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BUREAU OF LAND MANAGEMENT

Carson City Field Office
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DEPARTMENT OF ADMINISTRATION
OFFICE OF THE DIRECTOR
BUDGET AND PLANNING DIVISION

January 18, 2006

EMS TRANSMISSION 01/19/06

Dear Interested Party:

Enclosed is a copy of the Buckeye Grazing Allotment Environmental Assessment (EA-NV-030-06-02) and Finding of No Significant Impact (FONSI). Please review the enclosed documents and provide written comments before February 17th, 2006.

Please mail comments to: Bureau of Land Management
Carson City Field Office
Attn: Katrina Leavitt
5665 Morgan Mill Road
Carson City, NV 89701

Comments may also be faxed or e-mailed to: (775) 885-6147 or kleavitt@nv.blm.gov

If you have any questions, regarding the Buckeye Grazing Allotment Environmental Assessment or the FONSI please contact Katrina Leavitt at (775) 885-6130.

Signed By:
Daniel L. Jacquet
Assistant Manager, Renewable Resources

Authenticated By:
Katrina Leavitt
Rangeland Ecologist

Enclosures:

- 1) Environmental Assessment Buckeye Allotment EA-NV-030-06-02
- 2) Finding of No Significant Impact EA-NV-030-06-02 dated January 2006

Environmental Assessment
Buckeye Grazing Allotment
EA-NV-030-06-02
January 2006

U.S. Department of the Interior
Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, NV 89701

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I. INTRODUCTION/PURPOSE AND NEED

A. Introduction

The Buckeye Grazing Allotment is located approximately five miles southeast of Carson City, NV and is within the jurisdictional boundary of the Carson City Field Office of the Bureau of Land Management (BLM). The allotment encompasses the west side of the Pine Nut Mountains (Map 1 on p. 6) and is approximately 124,920 acres in size. There are BLM managed lands (65%), private lands controlled by the livestock operator (3%), Bureau of Indian Affairs (BIA) managed lands (22%), and other privately owned lands within the allotment (10%). The BLM is currently considering the renewal of the term livestock grazing permit for this allotment and the addition of range improvement projects (water haul sites & fencing). The BIA also issues a separate grazing permit for BIA managed land. However, this EA only addresses livestock grazing on BLM managed land.

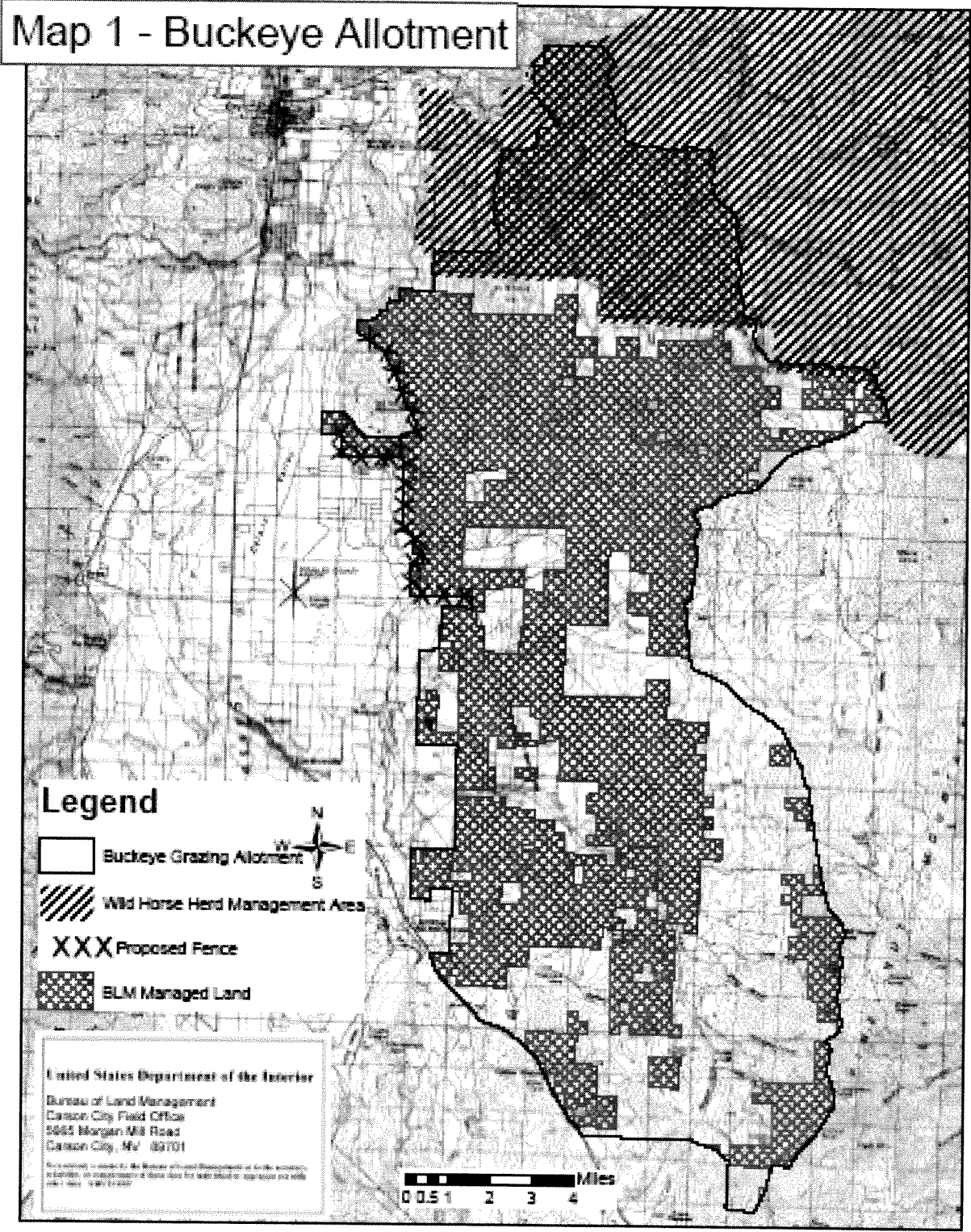
This environmental assessment (EA) analyzes the environmental impacts associated with each of the livestock management alternatives currently being considered for the Buckeye Allotment. Management options presently under consideration include: 1) authorizing cattle grazing and modifying management; 2) authorizing sheep grazing and modifying management; 3) authorizing cattle grazing and continuing with current management; and 4) not authorizing livestock grazing. Range improvements such as water sources and fences are often associated with management systems. This EA also analyzes the impacts associated with the construction of new range improvements.

B. Purpose and Need

The purpose of the proposed action is to authorize the issuance of a Term Grazing Permit for the Buckeye Allotment consistent with the attainment of site specific objectives found in the Carson City Field Office (CCFO) Consolidated Resource Management Plan (CRMP), and implement livestock grazing practices that will ensure compliance with the approved Standards for Rangeland Health & Guidelines for Grazing Management (S&Gs), Sierra Front Northwestern Great Basin Area. Management of grazing will come through the issuance of a grazing permit which will provide the parameters and guidelines for management of the range resources on the allotment. Proper management will result in improved range condition throughout the area.

These actions are needed at this time because:

- 1) The condition of natural resources on the allotment was evaluated in 2003 and grazing management needs to be updated at this time through a fully processed grazing permit.



- 2) The BLM Managed Lands within the allotment were identified as available for livestock grazing in the CCFO CRMP, and continued livestock grazing is consistent with the goals, objectives, standards and guidelines identified in the CRMP.
- 3) Where consistent with other multiple use goals and objectives, there is a congressional intent to allow grazing on BLM Managed Lands. This is evidenced by the Taylor Grazing Act of 1934 (as amended), the Federal Land Policy and Management Act of 1975, the Public Rangelands Improvement Act of 1978, and the approved Standards and Guidelines of 2003, as well as various other federal laws and regulations.

C. Land Use Plan Conformance Statement

The proposed action and alternatives described in this document are in conformance with the CCFO Consolidated Resource Management Plan desired outcomes. For livestock grazing, these are found on page LSG-1 and are as follows:

1. Maintain or improve the condition of the public rangelands to enhance productivity for all rangeland and watershed values.
2. Initially, manage livestock use at existing levels.
3. Provide adequate, high quality forage for livestock by improving rangeland condition.
4. Improve overall range administration.

The Land Use Plan identified the lands within the Buckeye Allotment available for livestock grazing.

The following activity plan(s) apply to the geographic area of the proposed action and alternatives: Pine Nut Habitat Management Plan (Revised 1987)

Additional Guidance: Standards and Guidelines (S&G's) for Nevada's Sierra Front-Northwestern Great Basin Area (2003); Riparian – Wetland Initiative (1991).

II. PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action (Cattle Grazing with Modified Management)

Issue a term grazing permit which would authorize cattle to graze in the Buckeye Allotment from April 1st until September 15th. Permitted use would be 1,471 AUMs annually on the BLM Managed Land. Continue managing with a deferred livestock grazing schedule. During odd numbered years livestock grazing would begin in the central portion of the allotment and move counterclockwise through the allotment. During even numbered years livestock grazing would begin in the central portion of the allotment and move clockwise through the allotment. The purpose of the deferred grazing schedule is to ensure that the same portion of the allotment is not grazed at the same time each year. Under the deferred schedule the south half of the allotment would be grazed in the spring and the north half of the allotment would be grazed in the

summer. A portion of the northern end of the allotment is designated as a wild horse herd management area (HMA). The HMA would not have livestock grazing during the spring growing season.

