberry, snowberry, and antelope bitterbrush as well as tree species such as limber pine, white fir, and bristlecone pine. Riparian areas at high elevations may support cottonwood and wild rose.

The valley regions are dominated by salt desert and black sagebrush communities. The shrub species typically found in these communities are winterfat, shadscale, bud sagebrush, greasewood, black sagebrush, and rabbitbrush. Typical grass species in the valleys include Indian ricegrass, Sandberg's bluegrass, needlegrass, and bottlebrush squirreltail. Forbs include milkvetch, lupine, phlox, and aster.

Direct and Indirect Effects of the Alternatives

Proposed Action and Alternatives B & C

Direct impacts associated with the Proposed Action and Alternatives B and C would consist of disturbance to vegetation immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating wild horses and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (less than one half acre) in size. Any impacts would remain site-specific and isolated in nature. These impacts would include trampling of vegetation. Impacts would be minimal in scope and would have a short-term duration.

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In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, gather sites are located near or on roads, pullouts, water hauling sites or other flat areas, which have been previously disturbed. These common practices would minimize the long-term effects of these impacts.

Implementation of the action Alternatives A or B would reduce the current wild horse population to the established AML and provide the opportunity for the vegetative communities to progress toward achieving a thriving natural ecological balance. At the established AMLs, utilization by wild horses would be reduced, which would result in improved forage availability, improved vegetation density, increased vegetation cover, increased plant vigor, and improved seed production, seedling establishment, and forage production over current conditions. Higher quality forage species (grasses for wild horses and cattle) would be available. Competition for forage among wild horses, wildlife, and livestock would be reduced as utilization levels by wild horses decrease and rangeland health improves, thereby promoting healthier habitat and healthier animals. Allotment specific utilization objectives would not be exceeded. Reduced concentrations of wild horses would contribute to the recovery of the vegetative resource. Physical damage to shrubs and herbaceous vegetation associated with the physical passage of wild horses would be decreased. However, herd growth would occur faster under Alternative C leading to increased impacts in comparison to Alternatives A or B.

No Action (Alternative D)

There would be no direct impacts expected under this alternative. However, as a result of the excessive wild horse populations within the Antelope Complex, wild horses would continue to trail farther out from limited waters to foraging areas, within and outside of the HMA boundaries. Indirect impacts include increased competition for forage among multiple-users as wild horse populations continue to increase. Forage utilization would likely exceed the capacity of the range resulting in a loss of desired forage species from plant communities as plant health and watershed conditions deteriorate. Abundance and long-term production potential of desired plant communities may be compromised, potentially precluding the return of these vegetation communities to their full potential.

Winterfat is excellent forage and has excellent tolerance to browsing in the winter. However, with the No Action Alternative over-browsing of winterfat would continue to occur. The United States Department of Agriculture Natural Resources Conservation Service (NRCS) recommends that no more than 25 percent of the annual season's growth should be removed during the active growing season (less during active spring growth period) and no more than 50 percent of the annual season's growth during dormant periods (fall-winter). As noted, utilization levels documented from 2001-2006 have ranged from 21-78%. With the No Action alternative these levels would be expected to increase. Under this type of utilization, loss of winterfat communities would be expected to occur.

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3.2.5 Wildlife, Special Status Species, and Migratory Birds and their Habitat

Affected Environment

There are over 400 species of vertebrate wildlife that potentially occur in northeast Nevada including elk, mule deer, and pronghorn. The Antelope, Antelope Valley, Goshute, and Spruce-Pequot HMA provide habitat for many of these species on a seasonal or yearlong basis. Based upon a digital landcover GIS dataset classified by Utah State University using Landsat ETM+ satellite imagery obtained between 1999 and 2001, the HMAs are comprised of predominantly three upland key habitats described in the Nevada Wildlife Action Plan. These three habitats, encompassing around 99% of the HMAs, are Sagebrush, Lower Montane Woodlands (mostly pinyon-juniper but also mountain mahogany), and Intermountain (Cold Desert) Scrub (primarily salt desert scrub and greasewood flats).

Although riparian areas comprise a relatively small portion of the available habitat, they are of disproportionately high importance in this area. Many wildlife species associated with the predominant upland habitat types require riparian habitat to satisfy certain life cycle requirements. Other wildlife species derive all of their habitat requirements from these small patches of riparian habitat. Riparian habitats comprise around 0.25% of the HMAs and include the following key habitats: Desert Playas and Ephemeral Pools (.021%), Intermountain Rivers and Streams, Lakes and Reservoirs, Marshes, and Wet Meadows (0.04%).

In addition to the predominant upland habitat types within the HMAs, small areas of Intermountain Conifer Forests and Woodlands (mostly mixed conifer and limber pine-bristlecone pine types), Cliffs and Canyon, Grasslands and Meadows, and Aspen Woodland are present and important on a local scale. These habitat types provide quality habitat for many species that are typically found at higher elevations.

Big Game

Pronghorn use areas are shown in Map 11. In general, pronghorn are found in the valleys between mountain ranges. Yearlong habitat is primarily found in areas dominated by salt desert scrub and greasewood flats. Additional habitat is provided by certain sagebrush communities. Low sagebrush on mountain ridges can be used as summer habitat.

Mule deer use areas are shown in Map 12. In general, mule deer are found along the mountain ranges within the HMAs. Lower slopes are used during the winter while upper elevations are used during summer. Salt desert scrub and greasewood flats are generally avoided by mule deer except during migration. The highest elevation areas are only considered limited range, primarily due to lower amounts of cover associated with low sage.

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Elk use areas are shown in Map 12. Elk use in the HMAs is primarily on the mountain tops and slopes. Elk are primarily associated with woodland and forest areas, but riparian habitat and sagebrush habitat are also important components of elk seasonal use areas.

Special Status Species

Special status species include species that are listed or proposed for listing as threatened or endangered (T&E) under the Endangered Species Act (ESA), species that are candidates for listing under the ESA, species that are listed by the State of Nevada, and/or species that are on Nevada BLM's list of Sensitive Species as of July 29, 2003. No federally listed or proposed species are known to exist in the HMAs, and no critical habitat for any aquatic or terrestrial species has been designated or proposed for designation under the Endangered Species Act in the Antelope Complex. Two species that are candidates for listing under the ESA are present in the HMAs. These are the Columbian spotted frog and the greater sage-grouse. Special status species that have been documented within the HMAs are identified in the master list of species presented in Appendix F; Appendix G lists terrestrial vertebrate species with potential to occur within the HMAs based upon key habitats present. For this analysis, sensitive species were grouped based upon morphological similarities or similar habitat requirements in order to avoid unnecessary repetition.

Eagles: On July 9, 2007, the bald eagle was removed ("de-listed") from the list of threatened and endangered species. BLM is coordinating with the Nevada Department of Wildlife (NDOW) to ensure compliance with state regulations regarding the bald eagle. As of August 30, 2007, BLM policy is to consider the bald eagle as a BLM Sensitive Species. After de-listing, bald eagles will continue to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. Both of these laws prohibit killing, selling or otherwise harming eagles, their nests, or their eggs. In May 2007, the U.S. Fish and Wildlife Service (Service) clarified its regulations implementing the BGEPA and published the National Bald Eagle Management Guidelines. The Service has established a permit program under the BGEPA that would authorize limited take of bald and golden eagles consistent with the purpose and goal of the BGEPA. The Service has also prepared a draft post-delisting bald eagle monitoring plan. These documents and more information about bald and golden eagle are available on the Service's website at <http://www.fws.gov/migratorybirds/baldeagle.htm>. Golden eagles have been documented as year-round residents of the HMAs. Bald eagles have been documented and are likely winter foragers within the HMAs.

Other Raptors: Northern goshawks, ferruginous hawks, Swainson's hawks, prairie falcons, and peregrine falcons are sensitive raptors that have been documented within the HMAs. Small mammals and jackrabbits are abundant in these habitats and provide adequate prey for raptors. These raptors utilize key habitats from the low-elevation Intermountain (Cold Desert) Scrub through the high-elevation Intermountain Conifer Forests and Woodlands.

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Owls: Long-eared owls, flammulated owls, and burrowing owls are sensitive owls that have been documented within the HMAs. Long-eared owls and flammulated owls are associated with woodlands and riparian areas. Abandoned mammal burrows, such as those created by badgers, help to provide nesting habitat for burrowing owls. Burrowing owls tend to use disturbed or open sites with minimal vegetation for nesting and loafing, such as recent burned areas or areas near troughs, corrals, or livestock mineral licks where open terrain exists. This may be due to the lack of vegetation at these sites that allows increased visibility from the burrow entrance. Short-eared owls may utilize potential habitat within the HMAs including pinyon-juniper stands and riparian habitats. They, however, have not been documented within the HMAs.

Gallinaceous Birds: On March 5, 2010, the U.S. Fish and Wildlife Service announced Proposed Rules in the Federal Register for the notice of 12-month findings for petitions to list the greater sage grouse as a threatened or endangered species. The Fact Sheet for this finding iterated the following, “*After thoroughly analyzing the best scientific and commercial information available, the Fish and Wildlife Service has concluded that the greater sage-grouse warrants protection under the Endangered Species Act. However, the Service has determined that proposing the species for protection is precluded by the need to take action on other species facing more immediate and severe extinction threats. As a result, the sage-grouse will be added to the list of species that are candidates for Endangered Species Act protection. The Service will review the status of the sage-grouse annually, as we do all candidate species, to determine whether it warrants more immediate attention.*” Greater sage-grouse have been documented within the HMAs. Most habitat occurs at low to mid-elevations on the west and south portions of the HMAs. The Goshute HMA does not provide known habitat for greater sage-grouse. Greater sage-grouse winter habitat occurs in sagebrush-dominated sites where sagebrush protrudes above the snow. Nesting and early summer habitat is tied to sagebrush sites with diverse, well-vegetated understories. These habitats, along with wet meadows and other riparian sites, provide good habitat for brood rearing as well. Thirteen active leks are known to exist within the HMAs. Mountain quail and Columbian sharp-tailed grouse are additional sensitive gallinaceous birds that could potentially utilize the habitats present within the HMAs; however neither has been documented within the HMAs.

Shorebirds and Other Riparian Associates: Sandhill cranes have been documented within the HMAs. Habitat is probably restricted to riparian areas. Least bitterns, snowy plovers, long-billed curlews, black terns, and yellow-billed cuckoos are other sensitive riparian bird species that may exist on riparian habitats within the HMAs; however none have been documented.

Woodpeckers: Lewis’s woodpeckers and red-naped sapsuckers are associated with woodlands and riparian areas and, thus, have the potential to utilize habitat within the HMAs. Neither has been documented within the HMA’s.

Songbirds: No sensitive songbird species have been documented within the HMAs; however potential habitat exists within the HMAs for several species. Potential breeding and nesting habitat for loggerhead shrikes is provided by the sagebrush, pinyon juniper,

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and salt desert scrub habitats. Piñon jays and juniper titmice are potential year-round residents of pinyon-juniper stands while gray vireos may incidentally breed in these stands. Sagebrush and pinyon-juniper habitats also provide summer habitat for vesper sparrows and winter habitat for black rosy-finches. Aspen stands and wooded riparian habitats can provide breeding habitat for yellow-breasted chats and bobolinks.

Bats: Bats utilize a variety of habitats within the HMAs. Of the 16 bats documented on the Elko District, ten have been documented within the HMAs. These include Townsend's big-eared bat, California Myotis, western small-footed Myotis, long-eared Myotis, little brown bat, long-legged Myotis, Yuma Myotis, Mexican free-tailed bat, Silver-haired bat, and pallid bat. The majority of these bats have been documented on Spruce Mountain, in the Pequop Mountains, or along the Goshute Range. It can be assumed that most of the mountain ranges in the HMAs provide roosting habitat for bats, particularly those with abandoned mine shafts. Foraging habitat can occur nearly anywhere in the HMAs but is probably concentrated in wooded areas and around riparian areas.

Pygmy Rabbits: Pygmy rabbits were petitioned for listing under the Endangered Species Act. On May 20, 2005, the U.S. Fish and Wildlife Service announced a 90-Day Finding in the Federal Register indicating that, "... the petition does not provide substantial information indicating that listing the pygmy rabbit may be warranted." The Finding does not downplay the need to conserve, enhance or protect pygmy rabbit habitat. Pygmy rabbits are found in a variety of vegetation types, including sagebrush, greasewood, and salt desert scrub habitats, provided that the soils are appropriate for creating their burrow system. No known formal surveys have been completed within the HMAs; however several incidental observations have been made.

Other Mammals: Preble's shrews and river otters prefer riparian habitats; however, neither has been documented within the HMAs.

Frogs: Both Columbian spotted frogs and northern leopard frogs have been documented within the HMAs. Both are restricted to riparian habitats. The only documented occurrence of either is on the southeast edge of the Goshute HMA.

Reptiles: No sensitive reptiles have been documented within the HMAs. Potential habitat for short-horned lizards and Sonoran mountain kingsnakes is provided by pinyon-juniper areas. Short horned lizards could also potentially use sagebrush and coniferous forest habitats.

Other Migratory Birds

In addition to those protections offered to certain migratory birds that are considered Nevada BLM Sensitive Species, all migratory birds are offered certain protections under the Migratory Bird Treaty Act and Presidential Executive Order. On January 11, 2001, President Clinton signed the Migratory Bird Executive Order. This Executive Order outlines the responsibilities of Federal agencies to protect migratory birds and directs

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executive departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. A list of the migratory birds affected by the President's executive order is contained in 50 CFR § 10.13.

Under the provisions of the Migratory Bird Treaty Act, the unauthorized take (death or injury) of migratory birds is a strict liability criminal offense that does not require knowledge or specific intent on the part of the offender. The U.S. Fish and Wildlife Service is responsible for issuing a permit to allow take of a migratory bird. Other migratory birds that have been documented within the HMAs are identified in the master list of species presented in Appendix F. Appendix G lists all vertebrate species with potential to occur within the HMAs based upon key habitats present including migratory birds.

Direct and Indirect Effects of Alternatives

Proposed Action and Alternatives B & C

There would be no direct long-term negative impacts to big game species, sensitive species, or migratory birds. The gather would occur outside breeding and nesting season for birds. Important habitats such as known sage grouse leks, pygmy rabbit burrow colonies, etc. would be avoided and not used for gather sites in order to protect the integrity of these sites. Wildlife adjacent to gather sites may be temporarily displaced during capture operations by increased activity of gather setup, helicopters, and vehicle traffic; however, normal behaviors should resume once capture operations cease. Reduction of wild horse numbers would result in reduced competition between wild horses and wildlife as soon as the gather is completed. This would result in improved habitat conditions by increasing forage availability, herbaceous cover, and quality. In addition, the gather and reduction of wild horse numbers would reduce competition between wild horses and wildlife for available forage and water resources.

In addition to the removal of wild horses to reduce numbers to the low end of AML, mares released back into the HMAs under the Proposed Action proposed action would be treated with fertility control drugs. This treatment would prolong the positive impacts to wildlife habitat resulting from reduction in wild horse numbers. It would also decrease the necessity of emergency gathers which would reduce the frequency of the short-term disturbances to wildlife species associated with gather operations. Under Alternative B, the altered sex ratio would have a similar positive effect as the fertility drugs in Alternative A, however probably shorter-lived.

Alternative C does not include the application of the fertility control drugs as in the proposed action. As a result, the positive impacts to wildlife habitat resulting from reduction in wild horse numbers would be more short-term in nature and would disappear as wild horse numbers return to current levels. Likelihood of periodic emergency gathers would remain constant, resulting in more frequent (2 to 3 year intervals) short-term disturbances to wildlife species associated with gather operations.

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No Action (Alternative D)

Wildlife would not be temporarily displaced or disturbed under the no action alternative. However, there would be continued competition with wild horses for water and forage resources over the short and long-term. Wild horses are aggressive around water sources, and some wildlife species may not be able to compete. The competition for resources may lead to increased stress or dislocation of native wildlife species, or possible death of individual animals. Improvement in habitat condition for wildlife would not occur, and habitat conditions would deteriorate further as wild horse numbers increase annually.

3.2.6 Livestock

Affected Environment

The Antelope Complex encompasses portions of several livestock grazing allotments: Antelope Valley, Badlands, Becky Creek, Becky Springs, Boone Springs, Chase Springs, Cherry Creek, Chin Creek, Currie, Deep Creek, East Big Springs, Ferber Flat, Goshute Mountain, Lead Hills, Leppy Hills, Lovell Peak, McDermid Creek, North Steptoe, North Steptoe Trail, Sampson Creek, Schellbourne, Spruce, Sugarloaf, Tippet, Tippet Pass, Utah/Nevada North, Utah/Nevada South, Valley Mountain, West Big Springs, White Horse, and West White Horse. See Appendix E for a summary of allotment and related decisions for the Antelope Complex.

The following table identifies the total allotment acreage, land status of the allotments by acres, and what percentage of each allotment can be found in an HMA.

Table 5. Land Status

Allotment	Public Land- BLM Acres	Private Land Acres	Total Acres	% of Allotment in an HMA
Antelope Valley	45,949	160	46,109	100%
Badlands	17,664	0	17,664	100%
Becky Creek	13,884	202	14,086	99%
Boone Springs	77,882	567	78,449	100%
Chase Springs	45,711	1,715	47,426	31%
Cherry Creek	160,085	6,134	166,219	5%
Chin Creek	147,615	1,052	148,667	99%
Currie	154,457	2,703	157,160	91%
Deep Creek	23,334	487	23,821	98%
East Big Springs	252,584	53,156	305,740	20%
Ferber Flat	21,705	0	21,705	100%
Goshute Mountain	5,771	0	5,771	100%
Lead Hills	80,164	0	80,164	51%
Leppy Hills	49,971	6,597	56,568	53%

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Allotment	Public Land- BLM Acres	Private Land Acres	Total Acres	% of Allotment in an HMA
Lovell Peak	2,413	5	2,418	94%
McDermid Creek	6,623	133	6,756	100%
North Steptoe	15,442	163	15,605	75%
North Steptoe Trail	37,051	971	38,022	74%
Sampson Creek	13,487	158	13,645	99%
Schellbourne	17,986	752	17,985	16%
Spruce	534,447	12,511	546,958	67%
Sugarloaf	23,864	0	23,864	97%
Tippett	192,374	8,298	200,672	27%
Tippett Pass	80,073	1,227	81,300	14%
UT/NV North	67,524	3,004	70,533	65%
UT/NV South	37,039	627	37,665	100%
Valley Mountain	267,024	1,043	268,067	57%
West Big Springs	107,947	67,875	175,821	>1%
West White Horse	6,557	0	6,557	100%
White Horse	61,336	0	61,336	53%

There are currently a total of 37 permits for grazing in these 31 allotments. The permittees can use a combined total of 93,982 active use Animal Unit Months (AUMs) annually. An AUM is the amount of forage needed to sustain one cow, one domestic horse, five sheep or five goats for a month. As long as grazing use occurs during the permitted season of use and does not exceed the number of permitted AUMs, the number of livestock grazed can vary from year to year. The following table summarizes permitted livestock use for the allotments in the Antelope Complex.

Table 6. Permitted Livestock Use Summary for Antelope Complex Allotments

Allotment	Season of Use	Type of Livestock	Active Use (AUMs)	Suspended Use ¹ (AUMs)	Total Permitted Use (AUMs)
Antelope Valley	11/1-5/31	Cattle	2,865	2685	5,550
Badlands	11/1-3/31	Sheep	1,018	none	1,018
Becky Creek	11/1-3/15	Goats	335	none	671
	11/1-3/15	Sheep	336		
Becky Springs	11/01-4/30	Sheep	2,912	none	3,842
	11/15-2/28	Cattle	930		
Boone Springs	11/1-3/31	Sheep	2,002	945	2,947
Chase Springs	4/1-11/30	Cattle	2,586	none	2,586
Cherry Creek	3/1-2/28	Cattle	4,597	2829	7,489
Chin Creek	11/1-5/31	Cattle	3,564	150	3,694
	3/1-2/28	Sheep	3,619	2076 (V) 3,856 (CP)	
Currie	3/1-2/28	Cattle	5,366	none	5504
	3/1-2/28	Horses ²	138		
Deep Creek	11/1-5/15	Cattle	2,935	none	2,395
East Big Springs	3/1-2/28	Cattle	10,150	6448	16,598
Ferber Flat	11/1-4/20	Sheep	1,498	1239	2,737
Goshute Mountain		Sheep	465	none	465

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Allotment	Season of Use	Type of Livestock	Active Use (AUMs)	Suspended Use ¹ (AUMs)	Total Permitted Use (AUMs)
Lead Hills	11/1-4/15	Sheep	3,314	3933	7,247
Leppy Hills	11/1-4/30	Sheep	2,257	1234	3,491
Lovell Peak	7/1-9/30	Goats	52	57	162
	7/1-9/30	Sheep	53		
McDermid Creek ³	5/1-7/15	Cattle	--	--	--
North Steptoe	10/1-3/15	Sheep	700	589	1,289
North Steptoe Trail	9/15-10/15	Sheep	253	None	253
	3/1-3/30				
Sampson Creek	5/1-9/30	Sheep	1,327	265	1,592
Schellbourne	10/15-5/15	Cattle	685	767	1,459
Spruce	3/1-2/28	Cattle	10,965	2,458	13,423
Sugarloaf	11/1-4/20	Sheep	1,979	22	2001
Tippett	3/1-2/28	Cattle	4,068	815	13,615
	4/16-12/15	Sheep	4,492	4,240 (CP)	
Tippett Pass	11/1-5/15	Cattle	2,646	3,217 (V)	5,863
	10/1-6/15	Sheep	1,268	1,046 (V)	2,314
Utah/Nevada North	11/1-4/30	Sheep	2,115	1,589	3,704
Utah/Nevada South	11/1-4/30	Sheep	1,690	956	2,646
Valley Mountain	11/1-5/15	Cattle	4,532	1,040	5,572
West Big Springs	3/1-2/28	Cattle	3,651	1,734	5,385
West White Horse	12/1-2/28	Sheep	465	none	465
White Horse	11/1-4/15	Sheep	2,154	2,070	4,224

¹Suspended use includes historical, conservation nonuse, voluntary, and suspensions due to drought and/or until objectives are met.

² Horse use is by domestic horses in the Currie Allotment and is limited to a fenced pasture outside of an HMA.

³ McDermid Creek is managed and permitted as part of the Currie Allotment. McDermid Creek permitted AUMs are included under the Currie Allotment's AUMs summarized above.

V- Voluntary nonuse for conservation and protection of natural resources.

CP- Nonuse for the resource conservation and protection purposes.

The grazing year is from 3/1 to 2/28 of the following calendar year. The permitted season of use for an allotment may span a portion of two grazing years. Actual use for the allotments in the Antelope Complex from the 2002 grazing year through the 2009 grazing year is summarized below.

Table 7. Grazing Use in Antelope Complex Allotments in AUMs by Grazing Year (3/1 to 2/28)

Allotment	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Antelope Valley	1834	nonuse	1170	716 ²	8 ²	854	858	nonuse
Badlands	1239 ²	979	551	1078	1203	nonuse	1066	1048
Becky Creek	304	569	378	374	nonuse	nonuse	nonuse	nonuse
Becky Springs	455	915	717	746	290	nonuse	755	556
Boone Springs	nonuse	205	781	182	928	847	1052	1239
Chase Springs	939 ²	455	634	1068 ²	893 ²	1634 ²	1155	147 ¹

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Allotment	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Cherry Creek	3972	3749	2751	3865	3197	4152	3955	3173
Chin Creek	2169	2806	1224	2414	2774	618	1010	1613
Currie	3257	3448	3167	4025	3389	4338	3815	4587
Deep Creek	1771	1921	1839	1597	1977	1513	509	990
East Big Springs ³	4211	1480	1866	2708	1695	nonuse	2694	266
Ferber Flat	1668	689	nonuse	nonuse	670	1191	390	948
Goshute Mountain ⁴	--	--	--	--	--	--	--	--
Lead Hills	4463	870	nonuse	25	961	2459	2008	1329
Leppy Hills	703	1339	937	nonuse	1360 ²	1844	1681	1832
Lovell Peak	nonuse	32	53	73	nonuse	nonuse	nonuse	nonuse
McDermid Creek ⁵	--	--	--	--	--	--	--	--
North Steptoe	223	448	425	350	nonuse	341	638	664
North Steptoe Trail ⁶	--	--	--	--	--	--	130	122
Sampson Creek	307	117	196	444	507	nonuse	1027	209
Schellbourne	175	128	244	99	95	319	222	206
Spruce	8900	9073	5319	9933	8965	10656	9366	4634
Sugarloaf	1634	1419	nonuse	nonuse	1269	938	882	691
Tippett	5054	4343	2720	3782	4104	2753	2985	3125
Tippett Pass	1217	2236	1937	2684	1535	582	745	1093
UT/NV North	nonuse	1236	1548	1731	1678	1606	1504	1179
UT/NV South	1817	221	645	1133	696	603	940	736
Valley Mountain	4396	4216	1834	3619	3846	3228	3053	3167
West Big Springs	nonuse	3256	3691	1173	2663 ²	2423 ²	769	758
West White Horse	313	67 ²	312 ²	319 ²	215	277	281	461
White Horse	2288	2338	1459	501	1791 ²	1218	2688	1891

¹ Not all actual use has been submitted for the 2009-2010 grazing season to date.

² Numbers are from billed use, since actual use data were unavailable.

³ Actual use shown is for the Shafter Pasture only. The Shafter Pasture is the only pasture of the East Big Springs Allotment within an HMA.

⁴ Goshute Mountain is managed and grazed in conjunction with the Badlands Allotment. Goshute Mountain actual use AUMs are combined with the actual use AUMs of the Badlands Allotment summarized above.

⁵ McDermid Creek is managed and permitted as part of the Currie Allotment. McDermid Creek actual use AUMs are reported as part of the Currie Allotment actual use AUMs summarized above.

⁶ Actual use for the North Steptoe Trail in grazing years 2002 to 2007 was combined with the actual use for allotments for which the trail goes through and was not reported separately.

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Direct and Indirect Effects of Alternatives

Proposed Action and Alternatives B & C

Experience has shown that wild horse gather operations have few direct impacts to cattle and sheep grazing. Livestock located near gather activities could be temporarily disturbed or displaced by the helicopter and the increased vehicle traffic during the gather operation. Typically livestock would move back into the area once gather operations cease. Removal of excess wild horses would result in an increase in forage availability and quality, reducing competition between livestock and wild horses for available forage and water resources. Direct impacts of the gather activities itself would be minor and short-term.

Indirect impacts to livestock grazing from the Proposed Action and Alternatives B & C would be an increase in the forage availability and quality, reduced competition for water and forage, and improved vegetative resources.