Construct approximately twelve miles of fence along with associated cattle guards and gates. The majority (11 miles) of the fencing would occur along the north western boundary of the allotment. The fence would be designed to keep livestock out of residential areas and facilitate recreational uses on BLM managed land (Map 2 on p.9). The remainder of the fencing would be constructed around sensitive and/or buckwheat plant populations (1 mile). The exact type of fencing material has not been determined yet. Fencing materials may include post and rail, barbed and smooth wire, wood posts and wire or other appropriate materials. With the exception of small enclosure fences around Kearney buckwheat populations all proposed fencing is located outside of the Wild Horse HMA.

Designate five areas within the allotment as water haul locations. No water haul locations would be permitted in known paleontological areas or near sensitive or Kearney buckwheat plant populations.

B. Change in Kind of Livestock (Sheep Grazing with Modified Management)

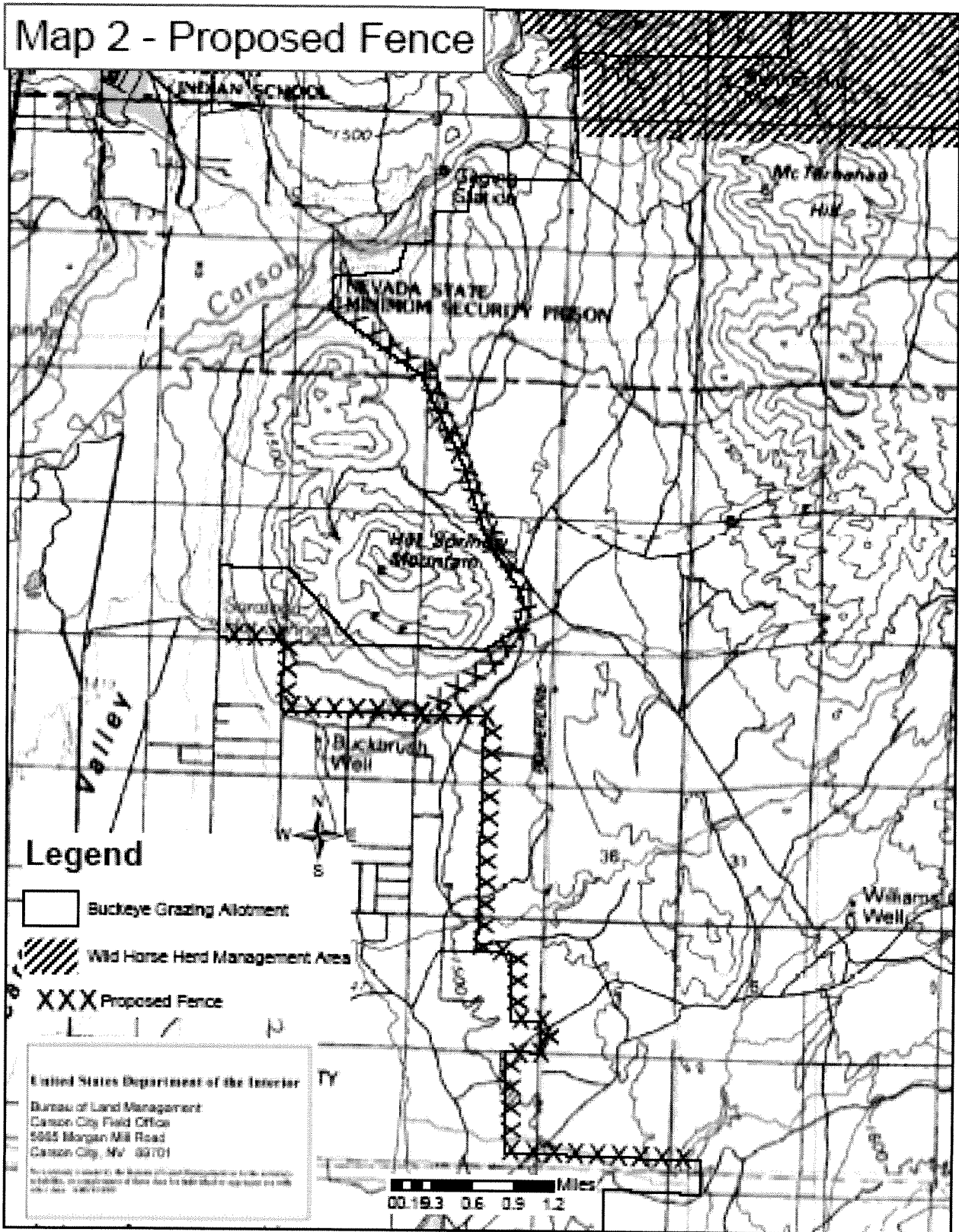
Issue a term grazing permit which would authorize sheep to graze in the Buckeye Allotment from April 1st until September 30th. Permitted use would be 2,549 AUMs annually on BLM Managed Land. Manage with a deferred livestock grazing schedule. During odd numbered years livestock grazing would move counterclockwise through the allotment. During even numbered years livestock grazing would move clockwise through the allotment. The purpose of the deferred grazing schedule is to ensure that the same portion of the allotment is not grazed at the same time each year. A portion of the northern end of the allotment is designated as a wild horse herd management area (HMA). The HMA would not have livestock grazing during the spring growing season.

No new fence construction is proposed in the Change in Kind of Livestock Alternative.

Designate twenty areas within the allotment as water haul locations. No water haul locations would be permitted in known paleontological areas or near sensitive or Kearney buckwheat plant populations.

C. No Action - Issue a Ten Year Grazing Permit (Cattle) with the Same Terms and Conditions as the Existing Permit

Issue a term grazing permit which would authorize cattle to graze in the Buckeye Allotment yearlong. Permitted use would be 2,200 AUMs annually on BLM Managed Land. Cattle would be authorized in the southeast portion of the allotment only in conjunction with private lands of the central pasture so that a rotational strategy would result in livestock leaving the riparian zones by mid-July. The west side of the allotment would have cattle only in the wintertime when the agricultural fields adjacent to the allotment are dormant; use in other seasons would require the western allotment



boundary to be fenced to prevent livestock from seeking forage on the adjacent private fields. The north end of the allotment is designated as a wild horse herd management area (HMA) and would not have livestock grazing during the spring growing season.

Under the No Action Alternative no range improvements would be constructed.

D. No Livestock Grazing Alternative

Under the no grazing alternative, the BLM would not renew the term grazing permit at this time. No livestock grazing would be authorized on BLM Managed Lands within the Buckeye Allotment.

Under the No Grazing Alternative no range improvements would be constructed.

III. AFFECTED ENVIRONMENT

A. SCOPING AND ISSUE IDENTIFICATION

On November 9, 2005 a scoping letter was sent to the interested public to identify those individuals and organizations interested in specific actions on specific Allotments under the jurisdiction of the CCFO. The purpose of this scoping letter was to gather information and determine who would be further interested in participating in actions pertinent to specific Allotments.

Standard operating procedures direct the BLM to supply the State Clearinghouse with a copy of this document for distribution amongst State Agencies. In addition, copies will be sent to the following entities:

Permittee of Record, Buckeye Allotment
Western Watersheds Project
U.S. Fish and Wildlife Service

Internal Scoping Also Identified the Following List of Groups and Individuals to be Notified:

Bureau of Indian Affairs
Mr. & Mrs. Michael Arett

B. PROPOSED ACTION**1. General Setting**

The Buckeye allotment is located southeast of Carson City, Nevada and encompasses approximately 124,920 acres on the west side of the Pine Nut Mountain Range (Map 1 on p.6). The allotment extends from the Carson River below Mound House in the north to Carter Station in the south. Elevations range from approximately 4,400 feet along the Carson River to over 9,400 feet on Mt. Siegel. Major plant communities are low sagebrush, Wyoming sagebrush, mountain sagebrush, bitterbrush, and pinyon-juiper woodlands.

2. Critical Elements of the Human Environment

The following critical elements are not present or would not be affected by the Proposed Action, or the Alternatives: Air Quality, Areas of Critical Environmental Concern, Environmental Justice, Prime or Unique Farmlands, Floodplains, Hazardous Materials, Migratory Birds, Native American Religious Concerns, Wilderness, Wild and Scenic Rivers.

For those critical elements that are present but were not brought forward for analysis, opting for the Proposed Action, or Alternatives would not affect these resources. Explanations as to why are as follows.

Cultural Resources

Required Section 106 reviews and a Class I literature search were conducted for the Buckeye Allotment, and no concerns were identified (Report # 2220). For further details regarding the assessment of grazing impacts upon cultural resources, refer to the Carson City Field Office Protocols for Rangeland Activities in Compliance with Section 106 of the National Historic Preservation Act, per Washington Office IM No. 99-021 and protocol agreements between the BLM and the Nevada and/or California State Historic Preservation Offices.

Requirements of Section 106 of the National Historic Preservation Act would be met prior to construction and/or implementation of any individual range improvement projects proposed for this allotment. All projects with the potential to affect cultural resources are required to have a Class III cultural resource inventory conducted over the project area. Determinations of cultural resource eligibility and project effect could be made through consultation with the Nevada State Historic Preservation Office. Any National Register eligible or listed properties within the project area would either be avoided or mitigated to a "No Adverse Effect" project determination pursuant to Section 106 of the National Historic Preservation Act.

The proposed action requires a cultural resource review and Native American Coordination.

Invasive/Nonnative Species

There are known locations of Canada Thistle and Knapweed within the Buckeye Allotment. During the course of the field work required to gather information for the Standard and Guideline Assessment, no new sightings of noxious weeds were observed.

Irrespective of livestock being or not being present within the allotment, the potential for the spread of noxious weeds would remain. Means by which this would occur are transport by wildlife, wind, and off road vehicles, as examples. However, under existing livestock and weed management, weed populations have not been expanding. This situation is not anticipated to change under any of the alternatives.

3. Resources Present but not Affected (other than critical elements)

Bureau specialists have further determined that the following resources, although present in the project area, are not affected by the Proposed Action, or Alternatives: Wild Horses and Lands. Opting for the Proposed Action, or Alternatives would not affect these resources. Explanations as to why are as follows.

Wild Horses

The north end of the Buckeye Allotment is within the Pine Nut Wild Horse Herd Management Area (HMA). The Appropriate Management Level (AML) for wild horses within the Buckeye portion of the HMA is 493 AUMs. The AUMs allocated for wild horses would not change under the proposed action or alternatives. Livestock grazing within the HMA would not occur during the spring growing season for vegetation under any of the alternatives. Wild horses would not be affected by the proposed changes in range improvements. The proposed boundary fence is located outside of the HMA.

Lands

The Proposed Action or Alternatives within this EA do not impact land acquisition, land disposal, or other land use authorizations on BLM Managed Lands.

4. Resources Present and Brought Forward for Analysis**Range**

Between 1976 and 1993 sheep grazing was authorized in the Buckeye Allotment. The highest BLM permitted use for BLM managed lands during this period was 5,027 AUMs. However, actual use records indicate wide fluctuations in annual use (Appendix 5). Between 1976 and 1981 no actual use reports were available but billed use indicates annual use varied between 347 and 5,027 AUMs. Actual use records are available after 1981 and annual sheep use varied from no use to 2,596 AUMs.

From 1994 through 2005, cattle were authorized in the allotment. The highest BLM permitted use for BLM managed land during this time was 2,200 AUMs. Actual use has varied between 16 and 1,666 AUMs annually. The grazing permit indicated livestock grazing could occur on a yearlong basis. However, the following management recommendations were included in the 1994 allotment evaluation. Cattle should be authorized in the southeast portion of the allotment only in conjunction with private lands of the central pasture so that a rotational strategy would result in livestock leaving the riparian zones by mid-July. The west side of the allotment should have cattle only in the wintertime; use in other seasons would require the western boundary to be fenced to prevent livestock from leaving the allotment. The north end of the allotment is designated as a wild horse herd management area (HMA) and should not have livestock grazing during the growing season. The objectives recommended in the 1994 evaluation were incorporated into the permit by reference and the livestock operator voluntarily followed the recommendations.

Within the Buckeye Allotment there are eight wells, three spring developments, and a partial boundary fence (Table 1), none of these range improvements have been maintained and are not operational at this time. The range improvements were originally designed for a sheep grazing operation and have not been used since the allotment has been utilized by cattle. The majority of the developments are located within the northern and central portions of the allotment. Since cattle grazing has been limited to the central and southern areas of the allotment the grazing operation has been able to function by primarily watering on private lands. For cattle to effectively utilize the northern end of the allotment a boundary fence would need to be constructed along the northwestern edge of the allotment to keep cattle out of the residential area and water sources would need to be provided.

Vegetation

Major plant communities within the Buckeye Allotment include low sagebrush, Wyoming sagebrush, mountain sagebrush, bitterbrush and pinyon-juniper woodlands. The sagebrush and bitterbrush sites are relatively stable but dominated by shrubs. There are few under story plants present below the shrub canopies or within the shrub interspaces. In addition pinyon and juniper are now present in many areas identified as shrub and perennial grass plant communities in the ecological site descriptions. The woodland communities also have very limited under-stories and many have closed canopies. A mosaic of plant communities is still present on the landscape. However, plant communities are becoming dominated by woody species (Appendix 3).

Considering the current condition of plant communities on the west side of the Pine Nut Range there is a good representation of life forms and numbers of species in the area. Within the plant communities there is a good diversity of plant height, size, and distribution. In addition, the number of wood stalks, seed stalks and seed production are adequate for stand maintenance. Although the abundance of

herbaceous vegetation is low, the standards for plant habitat have been met (Appendix 10).

Frequency data indicates that the percentages for both shrub and perennial grass species have been increasing through time (Appendix 7).

The photo plots indicate the trends within plant communities have been static to slightly upward (Appendix 8). Many of the plant communities sampled are closed stands of mature plants. The mature plants have maintained dominance, grown larger and produced seeds many times since the plots were established. Although plants have been consistently completing the reproductive cycle, mature plants have dominated the age class distribution. The number of seedlings that have survived has been low but adequate to maintain the stands sampled. At two of the photo plot locations old mature plants are dying and freeing up resources for new seedlings. This redistribution of the age classes is occurring on areas grazed as well as areas not grazed by livestock. In addition, the species of plants that are dying include both those palatable and unpalatable to cattle. Therefore, it is unlikely that these changes in the plant communities are attributable to recent cattle grazing.

Soils

The Allotment has a variety of soil types present. Soil descriptions for lands within the allotment can be found in Carson and Douglas County Soil Surveys, published in 1979 by the Soil Conservation Service (SCS). The SCS is now the Natural Resource Conservation Service (NRCS).

At five of the photo trend plots (Appendix 8) soils have been stable since the seventies when the plots were established. There has been no evidence of soil movement such as rills, pedestalling, or soil deposition. Stable soils are a management goal because the loss of soil can degrade a site's ability to provide an adequate seedbed and slow water infiltration rates. At the other two photo plots, there were rills present indicating soil instability at these sites. One photo plot is located in the northern portion of the allotment and the other plot is located in the central portion of the allotment. Soil at the central photo plot has been stabilizing. The rill is beginning to fill with soil and the edges of the rill are becoming rounded. Soil movement at the northern plot first occurred between 1983 and 1986. The soil instability in the northern plot appears to be limited to a small area.

Consistent with management goals, vegetative litter has been accumulating and a fair amount of litter has remained in place. Litter is the raw material for onsite nutrient cycling and also helps moderate the soil micro climate. The amount of litter present is also a factor in increasing a site's ability to resist soil erosion. The litter helps dissipate energy from raindrops and overland water flows. Observations made during rangeland health assessments also indicated soils within the allotment are relatively stable (Appendix 3). The standards for soils and the guidelines for livestock grazing are being met within this allotment (Appendix 10).

Wetlands/Riparian

There are several springs, meadows and creeks located within the Buckeye grazing allotment, however, many of these water sources are located on private property. Riparian areas located on BLM managed land were assessed for proper functioning condition from 1992-1994 and 2000-2003.

Where comparative data is available, the conditions of riparian areas have generally remained stable or improved. Based on the information from the riparian assessments, rangeland health standard #2 Riparian/Wetlands (Appendix 10) is being met for the majority of the BLM managed riparian areas and current livestock grazing practices conform to the Guidelines for Livestock Grazing Management. Approximately thirty-six acres of meadow and five miles of creek are functioning properly.

Five miles of stream located in the Buckeye, Eldorado and Mill Canyon drainages are still rated functional at risk. Poor watershed condition was the primary factor identified for at risk riparian areas on lands managed by the BLM. The amount of water slowed and stored by the soil and vegetation is a key element in the function of both the watershed and associated riparian systems. Many of the upland plant communities surrounding riparian areas are dominated by woody tree and shrub species. In the stands of woody vegetation, the density of herbaceous grass and forb species is low. Upland watershed conditions have contributed to channel instability and reduced source water flows. Livestock grazing was a contributing risk factor along one half mile of stream below Buena Suerte Spring. Reference Appendix 4 for additional information.

Water Quality

No class or designated waters are located within the grazing allotment. Therefore, only the descriptive water quality standards pertaining to all surface waters in Nevada (NAC 445A.121) apply to water resources on the allotment.

Water quality was not tested, but during the standard and guidelines (Appendix 10) evaluation and riparian assessments (Appendix 4) it appeared that water quality was good. There were no signs of water quality problems such as discoloration or odors.

Recreation

The Buckeye Allotment is a popular area for recreational activities. Recreational use has been increasing due to the rapid expansion of the surrounding residential communities. Recreational activities include but are not limited to: 1) off highway vehicle (OHV) use such as motorcycles, quads and four-wheel drive vehicles; 2) horseback riding; 3) hunting; 4) walking, hiking and backpacking; 5) camping; 6) mountain biking; 7) rock collecting; and 8) pine nut harvesting. The most heavily utilized areas are located near the urban interface areas in and around Carson City, Minden and Gardnerville.

Socio-economics

The closest residential communities to the Buckeye Allotment are located in the Carson Valley. Over time, the area has progressed from a rural agricultural area to one of the fastest growing urban areas in the country. The area which was characterized by lifestyles associated with agrarian-based industries is giving way to lifestyles associated with urban growth and economic diversification. As the human population has been increasing, housing and commercial developments have been displacing expanses of land once used for agriculture.