No Action (Alternative D)

Livestock would not be displaced or disturbed due to gather operations under the No Action Alternative. However, there would be increased competition with wild horses for limited water and forage resources throughout the Antelope Complex Allotments as wild horses continue to increase above AML.

3.2.7 Wilderness Study Areas and Becky Peak Wilderness

Affected Environment

The Antelope Complex contains the entire Becky Peak Wilderness Area and Bluebell, Goshute Peak, and South Pequop Wilderness Study Areas (WSA). (Refer to Map 14.)

The Becky Peak Wilderness area lies at the northern end of the Schell Creek Range in eastern Nevada. Vegetation primarily includes desert brush and grass at the lower elevations and a scattering of pinyon pine and juniper stands on the upland slopes of Becky Peak and surrounding hillsides. Atop Becky Peak itself (9,859 feet), you will encounter bristlecone and limber pine trees. Wildflowers can be abundant in the spring and include yarrow, prickly poppy, prickly pear cactus, larkspur, lupine, paintbrush, and Se-go lilies. Pronghorn antelope are frequently seen through the sagebrush lowlands. Other animals that may be spotted on a visit to Becky Peak Wilderness area include mule deer, wild horses, lizards and a variety of birds.

The Nevada Wilderness Study Area Notebook (Elko District Office, October 2000), states that the Goshute Peak WSA consists of steep, mountainous topography with small stands of mixed conifers and many canyons radiating from the central ridgeline, providing outstanding naturalness. Man's imprints are absent from the higher elevations. In the lower elevations, man's imprint is present but not noticeable due to the dense

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pinyon-juniper woodlands. There is approximately one mile of cherry-stem road, 27 miles of vehicular ways, an old deer hunter's cabin, a deer hunting camp, a corral, one mile of barbed wire fence, and one developed spring. Most of these intrusions penetrate less than one mile into the WSA. Only the raptor research project, with its plywood blinds, tents and maintained access trail affects the higher elevations. Outstanding opportunities for solitude exist within the WSA due to topography and densely wooded areas. The WSA also has outstanding opportunities for primitive and unconfined recreation. Special features of the WSA include the raptor migration route and the presence of bristlecone pine trees at higher elevations.

The South Pequop WSA is predominately natural with densely-forested, highly dissected terrain essentially untouched by man. Vegetation ranges from sagebrush and grasses on the south-facing slopes to dense stands of white fir and limber pine on the northern exposures. Pinyon-juniper woodlands occupy much of the mountain range, while nearly impenetrable shrub thickets cover many slopes. The area's 11 miles of vehicle ways are generally unnoticeable and do not affect its naturalness. There are outstanding opportunities for solitude due to the steep canyons extending east and west from the knife-edged ridgeline and dense vegetation. Occasionally military aircraft disrupt the solitude. The WSA also contains outstanding opportunities for primitive and unconfined recreation. Bristlecone pine trees are present in higher elevations, and the area offers outstanding opportunities for fossil collecting.

Bluebell WSA consists of steep, mountainous terrain, with many canyons radiating from the central ridgeline of mountain peaks. The WSA is essentially free of man's imprints. Manmade features include approximately 20 miles of ways, eight miles of cherry stem roads, four corrals, one mile of barbed wire fence, two developed springs, and 10 small pit reservoirs. Outstanding opportunities for solitude exist within the WSA due to the topographic and vegetative screening. There are about 15 drainages and hundreds of small canyons with moderately dense stands of pinyon pine, limber pine, Utah juniper, white fir, and mountain mahogany. Military aircraft sometimes disrupt the solitude. Bristlecone pine trees also occur at higher elevations. The Bluebell WSA does have moderate to high potential for mineral resources, including gold. Because of this mineral potential and the less than outstanding wilderness values in the northern part of the WSA, the entire area is recommended for non-wilderness by the BLM.

Wild horses are present in all three of the Wilderness Study Areas and Becky Peak Wilderness. The presence of wild horses in a WSA or Wilderness, in most cases, positively contributes to the visitor's experience. However, it is shown that when horse numbers exceed AML, impacts occur in the Wilderness and WSAs. Vegetation monitoring in relation to use by wild horses in the Antelope Complex has shown that current wild horse population levels are exceeding the capacity of the area to sustain wild horse use over the long-term. Monitoring at several springs within the three WSAs shows increased trampling and disturbance at those sites.

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Bluebell WSA, Rock Spring Tank (2009) shows wild horse use that has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil.



Bluebell WSA, Rock Spring (2002) from the air showing wild horse use that has denuded spring head vegetation resulting in lowered water table, absence of riparian vegetation, and absence of hydric soil.

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Bluebell WSA, Rock Spring with broken pipeline and trampling by wild horses (2009).



Bluebell WSA, Sidehill Spring showing very limited flow and impacts by wild horses (2010).

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Bluebell WSA, Morgan Basin Spring, (2010) showing very limited flow and impacts by wild horses.

Gather Site

During the horse gather it is proposed to utilize a historic gather site, Shafter Well, within the Bluebell WSA. The proposed gather site is located at Shafter Well, in T33N, R67E; Section 12, NWSE (Map 14). The site is currently used as a livestock water development just inside the WSA boundary. Disturbance includes an earthen reservoir, well and pump, a two-track road and a borrow pit. The development was in existence prior to the WSA designation and is a grandfathered use. The original well and pump were installed in 1948. The gather site is proposed because as wild horses are continually captured and subsequently released, they become extremely "educated". The wild horses in the Goshute HMA are reluctant to leave the mountains and the heavy tree cover as they know they are vulnerable. The most efficient and humane way to catch wild horses in the Goshute HMA is to herd them from the high elevations of the mountain into the valley, then when they are moving back into the mountains, to gather them. A gather site oriented to gather the horses as they return to the mountain must be constructed somewhere along the west bench of the Goshute HMA. Because the Bluebell WSA boundary follows the road along the western bench of the Toano and Goshute Mountain Ranges, it is extremely difficult to find a gather site location that doesn't involve portions of the WSA. By utilizing the site at Shafter Well, it would be possible to humanely catch wild horses and prevent impairment to the Bluebell WSA. No gather site activities would occur within the Becky Peak Wilderness, Goshute Peak or South Pequop WSAs. (Refer to Bluebell WSA Operating Requirements for the Shafter Well Gather Site in Appendix B.)

BLM Wilderness Study Areas are managed under the Interim Management Policy (IMP) for Lands under Wilderness Review (H-8550-1). According to the IMP, Chapter III,

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Policies for Specific Activities; Section E, Wild Horse and Burro Management, "The Bureau must endeavor to make every effort **not** to allow populations within WSAs to degrade wilderness values, or vegetative cover as it existed on the date of the passage of FLPMA. Wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological balance."



Bluebell WSA, Shafter Well Proposed gather site.

Direct and Indirect Effects of Alternatives

Proposed Action and Alternative B

Becky Peak Wilderness

Impacts to opportunities for solitude could occur during gather operations due to the possible noise of the helicopter and increased vehicle traffic around the wilderness. Impacts would be short-term in nature, typically only a few days. Those impacts would cease when the gather was completed. No surface impacts within wilderness are anticipated to occur during the gather since all trap sites and holding facilities would be placed outside wilderness. Wilderness values of naturalness after the gather would be enhanced by a reduction in wild horse numbers as a result of an improved ecological condition of the plant communities and other natural resources.

Bluebell, South Pequop, Goshute Peak WSAs and Becky Peak Wilderness

Impacts to opportunities for solitude could occur during gather operations due to the possible noise of the helicopter and increased vehicle traffic around the WSAs. Impacts would be short-term in nature, typically only a few days. Those impacts would cease

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when the gather was completed. However, wilderness values would be positively affected by implementation of the Proposed Action and Alternative B, as it would result in an improved ecological condition of the plant communities that are aesthetically more appealing to the public than the existing situation.

The long term protection of wilderness values is the intent for both Wilderness and WSAs. Maintaining AML over the greatest period of time meets the direction of the IMP. Wild horses would still be present in the Becky Peak Wilderness and WSAs but at lower concentrations over different periods of time with each alternative. When comparing alternatives, the Proposed Action, (remove to AML, apply fertility treatment and adjust sex ratios), maintains AML over the longest time period. Next is Alternative B, (remove to AML and adjust sex ratios), then Alternative C (only remove to AML).

The gather site within the Bluebell WSA (Shafter Well) could potentially be used in all Alternatives if the contractor gathering the horses determines that a site at the foothills of the Toano Mountain range is necessary for gathering. If the site were to be used, specific operating requirements in Appendix B would be utilized. Impacts to the WSA could include additional vegetation trampling outside of the already disturbed areas from horses going into the gather sites and while in the temporary corral. This impact would be temporary and the operating requirements would limit any long term impacts or impairment to the WSA. Compliance with operating requirements would eliminate any impacts to the WSA.

Alternative C – Removal Only

Impacts from Alternative C would temporarily improve conditions within the WSA because the number of excess wild horses in the area would be decreased. However, this decrease in horse numbers would be for a shorter time than the Proposed Action and Alternative B due to the fact that the fertility drug would not be used on females under this alternative. Horse numbers would be over AML within four years. This may not allow enough time for re-growth of vegetation at disturbed areas, thus areas would continue to be adversely impacted by the wild horses.

No Action (Alternative D)

Taking no action would result in an increase in impacts to the WSA's. Excess wild horses would continue to trample spring sources and vegetation surrounding them, and the deterioration would accelerate as wild horse numbers continued to increase. The BLM would need to improve spring sources by other management actions such as fencing and seeding disturbed areas in order to re-vegetate impacted areas in WSAs. Actions such as fencing are not the minimum tool and would introduce more intrusions and man-made features into the landscape. At this point in time, the existing wild horse population is degrading the wilderness values. Failure to remove excess wild horses would be a violation of the BLM's Interim Management Policy for Lands under Wilderness Review (H-8550-1).

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3.2.8 Cultural Resources

Affected Environment

Numerous cultural resource inventories have been completed and many cultural resources recorded within the four HMAs (Antelope Complex). However most of the public lands within these HMAs remain un-inventoried and only a fraction of the anticipated cultural resources recorded.

The term cultural resource refers to places of archaeological, architectural, and historical interest. Some of the known or expected cultural resources in the HMAs have historical or architectural significance but most are archaeological in nature and their primary significance is their potential to provide insight into history and prehistory. Most consist of artifact scatters marking the locations of former habitation sites, camps, resource processing, management or procurement locations, transportation features, refuse disposal areas, etc. The following discussion focuses primarily on archaeological resources.

Archaeology is the science that studies past human cultures through the examination and analysis of the material items left behind. Prehistoric sites (i.e., sites dating prior to Euroamerican contact) commonly include artifacts such as projectile points (spear points and arrow points), scraping and cutting tools, pottery, grinding stones, cooking stones, hammerstones, and flaking debris from tool manufacture. Food debris (bone, burned seeds, mussel shell) and features such as cooking hearths, house floors, and storage pits may also be present, but usually are not visible on the surface. Historic sites commonly have tin cans, glass, ceramic, metal and wooden objects, foundations of houses and other structures, etc.

The artifacts and features described above are the raw data upon which archaeological research is based and when analyzed can provide considerable insight into the history of the past. However, artifacts and features themselves are but one component of archaeological research. The relationship of the artifacts and features to one another, their location on the landscape and their location within the soil matrix are critical to interpretation of the remnants of these once living cultures. For instance, the 1927 discovery of a spear point (Folsom point) imbedded in the bones of an extinct species of bison provided indisputable proof that humans had arrived in America many millennia earlier than was thought at the time. Had this point been removed or dislodged from the bones prior to documentation, the opportunity to resolve one of the major archaeological issues of that era would have been lost.

Livestock use (including cattle, sheep and both domestic and wild horses) over the last 150 years has likely affected most cultural resources in the HMAs to one degree or another. While we cannot specifically identify the types and extent of impacts to most cultural resources in the four herd management areas, experimental research has demonstrated that livestock trampling can damage or break and dislocate artifacts (U.S Army 1990; Roney 1977). Common livestock damage observed at archaeological sites

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includes trampling, trail formation, wallowing, bedding, soil compaction, vegetation removal, rubbing on structural remains (e.g. using a cabin wall as a scratching post), and bodily waste elimination. These actions can impact or obliterate archaeological stratigraphy, site patterning and features, cause or exacerbate erosion, break and displace or mix artifacts, and contaminate sediments and archaeological organic residues with fecal material and urine (Ataman 1996, Broadhead 1999, U.S Army 1990).

Past impacts within the HMAs are likely to have ranged from minor movement of surface artifacts to severe damage to sites and artifacts. Some of the factors thought to play a part in current cultural resources condition and sensitivity to livestock impacts include soil type, soil moisture, terrain, season of use, grazing history, vegetation cover, and intensity of use.

For the shallow prehistoric archaeological sites typical of much of the Great Basin, intensity of grazing use may be one of the most important factors affecting their current condition. Generally sites further from livestock congregation areas such as water sources, salt and bedding grounds and shelter are assumed to be in better condition than those in proximity to these areas. Given the intense and long term impacts of past livestock and wildlife use, unauthorized artifact collection and erosion, surface manifestations of most archaeological sites in the HMAs are probably in fair-good condition at best. Buried archaeological deposits at many of these same sites, on the other hand, are estimated to be in better condition since subsurface materials are typically less affected by surface activities.

Water sources have always been vital to human survival. Both historic and prehistoric archaeological sites are commonly found near springs, seeps and creeks so it is anticipated that cultural resources will be found at most water sources. A review of the cultural resource files shows that 10 springs within the Goshute HMA have been previously inventoried for cultural resources. Archaeological sites are found at nine of these. Unfortunately information regarding site condition is lacking for all but one. In this one case, the archaeological site surrounds the spring and has been severely impacted by wild horse use. Other springs in the HMAs are in similar heavily grazed and trampled condition so archaeological sites at or near the springs are likely to have also suffered damage by wild horses.

Direct and Indirect Effects of Alternatives

Effects Common to all Alternatives

As previously stated, archaeological materials found on the ground surface near water sources or other heavily used areas in the HMAs are likely to have already been subjected to intense trampling and probably have lost much of their integrity. This damage cannot be undone. Ongoing and future damage would be at those sites that still have relatively intact subsurface deposits. Trampling and removal of vegetative cover by overuse results in bare ground and accelerated erosion, which in turn can lead to the subsequent displacement, damage, destruction, and contamination of archaeological remains.

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Adverse effects to cultural resources are not always the result of physical impacts. Sometimes, when the significance of a cultural property is in part tied to its setting, feeling, and association, introduction of modern objects can be detrimental. For example, if a historic cabin is significant for its representation of late 1880s homesteading and the viewshed is essentially unchanged from what it was in the 1800s, construction of a transmission line next to it may be considered adverse due to the introduction of the new obtrusive element. Given the types of known and expected cultural resources, visual effects are unlikely except if severe grazing and trampling were to substantially alter the vegetative landscape around a cultural resource where setting, feeling, and/or association were an important aspect of its character.

Proposed Action and Alternatives B & C

Placement of temporary gathering and holding facilities would directly impact any cultural resources found at these location. But in accordance with the SOPs in Appendix A, gather facilities would be placed in previously disturbed areas whenever possible. Should new, previously undisturbed gather sites or holding facility locations be required, appropriate cultural resource inventories would be conducted and measures taken to avoid cultural resource impacts. Therefore, no direct impacts are expected from the Proposed Action or Alternatives B or C.

Reduction in horse numbers is anticipated to lessen erosion, trampling and other damage to cultural resources, particularly for the sites near water sources and those where heavy trailing occurs.

Alternatives B and C, like Alternative A would reduce horse numbers and lessen impacts to cultural resources. However, the decrease in wild horse numbers would be shorter-lived with Alternative C, as herd numbers are anticipated to exceed AML again within four years since fertility drugs would not be administered. Long-term stabilization of soils is required if impacts to cultural resources are to be curtailed.

No Action (Alternative D)

Wild horse numbers would continue to increase and impacts to cultural resources would rise accordingly. As forage near water sources becomes depleted, horses would need to graze further afield, leading to increased impacts to cultural resources beyond the current areas of intensive use.

3.2.9 Health and Safety

Affected Environment

In recent gathers, members of the public have increasingly traveled to the public lands to observe BLM's gather operations. While many members of the public cause no problems as a result of their presence and follow BLM's directions during the gathers, a few

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members of the public have actively taken or attempted to take actions to obstruct or interfere with the wild horse gather operations. For example, during recent past gathers such individuals have attempted to drive into unauthorized areas or have attempted to enter into or be close to the pens where wild horses are being held following the gather. Members of the public can also inadvertently wander into areas that put them in the path of wild horses that are being herded or handled during the gather operations. Such activities, whether intentional or accidental, not only hamper the gather operations, but more importantly, create the potential for injury to the wild horses and to the BLM employees and contractors conducting the gather and/or handling the horses as well as to the public themselves. Because these horses are wild animals, there is always the potential for injury when individuals get too close or inadvertently get in the way of gather activities.

The helicopter work is done at various heights above the ground, from as little as 10-15 feet (when herding the animals the last short distance to the gather corral) to several hundred feet (when doing a reconnaissance of the area). While helicopters are highly maneuverable and the pilots are very skilled in their operation, unknown and unexpected obstacles in their path can impact their ability to react, creating an extreme safety concern. These same unknown and unexpected obstacles can impact the wild horses being herded by the helicopter in that they may not be able to react and can be potentially harmed or caused to flee which could lead to injury and/or additional stress. When the helicopter is working close to the ground, the rotor wash of the helicopter may also pose a safety concern by potentially causing loose vegetation, dirt, and other objects to fly through the air which could strike or land on anyone in close proximity as well as cause decreased vision.

Direct and Indirect Effects of Alternatives

Proposed Action and Alternatives B & C

Public safety as well as that of the BLM and contractor staff is always a concern during the gather operations. During the herding process, wild horses would try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing horses can go through wire fences, traverse unstable terrain, and go through areas that they normally don't travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal's path.

Disturbances in and around the gather and holding corral have the potential to cause a wild horse to injure the government personnel and/or contractor staff who are trying to sort, move and care for the horses by causing them to be kicked, struck, and possibly trampled by the animals. Such disturbances also have the potential for similar harm to the public.

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No Action Alternative

There would be no safety concerns to BLM employees, contractors and the general public as no gather activities would occur.

3.3 Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations define cumulative impacts as: “[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions.” Past present and reasonably foreseeable future actions related to the analysis of cumulative impacts on resources or uses affected by the proposed action primarily include livestock grazing, agriculture/hay farming, oil and gas exploration and dispersed recreation.

3.3.1 Related Past, Present and Reasonably Foreseeable Future Actions (PPRFAs)

Table 8. The Past, Present, and Reasonably Foreseeable Future Actions applicable to the assessment area are identified as the following:

Issue-Project-Name or Description	Status		
	Past	Present	Future
Issuance of decisions and grazing permits for ranching operations through the allotment evaluation process/standards and guidelines assessment and the reassessment of the associated allotments	X		X
Livestock grazing	X	X	X
Wild Horse and Burro Gathers	X	X	X
Mineral Exploration / Geothermal Exploration/Abandoned mine land reclamation	X	X	X
Southwest Intertie Project			X
Recreation	X	X	X
Spring development (fencing water sources)	X	X	X
Wildlife guzzler construction	X	X	X
Invasive weed inventory/treatments	X	X	X
Wild Horse and Burro issues, issuance of Multiple use	X		X

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decisions, AML adjustments and planning			
Wildfire and Emergency stabilization and rehabilitation	X	X	X
Wildlife Issues: Expanding elk population		X	X

Dispersed recreation; drought, wildfire, wildfire suppression, fuel break and wildlife/range rehabilitation efforts; wildlife habitat improvement projects; expanding elk population, minerals exploration; possible increase use of Northern Nevada rail line, South West Intertie Project (Major transmission line), renewable energy (Schell Field Office), invasive and non-native weed species, livestock grazing, and wild horse gathers are considered the primary past and present and reasonably foreseeable actions within the CESA (shown below).

3.3.2 Cumulative Effects Study Areas

Table 9. Resources and Cumulative Effects Study Areas

Resource	Cumulative Effects Study Area (CESA)
Wild Horses	The CESA for wild horses includes the Antelope Complex and immediately surrounding areas.
Soils	The CESA for soils includes the Antelope Complex and immediately surrounding areas.
Water Resources	The CESA for water resources includes the Antelope Complex and immediately surrounding areas.
Fisheries and Riparian Zones	The CESA for Fisheries and Riparian Zones includes the Antelope Complex and immediately surrounding areas.
Vegetation	The CESA for Vegetation includes the Antelope Complex and immediately surrounding areas.
Wildlife Species, Special Status Species and Migratory Birds and their Habitat	The CESA for Wildlife Species, Special Status Species and Migratory Birds and their Habitat includes the Antelope Complex and immediately surrounding areas.
Wilderness	The CESA for Wilderness and Wilderness Study Areas includes the Antelope Complex and immediately surrounding areas.
Livestock Grazing	The CESA for Livestock Grazing includes the Antelope Complex and immediately surrounding areas.
Cultural Resources	The CESA for Cultural Resources includes the Antelope Complex and immediately surrounding areas.

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3.3.3 Cumulative Impacts to Resources

Impacts Common to Proposed Action and Alternatives B, and C

Because the indirect and direct impacts to Wild Horses, Soils, Water, Riparian Zones, Vegetation, Wildlife Species, Special Status Species and Migratory Birds and their Habitat, WSAs, Livestock Grazing, and Cultural are all positive there are no cumulative impacts of concern. Numbers of wild horses under the Proposed Action and Alternatives B, and C are slightly different at the end of ten years. Therefore the indirect and direct impacts as well as the cumulative impacts are slightly different in magnitude; however the difference is slight. The Proposed Action results in the least cumulative impacts, and Alternative C has the most cumulative impacts of these three alternatives.

Cumulative effects expected when incrementally adding any of the three action alternatives to the past, present, and reasonably foreseeable actions within the CESA would include continued improvement of upland and riparian vegetation and soils conditions, which would in turn benefit current livestock management, native wildlife including sensitive species, water resources, cultural resources and wild horses populations as forage (habitat) quantity and quality is improved over the current level. Benefits from reduced wild horse populations would include fewer animals competing for limited water quantity at limited sites. Cumulatively there should be more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple use conflicts within the cumulative area over the short and long-term. Gathering and removing excess wild horses from the Antelope Complex, and removal of wild horses outside of the Antelope Complex would also likely benefit resources in the adjoining areas, as horses in the Antelope Complex would not need to travel outside of the HMAs in search of additional forage, water and space due to overpopulation.

Cumulatively over the next 10-15 year period, continuing to manage wild horses within the established AML ranges would result in improved vegetation condition (i.e. forage availability and quantity), which in turn would result in improved vegetation density, cover, vigor, seed production, seedling establishment and forage production over current conditions. Increased coordinated management of wild horses over the entire CESA would allow a free roaming behavior amongst existing herds and therefore lead to a thriving natural ecological balance. Managing wild horse populations within the established AMLs would allow the primary forage plant species to return more rapidly and allow for improvements to riparian habitat, even though some vegetation conditions may never be able to return to their potential. Maintaining AMLs over a sustained period of time throughout the CESA would allow for the collection of scientific data to evaluate AML levels.

Cumulatively over the next 10-15 years, fewer gathers should result in less frequent disturbance to individual wild horses and the herd's social structure. Individual and herd health would be maintained. Some movement of wild horses across HMA boundaries within the CESA would be expected but should not result in non-attainment of identified

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AML ranges and other management objectives if excess horses are removed from the Antelope Complex.

By removing excess wild horses, BLM will be able to gather a higher percentage of the total wild population in future gathers for fertility control and sex ratio adjustments in an effort to slow population growth and to reduce the need to remove excess wild horses from the range, and number of excess wild horses that must be removed. However, the gather and release of wild horses back into the HMA may lead to the decreased ability to gather horses in the future as released horses learn to evade the helicopter by taking cover or temporarily moving outside the HMA until gather activities cease.

Impacts related to Alternative D (No Action)

Under the No Action alternative, the wild horse population in the Antelope Complex could exceed 4,300 head in about four years. Increased movement of horses outside the boundaries of the Antelope Complex would be expected as the ever greater numbers of horses search for sufficient resources and habitat for survival, thus impacting larger areas of public lands within the CESA. Heavy utilization of available forage and insufficient water would be expected. Allowing the wild horse population to continue to grow beyond the current population numbers would be likely to result in a population crash during the next decade. Wild horses, wildlife and livestock would not have sufficient forage or water. All animals would experience suffering and possible death. Ecological communities and habitat resources would not be sustainable. Rangeland health would degrade, possibly below biological thresholds, making recovery unlikely if not impossible as halogeton, cheatgrass, and other invasive non-native species could dominate the understory degrading ecological conditions.

Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. These emergency removals could occur as early as this summer season if the area experiences normal or below normal precipitation. There is also a high likelihood that emergency actions would be needed beyond the summer season if the current dry conditions persist through the upcoming summer (2011). During emergency conditions, competition for available forage and water resources is heightened and generally impacts the older and youngest horses as well as lactating mares first. These groups would experience significant weight loss and diminished health, which could result in prolonged suffering and their eventual death. If emergency actions are not taken (prior to or in response to these events), the overall population could be affected by severely skewed sex ratios towards stallions (generally the strongest and healthiest portion of the population) and a severely altered age structure. In addition, habitat resources would be over-utilized and progress toward meeting rangeland health standards would not be met.

Cumulative impacts would result in foregoing an opportunity to improve rangeland health and to properly manage wild horses in balance with the available water and forage. Over-utilization of vegetation and other habitat and adverse impacts to cultural resources would occur as wild horse populations continued to increase. Wild horse populations would be expected to eventually crash at some ecological threshold; however wild horse,

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livestock, and wildlife would all experience suffering and possible death as rangeland resources continued to degrade. Attainment of RMP/FMUD objectives and Standards for Rangeland Health and Wild Horse and Burro Populations would not be achieved.

Under the No Action Alternative, AML would not be achieved or sustained throughout the CESA, and therefore the collection and analysis of scientific data necessary to evaluate AML levels, in relationship to rangeland health standards and whether a thriving natural ecological balance is being met or achieved, could not be undertaken.

The indirect and direct impacts of Alternative D (No Action) are all negative and are increasingly negative as wild horses numbers increase and expand their range.

In comparison to the impacts caused by wild horses under Alternative D, the impacts of the PPRFAs, although negative, are generally not substantial or are very temporary. Therefore, the cumulative impacts related to the No Action Alternative are almost entirely composed of the direct and indirect impacts of the No Action Alternative.

3.4 Mitigation and Monitoring

The SOPs that would be implemented for the Proposed Action and Alternative B and C would address all impacts of concern; therefore there is no proposed mitigation.