Visual Resources

The area within the Buckeye Allotment has been placed in two visual resource management (VRM) classes. The crest of the Pine Nut Range is to be managed to achieve VRM class III standards and the Pine Nut Foothills are to be managed to achieve VRM class IV standards.

Class III management objectives are to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features on the characteristic landscape.

Class IV management objectives provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Wildlife Habitat

The vegetative communities that provide wildlife habitat in the allotment are generally dominated by low- to moderate-growing shrubs interspersed with some native bunchgrasses and forbs. Shrubs are primarily big, low, and black sagebrush; native perennial grasses include needle grasses, bottlebrush squirreltail, and Indian ricegrass. Portions of the allotment have burned with mixed severity within the last 35 to 100 years, with pinyon pine invasions of nearly all but the most recent and severely burned areas.

From the standpoint of wildlife use of these habitats, the vegetation types can structurally and functionally be combined into four major habitats: sagebrush (includes pure and mixed stands of all varieties of big, low and black); salt desert scrub (includes pure and mixed stands of shadscale, Bailey's greasewood, spiny hopsage, and four-winged saltbush); pinyon-juniper (includes pure and mixed stands of pinyon, juniper, lodgepole and whitebark pine); and riparian (includes meadows, montane riparian and small wetlands).

The vertebrate wildlife species using these four major habitat types are presented in Table 3.

Threatened, Endangered and BLM Sensitive Species

The Threatened, Endangered, and Special Status Animal Species Potentially Occurring in the Buckeye Allotment and adjacent areas are listed in detail in Table 4.

Sage grouse (*Centrocercus urophasianus*) are identified as a BLM sensitive species. Approximately 3,400 acres of BLM managed land along the southeastern boundary of the Buckeye grazing allotment at an average elevation of 8,000 feet has been identified as sage grouse winter and summer habitat. The Consolidated Resource Management Plan (CRMP) for the Carson City Field Office indicates BLM will adhere to current habitat modification guidelines prepared by the Western Sage Grouse Committee of the Western Association of Fish and Wildlife Agencies (WAFWA). The Management Guidelines for the Sage Grouse and Sagebrush Ecosystems in Nevada dated 2001 are a Nevada BLM habitat-specific, adaptation of the updated draft WAFWA guidelines. These documents identify optimum sage grouse nesting habitat as consisting of sagebrush plants 16-32 inches tall with a canopy cover of 15-25%, and a herbaceous understory of at least 15% grass canopy cover and 10% forb canopy cover that is at least 7 inches tall. Characteristics of optimum brood-rearing habitats (used April-August) are sagebrush stands that are 16-32 inches tall with a canopy cover of 10-25% and a herbaceous understory of 15% grass canopy and 10% forb canopy. Optimum winter habitats (used October-March) consist of sagebrush that is exposed above the snow at least 10-12 inches and a canopy cover of 10-30%. An ocular estimate of habitat quality was completed at two rangeland health sample sites in 2002. Sage grouse habitat at sample site #11 was described as mountain big sagebrush surrounded by low sagebrush and was identified as suitable habitat. There were high numbers of insects and eleven sage grouse flushed at the site. Average sagebrush height was 15-30 inches tall and canopy was greater than 25%, the herbaceous understory consisted of grass heights greater than 7 inches and canopy cover greater than 15%, forb canopy cover was greater than 10%. Habitat quality at sample site #11 met most of the requirements of nesting and brood rearing habitat with the exception of the sagebrush canopy being too dense. Sample site #14 was also a mountain big sagebrush site but habitat quality for sage grouse was identified as marginal. The canopy cover for sagebrush, grasses and forbs was less than needed for optimal nesting, brood rearing and winter habitat. Livestock use at both sample locations was light.

The Buckeye allotment has not been surveyed for any listed threatened, endangered or BLM sensitive status plant species by BLM staff. It is unknown to BLM staff if the allotment has been surveyed by any other entity. Therefore due to the lack of any survey data, the data issued by the Nevada Natural Heritage Program (NNHP,

2005) was used to identify known locations of sensitive plants within the allotment. The NNHP information is made available to the Carson City Field Office with the following caveat: “The Nevada Natural Heritage Program provides information on the known and previously reported locations and status of threatened, endangered, candidate, sensitive, and other at-risk species throughout the state, to meet the legitimate needs of land-use-planning, development, conservation, and research activities. These data are constantly updated and added to, and do not constitute and cannot replace on-site surveys, conducted by qualified biologists at appropriate times of year, to detect all species of concern actually present in an area.” (emphasis is NNHP, September, 2005, <http://heritage.nv.gov/reqintro.htm>)

The NNHP database identifies two BLM sensitive and one U.S. Fish and Wildlife Service candidate species within the Buckeye allotment: *Astragalus oophorus* var. *lavinii*, *Ivesia pityocharis* and *Ivesia webberi*. These species occur within the central and southern portions of the allotment.

Astragalus oophorus var. *lavinii* is a species of concern for the U. S. Fish and Wildlife Service and is also a BLM sensitive species. Two sites are recorded for this species. The first site, located at T14N, R21E, S16 at an elevation of 5905 feet, consists of three occurrences and was first reported in 1982. This site is located in the central portion of the allotment. It was last visited on May 31, 1982. The second site is found at T12N, R21E, S15 at an elevation of 5700 feet and consists of six occurrences. The second site is located in the southern end of the allotment. The first and last reported visit was on June 5, 1982. No other recorded visits to either of these two sites have occurred. The habitat for this species is open, dry, relatively barren gravelly clay slopes, knolls, badlands, or outcrops, derived from volcanic ash or carbonate, in openings in the pinyon-juniper or sagebrush zones. The Carson City Field Office has no additional data or knowledge concerning the present condition of this species.

Ivesia webberi is listed with the U. S. Fish and Wildlife Service as a candidate species and is also listed as critically endangered by the State of Nevada and is fully protected as specified in the Nevada Revised Statutes N.R.S. 527.260-.300. One site having one occurrence is located at T11N, R21E, S15 at an elevation of 5900 feet. This species is located on the southwestern edge of the allotment. Section 15 straddles highway 395 and the portions of the section within the allotment are managed by BLM and BIA. This site was first reported on May 6, 1980 and was last visited on June 9, 2001. No other recorded visit to this site has occurred. The habitat for *Ivesia webberi* consists of shallow shrink swell clay soils with a gravelly surface layer and is associated with low sagebrush sites. The Carson City Field Office has no other data or knowledge concerning the present condition of this species.

Ivesia pityocharis is a species of concern for the U. S. Fish and Wildlife Service and is also a BLM sensitive species. One site having one occurrence is located at T12N,

R22E, S9 at an elevation of 6990 feet. This site is located on the southeastern edge of the allotment. The portions of section 9 located within the allotment are private lands managed by the BIA and controlled by the livestock operator. The first recorded visit was on September 9, 1988 and was last visited on July 9, 1993. No other recorded visit to this site has occurred. The habitat for *Ivesia pityocharis* consists of periodically wet soils, meadow margins with shallow water tables, springs, moist drainages or ephemeral lakes. The Carson City Field Office has no other data or knowledge concerning the present condition of this species.

It is highly likely that there are additional locations of these three species as conditions exist for suitable habitat to be found elsewhere in the allotment, however, without any survey data it is not possible to speculate any further.

The Threatened, Endangered, and Special Status Plant Species Potentially Occurring in the Buckeye Allotment and adjacent areas are also listed in detail in Table 4.

Kearney buckwheat (*Eriogonum nummulare*) is currently known by BLM staff to occupy sandy soils in the Buckeye Allotment in an area between Hot Springs Mountain and Sand Canyon. The Kearney buckwheat is a perennial semi-shrub that flowers from late July until the first hard frost in October. Seed cast follows the first hard frost in October and continues throughout November. Kearney buckwheat is uncommon in the area but is currently not considered a sensitive species. It is however, known to be the sole larval host plant for several subspecies of the Pallid blue butterfly (*Euphilotes pallescens*). Four of these subspecies: *Euphilotes pallescens arenamontana*, *Euphilotes pallescens calneva*, *Euphilotes pallescens mattonii*, and *Euphilotes pallescens ricei* are BLM sensitive species and are found in western Nevada. The Pallid blue butterfly larvae are found on the Kearney buckwheat in late summer. Late-season broods over-winter as pupae under the sand and debris at the base of the Kearney buckwheat and emerge as adults in late summer. BLM and U. S. Fish and Wildlife (USFWS) staff have found blue butterfly larvae on the Kearney buckwheat in the Hot Springs Mountain area and collected specimens which were then sent to experts at the University of Nevada, Reno for identification. University biologists have identified the collected specimens to be a subspecies of the Pallid blue butterfly; however identification of the subspecies is pending.

Known areas of Kearney buckwheat were mapped in September 2005 by BLM staff and are shown in Map 3 (p.21). A field visit to a Kearney buckwheat occurrence just east of Hot Springs Mountain was made in December, 2005. The habitat is in places highly disturbed by OHVs, with one area in particular denuded of all vegetation. About 35 percent of all Kearney buckwheat plants in this area have been severely browsed to the extent that only 5 percent of the above ground biomass remains. Some plants were entirely consumed with only leaf litter remaining. At this time it is unknown what browsers are utilizing the Kearney

buckwheat and what the season of use is, but these preliminary observations confirm that the plant is palatable and requires further study. The stand of Kearney buckwheat was even-aged with no evidence of seedlings or juveniles present. It is unknown why the stand is even-aged but the fact that it is raises concerns about the long term viability of the stand and requires further investigation.

Based on these known Kearney buckwheat locations a preliminary analysis was done using NRCS soils data to determine potential suitable habitat where Kearney buckwheat may exist. The analysis indicates that the northwestern portion of the Buckeye Allotment, roughly 10,000 acres have the same sandy soils as do the areas with known Kearney buckwheat occurrences. These potential areas shown in Map 3 (p.21) would be targeted for surveys in 2006 and beyond.

Paleontology

Several fossil sites have been identified within the Buckeye Allotment area. Fossil types may include: vertebrate, invertebrate and flora or plant sites. Vertebrate sites located within a specialized sediment type in the Buckeye Allotment were previously identified. Congregation of livestock in certain environments can cause soil erosion which may expose fossil remains which may result in the loss of information. To minimize this loss, it is suggested that practices which encourage livestock congregation such as water haul sites not be authorized within known paleontological areas. During the implementation of any ground impacting project paleontological resources would be taken into consideration and avoided during implementation.

C. Change in Kind of Livestock, No Action, and No Livestock Grazing Alternatives

The description of the affected environment for these alternatives would be the same as that for the Proposed Action.

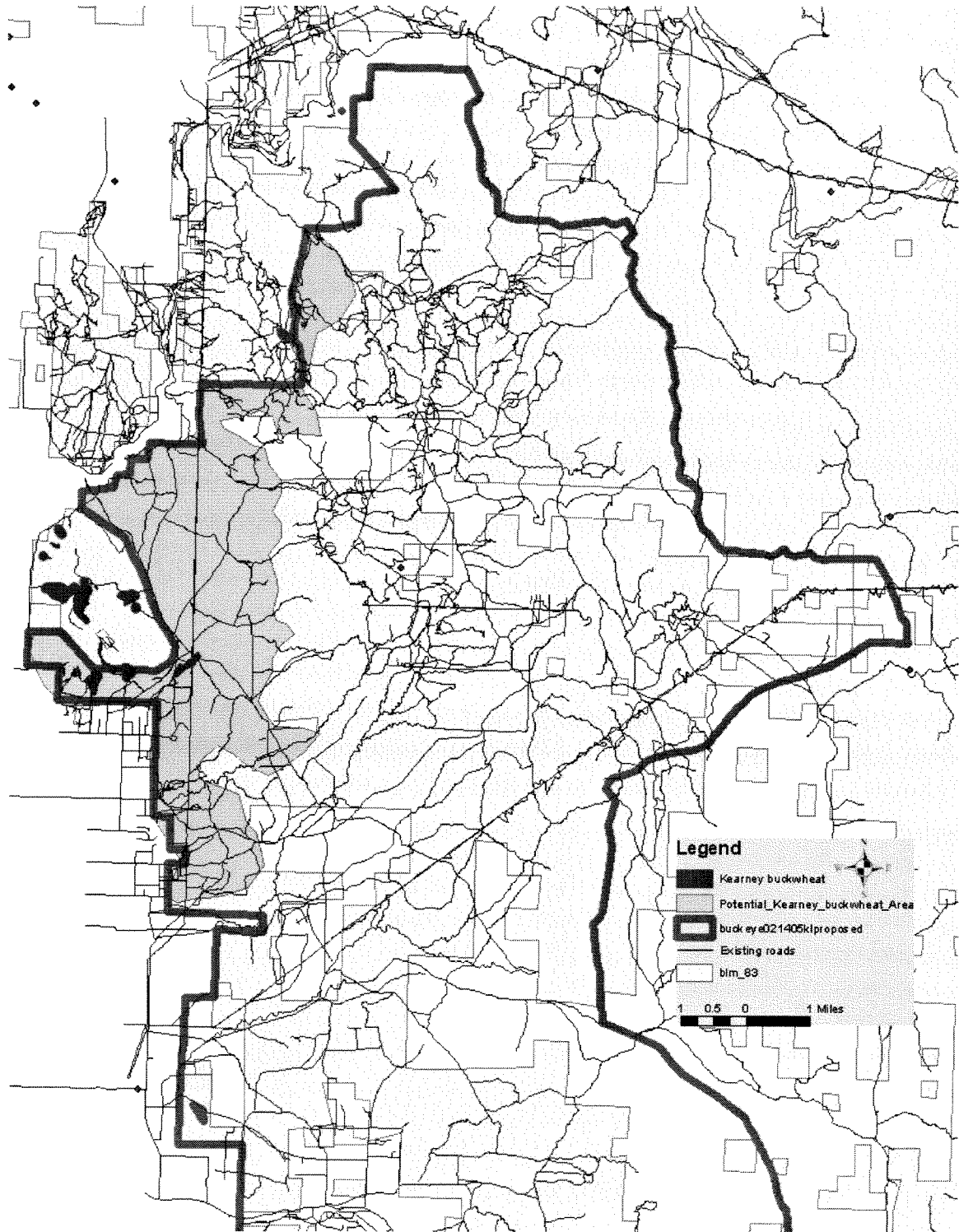
II. ENVIRONMENTAL CONSEQUENCES

A. Proposed Action Cattle Grazing with Modified Management - Environmental Impacts

Range

Under the proposed action alternative 375 cattle would be authorized to graze from April 1st until September 15th for a total of 2,072 AUMs. A portion of the forage harvested is from BLM managed land (1,471 AUMs) and a portion is from private lands controlled by the livestock operator (601 AUMs). Because land ownership is intermingled and unfenced the total number of livestock on both BLM managed land and private lands controlled by the operator are tracked on the BLM grazing permit. This tracking of livestock ensures that BLM has the correct livestock count for compliance inspections. Under the proposed action alternative the number of permitted cattle would increase by 117 head, but the season of use would decrease by six months. The grazing operators

Map 2. Kearney Buckwheat



permit would be reduced by a total of 1,026 AUMs. Utilization would be reduced by 730 AUMs on BLM managed lands and 296 AUMs on private land controlled by the livestock operator.

The proposed action approximates the actual grazing use that has occurred between 1994 and 2004. During eight of the eleven years the majority of the livestock use has occurred during the proposed season of use (April-September). Total Actual Use in the allotment has varied between 16 and 2,347 AUMs annually (Appendix 5). The bulk of the cattle use has occurred in the central and southern portions of the allotment. If the fence along the northwestern edge of the allotment proposed in this alternative is constructed, cattle could be kept out of the private residential areas near Johnson Lane and cattle would resume use in the northern portion of the allotment.

The construction of approximately twelve miles of fence would keep cattle out of the residential area on the north western edge of the allotment and sensitive plant populations. The livestock operator would benefit from improved livestock control and management. The ability to more effectively manage livestock would also benefit vegetative resources within the allotment. The redistribution of livestock throughout the allotment is expected to result in lower overall utilization levels.

The authorization of five water haul locations would benefit the livestock operator by facilitating livestock distribution in the northern portion of the allotment. However, hauling water to these locations would increase operating costs for the permittee. Improving livestock management would also benefit the vegetative resources within the allotment. The redistribution of livestock is expected to result in lower overall utilization levels.

Vegetation

Because the proposed action is similar to actual grazing use that has occurred within the allotment and the standards and guidelines for rangeland health were met under those grazing conditions the affects to vegetation from livestock grazing are expected to be minimal. Under the proposed action cattle could remove up to 2,072 AUMs (1,471 BLM) of forage from April 1st until September 15th in the Buckeye Allotment. The kind of livestock, the utilization levels, and proposed season of use are similar to actual grazing use that has occurred since 1994 (Appendix 5 & 6). During 1997 cattle use was limited to the central and southern portions of the allotment. Permitted use was 2,347 AUMs. There were also AUMs harvested by unauthorized livestock. This resulted in moderate use on key plant species. During 2002 cattle use occurred in the southern portion of the allotment. Actual use was 791 AUMs and utilization of key plant species was light. If the fence proposed in this alternative is constructed, cattle would utilize the northern portion of the allotment, but use in the wild horse HMA would be limited. Increasing the grazed area would result in light use levels throughout the allotment. If the fence is not constructed, moderate use levels would occur in the central and southern portions of the allotment. Definitions of light and moderate use levels are included in Appendix 6.

Cattle are grazers and their dietary preference is grass as opposed to shrubs that are preferred by browsers. However, during the winter and when other forage is not available cattle will also utilize shrubs. Grazing results in temporary reductions of plant height and cover by removing above ground plant biomass. The removal of this biomass can have no effect, a negative effect or a beneficial effect on plants depending upon the timing, intensity and duration of the removal process. During the proposed season of use with the deferred grazing system and proposed utilization levels, cattle grazing would have no affect on the health of key plant species. Monitoring data indicates the plant communities within the allotment are diverse, vigorous, and show evidence of recruitment (Appendix 3 & 7-10). Vegetative trend is static to upward throughout the allotment in both areas grazed and not grazed by cattle (Appendix 7 & 8). There are several types of grazing systems which could be implemented to ensure the health of perennial plant species, but the proposed system has been tried and has proven to be successful on this allotment. The standards for rangeland health and guidelines for livestock grazing management are being met for this allotment (Appendix 10).