Ongoing rangeland monitoring within the Antelope Complex would continue as outlined in the Sensitive Bird Species EIS, and relevant Final Multiple Use Decisions and the Wells RMP 1985, Wells RMP Wild Horse Amendment 1993, and Ely RMP 2008. Studies will be conducted in accordance with BLM policy manual guidance as outlined in the Nevada Rangeland Monitoring Handbook and will include, but are not limited, to the following:

Uplands:

forage production
ecological condition
trend frequency
utilization
actual use
upland proper functioning condition assessment
Ecological Site Inventory
Cover

Riparian:

Proper Function Condition Assessments (BLM TR 1737-16, BLM TR 1737-15)
Stream Surveys (BLM TR 6670 and 6720-1)

Water:

water temperature
water quality samples

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air temperature

Wildlife Habitat:

condition studies

Cole browse

utilization

condition studies, (BLM Manual 6630)

wildlife population census/habitat delineation maps (NDOW)

Wild Horses:

The BLM Contracting Officer Representative (COR) and Project Inspectors (PIs) assigned to the gather would be responsible for insuring contract personnel abide by contract specifications and SOPs. Ongoing rangeland, riparian, and wild horse monitoring would continue, including periodic aerial population inventory counts.

Should the Proposed Action gather efficiency exceed 80% and wild horses are released, fertility control monitoring would be conducted in accordance with the SOP's outlined in Appendix C; and, monitoring the herd's social behavior would be incorporated into routine monitoring.

4 CONSULTATION AND COORDINATION

4.1 General Information

Public hearings are held annually on a state-wide basis regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During these meetings, the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of these methods to capture wild horses (or burros). A meeting on the state wide use of helicopters and motorized vehicles to capture wild horses and burros was held at the Elko District Office on July 1, 2010. Several written comments were entered into the record for this hearing. Specific opinions expressed or issues identified included: (1) the use of helicopters and motorized vehicles is inhumane and results in injury or death to significant numbers of wild horses and burros; (2) the use of helicopters and motorized vehicles is more humane, effective, and efficient, and results in less injury or death to significant numbers of wild horses and burros; (3) inventory methods using helicopters and fixed wing aircraft; (4) reported reproduction and mortality rates; (5) providing the public with pertinent information regarding gather plans at site-specific locations; (6) statistics or statements relating to impacts of helicopter driving, distances, terrain, etc. on wild burro herds; (7) studies on impacts to wild horses and burros on the use of helicopters and helicopter driving during gather. BLM reviewed its Standard Operating Procedures in response to the views and issues raised at the public meeting and determined that no changes to the SOPs were warranted.

4.1.2 Scoping and Issue Identification

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A scoping letter for the Antelope Complex was sent to 142 interested individuals, groups, and agencies on December 14, 2009, regarding the proposed removal of excess horses from the Antelope Complex HMA. Letters or e-mails were received from 21 individuals and groups during the 45 day comment period. In an attempt to reach a wider audience the BLM subsequently issued a press release on January 13, 2010. On January 19, 2010, the BLM received a request from In Defense for Animals for a 60 day extension to the December 14, 2009 scoping letter. On January 21, 2010 the BLM granted an extension until February 12, 2010. Beginning February 10 through February 12 the BLM received 8,161 comment form letters. Some members of the public submitted up to five comment form letters often repeating what they had already submitted. Those comments that were duplicates were not accepted.

The following issues were identified as a result of public and internal scoping and agency consultation, were used to analyze the alternatives:

1. Impacts to individual wild horses and the herd from proposed capture, removal and handling procedures. Measurement indicators for this issue include:
 - Projected population size and annual growth rate (WinEquus population modeling)
 - Expected impacts to individual wild horses from handling stress
 - Expected impacts to herd social structure
 - Expected effectiveness of proposed fertility control application
 - Potential effects to genetic diversity
 - Potential impacts to animal health and condition

2. Impacts to potentially affected critical and other elements of the human environment (**Vegetation; Wildlife, Migratory Birds, and Special Status Species**) from proposed capture and removal. Measurement indicators for this issue include:
 - Potential for temporary displacement, trampling or disturbance
 - Potential competition for forage and water over time (expected change in actual forage utilization by wild horses)
 - Expected impacts to range condition over time

4.1.3 Issues Not Addressed

The scope of this environmental assessment is limited to the need to remove excess wild horses from the Antelope Complex and to implement fertility control and/or sex ratio adjustments in order to slow annual growth rates. These actions are needed to extend the time between gathers, reduce impacts to individual horses and the herds and to achieve and maintain the AMLs and protect the range from the deterioration associated with the current overpopulation. Some comments received from the public in response to public scoping are outside the scope of this Environmental Assessment (EA) and were not considered by BLM in preparing this EA.

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4.1.4 Coordination with Other Agencies

A letter was received from the Nevada State Historic Preservation Officer concurring with the proposed gather.

The Commission for the Preservation of Wild Horses supports the proposed gather.

4.1.5 Native American Consultation

A Native American scoping letter for the Antelope Complex was mailed on January 12, 2010. No comments were received.

4.2 Preparers

Elko District Office

Bruce Thompson	Wild Horses, Elko District Office
Terri Dobis	Rangeland Management
Derrick Holdstock	Wildlife, Migratory Birds, BLM Special Status Species and their Habitat
Donna Jewell	Supervisory Natural Resource Specialist
Kirk Laird	Environmental Coordinator
Mark Dean	Soils and Water Quality and Riparian
Tamara Hawthorne	Visual Resource Management and Wilderness
Tim Murphy	Cultural Resources
Tyson Gripp	Noxious Weeds

Ely District Office

Ben Noyes	Wild Horses, Schell Field Office
Brett Covlin	Rangeland Management Specialist
Nancy Williams	Wildlife, Migratory Birds, BLM Special Status Species and their Habitat

Nevada State Office

Alan Shepherd	Wild Horses, Nevada State Office
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National Program Office

Susie Stokke	Wild Horses, National Program Office
Bea Wade	Wild Horses, National Program Office

4.3 Distribution

Prior to issuance of any decision to implement the proposed action, this EA will be available for review and comment on the BLM public web site at:

http://www.blm.gov/nv/st/en/fo/elko_field_office/blm_information/nepa.html

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A notice of availability and/or or hard copies of this EA will be sent to those on the following address list. The individuals listed either commented during scoping and/or requested a copy of the EA.

Individuals

Adrea Lococo
Barbara Warner
Darynne Jessler
Dolores Wilson
Eileen Hennessy
Golde Wallingford
Irene Lopez
J. Capozzeli
Jeane Nations
Jeffrey O. Roche
Kara Roberston
Kay and Kathy Lear
Kenneth Jones
Linda Springer
Lorraine Schanzebach
Nancy Schultz
Patsy Stombaugh
Rita Shovea
Robin Bailey
Robin Spivack
Ron Torell
Roxanna Lund
Sandra Walker
Sherie R. Goring
Sherry Oster
Von and Marian Sorensen

Businesses

Chournos, Inc.
CL Cattle Company LLC
DBA Need More Sheep Company
Flat Top Ranching Company
H & R Livestock
Pine Valley Sheep Ranch, Inc.
Wes Bowlen
Wilde Brough

Non-Governmental Organizations

Animal Welfare Institute
Friends of Nevada Wilderness
In Defense of Animals

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Sustainable Grazing Coalition
The Cloud Foundation
Western Watersheds Project

State and Local Governmental Agencies

Nevada State Clearinghouse (e-mail: clearinghouse@budget.state.nv.us)
Nevada Cattlemen's Association
Nevada Department of Wildlife
Wild Horse Commission

Elected Officials

John Carpenter
Elko County Commissioners
White Pine County Commissioners

Federal Agencies

BLM Schell Field Office, Ely, NV
BLM Nevada State Office, Reno NV
U.S. Fish & Wildlife Service, Reno NV

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4.3 References

- An Approach for Setting the Stocking Rate, *Rangelands* 10(1), February 1988 Holechek
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Appendix A

Standard Operating Procedures (SOPs)

Gathers would be conducted by utilizing contractors from the Wild Horse and Burro Gathers-Western States Contract, or BLM personnel. The following procedures for gathering and handling wild horses and burros would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse and Burro Aviation Management Handbook* (March 2009).

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

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

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

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

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

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

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following: All gather sites and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The

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Contractor may also be required to change or move gather sites locations as determined by the COR/PI. All gather sites and holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.
3. All gather sites, 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. Gather sites 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 gather sites and holding facilities shall be oval or round in design.
 - b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood or metal without holes.
 - c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.
 - d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses
 - e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.
4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.
5. When dust conditions occur within or adjacent to the gather site or holding facility, the Contractor shall be required to wet down the ground with water.
6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, and estrays from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will

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require that animals be restrained for the purpose of determining an animal's age or sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gather requires that animals be released back into the capture area(s). In areas requiring one or more satellite gather sites, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

7. The Contractor shall provide animals held in the gather sites 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 gather sites or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. An animal that is held at a temporary holding facility after 5:00 p.m. and on through the night, is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.
8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if injured animals must be destroyed and provide for destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.
10. Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the COR/PI for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR/PI. Animals shall not be held in gather sites and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR/PI. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original gather site.. This determination will be at the discretion of the COR.

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B. Capture Methods that may be used in the Performance of a Gather

1. Capture attempts may be accomplished by utilizing bait (feed or water) to lure animals into a temporary gather site. If the contractor selects this method the following applies:
 - a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
 - b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
 - c. Gather sites shall be checked a minimum of once every 10 hours.
2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary gather site. If the contractor selects this method the following applies:
 - a. A minimum of two saddle-horses shall be immediately available at the gather site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind and orphaned.
3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI selects this method the following applies:
 - a. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind or orphaned.
 - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

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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 gather site(s) to temporary holding facilities and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.
4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.
5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.
6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers: 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer); 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer); 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer); 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).
7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.
8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

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D. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.
 - a. The proper operation, service and maintenance of all contractor furnished property are the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.
 - b. The Contractor shall obtain the necessary FCC licenses for the radio system
 - c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.
2. Should the contractor choose to utilize a helicopter the following will apply:
 - a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.
 - b. Fueling operations shall not take place within 1,000 feet of animals.

E. Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations will be made available to the extent possible; however, the primary consideration will be to protect the health and welfare of the animals being gathered. The public must adhere to guidance from the onsite BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

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F. Responsibility and Lines of Communication

The CORs and the PIs have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

The appropriate Field Manager and the District Manager will take an active role to ensure the appropriate lines of communication are established between the gather staff, Field Office, District Office, State Office, National Program Office, and Palomino Valley Corral. All publicity, formal public contact and inquiries will be handled through the appropriate Field Manager.

G. Resource Protection

Gather sites and holding facilities would be located in previously disturbed areas whenever possible to minimize potential damage to the natural and cultural resources.

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

Prior to implementation of gather operations, gather sites and temporary holding facilities would be evaluated to determine their potential for containing cultural resources. All gather facilities (including gather sites, gather runways, blinds, holding facilities, camp locations, parking areas, helicopter pads, staging areas, etc.) that would be located partially or totally in new locations (i.e. not at previously used gather locations) or in previously undisturbed areas would be inventoried by a BLM archaeologist or district archaeological technician before initiation of the gather. A buffer of at least 50 meters would be maintained between gather facilities and any identified cultural resources.

Gather sites and holding facilities would not be placed in known areas of Native American concern.

The contractor would not disturb, alter, injure or destroy any scientifically important paleontological remains; any historical or archaeological site, structure, building, grave, object or artifact; or any location having Native American traditional or spiritual significance within the project area or surrounding lands. The contractor would be responsible for ensuring that its employees, subcontractors or any others associated with the project do not collect artifacts and fossils, or damage or vandalize archaeological, historical or paleontological sites or the artifacts within them. Should damage to cultural or paleontological resources occur during the period of gather due to the unauthorized, inadvertent or negligent actions of the contractor or any other project personnel, the contractor would be responsible for costs of rehabilitation or mitigation. Individuals involved in illegal activities may be subject to penalties under the Archaeological Resources Protection Act (16 U.S.C 470ii), the Federal Land

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Management Policy Act (43 U.S.C 1701), the Native American Graves and Repatriation Act (16 U.S.C. 1170) and other applicable statutes;

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Appendix B

Bluebell WSA Operating Requirements for the Shafter Well Gather Site

- A wilderness specialist or a COR who is knowledgeable on the non-impairment standard will be present during set-up and removal of the gather site. The COR will inform the contractor and all personnel on-site of the location and rules for uses in Wilderness Study Areas.
- All motorized vehicles must stay on existing roads. Vehicles that are parked in the area must be parked in already disturbed areas.
- All gather sites and blinds will be erected without causing surface disturbance.
- Any helicopter landings will be in previously disturbed areas at the site. For example, there is a gravelly area that is devoid of vegetation near the well pump that could be used for landing a helicopter.
- All trash and waste will be disposed of properly and not buried or burned on-site. Any new or additional disturbance within the WSA will be repaired by BLM as soon as possible. This includes reseeded if necessary.

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Appendix C

Standard Operating Procedures for Population-level Fertility Control Treatments

22-Month Time-Release Pelleted Vaccine:

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

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.
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 delivered using a modified syringe and jabstick to inject the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time-release cold capsule.
3. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
4. In the future, the vaccine may be administered remotely using an approved long range darting protocol and delivery system if or when that technology is developed.
5. All treated mares will be freeze-marked on the hip or neck to allow HMA managers to positively identify the animals at the time of removal during subsequent gathers.

Monitoring and Tracking of Treatments:

1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e., number of foals to number of adults).
2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e., number of foals to number of adults). If, during routine HMA field monitoring on the ground, data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.

Antelope Complex Gather Capture Plan and EA

3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the Field Office.
4. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, Field Office, and State along with the freeze-mark(s) applied by HMA and date.

Antelope Complex Gather Capture Plan and EA

Appendix D

WinEquus Population Modeling

To complete the population modeling for the Antelope Complex version 3.2 of the WinEquus program, created April 2, 2002, was utilized.

Objectives of Population Modeling

Review of the data output for each of the simulations provided many useful comparisons of the possible outcomes for each alternative. Some of the questions that need to be answered through the modeling include:

- Do any of the Alternatives “crash” the population?
- What are the different growth rates and numbers removed?
- What effect does fertility control have on population growth rate?
- What effects do the different alternatives have on the average population size?

Population Data, Criteria, and Parameters utilized for Population

Modeling all simulations used the survival probabilities, foaling rates, and sex ratio at birth that was supplied with the WinEquus population model for the Garfield HMA 1997.

Sex ratio at Birth:
47% Females
53% Males

The following percent effectiveness of fertility control was utilized in the population modeling for Alternative A:

Yr 1 = 92%; Yr 2 = 84%; Yr = 60%

The following table displays the contraception parameters utilized in the population model for Alternative A:

Contraception Criteria (Alternative A)

Age	Fertility Treatment
Foal	0%
1	0%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%

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Age	Fertility Treatment
9	100%
10-14	100%
15-19	100%
20+	100%

Population Modeling Criteria

The following summarizes the population modeling criteria that are common to the Proposed Action, and all alternatives:

- Starting Year: 2011
- Initial gather year: 2011
- Gather interval: minimum interval of three years.
- Gather for fertility treatment regardless of population size: No
- Continue to gather after reduction to treat females: Yes
- Sex ratio at birth: 53% males
- Percent of the population that can be gathered: 85%
- Minimum age for long term holding facility horses: Not Applicable
- Foals are not included in the AML
- Simulations were run for 10 years with 100 trials each

The following table displays the population modeling parameters utilized in the model:

Population Parameters Parameter	Modeling Modeling	Alternative A Gather and Apply Fertility Control and Adjust sex ratio	Alternative B Gather and Adjust sex ratio	Alternative C Removal Only	Alternative D No Action (No Removal & No Fertility Control)
Management by removal, and fertility control		Yes	No	No	N/A
Management by removal, 60:40 adjustment in sex ratio, and fertility control		No	Yes	No	N/A
Management by removal only		No	No	Yes	N/A

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Population Parameters Parameter	Modeling Modeling	Alternative A Gather and Apply Fertility Control and Adjust sex ratio	Alternative B Gather and Adjust sex ratio	Alternative C Removal Only	Alternative D No Action (No Removal & No Fertility Control)
Threshold Population Size for Gathers (High end AML)		788	788	788	N/A
Target Population Size Following Gathers (Mid Point)		788	788	788	N/A
Gather for fertility control regardless of population size		No	No	No	N/A
Gathers continue after removals to treat additional females		Yes	Yes	No	N/A
Effectiveness of Fertility Control: year 1		92%	N/A	N/A	N/A
Effectiveness of Fertility Control: year 2		84%	N/A	N/A	N/A
Effectiveness of Fertility Control: year 3 (gather and retreat)		60%	N/A	N/A	N/A

Results of WinEquus Population Modeling

Population modeling was completed for the proposed action and the alternatives. One hundred trials were run, simulating population growth and herd demographics to determine the projected herd structure for the next four years, or prior to the next gather. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

To date, one herd has been studied using the 2-year PZP vaccine. The Clan Alpine study, in Nevada, was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% year one and 18% year two.

Interpretation of the Model

The estimated population of 2,086 wild horses in the Antelope Complex was based on inventory flights in 2009 and direct count population inventory from March 2010. This population estimated was used in the population modeling. Year one is the baseline starting point for the model and reflects wild horse numbers immediately prior to the gather action and also reflects a slightly skewed sex ratio favoring females. A sex ratio

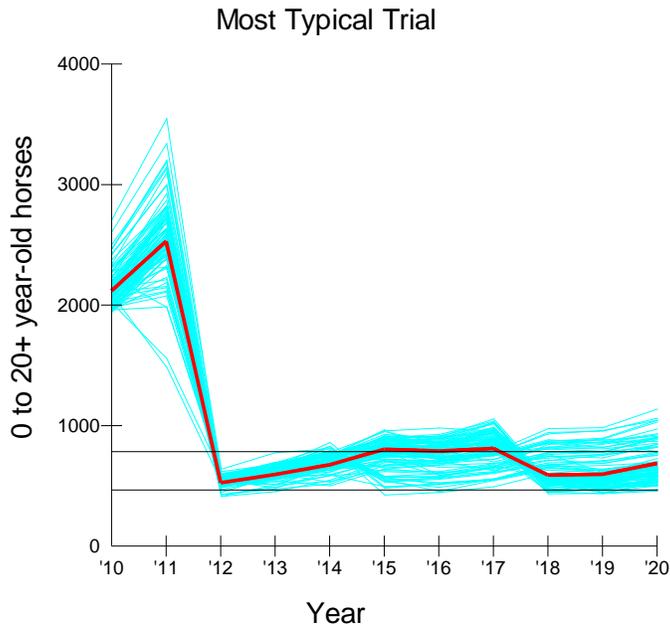
Antelope Complex Gather Capture Plan and EA

of 53:47 was entered into the model for the post-gather a population. In this population modeling, year one would be 2011. Year two would be exactly one year in time from the original action, and so forth for years three, four, and five, etc. Consequently, at year eleven in the model, exactly ten years in time would have passed. In this model, year eleven is 2021. This is reflected in the Population Size Modeling Table by “Population sizes in ten years” and in the Growth Rate Modeling Table by “Average growth rate in 10 years.” Growth rate is averaged over ten years in time, while the population is predicted over the same ten years to the end point of year eleven. The Full Modeling Summaries contain tables and graphs directly from the modeling program.

The parameters for the population modeling were:

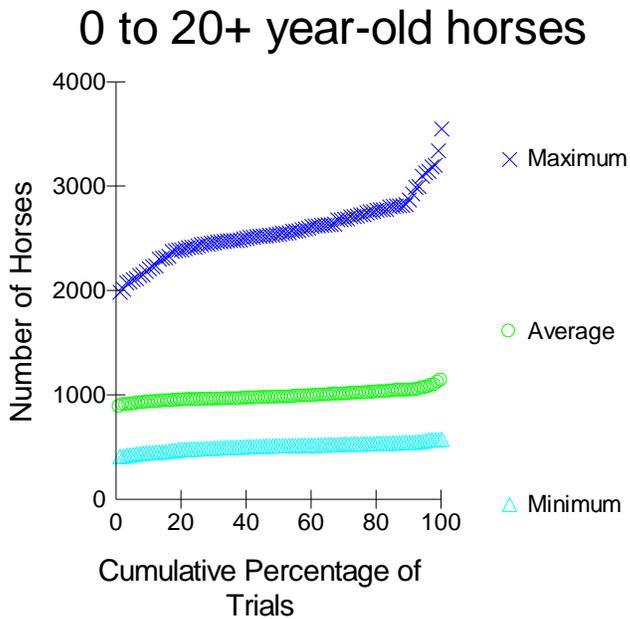
1. gather when population exceeds 788 in the Antelope Complex
2. foals are not included in AML
3. percent to gather 85
4. three years between gathers
5. number of trials 100
6. number of years 10
7. initial calendar year 2011
8. initial population size for all HMAs = 2,086
9. population size for the combined total of all HMAs after gather = 427
10. implement selective removal criteria
11. fertility control Yes for Proposed Action (Alternative A) and No for Alternatives B through D

Antelope Complex NV
Removal and apply fertility control and adjust sex ratios
60% Studs and 40% Mares
Proposed Action



The two horizontal lines above reflect the low AML (427) and the high AML (788).

Population Size



Antelope Complex Gather Capture Plan and EA

Population Sizes in 11 Years*

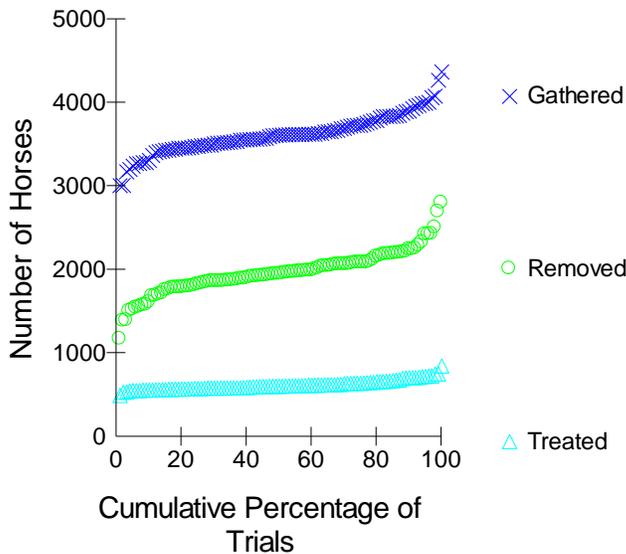
	Minimum	Average	Maximum
Lowest Trial	416	887	1991
10th Percentile	452	931	2226
25th Percentile	490	954	2441
Median Trial	518	977	2552
75th Percentile	536	1017	2734
90th Percentile	552	1044	2903
Highest Trial	580	1140	3554

* 0 to 20+ year-old horses

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 416 and the highest was 3554. In half the trials the minimum population size in 11 yrs was less than 518 and the maximum was less than 2552. The average population size in 11 yrs ranged from 887 to 1140.

Gathers

0 to 20+ year-old horses



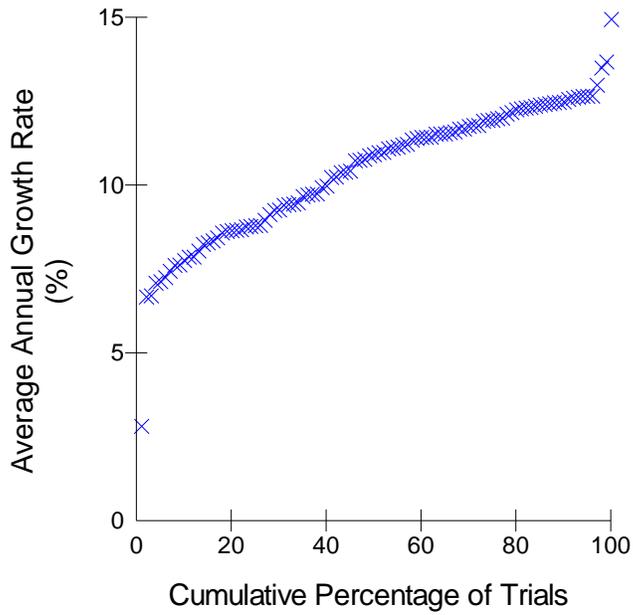
Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	3012	1172	497
10th Percentile	3343	1645	562
25th Percentile	3486	1828	579
Median Trial	3616	1951	607
75th Percentile	3740	2086	644
90th Percentile	3917	2243	710
Highest Trial	4372	2801	848

* 0 to 20+ year-old horses

Antelope Complex Gather Capture Plan and EA

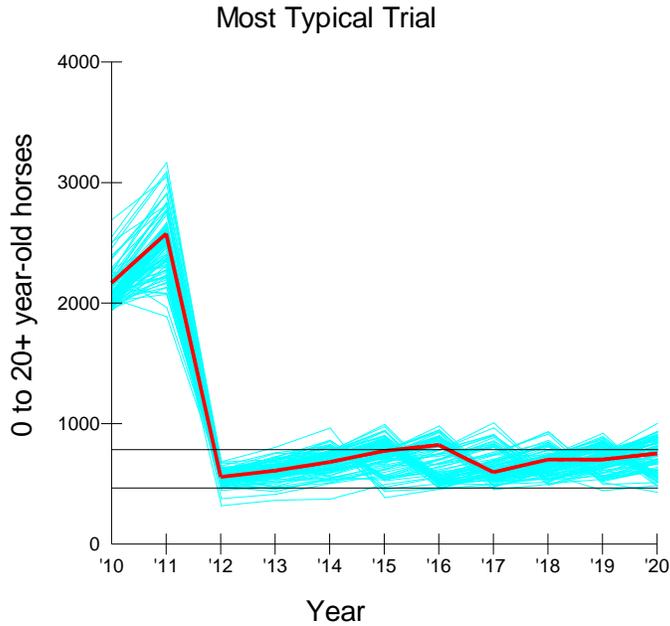
Growth Rate



Average Growth Rate in 10 Years

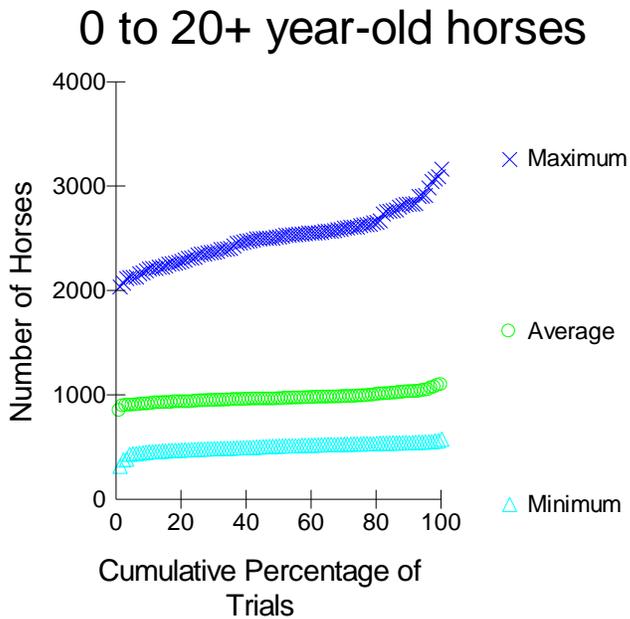
Lowest Trial	2.8
10th Percentile	7.8
25th Percentile	8.8
Median Trial	11.0
75th Percentile	12.0
90th Percentile	12.5
Highest Trial	15.0

Antelope Complex NV
Removal and adjust sex ratios
60% Studs and 40% Mares
Alternative B



The two horizontal lines above reflect the low AML (427) and the high AML (788).