The construction of twelve miles of fence would require the removal of sixteen acres of sagebrush vegetation. The area along the fence line would need to be mowed to allow the construction of the fence. This would result in a temporary reduction in shrub cover along the fence. It is also anticipated that the construction of the fence would indirectly benefit vegetative resources within the allotment by allowing the redistribution of livestock and lowering overall utilization levels.

Livestock use of the proposed water haul locations would result in the disturbance of approximately two acres of vegetation at each of the five sites. The size and extent of the disturbance is influenced by the number of livestock, the frequency of use by livestock, the number of watering locations, and the distance between watering locations. Cattle tend to congregate around water sources and trample vegetation near the water source. Close to the water source perennial vegetation is typically trampled and replaced by annual vegetation or bare ground within a fifty foot radius of the water tank. Moving outward from the water source there is typically a zone where livestock have heavily utilized the vegetation and the vegetation use levels decrease as the distance from water increases. The area of influence around the water haul sites is anticipated to be approximately two acres in size. Beyond the area where grazing utilization is heavily influenced by the water source there are typically trail systems leading into water and utilization of vegetation by livestock is dispersed. Livestock typically forage within two miles of water but these distances are influenced by the type of livestock, terrain characteristics, forage type and availability as well as weather conditions. It is also anticipated that the proposed water haul locations would indirectly benefit vegetative resources within the allotment by allowing the redistribution of livestock and lowering overall utilization levels.

Soils

The proposed grazing system is similar to the actual grazing use that has occurred since 1994 (Appendix 5 & 6). Observations made at photo plot locations and during rangeland health assessments indicated soils within the allotment are relatively stable (Appendix 3). The standards for soils and the guidelines for livestock grazing are being met under the current grazing system (Appendix 10). There are no changes to soils anticipated under the proposed livestock grazing system.

Depending upon the time of year and the type of soil, soil compaction can occur in areas where livestock congregate such as around water sources and along fence lines. Under the proposed alternative, soil compaction may occur in limited areas due to concentrations of cattle near range improvements. Soil compaction is expected to increase slightly under this alternative due to the addition of the proposed fence and water haul locations.

Wetlands/Riparian

Under the proposed action the condition of riparian areas are expected to remain stable or improve. The proposed grazing system is similar to the actual grazing use that has occurred and monitoring has indicated that the standards for riparian/wetland systems are being met (Appendix 4 & 10).

There would be no negative impacts to riparian/wetland systems from fence construction or water hauling. If the proposed fence is constructed and water haul sites are used, utilization levels on the riparian vegetation at natural water sources would decrease. The condition of riparian areas may improve slightly with reduced livestock utilization.

Water Quality

Under the Proposed Action, water quality would be maintained or marginally improved from current conditions. Changing from potential year-round grazing to seasonal use, continuing the deferred grazing system and designating water haul sites would relieve livestock pressure on the BLM Managed Land water sources and enhance vegetative cover. These changes would benefit water quality.

Recreation

The presence or absence of livestock would not influence recreational uses in this area.

The construction of the proposed new fence would improve recreational uses on the north end of the allotment. The construction of the new fence would assist recreational users by marking the public/private land boundary. Marking the property boundary is the first step towards developing a recreation plan for the area which would define access points, trail heads, and parking areas. The development of a recreational plan is beyond the scope of this EA but defining the land boundary with the proposed fence would assist with the management of recreational uses in the area.

The designation and use of water haul locations would not affect recreation.

Socio-economics

Under the proposed alternative the number of permitted livestock would be reduced by thirty three percent. Reducing the BLM Managed Land grazing permit reduces the income potential of the livestock operation and encourages the sale of associated private agricultural lands. If private agricultural lands were sold the land would most likely be utilized for housing or commercial developments, due to the population growth in this area and the changing economy.

The proposed fence construction and designation of water haul locations would not affect the overall socio-economics of the area. However, hauling water to these locations would increase operating costs for the permittee.

Visual Resources

The proposed livestock grazing would not significantly impact visual resources. The criteria for both class III and class IV management areas would be met.

The proposed range improvements in the class IV management area would meet visual resource management goals. The visual impacts from the construction of the fence and the placement of temporary water troughs would be low. The range improvements would attract attention but would not dominate the view.

Wildlife Habitat

Decreasing the duration of the grazing season, even with greater numbers of cattle during a shorter season, would tend to improve or maintain wildlife habitats in general because there would be an overall lessening of the total forage removed. Direct competition for forage between livestock and wildlife species of similar dietary habits would be eliminated during the fall and winter periods, times of serious to severe stress on the wildlife species.

Some localized disturbance and temporary habitat degradation for ground-nesting species relying on herbaceous material for nest concealment could occur throughout the area being grazed at any given time. The grazing system proposed, however, insures rest the subsequent growing season, which would trend the overall herbaceous community to a more diverse and vigorous state; thus to an overall improvement in habitat condition.

By removing grazing after 9/15, significant browsing pressure by cattle on bitterbrush and other palatable shrub species would be reduced. However, in the context of the not fully understood pinyon pine expansion in the Pine Nuts, any browse habitat improvements may be lost to pinyon pine canopy closures and loss of the browse species.

The fence construction would facilitate the implementation of the Proposed Action, and would indirectly lead to the impacts discussed above. Bureau fencing standards are designed to allow wildlife movement no direct impacts due to fencing are anticipated.

The immediate vicinity of the water haul site (approximately a 50 foot radius) would likely be totally denuded of vegetation due to the concentration of livestock there. The exact size of the denuded area would depend upon the number of other water sources available, the cattle being distributed to these other sites, and the frequency with which that water haul site is used. In general, water haul sites become areas where the vegetation receives more use from livestock. The quality of habitat within a two acre radius of each trough is expected to be temporarily reduced due to the removal of vegetation which results in less cover for wildlife species.

Threatened, Endangered and BLM Sensitive Species

The Proposed Action would not affect any species currently listed or candidate for listing under the Endangered Species Act. Impacts upon BLM Sensitive Species vary from none for the arboreal and aerial species, limited positive or negative for ground and shrub habitat users, to limited for the plant species. Under the proposed action the impacts to sage grouse habitat from livestock grazing are limited. Livestock use levels within habitat areas are light to no use. Thus, plant height and cover are not being modified enough by grazing to influence habitat quality for sage grouse. With or without livestock grazing and in the absence of other types of disturbance the trend toward plant communities dominated by woody species will continue. Late seral woody plant communities do not provide optimal sage grouse habitat. The habitat for *Astragalus oophorus var. lavinii* is open dry barren areas. Livestock typically do not congregate or forage in these types of areas therefore livestock is not listed as risk to this species. In addition *Astragalus* species contain alkaloid substances that are poisonous to livestock and animals typically will not eat these plants. Livestock grazing is not expected to affect the *Astragalus oophorus var. lavinii*. The habitat for *Ivesia webberi* consists of shallow shrink swell clay soils with a gravelly surface layer and is associated with low sagebrush sites. Trampling from livestock grazing is a potential risk factor for this species. Within the Buckeye Grazing Allotment this species is located within a mile of Highway 395. Due to the close proximity to the Highway and the edge of the allotment boundary livestock use has never been encouraged in this area of the allotment. No livestock impacts to *Ivesia webberi* are anticipated due to livestock. However, because the plant population has not been monitored since 2001, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts and construct a fence around the population if necessary. The habitat for *Ivesia ptyocharis* consists of periodically wet soils, meadow margins with shallow water tables, springs, moist drainages or ephemeral lakes. Because livestock tend to congregate around water sources livestock trampling is listed as a risk factor for *Ivesia ptyocharis*. The *Ivesia* population is located along the south eastern boundary of the Buckeye Allotment. The portion of section 9 within the Buckeye Allotment is all privately owned and this area has not been historically grazed by cattle due to its location on top of the ridge. The other portion of section 9 and section 10 are both located in the Pine Nut Allotment and consist of both private and BLM managed land. No livestock impacts to *Ivesia ptyocharis* are anticipated due to livestock in either allotment. Cattle have not historically used the area within the Buckeye Allotment and the wet meadows within the Pine Nut Allotment are fenced and do not receive sheep grazing therefore impacts to this species on BLM

managed land due to livestock grazing are unlikely. However, because the plant population has not been monitored since 1993, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts and construct additional fencing around the population if necessary. Lack of location, population status, and current habitat condition precludes analysis beyond generalities; but in general, improving the ecological health of the allotment (*i.e.* the ultimate aim of the Proposed Action) would improve habitat condition for sensitive species.

Indirect impacts to sensitive blue butterfly species due to livestock disturbance of Kearney buckwheat would be minimal under the proposed action. Under the proposed action the east side of Hot Springs Mountain would be fenced therefore livestock would be excluded from the populations of buckwheat on the mountain. The largest known populations of Kearney Buckwheat occur outside of the grazing allotment and would be protected from livestock grazing. Livestock would be permitted to trail along the south side of Hot Springs Mountain to access private property which abuts the allotment. Livestock trailing could result in the browsing and trampling of some Kearney Buckwheat plants but the impacts would be short term. There is only one known population of buckwheat within the allotment that would be inside of the proposed fence (Map 2 p. 9). Therefore indirect impacts to the blue butterfly due to livestock disturbance of the buckwheat are anticipated to be minimal because livestock would only have access to one buckwheat population during the grazing season. To minimize potential impacts from grazing and trampling, water haul sites which encourage livestock congregation would not be placed near known buckwheat populations. If it is determined at a later date that greater protection is necessary for the Kearney buckwheat enclosure fences would be constructed around buckwheat populations. However, enclosure fences may not be utilized to block the livestock trailing route identified on the south side of Hot Springs Mountain.

No impacts are anticipated to threatened, endangered or BLM sensitive species due to fence construction or the use of water haul sites. Both the location of fence lines and water haul areas would be inspected prior to construction.

Paleontology

Congregation of livestock in certain environments can cause soil erosion which may expose fossil remains which may result in the loss of information. To eliminate soil loss due to livestock, it is suggested that practices which encourage livestock congregation such as water haul sites not be authorized within known paleontological areas. During the implementation of any ground impacting project, paleontological resources would be taken into consideration and avoided during implementation

B. Change in Kind of Livestock Alternative - Issue a Ten Year Grazing Permit for Sheep Grazing with Modified Management - Environmental Impact

Range

Under the change in kind of livestock alternative, 2,983 sheep would be authorized to graze from April 1st until September 30th for a total of 3,590 AUMs annually. The BLM Managed Land would provide 71% of the available forage (2,549 AUMs). Under this alternative the livestock grazing permit would authorize an additional 494 AUMs total (350 AUMs from BLM) and the grazing season would be shortened by six months. The current livestock operator would be impacted by a change in the kind of livestock. The current permittee is in the cattle business as opposed to the sheep business. The operation and markets for these businesses are drastically different.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to the livestock operation from this action. Herders typically stay with sheep bands. Therefore, the sheep band location is controlled by the herder rather than fencing.

The authorization for twenty water haul locations would facilitate livestock distribution within the allotment. Historically poor sheep distribution within the allotment and infrequent herd movement have resulted in the over utilization of vegetation in localized areas. The water haul locations would facilitate grazing management which would reduce overall utilization levels. However, hauling water would also increase the permittee's operating costs.

Vegetation

Under the change in kind of livestock alternative, sheep would be authorized to graze from April 1st until September 30th for a total of 3,590 AUMs annually. The BLM Managed Land would provide 71% of the available forage (2,549 AUMs). The kind of livestock, the utilization levels, and proposed season of use are similar to actual grazing use that occurred between 1981 and 1986 (Appendix 5 & 6). During 1984 actual sheep use was 3,091 AUMs and utilization of key plant species was generally light. During 1986 actual sheep use was 2,629 AUMs and utilization in the central and southern portions of the allotment was generally slight. Based on past use, utilization levels are expected to be light to moderate (wild horses & sheep) in the northern half of the allotment and light in the southern half of the allotment. To achieve these utilization levels sheep bands would need to be moved frequently and widely distributed. Definitions of use levels are included in Appendix 6.

Under this alternative, the type of vegetation being utilized and the area being utilized would change due to differences between cattle and sheep. Sheep are expected to use forbs and grasses in the spring and shrubs in the summer as opposed to cattle that primarily use grasses. Utilization is expected to shift from grass species to shrub species

during the summer due to differences in livestock dietary preferences. Cattle are primarily grazers favoring grass species whereas sheep are browsers and tend to select shrub species. The greater abundance of shrub dominated plant communities as opposed to grass dominated areas within the allotment and the ability of sheep to graze vegetation on steep slopes would increase the area utilized by livestock within the allotment. Based on the differences between livestock types and historical sheep utilization records it is expected that, utilization of shrub species would increase whereas overall utilization levels would decrease because a larger area would be grazed. To successfully lower overall utilization levels within the allotment livestock would need to be moved frequently and widely distributed.

Decreasing overall livestock utilization levels, shifting livestock use to shrubs, and a shortening the grazing season would benefit perennial plant communities. By decreasing the amount of above ground biomass harvested from individual plants by livestock, a greater leaf surface area would be exposed to sunlight and the potential for plants to harvest water and nutrients and store energy in the roots would increase. Changing the type of livestock to sheep would primarily reduce livestock use on grass species. The livestock deferred grazing strategy for this allotment would ensure that the same area is not grazed at the same time each year. This allows for seasonal rest in specific areas every other year during the spring when the root reserves for perennial plants are low and during the late summer to allow re-growth in riparian areas before winter.

By varying the timing when specific areas within the allotment are grazed, lowering the potential intensity of livestock grazing, and shortening the duration of livestock grazing the condition of plant communities is expected to continue improving under the change in kind of livestock alternative.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. Therefore, there would be no impacts to vegetation from this action.

The proposed water haul locations would result in the disturbance of vegetation around twenty water haul sites. Sheep tend to congregate around water sources and the result is the trampling of vegetation near the water source.

Livestock use of the proposed water haul locations would result in the disturbance of approximately fifteen acres of vegetation at each of the twenty sites. The size and extent of the disturbance is influenced by the number of livestock, the frequency of use by livestock, the number of watering locations, and the distance between watering locations. Sheep tend to congregate around water sources and trample vegetation near the water source. Close to the water source perennial vegetation is typically trampled and replaced by annual vegetation or bare ground within a one hundred foot radius of the water tank. Moving outward from the water source there is typically a zone where livestock have heavily utilized the vegetation and the vegetation use levels decrease as the distance from water increases. The area of influence around the water haul sites is anticipated to be

approximately fifteen acres in size. Beyond the area where grazing utilization is heavily influenced by the water source there are typically trail systems leading into water and utilization of vegetation by livestock is dispersed. Livestock typically forage within two miles of water but these distances are influenced by the type of livestock, terrain characteristics, forage type and availability as well as weather conditions. It is also anticipated that the proposed water haul locations would indirectly benefit vegetative resources within the allotment by allowing the redistribution of livestock and lowering overall utilization levels.

Soils

The change in kind of livestock alternative is similar to the actual grazing use that occurred between 1981 and 1986 (Appendix 5 & 6). There are no changes to soils anticipated under the change in kind of livestock grazing system.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. Therefore, there would be no impacts to soil from fence construction.

Depending upon the time of year and the type of soil, soil compaction can occur in areas where livestock congregate such as around water sources. Under the change in kind of livestock alternative soil compaction may increase due to proposed increase in the number of water haul locations.

Wetlands/Riparian

Under the change in kind of livestock alternative the condition of riparian areas is expected to remain stable or improve. Herders typically stay with sheep bands. The sheep band location is controlled by the herder thus vegetation utilization can be controlled to ensure that over utilization of riparian vegetation does not occur.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to riparian/wetlands from fence construction.

Approval of twenty water haul locations would benefit riparian wetlands by providing livestock water away from natural water sources. By providing alternate water sources livestock use on riparian plant species would be further reduced.

Water Quality

Under the change in kind of livestock alternative, water quality would be maintained or marginally improved from current conditions. Implementing the deferred grazing system and designating water haul sites would relieve livestock pressure on the BLM Managed Land water sources and enhance vegetative cover. These changes would benefit water quality.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to water quality from fence construction.

Approval of twenty water haul locations would benefit water quality by providing livestock water away from natural water sources, such as springs and creeks. By providing alternate water sources livestock use near natural water sources would be reduced.

Recreation

The presence or absence of livestock would not influence recreational uses in this area.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. Recreational uses on north end of the allotment would not benefit from having the boundary between public and private land identified by a fence.

Approval of twenty water haul locations would not impact recreation.

Socio-economics

Under the change in kind of livestock alternative the number of permitted livestock use would increase by 350 AUMs from the no action alternative or 1,471 AUMs from the proposed action. Increasing the BLM grazing permit increases the general income potential of the livestock operation and discourages the sale of associated private agricultural lands. However, there would be a direct negative impact to the current permit holder who is in the cattle business. The operation and markets for the cattle and sheep businesses are drastically different.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to socio-economics from fence construction.

Use of twenty water haul locations would increase operating costs of the livestock operation.

Visual Resources

The proposed change in kind of livestock would not significantly impact visual resources. The criteria for both class III and class IV management areas would be met.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to visual resources from fence construction.

The proposed water haul locations would not significantly impact the visual resources. The criteria for both class III and class IV management areas would be met. The range improvements would attract attention but would not dominate the view.

Wildlife Habitat

The conversion from cattle to sheep, along with an increase in authorized use of 1,471 AUM's over that of the Proposed Action, would have negative impacts on wildlife. Changing the type of livestock to sheep would increase livestock utilization of the forb component of the herbaceous under story for the first half of the grazing season. This is premised on sheep dietary preferences for high protein, succulent plants (forbs and growing grasses) available in April through June, and then a gradual shift to browse species as the protein content of the shrubs exceeds that of the curing herbaceous under story. Because the herbaceous under story is limited in many of the plant communities within the allotment increasing livestock utilization on the herbaceous under story would increase competition between livestock and wildlife for these limited vegetative resources.

Exactly how increased use of the herbaceous under story would translate into impacts on the various wildlife species present is unclear. However, it is expected, when compared to the impacts associated with all other alternatives, the conversion from cattle to sheep would result in greater negative impacts to wildlife. These impacts would be focused predominantly on species utilizing the herbaceous under story and lower shrub canopy for some or all of the life history needs.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to wildlife from fence construction.