Population Size



Antelope Complex Gather Capture Plan and EA

Population Sizes in 11 Years*

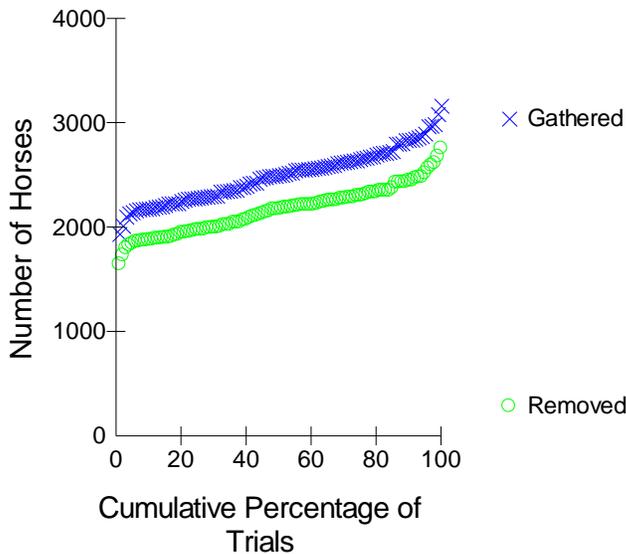
	Minimum	Average	Maximum
Lowest Trial	323	849	2042
10th Percentile	460	914	2216
25th Percentile	486	941	2352
Median Trial	516	961	2524
75th Percentile	538	988	2633
90th Percentile	550	1028	2836
Highest Trial	582	1098	3170

* 0 to 20+ year-old horses

In 11 yrs and 100 trials, the lowest number of 0 to 20+ yr old horses ever obtained was 323 and the highest was 3170. In half the trials the minimum population size in 11 yrs was less than 516 and the maximum was less than 2554. The average population size in 11 yrs ranged from 849 to 1098.

Gathers

0 to 20+ year-old horses



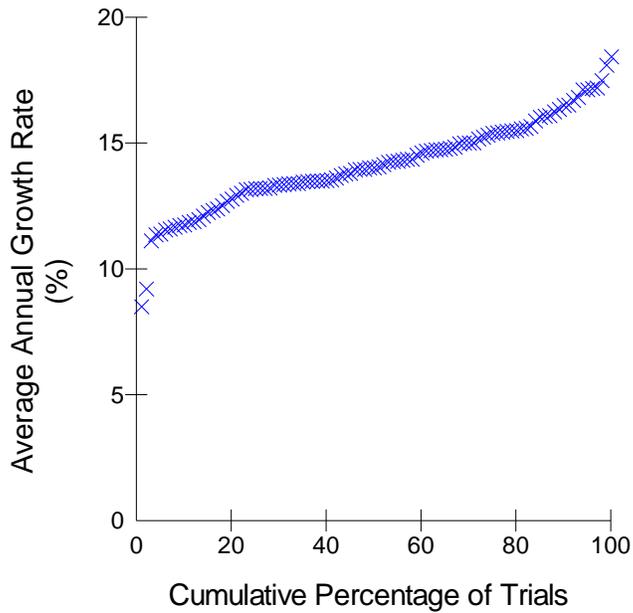
Totals in 11 Years*

	Gathered	Removed
Lowest Trial	1938	1645
10th Percentile	2182	1881
25th Percentile	2284	1975
Median Trial	2501	2178
75th Percentile	2659	2304
90th Percentile	2839	2448
Highest Trial	3165	2755

* 0 to 20+ year-old horses

Antelope Complex Gather Capture Plan and EA

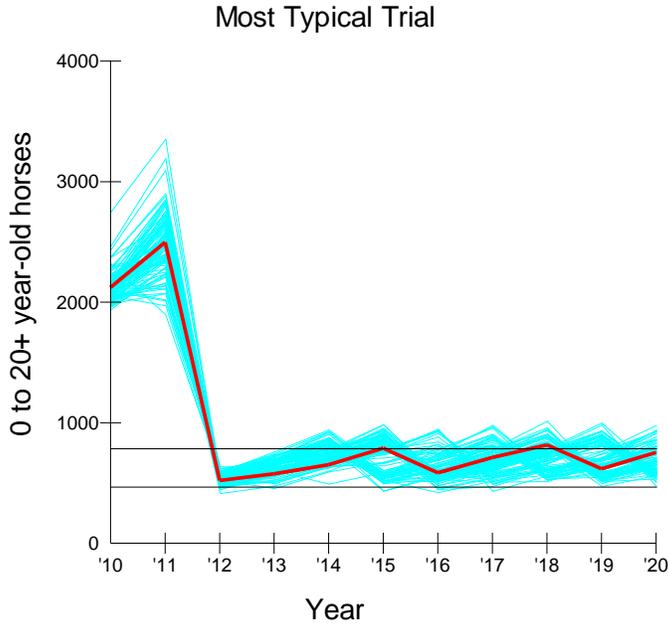
Growth Rate



Average Growth Rate in 10 Years

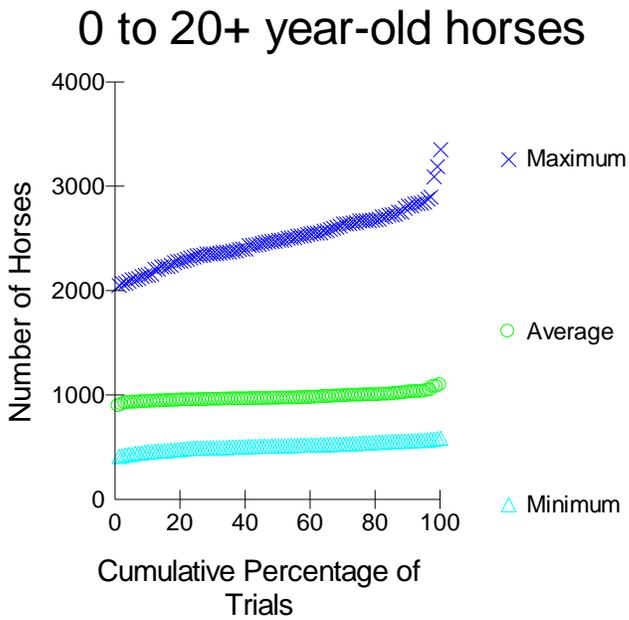
Lowest Trial	8.5
10th Percentile	11.8
25th Percentile	13.2
Median Trial	14.1
75th Percentile	15.4
90th Percentile	16.5
Highest Trial	18.5

Antelope Complex NV
Gather and Removal Only
Alternative C



The two horizontal lines above reflect the low AML (427) and the high AML (788).

Population Size



Antelope Complex Gather Capture Plan and EA

Population Sizes in 11 Years*

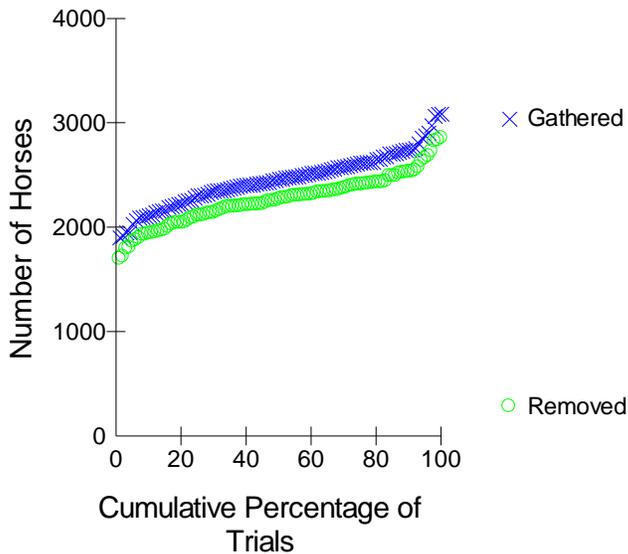
	Minimum	Average	Maximum
Lowest Trial	416	895	2056
10th Percentile	462	937	2161
25th Percentile	498	953	2344
Median Trial	518	967	2491
75th Percentile	546	996	2676
90th Percentile	567	1028	2818
Highest Trial	591	1096	3357

* 0 to 20+ year-old horses

In 11 years and 100 trials, the lowest number of 0 to 20+ year old horses ever obtained was 416 and the highest was 3357. In half of the trials, half the trials, the minimum population size in 11 years was less than 518 and the maximum was less than 2491. The average population size across 11 years ranged from 895 to 1096.

Gathers

0 to 20+ year-old horses



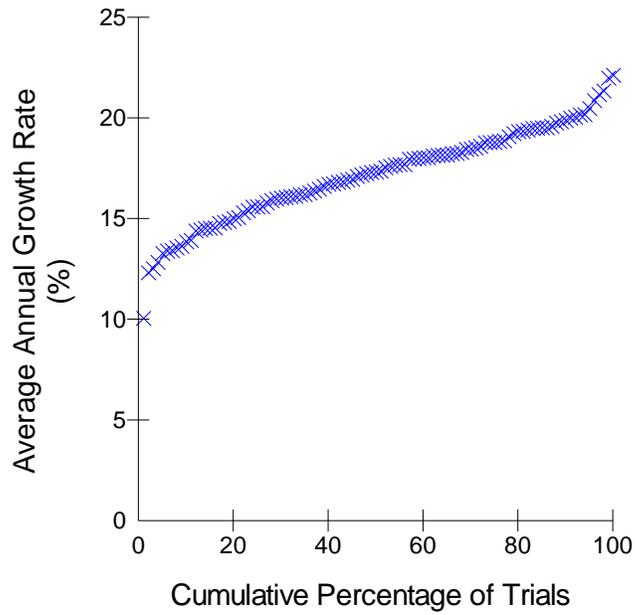
Totals in 11 Years*

	Gathered	Removed
Lowest Trial	1906	1700
10th Percentile	2121	1945
25th Percentile	2309	2114
Median Trial	2466	2274
75th Percentile	2622	2412
90th Percentile	2748	2534
Highest Trial	3092	2857

* 0 to 20+ year-old horses

Antelope Complex Gather Capture Plan and EA

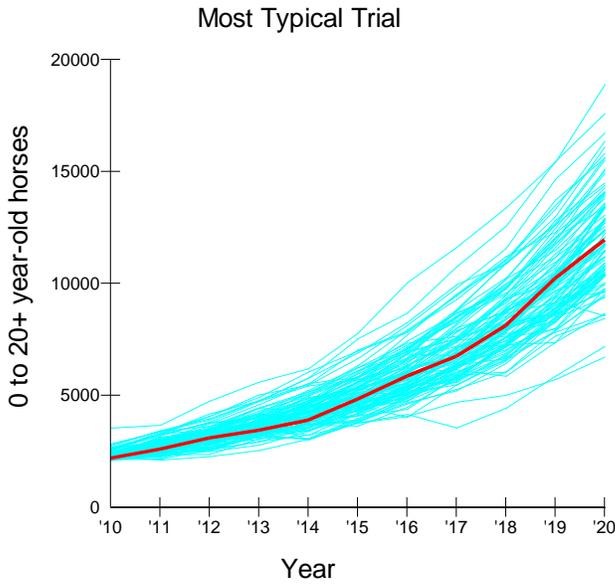
Growth Rate



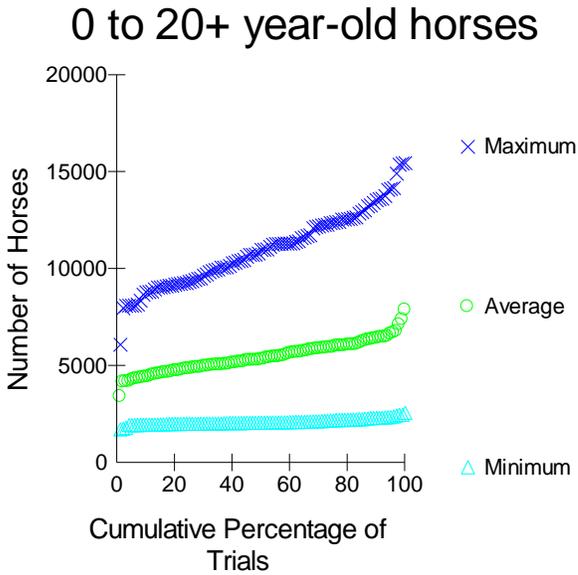
Average Growth Rate in 10 Years

Lowest Trial	10.1
10th Percentile	13.9
25th Percentile	15.6
Median Trial	17.4
75th Percentile	18.8
90th Percentile	20.0
Highest Trial	22.2

Antelope Complex NV
No Action



Population Size



Antelope Complex Gather Capture Plan and EA

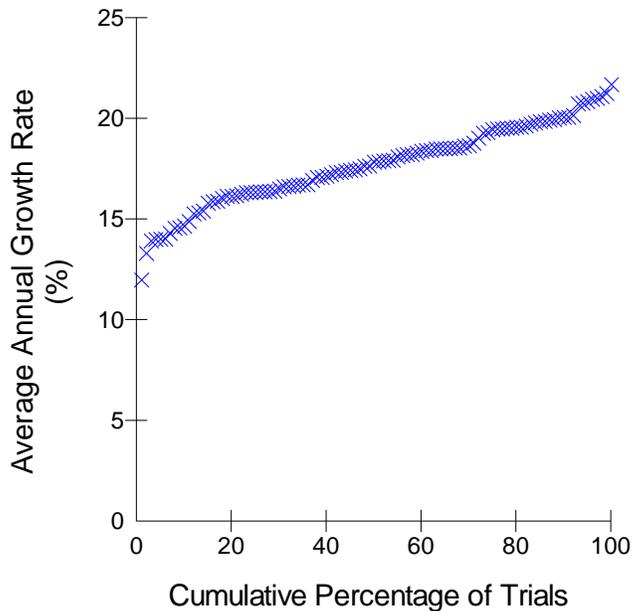
Population Sizes in 11 Years*
Minimum Average Maximum

Lowest Trial	2098	3831	6719
10th Percentile	2133	4958	9634
25th Percentile	2188	5289	10482
Median Trial	2275	5724	11814
75th Percentile	2398	6414	13491
90th Percentile	2571	7019	15091
Highest Trial	3549	9178	18906

* 0 to 20+ year-old horses

In 11 years and 100 trials, the lowest number of 0 to 20+ year old horses ever obtained was 2098 and the highest was 18906. In half of the trials, the minimum population size in 11 years was less than 2275 and the maximum was less than 11814. The average population size across 11 years ranged from 3831 to 9178.

Growth



Average Growth Rate in 10 Years

Lowest Trial	12.0
10th Percentile	14.8
25th Percentile	16.4
Median Trial	17.9
75th Percentile	19.5
90th Percentile	20.1
Highest Trial	21.7

Antelope Complex Gather Capture Plan and EA

Appendix E

Summary of Allotment and Related Decisions for the Antelope Complex

Chin Creek Allotment

The Chin Creek Allotment Final Multiple-Use Decision (FMUD) was issued July 16, 1990. This decision established the wild horse appropriate management level (AML) at 152 wild horses (1,824 AUMs) for the Chin Creek Allotment portion of the Antelope HMA. Permitted use for cattle and sheep was adjusted from 13,245 AUMs to the current level of 7,180 AUMs with 3,564 AUMs for cattle and 3,616 AUMs for sheep use.

Tippett Allotment

The Tippett Allotment FMUD was issued July 17, 1990. This decision established the wild horse AML at 34 wild horses for the Tippett Allotment portion of the Antelope HMA. Permitted use for cattle and sheep was adjusted from 13,615 AUMs to the current level of 8,560 AUMs with 4,068 AUMs cattle use and 4,492 AUMs sheep use.

Sampson Creek Allotment

The Sampson Creek Allotment FMUD was issued July 18, 1990. This decision established the wild horse AML at 25 wild horses (300 AUMs) for the Sampson Creek Allotment portion of the Antelope HMA. Permitted use for sheep was adjusted from 1,592 AUMs to the current level of 1,327 AUMs.

Becky Creek Allotment

The Becky Creek Allotment FMUD was issued April 19, 1991. This decision established the wild horse AML at 8 wild horses (96 AUMs) for the Becky Creek Allotment portion of the Antelope HMA. Permitted use for sheep was adjusted from 1,033 AUMs to the current level of 671 AUMs.

North Steptoe Allotment

The North Steptoe Allotment FMUD was issued December 24, 1992. This decision established the wild horse AML at 6 wild horses (77 AUMs) for the North Steptoe Allotment portion of the Antelope HMA. Permitted use for sheep is 700 AUMs.

Lovell Peak Allotment

The Lovell Peak Allotment FMUD was issued October 7, 1994. This decision established the wild horse AML at 8 wild horses (93 AUMs) for the Lovell Peak Allotment portion of the Antelope HMA. Permitted use has remained unchanged at 105 AUMs for sheep since the issuance of the FMUD.

Schellbourne Allotment

The Schellbourne Allotment FMUD was issued March 28, 2001. This decision established the wild horse AML at 6 wild horses (72 AUMs) for the Schellbourne Allotment portion of the Antelope HMA. Permitted use for cattle remained at 685 AUMs.

Antelope Complex Gather Capture Plan and EA

Cherry Creek Allotment

The Cherry Creek Allotment FMUD was issued July 20, 2001. This decision established the AML at 4 wild horses (46 AUMs) for the Cherry Creek Allotment portion of the Antelope HMA. Permitted use was adjusted from 6,562 AUMs to the current level of 5,293 AUMs for cattle grazing.

Deep Creek Allotment

The FMUD for the Deep Creek Allotment Portion of the Antelope HMA was issued October 25, 2001. This decision established the AML at 30 wild horses (360 AUMs) for the Deep Creek Allotment portion of the Antelope HMA. An adjustment to livestock use was reflected in the PMUD which was carried forward through a livestock use agreement. An "Agreement For Implementation of Changes In Livestock Grazing Use On The Deep Creek Allotment" was prepared in 2000. The purpose of the agreement was to modify the areas of use and address uneven distribution of livestock grazing on the Deep Creek Allotment. The permittees signed the agreements during March and April of 2000. The permitted use on the allotment was not adjusted and remains at 2,085 AUMs.

Becky Springs Allotment

An "Agreement for Livestock Grazing Management and Establishment of Wild Horse Appropriate Management Level for the Becky Springs Allotment" was prepared during September 2001. The agreement was signed by permittees during October 2001. The agreement does not make changes to season of use or permitted use for cattle or sheep. The current permitted use for the Becky Springs Allotment is 3,842 AUMs of which 2,916 AUMs are for sheep and 930 AUMs are for cattle. This agreement was prepared in consultation with the permittees and is an initial step toward establishing a wild horse AML. This agreement established a wild horse AML of 35 wild horses (420 AUMs) for the Becky Springs Allotment portion of the Antelope HMA.

Tippett Pass Allotment

An "Agreement for Changes in Livestock Grazing Use and Establishment of Wild Horse Appropriate Management Level for the Tippett Pass Allotment" was signed on October 11, 2001. Prior to the agreement, a total of 8,177 AUMs were permitted on the allotment, however none of the AUMs had ever been specifically allocated to sheep or cattle. Following the agreement, permitted active use was adjusted from 8,177 AUMs to 3,914 AUMs (2,646 AUMs allocated to cattle and 1,268 AUMs to sheep). The remainder of the permitted use of 4,263 AUMs (3,217 AUMs allocated to cattle and 1,046 AUMs to sheep) was placed in voluntary nonuse for conservation purposes for three years.

The period of use for the allotment was changed from yearlong to fall/winter/spring and use areas were established. Other changes in livestock management practices were made including establishment of proper utilization levels and water hauling to aid in the movement and distribution of livestock to avoid conflicts with sage grouse areas. This agreement was prepared in consultation with the permittee and is an initial step toward establishing a wild horse AML. This agreement established a wild horse AML of 16 wild horses (192 AUMs) for the Tippett Pass Allotment portion of the Antelope HMA.

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Badlands/Goshute Mountain Allotments

In the Badlands/Goshute Mountain Allotments an administrative agreement signed in 1983 between the Ely and Elko District Offices states that grazing administration for the Goshute Mountain Allotment would be the responsibility of the Elko District Office. Grazing administration includes the responsibility of grazing supervision, conducting range studies, project development and the determination of grazing capacity.

The Elko District Office issued a Final Multiple Use Decision (FMUD) for the Badlands/Goshute Mountain Allotments on June 18, 1998, implementing the management actions identified in the evaluation (available for review at the Elko District Office). The FMUD reduced the carrying capacity of the Badlands Allotment from 2,647 AUMs to 1,018 AUMs. The season of use in the Badlands/Goshute Mountain Allotments is 11/1 to 3/31. The permittee hauls water or uses snow to water livestock in the allotment.

Antelope Valley Allotment

The Antelope Valley Allotment adjoins the Chin Creek Allotment within the Ely District. On July 16, 1990, the Schell Resource Area issued a Final Multiple Use Decision (FMUD) regarding management within the Chin Creek Allotment. The FMUD incorporated the Antelope Valley Allotment into a grazing system with the North Pasture and South Pasture of the Chin Creek Allotment. The Chin Creek FMUD was appealed and resolution of the appeals culminated in a "Stipulation to Withdraw Appeals" in September 1991 which outlined an interim 3 pasture rotation grazing system that incorporated the Antelope Valley Allotment. The present grazing system is outlined in the "Stipulation to Withdraw Appeals" settling an appeal which spells out the grazing system and other terms and conditions for use in the Antelope Valley Allotment. The Antelope Valley Allotment is in an interim (as per the "Stipulation to Withdraw Appeals") three pasture deferred-rotation grazing system with the North and South Pastures which are administered by the Ely District.

The permitted use in the Antelope Valley Allotment is 5,246 AUMs with 2,555 AUMs placed into non-use for Conservation and Protection of the Federal Range. There are no interior fences in the allotment. The allotment is used as one unit and is normally grazed by cattle from November 1 to May 31 as outlined in the Antelope Valley Final Multiple Use Decision (FMUD) issued in 1994 and Badlands and Goshute Mountain FMUD issued in 1998.

Big Springs and Sheep Allotment Complex Allotments

Elko Field Office issued the "Final Multiple Use Decisions for the Big Springs Allotment and the Sheep Allotment Complex in 2002. Among other actions, this decision implemented following actions in relation to livestock and wild horse management.

The Big Spring Decision split the Big Springs Allotment into the East and West Big Springs Allotments. It reduced permitted livestock use in the East Big Springs Allotment from 16,598 AUMs to 12,175 AUMs.

Antelope Complex Gather Capture Plan and EA

The Sheep Allotment Complex Evaluation encompassed 9 grazing allotments (Boone Springs, Ferber Flat, UT/NV North, UT/NV South, Lead Hills, Leppy Hills, Sugarloaf, West White Horse, and White Horse Allotments). The allotments were evaluated through an ecosystem approach. The Sheep Allotment Complex Decision split the UT/NV #1 Allotment into the UT/NV North and UT/NV South Allotments. In the Sheep Allotment Complex Decision livestock use was reduced in the Sheep Allotment Complex from 39,915 AUMs to 26,652 AUMs.

Western Watersheds Project (WWP) appealed these decisions but withdrew their appeals after their Petition for Stay was not granted. WWP then combined the Big Springs and Sheep Complex Decisions with one other similar decision (Owyhee Allotment) into a single complaint filed in U.S. District court. On August 18, 2004 the Honorable Judge Howard D. McKibben issued a minute order in which he generally upheld the existing decisions while directing BLM to prepare an Environmental Impact Statement to analyze impacts of grazing, considering springs, seeps and riparian areas, upland habitat and land use plans to the extent they applied to certain sensitive species, which in the case of Big Springs included only sage grouse.

In July 2005 the BLM started preparation of the EIS as directed by the court. WWP moves several times to have the court issue injunctions to remove grazing from the affected allotments until such time as the EIS is completed. All such requests are denied. WWP appeals the denial of one such decision issued on 25 February 2005 to the Ninth Circuit Court of Appeals. The Ninth Circuit referred the case to mediation. During this process, WWP and BLM reached an agreement under which WWP will withdraw their appeal if BLM and the livestock permittees sign agreements to constrain livestock use for the 2005-2006 fee year. BLM subsequently completed agreements with both permittees in the Big Springs Allotments; the agreement affecting East Big Springs Allotment reduced permitted use to 10,500 AUMs for the grazing fee year. The initial agreement is signed by both the BLM and the permittee on 18 July 2005, with a revised agreement signed on 27 July 2005. No agreements were required for the Sheep Allotment Complex.

On October 30, 2006, the BLM completed the EIS and issued the "Final Grazing Management Decision and Record of Decision for the Sheep Complex, Big Springs and Owyhee Grazing Allotments". This decision left permitted use for the East Big Springs Allotment at 12,175 AUMs, but placed 2,025 of those AUMs in temporary suspension until certain range improvement projects and short term management objectives are met. The remaining 10,150 AUMs are available for livestock use within the constraints of the grazing system and carrying capacity calculations prescribed in the decision.

The decision permitted use in the Sheep Allotment Complex at 26,652 AUMs, but placed 9,178 of those AUMs in temporary suspension until certain range improvement projects and short term management objectives are met. The remaining 17,573 AUMs are available for livestock use within the constraints of the grazing system and carrying capacity calculations prescribed in the decision. The Sheep Allotment Complex allotments are normally grazed by sheep from November 1 to April 30 as outlined in the

Antelope Complex Gather Capture Plan and EA

Sheep Allotment Complex FMUD and “Final Grazing Management Decision and Record of Decision for the Sheep Complex, Big Springs and Owyhee Grazing Allotments.” The permittees haul water or use snow to water livestock in the allotments.

In November 2003 the Elko F.O. issued drought closures for portions of the Leppy Hills, Lead Hills, White Horse, West White Horse, Sugarloaf, Ferber Flat, and UT/NV South Allotments. The drought closures temporarily suspended [due to drought] 42% of the permitted use in the aforementioned allotments. Portions of the closures in the Sugarloaf, Ferber Flat, White Horse, Lead Hills, and Leppy Hills Allotments remain in place.

Several decision points from the 2002 decisions, including the horse management decision, remain in place.

Currie Allotment

The Elko District Office issued a Final Multiple Use Decision (FMUD) for the Maverick/Medicine Complex, which included the Currie Allotment in July of 2001. The FMUD established 1,101 AUMs of livestock use in the Currie Hills, Currie Flats, and Mustang Well Pastures (located in the Antelope Valley HMA) of the Currie Allotment. The season of use in that portion of the Antelope Valley HMA to be gathered is from November 1 through February 28 annually. The permittees pump water or use snow to water livestock in this portion of the Currie Allotment.

Valley Mountain Allotment

The Elko District Office issued a Final Multiple Use Decision (FMUD) for the Spruce Allotment in 1998. The FMUD divided the Spruce Allotment into two new allotments: Valley Mountain and Spruce. The decision was appealed by one of the permittees regarding the new Spruce Allotment. A Stipulated Agreement was signed in December 2002 and the appeal was dismissed. The season of use in the Valley Mountain Allotment in the Antelope Valley HMA is from November 16 through March 31. The permittee pumps water or uses snow to water livestock in the Valley Mountain Allotment.

Spruce Allotment

The Elko District Office issued a Final Multiple Use Decision (FMUD) for the Spruce Allotment in 1998. The FMUD divided the Spruce Allotment in to two new allotments: Valley Mountain and Spruce. The decision was appealed by one of the permittees regarding the new Spruce Allotment. A Stipulated Agreement was signed in December 2002 and the appeal was dismissed. The season of use in Spruce Allotment is from March 1 to February 28 annually.

The season of use in the Spruce Allotment for those portions in the Antelope Valley and Goshute HMAs is from November to March 31 annually. The permittee pumps water or uses snow to water livestock in the Antelope Valley and Goshute HMAs.

The season of use in the Spruce Allotment which includes the Spruce/Pequop HMA is outlined below:

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Chase Springs Allotment

The authorized season of use in the Chase Springs Allotment is from April 1 to November 30 annually. Total permitted use is 2,586 AUMs. The Spruce-Pequop HMA extends just into the southern border of this allotment, but no wild horse use in this portion of the Spruce/Pequop HMA has been documented since the mid 1980's.

Antelope Complex Gather Capture Plan and EA

Appendix F

Wildlife Species Documented in the Antelope Complex

Common Name	Scientific Name	Special Designation
<i>Amphibians</i>		
Columbian Spotted Frog	<i>Rana luteiventris</i>	Federal Candidate Species
Great Basin Spadefoot	<i>Scaphiopus intermontanus</i>	None
Northern Leopard Frog	<i>Rana pipiens</i>	BLM Sensitive Species
<i>Birds</i>		
American Kestrel	<i>Falco sparverius</i>	Migratory Bird
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BLM Sensitive Species
Black-necked Stilt	<i>Himantopus mexicanus</i>	Migratory Bird
Blue Grouse	<i>Dendragapus obscurus</i>	None
Broad-winged Hawk	<i>Buteo platypterus</i>	Migratory Bird
Burrowing Owl	<i>Athene cunicularia</i>	BLM Sensitive Species
Cooper's Hawk	<i>Accipiter cooperii</i>	Migratory Bird
Chukar	<i>Alectoris chukar</i>	None
Ferruginous Hawk	<i>Buteo regalis</i>	BLM Sensitive Species
Flammulated Owl	<i>Otus flammeolus</i>	BLM Sensitive Species
Golden Eagle	<i>Aquila chrysaetos</i>	BLM Sensitive Species
Gray Partridge	<i>Perdix perdix</i>	None
Great Horned Owl	<i>Bubo virginianus</i>	Migratory Bird
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Federal Candidate Species
Long-eared Owl	<i>Asio otus</i>	BLM Sensitive Species
Merlin	<i>Falco columbarius</i>	Migratory Bird
Northern Goshawk	<i>Accipiter gentilis</i>	BLM Sensitive Species
Northern Harrier	<i>Circus cyaneus</i>	Migratory Bird
Northern Pygmy Owl	<i>Glaucidium gnoma</i>	Migratory Bird
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	Migratory Bird
Peregrine Falcon	<i>Falco peregrinus</i>	BLM Sensitive Species
Prairie Falcon	<i>Falco mexicanus</i>	BLM Sensitive Species
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Migratory Bird
Rough-legged Hawk	<i>Buteo lagopus</i>	Migratory Bird
Sandhill Crane	<i>Grus canadensis</i>	BLM Sensitive Species
Scaled Quail	<i>Callipepla squamata</i>	None
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Migratory Bird
Steller's Jay	<i>Cyanocitta stelleri</i>	Migratory Bird
Swainson's Hawk	<i>Buteo swainsoni</i>	BLM Sensitive Species
Western Screech-owl	<i>Otus kennicottii</i>	Migratory Bird
White-faced Ibis	<i>Plegadis chihi</i>	Migratory Bird

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Appendix F continued.

Common Name	Scientific Name	Special Designation
<i>Mammals</i>		
Belding's Ground Squirrel	<i>Spermophilus beldingi</i>	None
Bighorn Sheep	<i>Ovis canadensis</i>	None
Bobcat	<i>Lynx rufus</i>	None
California Myotis	<i>Myotis californicus</i>	BLM Sensitive Species
Coyote	<i>Canis latrans</i>	None
Deermouse	<i>Peromyscus maniculatus</i>	None
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>	None
Gray Fox	<i>Urocyon cinereoargenteus</i>	None
Kit Fox	<i>Vulpes macrotis</i>	None
Least Chipmunk	<i>Tamias minimus</i>	None
Little Brown Bat	<i>Myotis lucifugus</i>	BLM Sensitive Species
Long-eared Myotis	<i>Myotis evotis</i>	BLM Sensitive Species
Long-legged Myotis	<i>Myotis volans</i>	BLM Sensitive Species
Long-tailed Vole	<i>Microtus longicaudus</i>	None
Mexican Tree-tailed Bat	<i>Tadarida brasiliensis</i>	BLM Sensitive Species
Montane Vole	<i>Microtus montanus</i>	None
Mountain Goat	<i>Oreamnos americanus</i>	None
Mountain Lion	<i>Felis concolor</i>	None
Mule Deer	<i>Odocoileus hemionus</i>	None
Pallid Bat	<i>Antrozous pallidus</i>	BLM Sensitive Species
Pronghorn	<i>Antilocapra americana</i>	None
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	BLM Sensitive Species
Rock Squirrel	<i>Spermophilus variegatus</i>	None
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	BLM Sensitive Species
Striped Skunk	<i>Mephitis mephitis</i>	None
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	BLM Sensitive Species
Uinta Chipmunk	<i>Tamias umbrinus</i>	None
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	BLM Sensitive Species
Yuma Myotis	<i>Myotis yumanensis</i>	BLM Sensitive Species
<i>Reptiles</i>		
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>	None
Greater Short-horned Lizard	<i>Phrynosoma hernandesi</i>	None
Western Fence Lizard	<i>Sceloporus occidentalis</i>	None
Western Skink	<i>Eumeces skiltonianus</i>	None
<i>Fish</i>		
Relict Dace	<i>Relictus solitarius</i>	BLM Sensitive Species
<i>Insects</i>		
Dark Sandhill Skipper	<i>Polites sabuleti nigrescens</i>	None

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Appendix F Continued

Common Name	Scientific Name	Special Designation
<i>Mollusks</i>		
Crestless Column	<i>Pupilla hebes</i>	None
Lyrate Mountainsnail	<i>Oreohelix haydeni</i>	None
Mitered Vertigo	<i>Vertigo concinnula</i>	None
Rocky Mountain Column	<i>Pupilla blandi</i>	None
Rocky Mountainsnail	<i>Oreohelix strigosa</i>	None
Schell Creek Mountainsnail	<i>Oreohelix nevadensis</i>	BLM Sensitive Species
Silky Vallonia	<i>Vallonia cyclophorella</i>	None
Top-heavy Column	<i>Pupilla syngenes</i>	None
Transverse Gland Springsnail	<i>Pyrgulopsis cruciglans</i>	BLM Sensitive Species
Western Glass-snail	<i>Vitrina pellucida</i>	None
Western Ridged Mussel	<i>Gonidea angulata</i>	None
White Pine Mountainsnail	<i>Oreohelix hemphilli</i>	None

Antelope Complex Gather Capture Plan and EA

Appendix G

Potential Terrestrial Vertebrates by Habitat

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds													
Common Loon <i>Gavia immer</i>	Migratory								X		X	X	
Horned Grebe <i>Podiceps auritus</i>	Migratory								X		X	X	
Eared Grebe <i>Podiceps nigricollis</i>	Migratory								X		X	X	
Pied-billed Grebe <i>Podilymbus podiceps</i>	Migratory								X		X	X	
Western Grebe <i>Aechmophorus occidentalis</i>	Migratory								X		X	X	
Clark's Grebe <i>Aechmophorus clarkii</i>	Migratory								X		X	X	
American White Pelican <i>Pelecanus erythrorhynchos</i>	Migratory								X		X	X	
Double-crested Cormorant <i>Phalacrocorax auritus</i>	Migratory								X		X	X	
American Bittern <i>Botaurus lentiginosus</i>	Migratory									X			
Least Bittern <i>Ixobrychus exilis</i>	BLM Sens.								X		X	X	
Great Blue Heron <i>Ardea herodias</i>	Migratory								X	X	X	X	
Great Egret <i>Ardea alba</i>	Migratory								X	X	X	X	
Snowy Egret <i>Egretta thula</i>	Migratory								X	X	X	X	
Cattle Egret <i>Bubulcus ibis</i>	Migratory								X		X	X	
Green Heron <i>Butorides virescens</i>	Migratory								X		X	X	
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	Migratory								X	X	X	X	
White-faced ibis <i>Plegadis chihi</i>	Migratory								X	X	X	X	
Tundra Swan <i>Cygnus columbianus</i>	Mig. Game								X		X	X	

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Trumpeter Swan <i>Cygnus buccinator</i>	Mig. Game								X		X	X	
Greater White-fronted Goose <i>Anser albifrons</i>	Mig. Game								X		X	X	
Ross' Goose <i>Chen rossii</i>	Mig. Game								X		X	X	
Snow Goose <i>Chen caerulescens</i>	Mig. Game								X		X	X	
Canada Goose <i>Branta canadensis</i>	Mig. Game								X	X	X	X	X
Wood Duck <i>Aix sponsa</i>	Mig. Game	X							X	X	X	X	
Mallard <i>Anas platyrhynchos</i>	Mig. Game	X							X	X	X	X	X
Northern Pintail <i>Anas acuta</i>	Mig. Game								X	X	X	X	X
Gadwall <i>Anas strepera</i>	Mig. Game								X	X	X	X	X
American Widgeon <i>Anas americana</i>	Mig. Game								X	X	X	X	X
Eurasian Widgeon <i>Anas penelope</i>	Mig. Game								X		X	X	
Northern Shoveler <i>Anas clypeata</i>	Mig. Game								X	X	X	X	
Blue-winged Teal <i>Anas discors</i>	Mig. Game								X	X	X	X	X
Cinnamon Teal <i>Anas cyanoptera</i>	Mig. Game								X	X	X	X	X
Green-winged Teal <i>Anas crecca</i>	Mig. Game								X	X	X	X	X
Lesser Scaup <i>Aythya affinis</i>	Mig. Game								X	X	X	X	X
Ring-necked Duck <i>Aythya collaris</i>	Mig. Game								X	X	X	X	X
Greater Scaup <i>Aythya marila</i>	Mig. Game								X		X	X	

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Canvasback <i>Aythya valisineria</i>	Mig. Game								X		X	X	
Redhead <i>Aythya americana</i>	Mig. Game								X	X	X	X	
Long-tailed Duck <i>Clangula hyemalis</i>	Mig. Game								X		X	X	
Surf Scoter <i>Melanitta perspicillata</i>	Mig. Game								X		X	X	
White-winged Scoter <i>Melanitta fusca</i>	Mig. Game								X		X	X	
Common Goldeneye <i>Bucephala clangula</i>	Mig. Game	X							X	X	X	X	X
Barrow's Goldeneye <i>Bucephala islandica</i>	Mig. Game	X							X	X	X	X	
Bufflehead <i>Bucephala albeola</i>	Mig. Game	X							X	X	X	X	X
Common Merganser <i>Mergus merganser</i>	Mig. Game	X							X	X	X	X	X
Red-breasted Merganser <i>Mergus serrator</i>	Mig. Game								X	X	X	X	
Ruddy Duck <i>Oxyura jamaicensis</i>	Mig. Game								X	X	X	X	X
Hooded Merganser <i>Lophodytes cucullatus</i>	Mig. Game	X							X	X	X	X	X
Turkey Vulture <i>Cathartes aura</i>	Migratory	X	X		X	X	X	X	X	X	X	X	X
Northern Harrier <i>Circus cyaneus</i>	Migratory	X			X		X	X	X	X	X	X	X
Cooper's Hawk <i>Accipiter cooperii</i>	Migratory	X				X	X	X		X			
Sharp-shinned Hawk <i>Accipiter striatus</i>	Migratory	X				X	X			X			
Northern Goshawk <i>Accipiter gentilis</i>	BLM Sens.	X				X	X	X		X			X
Red-shouldered Hawk <i>Buteo lineatus</i>	Migratory									X			

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Broad-winged Hawk <i>Buteo platypterus</i>	Migratory	X					X			X			
Red-tailed Hawk <i>Buteo jamaicensis</i>	Migratory	X	X				X		X	X	X	X	
Swainson's Hawk <i>Buteo swainsoni</i>	BLM Sens.	X					X			X			
Ferruginous Hawk <i>Buteo regalis</i>	BLM Sens.		X				X	X	X	X	X	X	X
Rough-legged Hawk <i>Buteo lagopus</i>	Migratory							X	X	X	X	X	X
Osprey <i>Pandion haliaetus</i>	Migratory									X			
Golden Eagle <i>Aquila chrysaetos</i>	BLM Sens.	X	X		X		X	X	X	X	X	X	X
Bald Eagle <i>Haliaeetus leucocephalus</i>	BLM Sens.					X			X	X	X	X	
American Kestrel <i>Falco sparverius</i>	Migratory	X	X		X		X	X	X	X	X	X	X
Prairie Falcon <i>Falco mexicanus</i>	BLM Sens.	X	X		X		X	X	X	X	X	X	X
Merlin <i>Falco columbarius</i>	Migratory	X				X	X		X	X	X	X	
Peregrine Falcon <i>Falco peregrinus</i>	BLM Sens.	X	X			X			X	X	X	X	
Ring-necked Pheasant <i>Phasianus colchicus</i>	None								X	X	X	X	
Himalayan Snowcock <i>Tetraogallus himalayensis</i>	None	X	X				X			X			X
Gray Partridge <i>Perdix perdix</i>	None	X					X	X		X			
Chuckar <i>Alectoris chukar</i>	None	X	X		X		X	X		X			X
Ruffed Grouse <i>Bonasa umbellus</i>	None	X								X			
Columbian Sharp-tailed Grouse <i>Tympanuchus phasianellus</i>	BLM Sens.	X					X	X		X			X

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Greater Sage Grouse <i>Centrocercus urophasianus</i>	Fed. Cand.	X					X	X		X			X
Blue Grouse <i>Dendragapus obscurus</i>	None	X				X	X			X			X
Wild Turkey <i>Meleagris gallopavo</i>	None	X								X			
Mountain Quail <i>Oreortyx pictus</i>	BLM Sens.	X				X	X	X		X			X
California Quail <i>Callipepla californica</i>	None	X			X		X	X	X	X	X	X	
Virginia Rail <i>Rallus limicola</i>	Mig. Game								X	X	X	X	
Sora <i>Porzana carolina</i>	Mig. Game								X	X	X	X	
Common Moorhen <i>Gallinula chloropus</i>	Mig. Game								X		X	X	
American Coot <i>Fulica americana</i>	Mig. Game								X		X	X	
Sandhill Crane <i>Grus canadensis</i>	BLM Sens.	X							X	X	X	X	X
Black-bellied Plover <i>Pluvialis squatarola</i>	Migratory								X		X	X	
Semipalmated Plover <i>Charadrius semipalmatus</i>	Migratory								X		X	X	
Snowy Plover <i>Charadrius alexandrinus</i>	BLM Sens.								X		X	X	
Killdeer <i>Charadrius vociferus</i>	Migratory	X							X	X	X	X	X
Mountain Plover <i>Charadrius montanus</i>	Migratory								X	X	X	X	X
Black-necked Stilt <i>Himantopus mexicanus</i>	Migratory								X	X	X	X	
American Avocet <i>Recurvirostra americana</i>	Migratory								X	X	X	X	
Greater Yellowlegs <i>Tringa melanoleuca</i>	Migratory								X	X	X	X	

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Lesser Yellowlegs <i>Tringa flavipes</i>	Migratory								X	X	X	X	
Solitary Sandpiper <i>Tringa solitaria</i>	Migratory								X	X	X	X	
Spotted Sandpiper <i>Actitis macularia</i>	Migratory	X							X	X	X	X	X
Long-billed Curlew <i>Numenius americanus</i>	BLM Sens.								X	X	X	X	
Marbled Godwit <i>Limosa fedoa</i>	Migratory								X	X	X	X	
Willet <i>Catoptrophorus semipalmatus</i>	Migratory								X	X	X	X	X
Baird's Sandpiper <i>Calidris bairdii</i>	Migratory								X		X	X	
Western Sandpiper <i>Calidris mauri</i>	Migratory								X	X	X	X	
Least Sandpiper <i>Calidris minutilla</i>	Migratory								X	X	X	X	
Long-billed Dowitcher <i>Limnodromus scolopaceus</i>	Migratory								X		X	X	
Wilson's Snipe <i>Gallinago delicata</i>	Migratory	X							X	X	X	X	X
Wilson's Phalarope <i>Phalaropus tricolor</i>	Migratory								X	X	X	X	X
Red-necked Phalarope <i>Phalaropus lobatus</i>	Migratory								X		X	X	
Bonaparte's Gull <i>Larus philadelphia</i>	Migratory								X	X	X	X	
Franklin's Gull <i>Larus pipixcan</i>	Migratory								X	X	X	X	
Ring-billed Gull <i>Larus delawarensis</i>	Migratory								X	X	X	X	
California Gull <i>Larus californicus</i>	Migratory								X	X	X	X	
Herring Gull <i>Larus argentatus</i>	Migratory								X		X	X	

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Black Tern <i>Chlidonias niger</i>	BLM Sens.								X	X	X	X	
Caspian Tern <i>Sterna caspia</i>	Migratory								X	X	X	X	
Forster's Tern <i>Sterna forsteri</i>	Migratory								X		X	X	
Rock Dove <i>Columba livia</i>	Mig. Game		X							X			
Band-tailed Pigeon <i>Columba fasciata</i>	Mig. Game	X				X				X			
White-winged Dove <i>Zenaida asiatica</i>	Mig. Game									X			
Mourning Dove <i>Zenaida macroura</i>	Mig. Game	X					X			X			
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Fed. Cand.									X			
Greater Roadrunner <i>Geococcyx californianus</i>	Migratory				X					X			
Barn Owl <i>Tyto alba</i>	Migratory		X						X	X	X	X	
Long-eared Owl <i>Asio otus</i>	BLM Sens.	X				X	X			X			
Short-eared Owl <i>Asio flammeus</i>	BLM Sens.						X		X	X	X	X	X
Flammulated Owl <i>Otus flammeolus</i>	BLM Sens.	X				X	X			X			
Western Screech-owl <i>Otus kennicottii</i>	Migratory	X				X	X			X			
Great Horned Owl <i>Bubo virginianus</i>	Migratory	X	X			X	X			X			
Northern Pygmy Owl <i>Glaucidium gnoma</i>	Migratory	X				X	X			X			
Burrowing Owl <i>Athene cunicularia</i>	BLM Sens.				X			X		X			X
Northern Saw-whet Owl <i>Aegolius acadicus</i>	Migratory	X				X				X			

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Common Nighthawk <i>Chordeiles minor</i>	Migratory	X			X		X	X	X	X	X	X	X
Common Poor-will <i>Phalaenoptilus nuttallii</i>	Migratory	X	X		X	X	X	X		X			X
Belted Kingfisher <i>Ceryle alcyon</i>	Migratory	X							X	X	X	X	
White-throated Swift <i>Aeronautes saxatalis</i>	Migratory	X	X							X			
Black Swift <i>Cypseloides niger</i>	Migratory					X	X			X			
Black-chinned Hummingbird <i>Archilochus alexandri</i>	Migratory	X								X			
Calliope Hummingbird <i>Stellula calliope</i>	Migratory	X					X			X			X
Broad-tailed Hummingbird <i>Selasphorus platycercus</i>	Migratory	X								X			
Rufous Hummingbird <i>Selasphorus rufus</i>	Migratory	X			X	X	X	X		X			X
Northern Flicker <i>Colaptes auratus</i>	Migratory	X				X	X		X	X	X	X	X
Lewis's Woodpecker <i>Melanerpes lewis</i>	BLM Sens.	X				X				X			
Downy Woodpecker <i>Picoides pubescens</i>	Migratory	X				X	X			X			
Hairy Woodpecker <i>Picoides villosus</i>	Migratory	X				X	X			X			
Three-toed Woodpecker <i>Picoides tridactylus</i>	Migratory	X				X				X			
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i>	Migratory	X				X				X			
Red-breasted Sapsucker <i>Sphyrapicus ruber</i>	Migratory	X								X			
Red-naped Sapsucker <i>Sphyrapicus nuchalis</i>	BLM Sens.	X				X	X			X			
Yellow-bellied Sapsucker <i>Sphyrapicus varius</i>	Migratory	X								X			

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Olive-sided Flycatcher <i>Contopus cooperi</i>	Migratory	X				X				X			
Western Wood-pewee <i>Contopus sordidulus</i>	Migratory	X								X			
Willow Flycatcher <i>Empidonax traillii</i>	Migratory	X								X			X
Dusky Flycatcher <i>Empidonax oberholseri</i>	Migratory	X				X	X			X			
Hammond's Flycatcher <i>Empidonax hammondii</i>	Migratory	X				X				X			
Gray Flycatcher <i>Empidonax wrightii</i>	Migratory						X	X					
Cordilleran Flycatcher <i>Empidonax occidentalis</i>	Migratory	X								X			
Black Phoebe <i>Sayornis nigricans</i>	Migratory									X			
Say's Phoebe <i>Sayornis saya</i>	Migratory		X										
Ash-throated Flycatcher <i>Myiarchus cinerascens</i>	Migratory	X					X			X			
Western Kingbird <i>Tyrannus verticalis</i>	Migratory	X								X			
Eastern Kingbird <i>Tyrannus tyrannus</i>	Migratory	X							X	X	X	X	
Northern Shrike <i>Lanius excubitor</i>	Migratory									X			
Loggerhead Shrike <i>Lanius ludovicianus</i>	BLM Sens.				X		X	X					
Gray Vireo <i>Vireo vicinior</i>	BLM Sens.						X						
Plumbeous Vireo <i>Vireo plumbeus</i>	Migratory	X					X						
Blue-headed Vireo <i>Vireo solitarius</i>	Migratory	X								X			
Warbling Vireo <i>Vireo gilvus</i>	Migratory	X								X			

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Red-eyed Vireo <i>Vireo olivaceus</i>	Migratory	X								X			
Steller's Jay <i>Cyanocitta stelleri</i>	Migratory	X				X	X			X			
Western Scrub-jay <i>Aphelocoma californica</i>	Migratory						X						
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	BLM Sens.						X						
Clark's Nutcracker <i>Nucifraga columbiana</i>	Migratory	X				X	X			X			
Black-billed Magpie <i>Pica hudsonia</i>	Migratory	X					X			X			
American Crow <i>Corvus brachyrhynchos</i>	None	X							X	X	X	X	
Common Raven <i>Corvus corax</i>	Migratory	X	X			X	X			X			
Horned Lark <i>Eremophila alpestris</i>	Migratory				X			X		X			X
Tree Swallow <i>Tachycineta bicolor</i>	Migratory	X							X	X	X	X	
Violet-green Swallow <i>Tachycineta thalassina</i>	Migratory	X	X						X	X	X	X	
Northern Rough-winged Swallow <i>Stelgidopteryx serripennis</i>	Migratory	X							X	X	X	X	
Bank Swallow <i>Riparia riparia</i>	Migratory								X	X	X	X	
Barn Swallow <i>Hirundo rustica</i>	Migratory		X						X	X	X	X	
Cliff Swallow <i>Petrochelidon pyrrhonota</i>	Migratory	X	X						X	X	X	X	
Juniper Titmouse <i>Baeolophus ridgwayi</i>	BLM Sens.						X						
Black-capped Chickadee <i>Poecile atricapilla</i>	Migratory	X				X	X			X			
Mountain Chickadee <i>Poecile gambeli</i>	Migratory	X				X	X			X			

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Bushtit <i>Psaltriparus minimus</i>	Migratory	X			X		X	X		X			
White-breasted Nuthatch <i>Sitta carolinensis</i>	Migratory	X				X	X			X			
Red-breasted Nuthatch <i>Sitta canadensis</i>	Migratory	X				X	X			X			
Pygmy Nuthatch <i>Sitta pygmaea</i>	Migratory	X				X				X			
Brown Creeper <i>Certhia americana</i>	Migratory	X				X				X			
Marsh Wren <i>Cistothorus palustris</i>	Migratory								X		X	X	
Bewick's Wren <i>Thryomanes bewickii</i>	Migratory						X			X			
House Wren <i>Troglodytes aedon</i>	Migratory	X								X			
Winter Wren <i>Troglodytes troglodytes</i>	Migratory	X				X	X			X			
Rock Wren <i>Salpinctes obsoletus</i>	Migratory		X										
Canyon Wren <i>Catherpes mexicanus</i>	Migratory		X										
American Dipper <i>Cinclus mexicanus</i>	Migratory	X								X			
Golden-crowned Kinglet <i>Regulus satrapa</i>	Migratory	X				X				X			
Ruby-crowned Kinglet <i>Regulus calendula</i>	Migratory	X					X			X			
Blue-gray Gnatcatcher <i>Poliopitila caerulea</i>	Migratory	X					X			X			
Mountain Bluebird <i>Sialia currucoides</i>	Migratory	X	X				X	X		X			X
Western Bluebird <i>Sialia mexicana</i>	Migratory	X				X	X			X			
Townsend's Solitaire <i>Myadestes townsendi</i>	Migratory	X				X	X			X			

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Varied Thrush <i>Ixoreus naevius</i>	Migratory	X				X				X			
American Robin <i>Turdus migratorius</i>	Migratory	X				X	X			X			
Veery <i>Catharus fuscescens</i>	Migratory	X								X			
Swainson's Thrush <i>Catharus ustulatus</i>	Migratory	X								X			
Hermit Thrush <i>Catharus guttatus</i>	Migratory	X				X	X			X			
Northern Mockingbird <i>Mimus polyglottos</i>	Migratory						X			X			
Gray Catbird <i>Dumetella carolinensis</i>	Migratory	X								X			
Sage Thrasher <i>Oreoscoptes montanus</i>	Migratory				X			X					
American Pipet <i>Anthus rubescens</i>	Migratory				X				X	X	X	X	X
Bohemian Waxwing <i>Bombycilla garrulus</i>	Migratory	X				X	X			X			
Cedar Waxwing <i>Bombycilla cedrorum</i>	Migratory	X				X	X			X			
European Starling <i>Sturnus vulgaris</i>	None	X								X			
Orange-crowned Warbler <i>Vermivora celata</i>	Migratory	X					X			X			
Nashville Warbler <i>Vermivora ruficapilla</i>	Migratory					X	X						
Virginia's Warbler <i>Vermivora virginiae</i>	Migratory	X					X			X			
Yellow Warbler <i>Dendroica petechia</i>	Migratory	X								X			
Chestnut-sided Warbler <i>Dendroica pensylvanica</i>	Migratory	X								X			
Townsend's Warbler <i>Dendroica townsendi</i>	Migratory	X				X				X			

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Hermit Warbler <i>Dendroica occidentalis</i>	Migratory					X							
Black-throated Gray Warbler <i>Dendroica nigrescens</i>	Migratory						X						
Yellow-rumped Warbler <i>Dendroica coronata</i>	Migratory	X				X	X			X			
Blackpoll Warbler <i>Dendroica striata</i>	Migratory						X			X			
Northern Waterthrush <i>Seiurus noveboracensis</i>	Migratory									X			
MacGillivray's Warbler <i>Oporornis tolmiei</i>	Migratory	X								X			
Common Yellowthroat <i>Geothlypis trichas</i>	Migratory	X							X	X	X	X	
Wilson's Warbler <i>Wilsonia pusilla</i>	Migratory	X								X			
Yellow-breasted Chat <i>Icteria virens</i>	BLM Sens.	X								X			
Western Tanager <i>Piranga ludoviciana</i>	Migratory	X				X	X			X			
Summer Tanager <i>Piranga rubra</i>	Migratory									X			
Lazuli Bunting <i>Passerina amoena</i>	Migratory	X					X			X			
Indigo Bunting <i>Passerina cyanea</i>	Migratory	X								X			
Blue Grosbeak <i>Passerina caerulea</i>	Migratory	X								X			
Black-headed Grosbeak <i>Pheucticus melanocephalus</i>	Migratory	X					X			X			
Rose-breasted Grosbeak <i>Pheucticus ludovicianus</i>	Migratory	X					X			X			
Spotted Towhee <i>Pipilo maculatus</i>	Migratory	X					X			X			
Green-tailed Towhee <i>Pipilo chlorurus</i>	Migratory	X					X			X			

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Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Black-throated Sparrow <i>Amphispiza bilineata</i>	Migratory				X			X					
Sage Sparrow <i>Amphispiza belli</i>	Migratory ²				X			X					
Chipping Sparrow <i>Spizella passerina</i>	Migratory	X				X	X			X			
Brewer's Sparrow <i>Spizella breweri</i>	Migratory ²	X						X		X			
American Tree Sparrow <i>Spizella arborea</i>	Migratory	X					X			X			
Vesper Sparrow <i>Pooecetes gramineus</i>	BLM Sens.	X					X	X		X			X
Lark Sparrow <i>Chondestes grammacus</i>	Migratory	X			X		X	X		X			
Savannah Sparrow <i>Passerculus sandwichensis</i>	Migratory								X	X	X	X	X
Grasshopper Sparrow <i>Ammodramus savannarum</i>	Migratory									X			
Fox Sparrow <i>Passeralla iliaca</i>	Migratory	X					X			X			
Song Sparrow <i>Melospiza melodia</i>	Migratory	X							X	X	X	X	X
Lincoln's Sparrow <i>Melospiza lincolni</i>	Migratory	X								X			X
Dark-eyed Junco – (all subspecies) <i>Junco hyemalis</i>	Migratory	X				X				X			
Harris' Sparrow <i>Zonotrichia querula</i>	Migratory	X								X			
White-crowned Sparrow <i>Zonotrichia leucophrys</i>	Migratory	X					X			X			X
Golden-crowned Sparrow <i>Zonotrichia atricapilla</i>	Migratory						X			X			
White-throated Sparrow <i>Zonotrichia albicollis</i>	Migratory	X								X			
Lapland Longspur <i>Calcarius lapponicus</i>	Migratory				X					X			

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Snow Bunting <i>Plectrophenax nivalis</i>	Migratory	X			X			X	X	X	X	X	
Northern Oriole <i>Icterus bullockii</i>	Migratory	X								X			
Scott's Oriole <i>Icterus parisorum</i>	Migratory						X						
Western Meadowlark <i>Sturnella neglecta</i>	Migratory	X			X		X	X		X			X
Bobolink <i>Dolichonyx oryzivorus</i>	BLM Sens.	X								X			
Red-winged Blackbird <i>Agelaius phoeniceus</i>	Migratory	X							X	X	X	X	
Yellow-headed Blackbird <i>Xanthocephalus xanthocephalus</i>	Migratory								X		X	X	
Brewer's Blackbird <i>Euphagus cyanocephalus</i>	Migratory	X					X		X	X	X	X	X
Great-tailed Grackle <i>Quiscalus mexicanus</i>	Migratory								X	X	X	X	
Common Grackle <i>Quiscalus quiscula</i>	Migratory	X								X			
Brown-headed Cowbird <i>Molothrus ater</i>	Migratory	X					X	X	X	X	X	X	X
Gray-crowned Rosy-finch <i>Leucosticte tephrocotis</i>	Migratory		X				X						
Black Rosy-finch <i>Leucosticte atrata</i>	BLM Sens.		X				X	X					
Red Crossbill <i>Loxia curvirostra</i>	Migratory	X				X				X			
Evening Grosbeak <i>Coccothraustes vespertinus</i>	Migratory	X				X				X			
House Finch <i>Carpodacus mexicanus</i>	Migratory	X								X			
Purple Finch <i>Carpodacus purpureus</i>	Migratory	X					X			X			
Cassin's Finch <i>Carpodacus cassinii</i>	Migratory	X				X	X			X			

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Birds (continued)													
Lesser Goldfinch <i>Carduelis psaltria</i>	Migratory	X				X	X			X			
American Goldfinch <i>Carduelis tristis</i>	Migratory	X			X	X	X	X	X	X	X	X	
Pine Siskin <i>Carduelis pinus</i>	Migratory	X				X				X			
Common Redpoll <i>Carduelis flammea</i>	Migratory	X					X			X			X
Pine Grosbeak <i>Pinicola enucleator</i>	Migratory	X				X				X			
House Sparrow <i>Passer domesticus</i>	None									X			
Mammals													
Merriam's Shrew <i>Sorex merriami</i>	None					X	X	X					
Dusky Shrew <i>Sorex monticolus</i>	None	X				X	X		X	X	X	X	X
Vagrant Shrew <i>Sorex vagrans</i>	None	X			X	X	X	X	X	X	X	X	X
Water Shrew <i>Sorex palustris</i>	None	X			X	X	X	X	X	X	X	X	X
Preble's Shrew <i>Sorex preblei</i>	BLM Sens.	X				X		X	X	X	X	X	X
Pallid Bat <i>Antrozous pallidus</i>	BLM Sens.		X	X	X		X	X	X		X	X	X
Townsend's Big-eared Bat <i>Corynorhinus townsendii</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Big Brown Bat <i>Eptesicus fuscus</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Spotted Bat <i>Euderma maculatum</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Silver-haired Bat <i>Lasionycteris noctivagans</i>	BLM Sens.	X	X			X	X	X	X	X	X	X	X
Western Red Bat <i>Lasiurus blossevillii</i>	BLM Sens.	X			X	X	X	X	X	X	X	X	X
Hoary Bat <i>Lasiurus cinereus</i>	BLM Sens.	X				X	X	X	X	X	X	X	X

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Mammals (continued)													
California Myotis <i>Myotis californicus</i>	BLM Sens.	X	X	X	X	X	X	X	X	X	X	X	X
Western Small-footed Myotis <i>Myotis ciliolabrum</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Long-eared Myotis <i>Myotis evotis</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Little Brown Bat <i>Myotis lucifugus</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Fringed Myotis <i>Myotis thysanodes</i>	BLM Sens.	X	X	X	X	X	X	X	X	X	X	X	X
Long-legged Myotis <i>Myotis volans</i>	BLM Sens.	X	X	X	X	X	X	X	X	X	X	X	X
Yuma Myotis <i>Myotis yumanensis</i>	BLM Sens.	X	X		X	X	X	X	X	X	X	X	X
Western Pipistrelle <i>Pipistrellus hesperus</i>	BLM Sens.		X		X	X	X	X	X	X	X	X	X
Brazilian Free-tailed Bat <i>Tadarida brasiliensis</i>	BLM Sens.		X		X		X	X	X		X	X	X
Pika <i>Ochotona princeps</i>	None	X				X	X						X
White-tailed Jack Rabbit <i>Lepus townsendii</i>	None	X				X	X	X		X			X
Snowshoe Hare <i>Lepus americanus</i>	None	X				X			X	X	X	X	X
Black-tailed Jack Rabbit <i>Lepus californicus</i>	None			X	X	X	X	X					
Nuttall's Cottontail <i>Sylvilagus nuttallii</i>	None	X				X	X	X		X			
Desert Cottontail <i>Sylvilagus audubonii</i>	None				X		X	X					
Pygmy Rabbit <i>Brachylagus idahoensis</i>	BLM Sens.				X		X	X					
Yellow-bellied Marmot <i>Marmota flaviventris</i>	None	X			X	X	X	X		X			X
Townsend's Ground Squirrel <i>Spermophilus townsendii</i>	None				X		X	X					

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Mammals (continued)													
Wyoming Ground Squirrel <i>Spermophilus elegans</i>	None				X		X	X					
Belding's Ground Squirrel <i>Spermophilus beldingi</i>	None	X			X	X	X	X					
White-tailed Antelope Squirrel <i>Ammospermophilus leucurus</i>	None				X	X	X	X					
Golden-mantled Ground Squirrel <i>Spermophilus lateralis</i>	None	X				X	X			X			X
Least Chipmunk <i>Tamias minimus</i>	None	X			X	X	X	X		X			
Yellow-pine Chipmunk <i>Tamias amoenus</i>	None	X				X				X			
Cliff Chipmunk <i>Tamias dorsalis</i>	None					X	X						
Uinta Chipmunk <i>Tamias umbrinus</i>	None	X				X	X			X			
Northern Pocket Gopher <i>Thomomys talpoides</i>	None	X				X	X			X			X
Townsend's Pocket Gopher <i>Thomomys townsendii</i>	None				X			X					
Botta's Pocket Gopher <i>Thomomys bottae</i>	None	X			X	X	X	X					X
Southern Pocket Gopher <i>Thomomys umbrinus</i>	None	X			X	X	X	X					X
Little Pocket Mouse <i>Perognathus longimembris</i>	None				X		X	X					
Great Basin Pocket Mouse <i>Perognathus parvus</i>	None	X		X	X		X	X		X			
Dark Kangaroo Mouse <i>Microdipodops megacephalus</i>	None				X			X					
Ord's Kangaroo Rat <i>Dipodomys ordii</i>	None			X	X		X	X	X	X	X	X	X
Chisel-toothed Kangaroo Rat <i>Dipodomys microps</i>	None				X		X	X					
Western Harvest Mouse <i>Reithrodontomys megalotis</i>	None			X	X	X	X	X	X	X	X	X	X

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Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Mammals (continued)													
Canyon Mouse <i>Peromyscus crinitus</i>	None				X	X	X	X					
Deer Mouse <i>Peromyscus maniculatis</i>	None	X			X	X	X	X	X	X	X	X	X
Brush Mouse <i>Peromyscus boylii</i>	None				X	X	X	X					
Piñon Mouse <i>Peromyscus truei</i>	None				X	X	X	X					
Northern Grasshopper Mouse <i>Onychomys leucogaster</i>	None				X		X	X					
Desert Woodrat <i>Neotoma lepida</i>	None				X	X	X	X					
Bushy-tailed Woodrat <i>Neotoma cinerea</i>	None	X				X	X	X		X			
Montane Vole <i>Microtus montanus</i>	None	X			X	X	X	X	X	X	X	X	X
Long-tailed Vole <i>Microtus longicaudus</i>	None	X				X		X		X			
Sagebrush Vole <i>Lemmyscus curtatus</i>	None	X		X	X	X	X	X		X			
Muskrat <i>Ondatra zibethicus</i>	None	X			X	X	X	X	X	X	X	X	X
Beaver <i>Castor canadensis</i>	None	X			X	X	X	X	X	X	X	X	X
Black Rat <i>Rattus rattus</i>	None				X		X	X					
House Mouse <i>Mus musculus</i>	None				X		X	X					
Western Jumping Mouse <i>Zapus princeps</i>	None	X				X	X		X	X	X	X	X
Porcupine <i>Erethizon dorsatum</i>	None	X			X	X	X	X	X	X	X	X	X
Gray Wolf <i>Canis lupus</i>	None	X				X		X		X			
Coyote <i>Canis latrans</i>	None	X		X	X	X	X	X		X			X

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Mammals (continued)													
Red Fox <i>Vulpes vulpes</i>	None	X				X	X	X		X			
Gray Fox <i>Urocyon cinereoargenteus</i>	None				X		X	X					
Kit Fox <i>Vulpes macrotis</i>	None				X		X	X					
Black Bear <i>Ursus americanus</i>	None	X				X				X			
Raccoon <i>Procyon lotor</i>	None	X			X	X	X	X	X	X	X	X	X
Wolverine <i>Gulo gulo</i>	None					X							X
American Marten <i>Martes americana</i>	None					X							
Ringtail <i>Bassariscus astutus</i>	None				X			X					
Ermine <i>Mustela erminea</i>	None	X				X			X	X	X	X	X
Long-tailed Weasel <i>Mustela frenata</i>	None	X			X	X	X	X	X	X	X	X	X
Mink <i>Mustela vison</i>	None	X			X	X	X	X	X	X	X	X	X
River Otter <i>Lontra canadensis</i>	BLM Sens.	X			X	X	X	X	X	X	X	X	X
Badger <i>Taxidea taxus</i>	None	X		X	X	X	X	X		X			X
Western Spotted Skunk <i>Spilogale gracilis</i>	None			X	X	X	X	X					
Striped Skunk <i>Mephitis mephitis</i>	None	X		X	X	X	X	X	X	X	X	X	X
Lynx <i>Lynx canadensis</i>	None	X				X				X			
Mountain Lion <i>Felis concolor</i>	None	X			X	X	X	X		X			
Bobcat <i>Felis rufus</i>	None	X		X	X	X	X	X		X			

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Mammals (continued)													
Mule Deer <i>Odocoileus hemionus</i>	None	X		X	X	X	X	X		X			
Pronghorn <i>Antilocapra americana</i>	None				X	X	X	X					
Bison <i>Bos bison</i>	None	X						X		X			
Bighorn Sheep <i>Ovis canadensis</i>	None	X			X	X	X	X		X			X
Elk <i>Cervus elaphus</i>	None	X				X	X	X		X			X
Moose <i>Alces alces</i>	None	X				X	X			X			
Mountain Goat <i>Oreamnos americanus</i>	None												X
Amphibians													
Tiger Salamander <i>Ambystoma tigrinum</i>	None			X		X		X	X	X	X	X	X
Great Basin Spadefoot <i>Scaphiopus intermontanus</i>	None				X	X	X	X	X	X	X	X	X
Western Toad <i>Bufo boreas</i>	None							X	X	X	X	X	X
Woodhouse's Toad <i>Bufo woodhousei</i>	None						X	X	X	X	X	X	X
Pacific Treefrog <i>Hyla regilla</i>	None				X		X	X	X	X	X	X	X
Columbian Spotted Frog <i>Rana luteiventris</i>	Fed. Cand.					X	X		X	X	X	X	X
Northern Leopard Frog <i>Rana pipiens</i>	BLM Sens.								X	X	X	X	X
Bullfrog <i>Rana catesbeiana</i>	None								X	X	X	X	X
Reptiles													
Great Basin Collared Lizard <i>Crotaphytus bicinctores</i>	None				X		X	X					
Desert Collared Lizard <i>Crotaphytus insularis</i>	None				X		X	X					

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Reptiles (continued)													
Long-nosed Leopard Lizard <i>Gambelia wislizenii</i>	None				X								X
Western Fence Lizard <i>Sceloporus occidentalis</i>	None				X								X
Sagebrush Lizard <i>Sceloporus graciosus</i>	None				X		X						X
Side-blotched Lizard <i>Uta stansburiana</i>	None				X								X
Desert Horned Lizard <i>Phrynosoma platyrhinos</i>	None				X								X
Short-horned Lizard <i>Phrynosoma douglassi</i>	BLM Sens.					X	X						X
Greater Short-horned Lizard <i>Phrynosoma hernandesi</i>	None						X						X
Western Skink <i>Eumeces skiltonianus</i>	None						X						X
Western Whiptail <i>Cnemidophorus tigris</i>	None				X		X						X
Rubber Boa <i>Charina bottae</i>	None					X	X						
Ringneck Snake <i>Diadophis punctatus</i>	None						X						
Racer <i>Coluber constrictor</i>	None					X	X						X
Striped Whipsnake <i>Masticophis taeniatus</i>	None				X	X	X						X
Great Basin Gopher Snake <i>Pituophis cantenifer</i>	None				X		X						X
Common Kingsnake <i>Lampropeltis getulus</i>	None				X		X						X
Sonoran Mountain Kingsnake <i>Lampropeltis pyromelana</i>	BLM Sens.						X						
Gopher Snake <i>Pituophis melanoleucus</i>	None				X		X						X
Long-nosed Snake <i>Rhinocheilus lecontei</i>	None				X								X

Antelope Complex Gather Capture Plan and EA

Appendix G continued.

Common Name Species	Most Protective Federal Status	Aspen Woodland	Cliffs and Canyon	Grasslands and Meadows	Intermountain Cold Desert Scrub	Intermountain Conifer Forests and Woodlands	Lower Montane Woodlands	Sagebrush	Desert Playas and Ephemeral Pools	Intermountain Rivers and Streams	Lakes and Reservoirs	Marshes	Wet Meadows
Reptiles (continued)													
Common Garter Snake <i>Thamnophis sirtalis</i>	None				X			X					
Western Terrestrial Garter Snake <i>Thamnophis elegans</i>	None			X	X	X	X	X	X	X	X	X	X
Ground Snake <i>Sonora semiannulata</i>	None				X		X	X					
Night Snake <i>Hypsiglena torquata</i>	None				X		X	X					
Western Rattlesnake <i>Crotalus oreganus</i>	None						X	X					

¹BLM Sens. = Nevada BLM Sensitive Species, Mig. Game = Migratory Game Bird, Fed. Cand. = Federal Candidate Species.

²State Sensitive Species

Antelope Complex Gather Capture Plan and EA

Appendix H

Antelope Complex Water Resources

Legal Description	Map ID	Source Name	Source Type	Flow Type	Flow Rate (gal/min) ¹	Type of negative impacts				*PFC Rating ²
						Grazing/Hoof action	Horses	Cattle	Diversion	
T. 26 N., R. 65 E., Sec 01	1	Currie Flats Well	Well	Intermittent						
T. 26 N., R. 67 E., Sec 16	2	PERKINS SPRING	Spring	Perennial	0.33		x			FARD
T. 27 N., R. 68 E., Sec 04	3	ANTELOPE PIPELINE	Conveyance	Intermittent	0.2					
T. 28 N., R. 64 E., Sec 13	4	MUSTANG WELL	Well	Intermittent						
T. 28 N., R. 64 E., Sec 36	5	Red Tank Well	Well	Intermittent						
T. 28 N., R. 66 E., Sec 04	6	VICTORIA SPRING	Spring	Intermittent	0.5	x	x			FARD
T. 28 N., R. 66 E., Sec 06	7		Spring	Perennial	0.71	x	x			
T. 28 N., R. 66 E., Sec 14	8	Austin Spring	Spring	Perennial	0.05	x	x			
T. 28 N., R. 68 E., Sec 08	9	HIGHWAY WELL	Well	Intermittent						
T. 28 N., R. 68 E., Sec 27		WHITEHORSE SP	Spring	Intermittent						
T. 29 N., R. 65 E., Sec 09	10	CORDANE WELL	Well	Intermittent						
T. 29 N., R. 65 E., Sec 31	11	East Walker Well	Well	Intermittent						
T. 29 N., R. 65 E., Sec 25			Seep	Perennial	0					PFC
T. 29 N., R. 65 E., Sec 25	12	Deer Spring	Conveyance	Perennial	0.2					
T. 29 N., R. 65	13	Walker Well	Well	Intermittent						

Antelope Complex Gather Capture Plan and EA

Legal	Map	Source Name	Source	Flow Type	Flow	Type of negative impacts				*PFC
E., Sec 31										
T. 29 N., R. 66 E., Sec 19			Spring	Perennial						
T. 29 N., R. 66 E., Sec 28			Spring	Perennial	0	x	x			FARD
T. 29 N., R. 66 E., Sec 29	14		Spring	Intermittent	1	x	x		x	FARD
T. 29 N., R. 66 E., Sec 31			Seep	Perennial	0					
T. 29 N., R. 66 E., Sec 31			Spring	Perennial	0					NF
T. 29 N., R. 66 E., Sec 31	15		Spring	Perennial	0.0625				x	NF
T. 29 N., R. 66 E., Sec 31	16		Spring	Perennial						NF
T. 29 N., R. 66 E., Sec 33			Spring	Intermittent	0	x	x			
T. 29 N., R. 68 E., Sec 06	17	ITCAINA BLACK PT WL	Well	Perennial						
T. 29 N., R. 69 E., Sec 05	18	DEAD CEDAR SP	Spring	Perennial	0.1	x	x			NF
T. 30 N., R. 63 E., Sec 02	19	BASCO SP	Spring	Perennial	3.2				x	FARD
T. 30 N., R. 63 E., Sec 21	20	Gravel Pit Well	Well	Intermittent						
T. 30 N., R. 65 E., Sec 06		SEC 6 SP	Seep	Intermittent	0					
T. 30 N., R. 65 E., Sec 16	21	SPRUCE WELL	Well	Intermittent						
T. 30 N., R. 67 E., Sec 10	22	BLACK POINT WELL	Well	Intermittent						
T. 30 N., R. 68 E., Sec 12			Spring	Perennial	0.3					
T. 30 N., R. 68 E., Sec 12	23	FELT SP	Spring	Perennial	1.1	x			x	FARD

Antelope Complex Gather Capture Plan and EA

Legal	Map	Source Name	Source	Flow Type	Flow	Type of negative impacts				*PFC
T. 30 N., R. 69 E., Sec 17	24	LITTLE MUD SP	Spring	Perennial	0.03					FARN
T. 30 N., R. 69 E., Sec 33	25		Spring	Perennial	1.4					
T. 30 N., R. 69 E., Sec 36	26	East Hwy Well	Well	Intermittent						
T. 31 N., R. 63 E., Sec 01	27		Spring	Perennial	1					
T. 31 N., R. 63 E., Sec 12	28	F. B. Spring	Spring	Perennial	2.5	x	x	x		NF
T. 31 N., R. 63 E., Sec 12	29	LATHAM SP	Spring	Perennial	3.6					FARN
T. 31 N., R. 63 E., Sec 22	30	B SP	Conveyance	Perennial	1					
T. 31 N., R. 63 E., Sec 26	31	TOWNSITE SP	Spring	Perennial	11					
T. 31 N., R. 63 E., Sec 27		A SP	Spring	Perennial	0	x	x	x		FARN
T. 31 N., R. 63 E., Sec 36	32		Spring	Perennial	4	x				FARD
T. 31 N., R. 63 E., Sec 36	33		Spring	Intermittent	0					
T. 31 N., R. 64 E., Sec 06	34	South Latham Spring	Seep	Intermittent	0.02				x	NF
T. 31 N., R. 64 E., Sec 18	35	Side Hill Spring	Spring	Perennial	1.82	x				
T. 31 N., R. 65 E., Sec 25	36	Lower Spruce Well	Well	Intermittent						
T. 31 N., R. 65 E., Sec 20	37	LOWER BOONE SP	Spring	Perennial	0.58				x	FARD
T. 31 N., R. 66 E., Sec 07	38	WAREHOUSE WELL	Well	Intermittent						
T. 31 N., R. 67 E., Sec 14	39	BASQUE WELL	Well	Intermittent						
T. 31 N., R. 67		SHAFTER WELL	Well	Perennial						

Antelope Complex Gather Capture Plan and EA

Legal	Map	Source Name	Source	Flow Type	Flow	Type of negative impacts				*PFC
E., Sec 35		NO4								
T. 31 N., R. 68 E., Sec 16	40	LION SP	Spring	Perennial	0.3					
T. 31 N., R. 68 E., Sec 27		SERVICEBERRY SP	Seep	Intermittent	0					
T. 31 N., R. 68 E., Sec 27			Spring	Intermittent						
T. 32 N., R. 63 E., Sec 20	41	SORENSEN DEEP WELL	Well	Intermittent						
T. 32 N., R. 64 E., Sec 17	42		Well	Intermittent						
T. 32 N., R. 67 E., Sec 04	43		Spring	Perennial	0.1					
T. 32 N., R. 67 E., Sec 36	44	SHAFTER WELL 3	Well	Intermittent						
T. 32 N., R. 68 E., Sec 14	45		Spring	Perennial	0.03					
T. 32 N., R. 68 E., Sec 14	46	SIDEHILL SP	Spring	Perennial	12		x			FARD
T. 32 N., R. 68 E., Sec 15	47		Spring	Perennial	0.3					
T. 32 N., R. 68 E., Sec 15	48	UPPER MORGAN SP	Spring	Perennial	6		x			NF
T. 32 N., R. 68 E., Sec 22	49	LOWER MORGAN SP	Spring	Perennial	3					
T. 32 N., R. 68 E., Sec 22	50	SUMMIT SP	Spring	Perennial	1.33		x		x	NF
T. 32 N., R. 68 E., Sec 24	51	MUD SPRINGS	Spring	Perennial	0.2					PFC
T. 32 N., R. 68 E., Sec 26	52	SP GULCH SP	Spring	Perennial	1	x				NF
T. 32 N., R. 68 E., Sec 33		CHOCKCHERRY SP	Spring	Intermittent	0					PFC
T. 32 N., R. 68 E., Sec 33	53	CHOKECHERRY SP	Spring	Perennial	4					PFC

Antelope Complex Gather Capture Plan and EA

Legal	Map	Source Name	Source	Flow Type	Flow	Type of negative impacts				*PFC
T. 32 N., R. 69 E., Sec 19	54	SHEEP CAMP SPRING	Spring	Perennial	1	x			x	NF
T. 33 N., R. 63 E., Sec 28	55	SORENSEN WELL NO 6	Well	Intermittent						
T. 33 N., R. 65 E., Sec 10	56	JASPER WELL	Well	Intermittent						
T. 33 N., R. 67 E., Sec 35	57	SHAFTER WELL #2	Well	Intermittent						
T. 33 N., R. 68 E., Sec 10	58	ROCK SPRING	Spring	Perennial	0.5		x			
T. 33 N., R. 68 E., Sec 10	59	ROCK SP	Spring	Perennial	0.79		x			NF
T. 33 N., R. 68 E., Sec 11	60	MORRIS BASIN SP	Spring	Perennial	0.16				x	FARN
T. 33 N., R. 68 E., Sec 26		ROSEBUD SP	Spring	Intermittent	0					
T. 33 N., R. 68 E., Sec 34		ISABEL SP	Spring	Intermittent	0					PFC
T. 33 N., R. 68 E., Sec 35	61	ERICKSON SP	Spring	Perennial	0.16		x		x	NF
T. 34 N., R. 63 E., Sec 35	62	POINT SPRING	Spring	Perennial	0.5					
T. 34 N., R. 68 E., Sec 27			Spring	Perennial	1					
T. 34 N., R. 68 E., Sec 28	63	TUNNEL SPRING	Spring	Perennial	1		x			NF

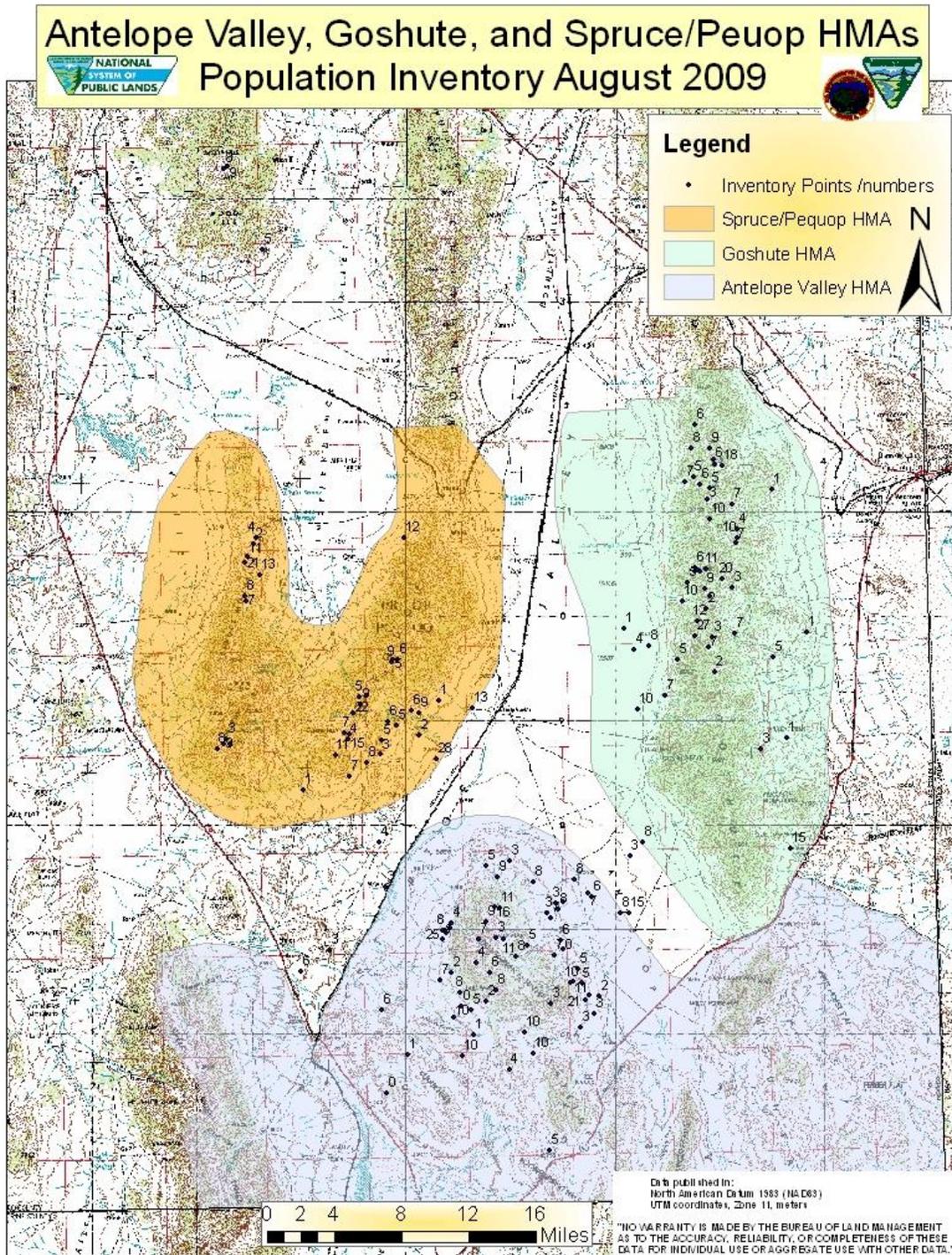
¹ Spring flow varies by season and yearly reflecting climatic variables. Most listed springs will have flows that drop to nearly zero during dry conditions.

² PFC Rating: PFC = proper functioning condition; FARU = functioning at risk with upward trend; FARD = functioning at risk with downward trend; NF = non-functional.

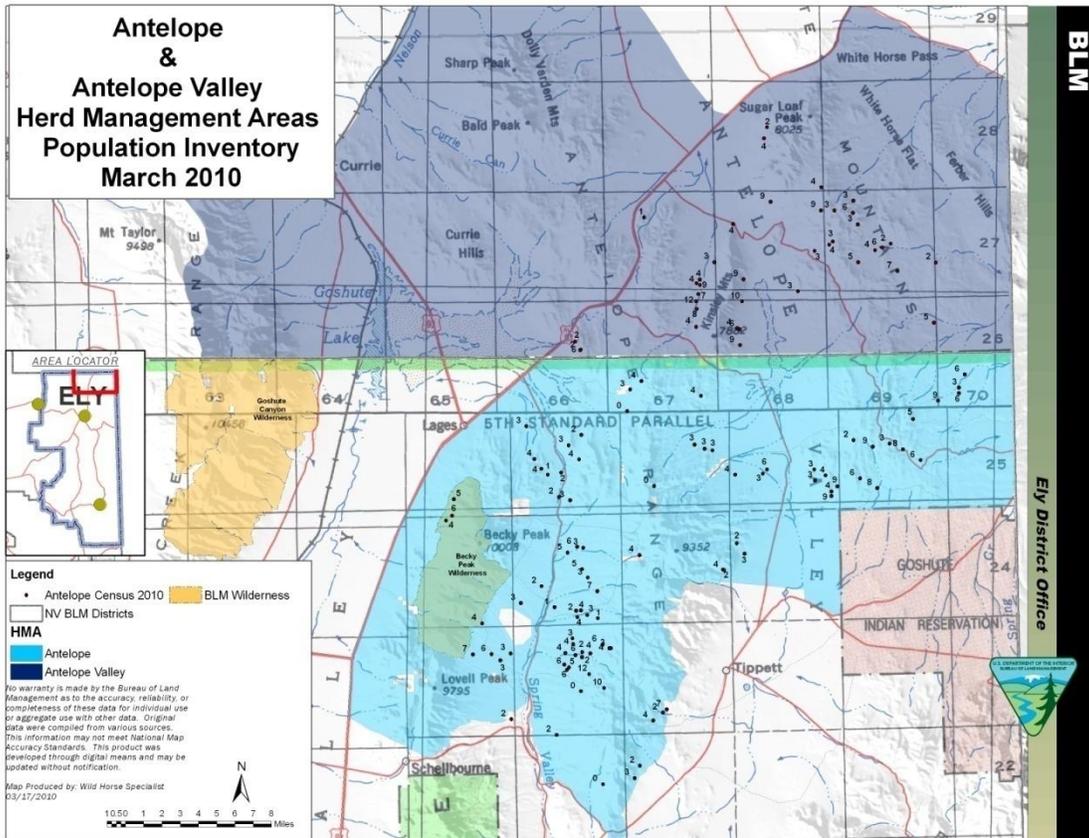
Antelope Complex Gather Capture Plan and EA

Appendix I

2009-2010 Antelope Complex Inventory Maps



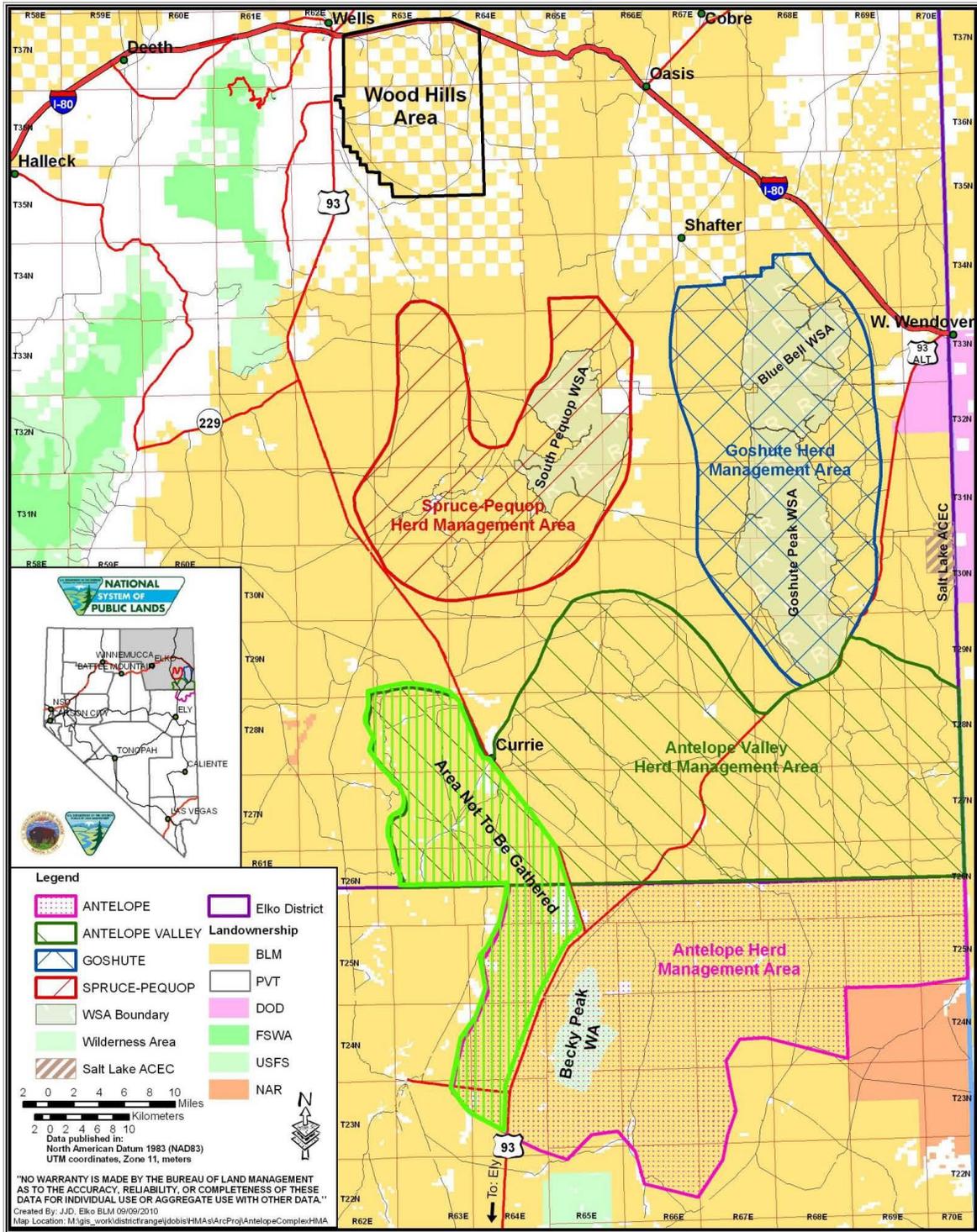
Antelope Complex Gather Capture Plan and EA



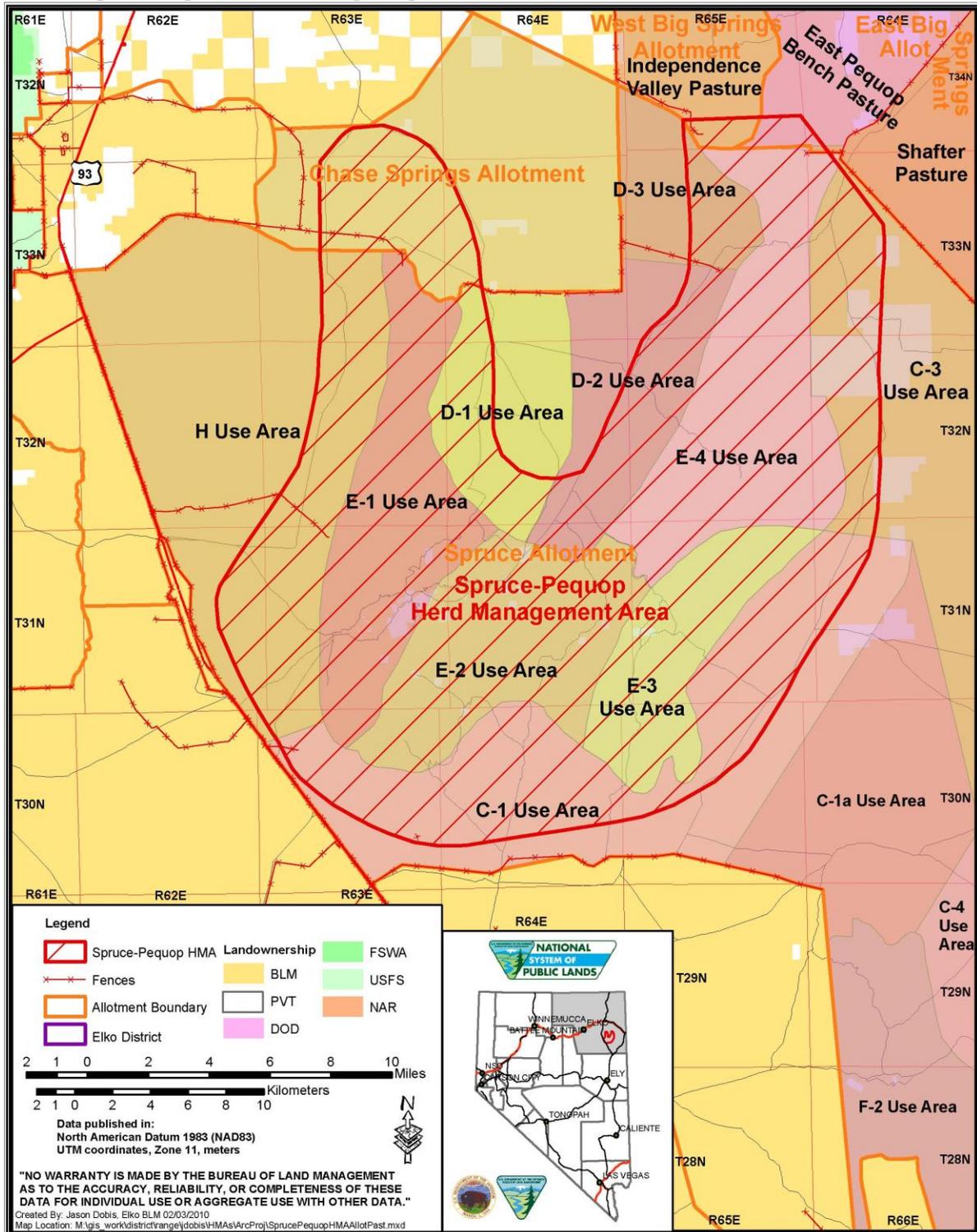
Antelope Complex Gather Capture Plan and EA

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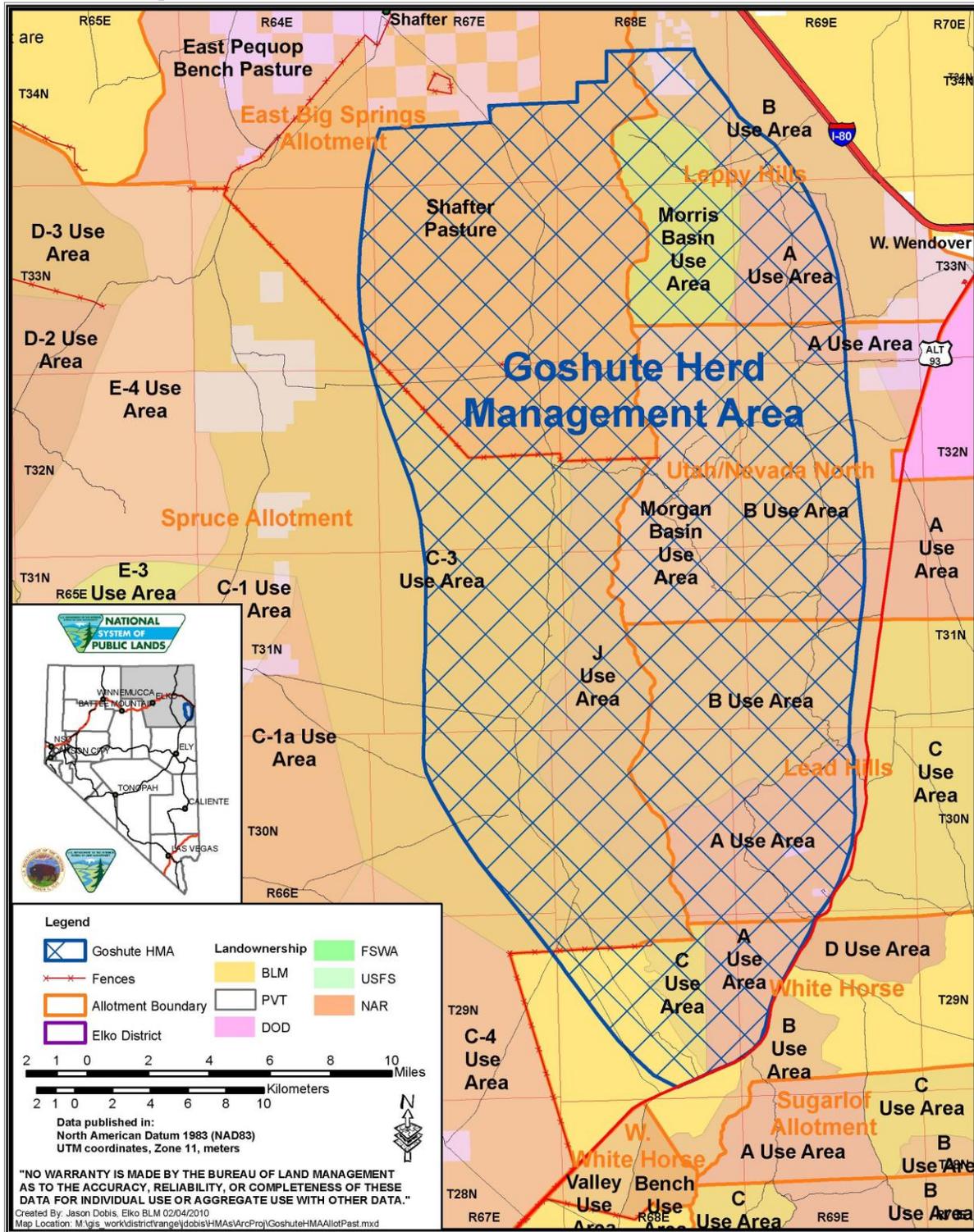
Map 1 Antelope Complex HMAs



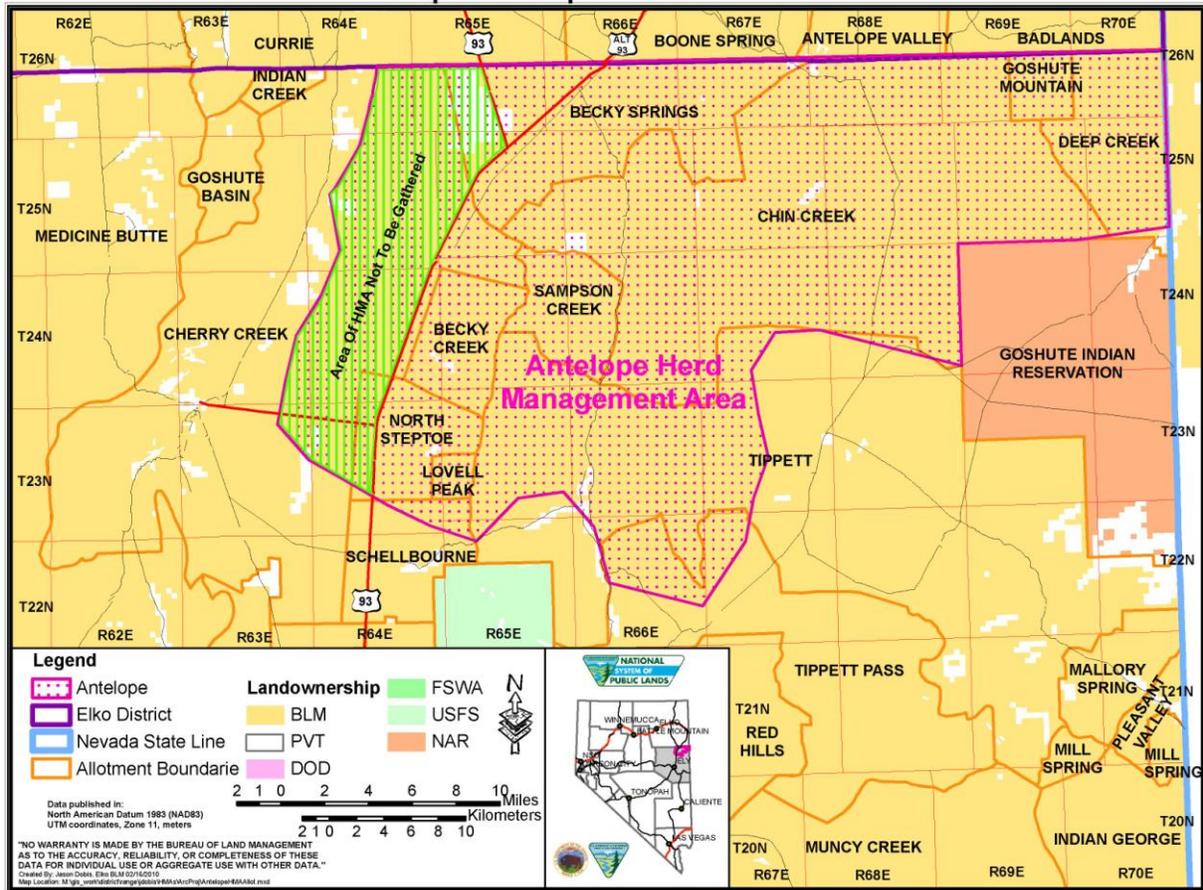
Map 2 Spruce-Pequop HMA Allotments & Use Areas



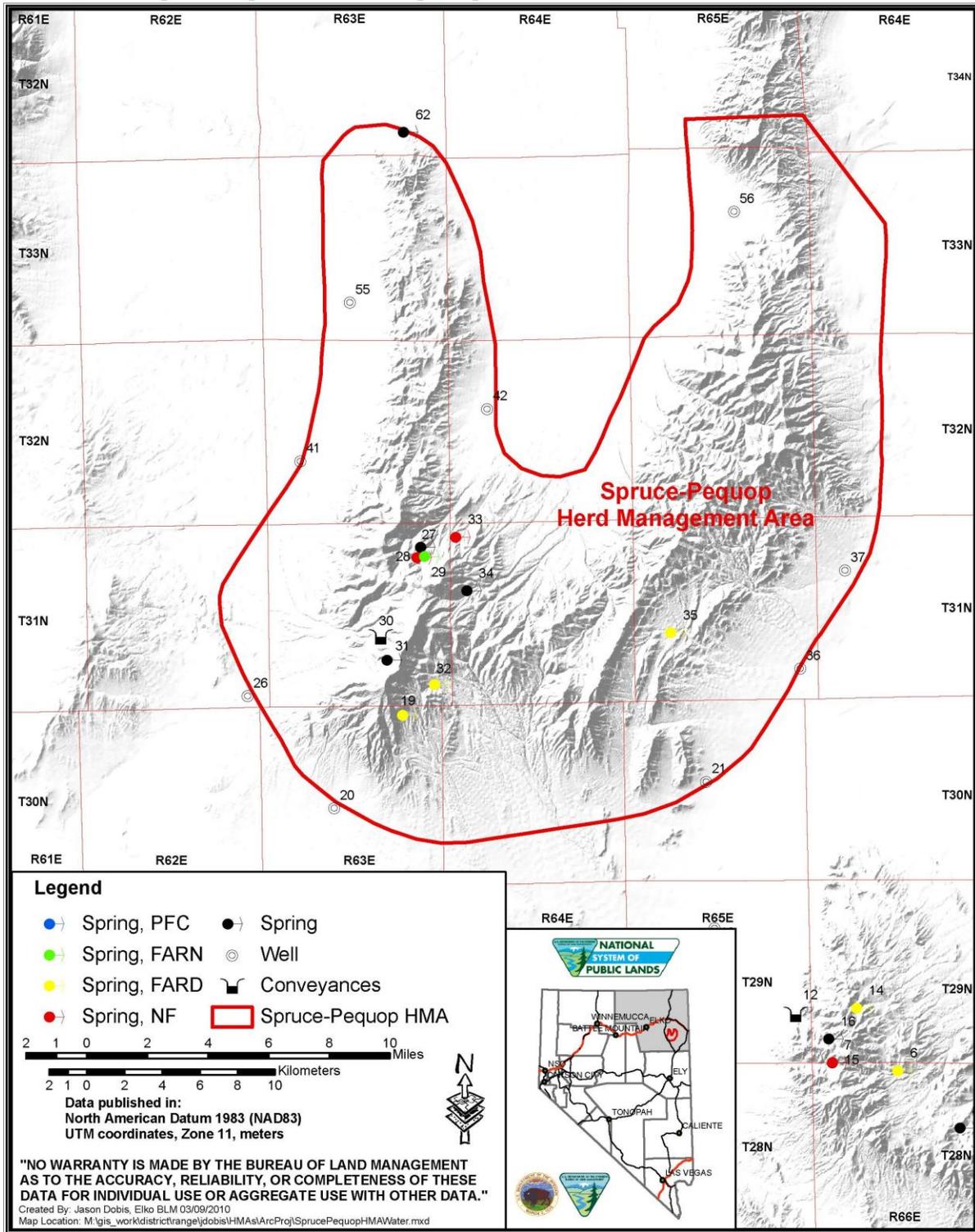
Map 3 Goshute HMA Allotments & Use Areas



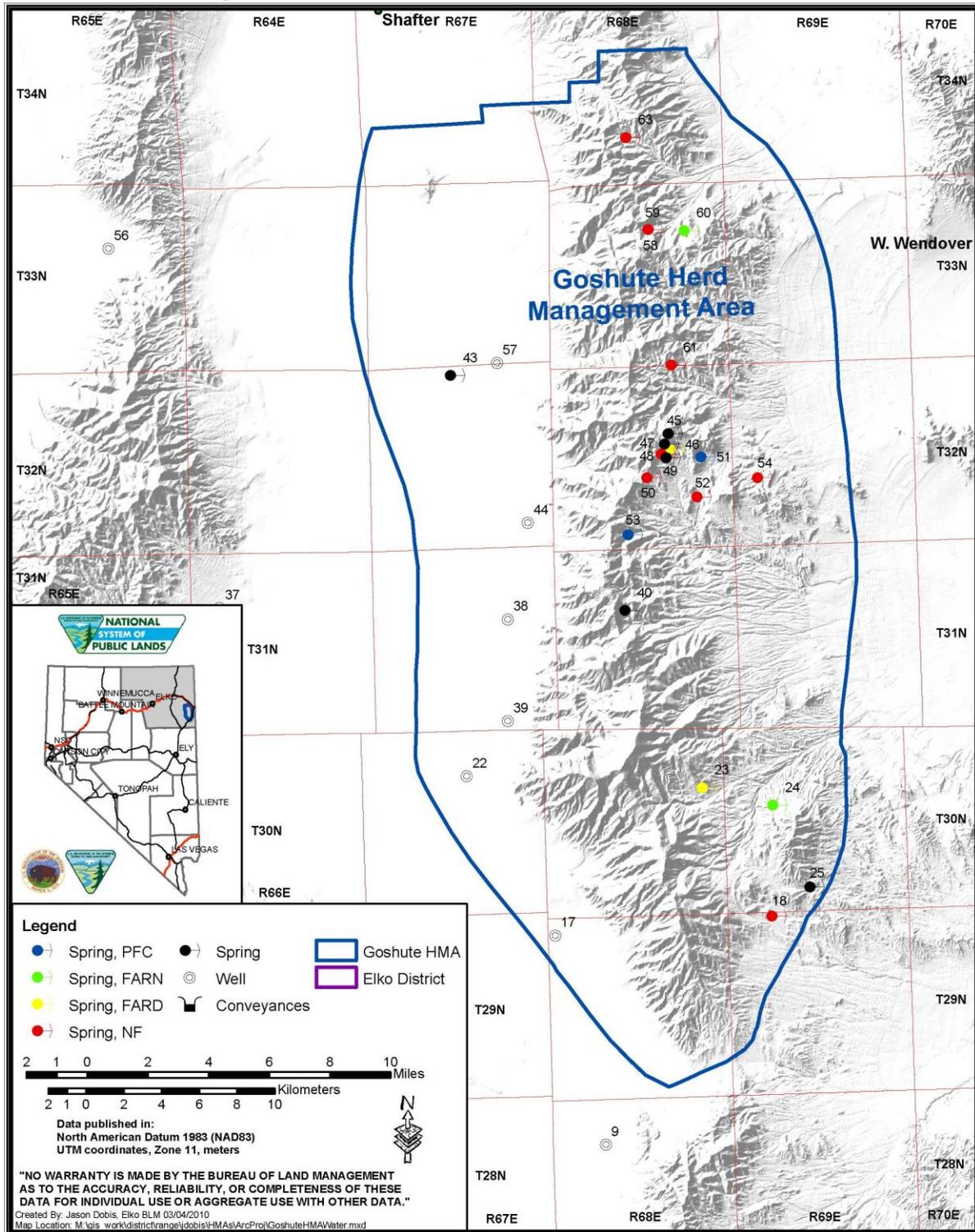
Map 5 Antelope HMA Allotments



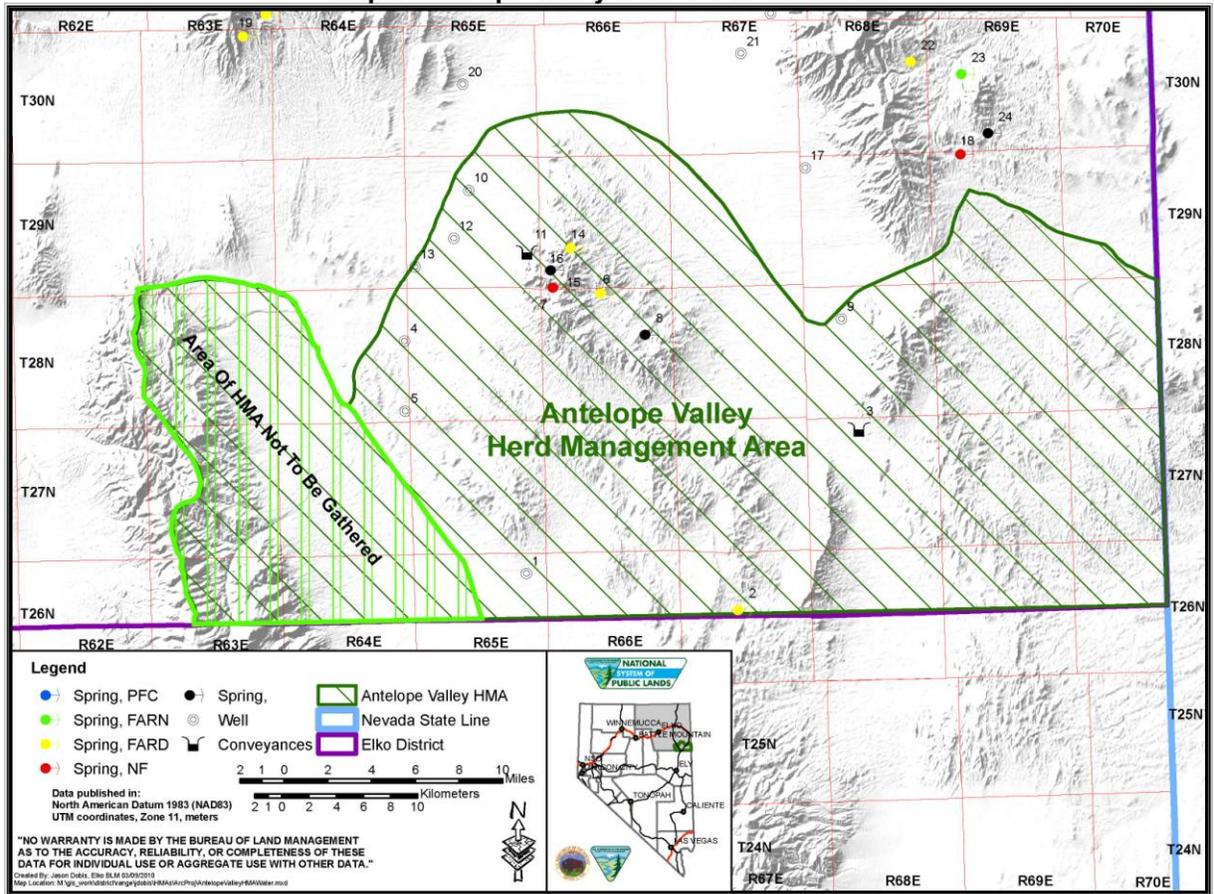
Map 6 Spruce-Pequop HMA Water Locations



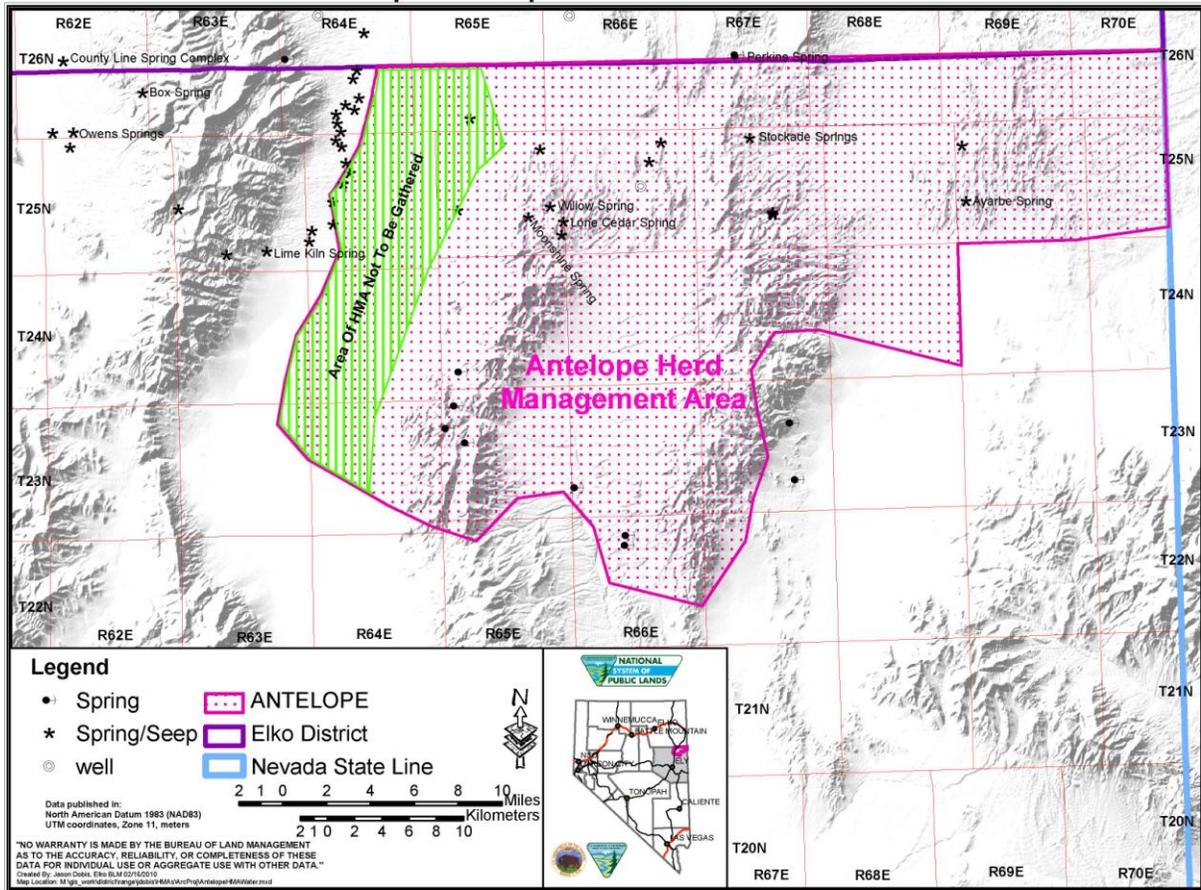
Map 7 Goshute HMA Water Locations



Map 8 Antelope Valley HMA Water Locations



Map 9 Antelope HMA Water Locations



Legend

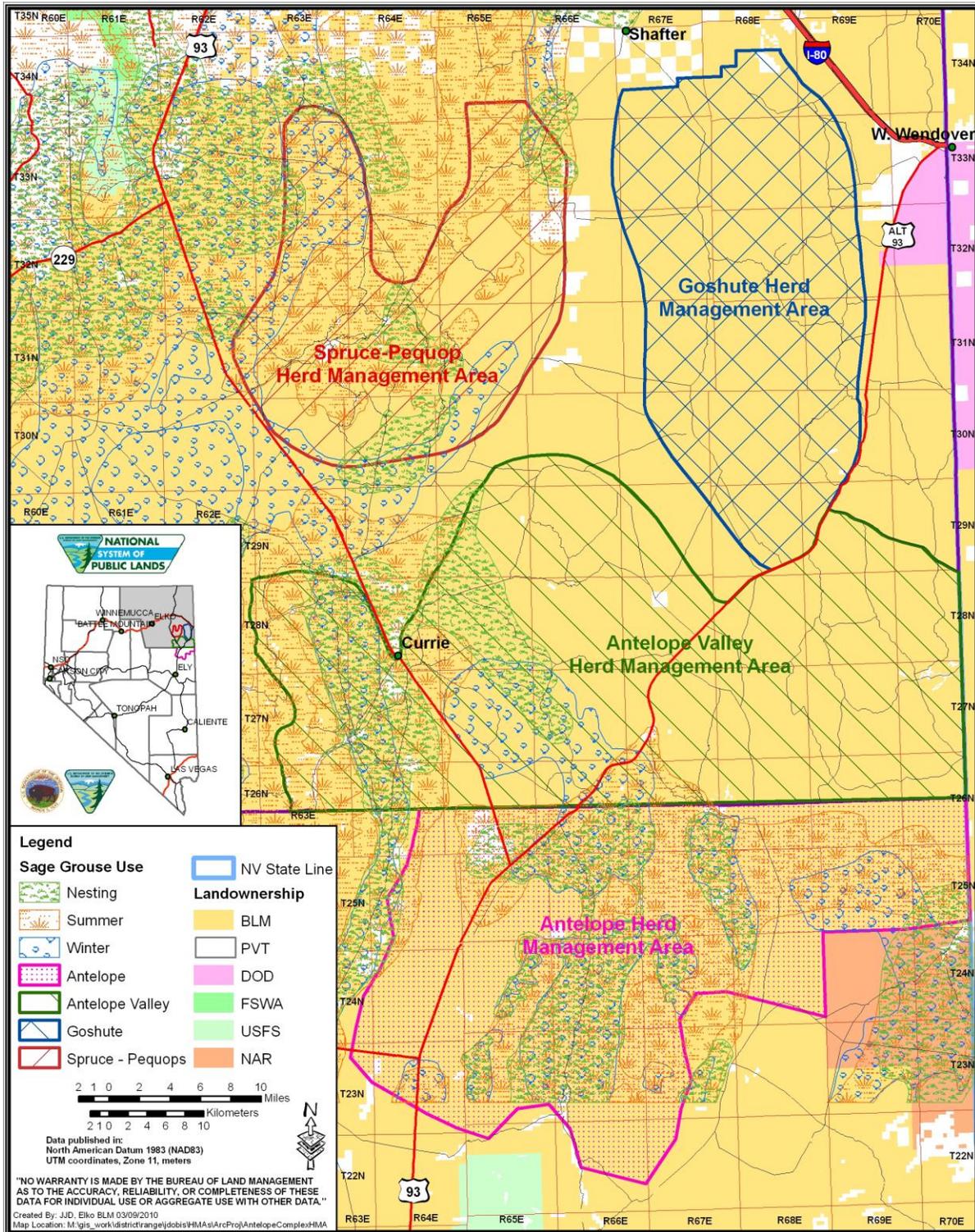
- Spring
 - * Spring/Seep
 - ⊙ well
 - ANTELOPE
 - Elko District
 - Nevada State Line
- Scale: 0 2 4 6 8 10 Miles / 0 2 4 6 8 10 Kilometers

Data published in:
 North American Datum 1983 (NAD83)
 UTM coordinates, Zone 11, meters

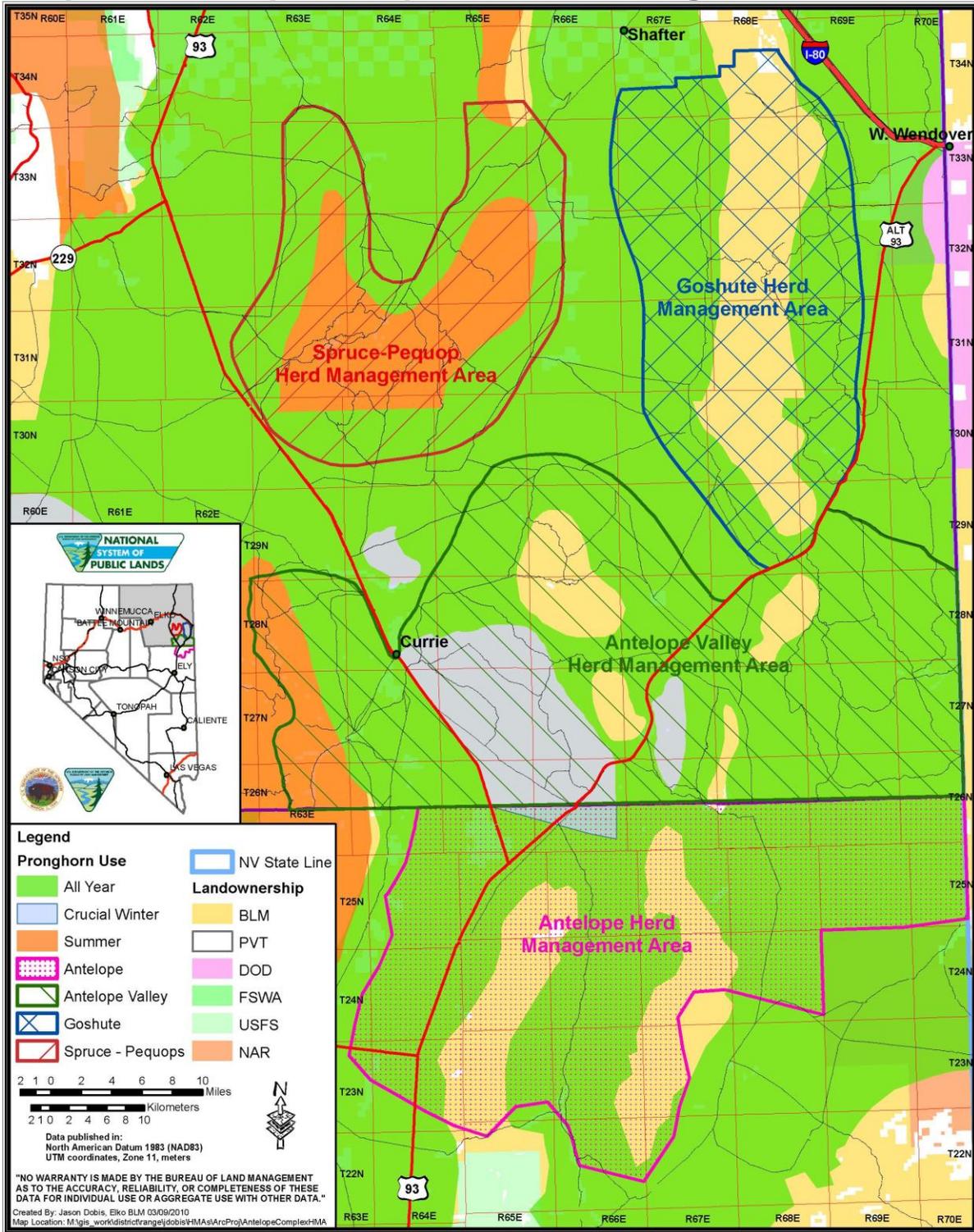
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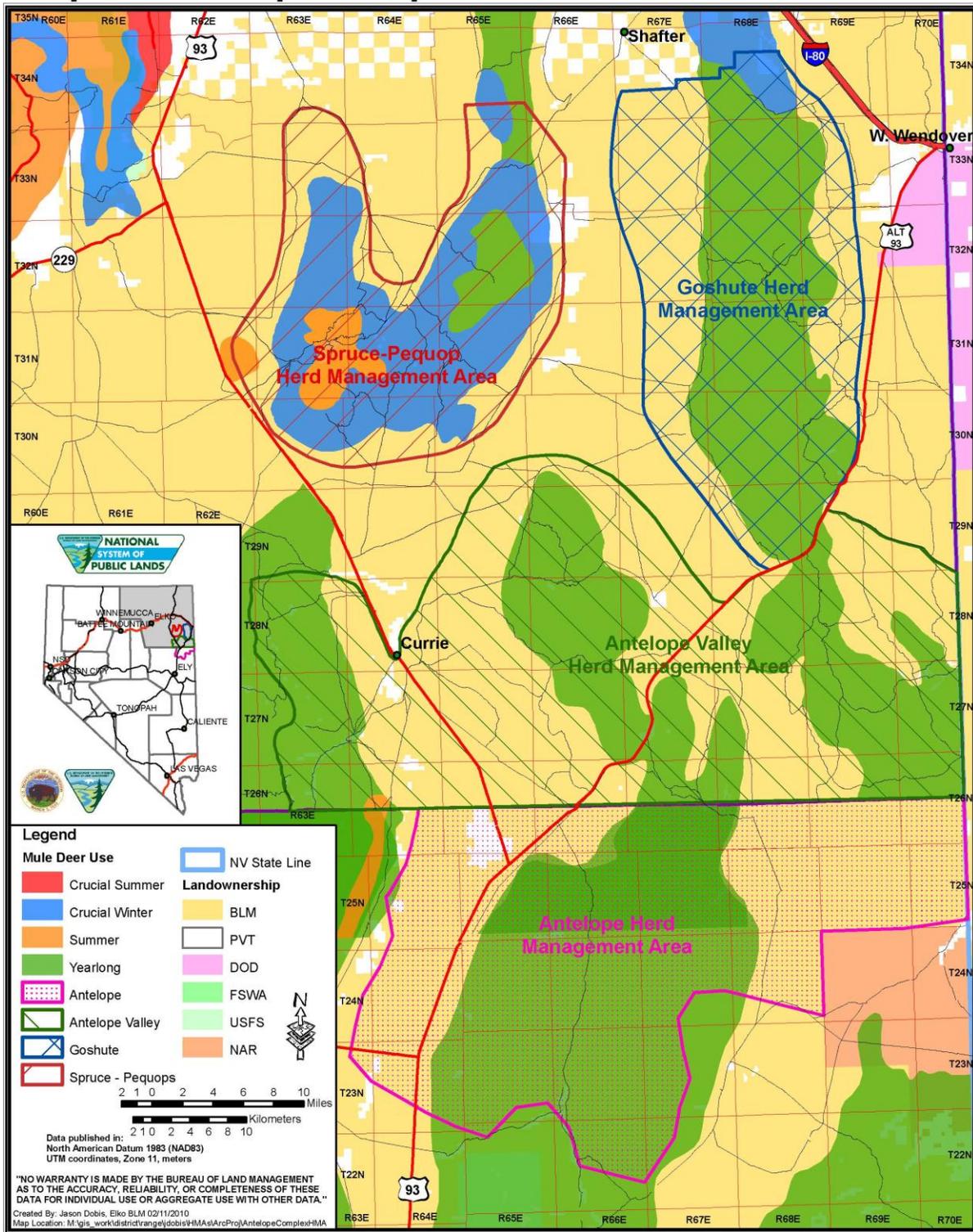
Map 10 Antelope Complex HMAs Sage Grouse Use Areas



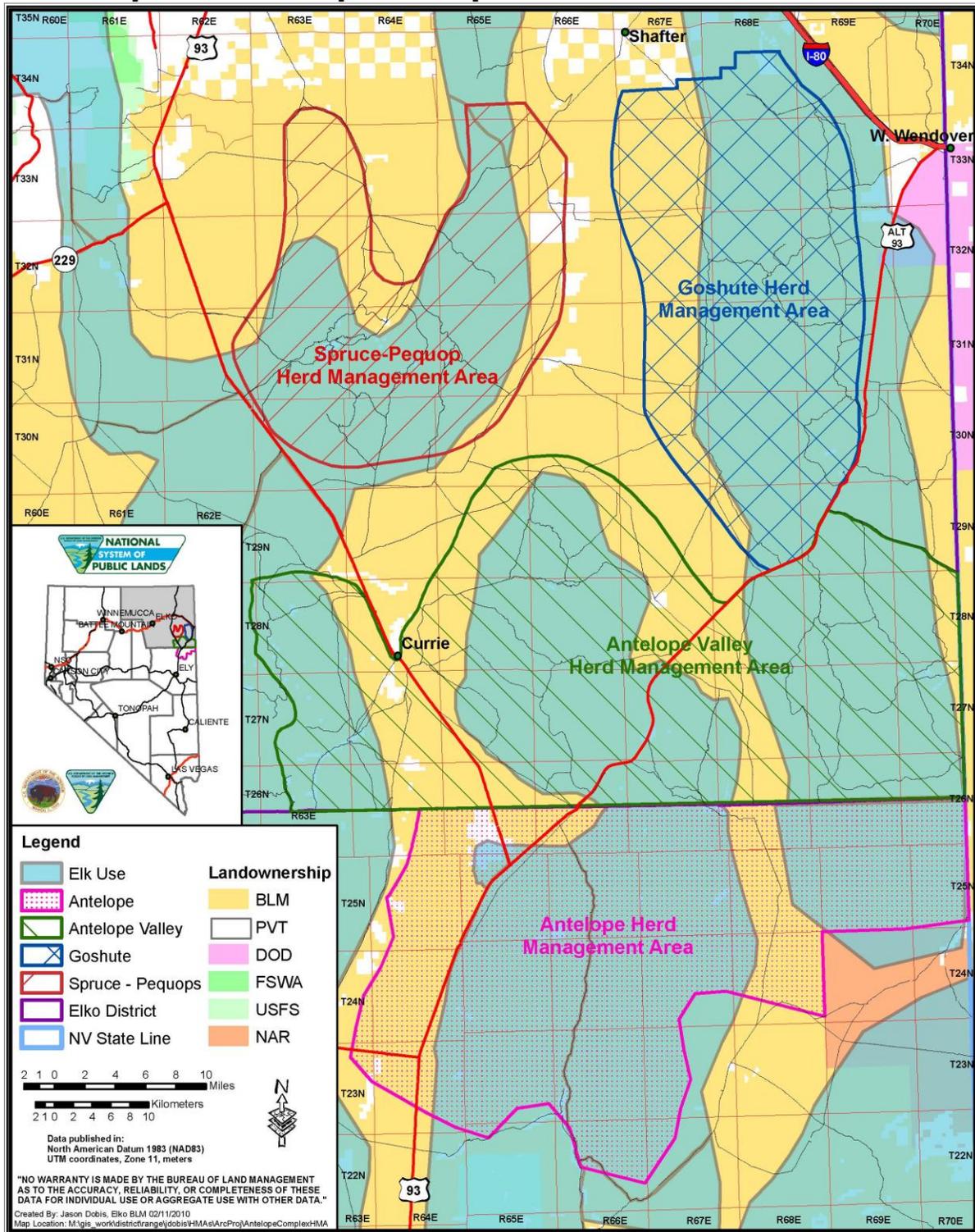
Map 11 Antelope Complex HMAs Pronghorn Use Areas



Map 12 Antelope Complex HMAs Mule Deer Use Areas



Map 13 Antelope Complex HMAs Elk Use Areas



Map 14 Shafter Well Gather Site