The immediate vicinity of the water haul site (approximately a 100 foot radius) would likely be totally denuded of vegetation due to the concentration of livestock there. The exact size of the denuded area would depend upon the number of other water sources available, the sheep being distributed to these other sites, and the frequency with which that water haul site is used. In general, water haul sites become areas where the vegetation receives more use from livestock. The quality of habitat within a fifteen acre radius of each trough is expected to be temporarily reduced due to the removal of vegetation which results in less cover for wildlife species.

Threatened, Endangered and BLM Sensitive Species

The change in kind of livestock alternative would not affect any species currently listed or candidate for listing under the Endangered Species Act. Impacts upon BLM Sensitive Species vary from none for the arboreal and aerial species, limited to extensive serious negative impacts for ground and shrub habitat users, to potentially negative impacts for sensitive plant species. The negative impacts would be evidenced especially in Sage-grouse habitats, where sheep use would 1) remove concealment cover in nesting habitats; 2) directly compete with Sage-grouse early-brood foraging needs for succulent, high protein forbs; and 3) negatively impact the sagebrush plant upon which the Sage-grouse rely for winter forage. Potential impacts to sensitive plant species would be as follows. The habitat for *Astragalus oophorus var. lavinii* is open dry barren areas.

Livestock typically do not congregate or forage in these types of areas therefore livestock is not listed as risk to this species. In addition *Astragalus* species contain alkaloid substances that are poisonous to livestock and animals typically will not eat these plants. Livestock grazing is not expected to affect the *Astragalus oophorus var. lavinii*. The habitat for *Ivesia webberi* consists of shallow shrink swell clay soils with a gravelly surface layer and is associated with low sagebrush sites. Trampling from livestock grazing is a potential risk factor for this species. Within the Buckeye Grazing Allotment this species is located along the southwestern boundary of the allotment. Because herders control the location of sheep bands no livestock impacts to *Ivesia webberi* are anticipated due to livestock. However, because the plant population has not been monitored since 2001, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts. The habitat for *Ivesia ptyocharis* consists of periodically wet soils, meadow margins with shallow water tables, springs, moist drainages or ephemeral lakes. Because livestock tend to congregate around water sources livestock trampling is listed as a risk factor for *Ivesia ptyocharis*. The *Ivesia* population is located along the south eastern boundary of the Buckeye Allotment. The portion of section 9 within the Buckeye Allotment is all privately owned. The other portion of section 9 and section 10 are both located in the Pine Nut Allotment and consist of both private and BLM managed land. No livestock impacts to *Ivesia ptyocharis* are anticipated due to livestock in either allotment. Herders control the location of sheep bands and the wet meadows within the Pine Nut Allotment are fenced and do not receive sheep grazing therefore impacts to this species on BLM managed land due to livestock grazing are unlikely. However, because the plant population has not been monitored since 1993, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts. Lack of location, population status, and current habitat condition precludes analysis beyond generalities; but in general, increasing livestock grazing in the allotment may negatively impact habitat condition for sensitive species.

Indirect impacts to sensitive blue butterfly species due to potential livestock browsing or trampling of Kearney buckwheat would be minimal to none under the change in kind of livestock alternative. The largest know populations of Kearney Buckwheat occur outside of the grazing allotment and the known populations within the allotment could be avoided by herding sheep.

The construction of twelve miles of fence would not occur under the change in kind of livestock alternative. There would be no impacts to species currently listed or candidate for listing under the Endangered Species Act or BLM Sensitive Species from fence construction.

No impacts are anticipated to threatened, endangered, BLM sensitive species, or Kearney buckwheat due to the use of water haul sites. The location water haul areas would be surveyed for these species prior to use.

Paleontology

Congregation of livestock in certain environments can cause soil erosion which may expose fossil remains which may result in the loss of information. To eliminate soil loss due to livestock, it is suggested that practices such as water hauling which encourage the congregation of livestock not be permitted within known paleontological areas. During the implementation of any ground impacting project, paleontological resources would be taken into consideration and avoided during implementation.

C. No Action Alternative - Issue a Ten Year Grazing Permit with the Same Terms and Conditions - Environmental Impact

Range

Under the no action alternative 258 cattle could remove forage on the Buckeye Allotment yearlong. A portion of the forage harvested would be from BLM managed land (2,200 AUMs) and a portion is from private lands controlled by the livestock operator (896 AUMs) for a total of 3,096 AUMs annually. Because land ownership is intermingled and unfenced the total number of livestock on both BLM managed land and private lands controlled by the operator are tracked on the BLM grazing permit. This tracking of livestock ensures that BLM has the correct livestock count for compliance inspections. According to the current permit this allotment could potentially be grazed on a yearlong basis but actual use records indicate this type of use has not occurred in the past.

Under the no action alternative no range improvements would be constructed. This would negatively impact the livestock operator. If the proposed fence is not constructed and the water haul locations are not designated, a large percentage of the northern portion of the allotment would be difficult to graze due to livestock control issues. Livestock would tend to leave the allotment and enter into the housing developments and private lands near Johnson Lane.

Vegetation

Under the no action alternative the livestock grazing permit would authorize a total of 3,096 AUMs (2,200 AUMs from BLM managed lands) and the livestock season of use would be year-long. When the grazing permits for cattle were issued there was very little actual use and use pattern mapping data available for cattle within this allotment. Therefore, the stocking rate was an estimate that was intended to be adjusted to meet resource management goals. Actual use between 1994 and 2004 indicates the livestock operator only harvested a portion of the AUMs listed on the grazing permit (Appendix 5). Therefore, if the livestock operator ran livestock as described on the permit actual livestock use within the allotment would increase. Estimated use levels would be moderate to heavy in the central and southern portions of the allotment. This assumes that the size of the grazed area is not increased. Definitions of moderate and heavy use levels are included in Appendix 6.

Cattle are grazers and their dietary preference is grass especially in the spring and summer as opposed to shrubs that are preferred by browsers. However, cattle will shift to

eating shrubs in the winter. Grazing results in temporary reductions of plant height and cover by removing above ground plant biomass. The removal of this biomass can have no effect, a negative effect or a beneficial effect on plants depending upon the timing, intensity and duration of the removal process. The season of use under this alternative is yearlong and estimated utilization levels are moderate to high in the central and southern portions of the allotment. Under this alternative, negative impacts to key plant species are anticipated. Heavy use removes more than half of the available forage on key plant species and less than ten percent of the current seed stalks remain. Cattle prefer herbaceous vegetation (grasses & forbs) in the spring and summer and there are limited amounts of these types of species within the plant communities sampled (Appendix 3 & 8). Heavy grazing use on a continual basis would result in less herbaceous vegetation in localized areas through time. Repeatedly removing the majority of the seed stalks for grass species in an area would eventually reduce reproductive success. Less reproductive success through time would result in a plant community with many mature plants and few young and middle aged plants. When the older plants die there would be fewer young plants to replace the old and the population of herbaceous vegetation in heavily grazed areas would decline through time. Because many of the high elevation areas within the allotment are not accessible during the winter, cattle would most likely congregate in the low sagebrush communities along the south western edge of the allotment. This could result in the over utilization of these low sagebrush plant communities during the winter.

Under the no action alternative no range improvement projects would be constructed. There would be no additional positive or negative impacts to vegetation. Livestock utilization levels on vegetation would not be reduced due to better distribution. Nor would vegetation be removed due to range improvement construction or trampled by livestock due to livestock congregation near improvements.

Soils

Depending upon the time of year and the type of soil, soil compaction can occur in areas where livestock congregate such as around water sources and along fence lines. Under the no action alternative soil compaction would increase slightly if actual use numbers increased to permitted numbers and the season of use was year-long.

Under the no action alternative no range improvement projects would be constructed. There would be no additional impacts to soils.

Wetlands/Riparian

Under the no action alternative impacts to riparian areas on BLM land in the central and southern portions of the allotment are expected to increase if actual use increases to permitted use resulting in higher utilization levels. During the 2000-2003 riparian assessments, the only BLM riparian area being impacted by livestock grazing was the half mile of stream below Buena Suerte Spring (Appendix 4). An increase in grazing levels would be expected to increase grazing utilization levels on riparian areas.

Under the no action alternative no range improvement projects would be constructed. There would be no positive or negative impacts to wetland/riparian areas due to the construction of range improvements. Livestock utilization levels on riparian vegetation would not be reduced due to better distribution.

Water Quality

Under the No Action Alternative water quality may decrease slightly if actual utilization levels increase and reduce vegetative cover around water sources.

Under the no action alternative no range improvement projects would be constructed. There would be no impacts to water quality due to the construction of range improvements and water quality would not improve due to reduced livestock utilization near natural water sources.

Recreation

The presence or absence of livestock would not influence recreational uses in this area.

Under the no action alternative the fence would not be constructed and the public/private land boundary would not be delineated and use conflicts in this area would continue. No water haul locations would be designated but there would be no impacts to recreation.

Socio-economics

Under the no action alternative the income potential of the livestock operation would not be affected. Maintaining the BLM grazing permit encourages the retention of associated private agricultural lands.

Under the no action alternative no range improvement projects would be constructed. There would be no socio-economic impacts.

Visual Resources

Under the no action alternative livestock grazing would not significantly impact visual resources. The criteria for both class III and class IV management areas would be met.

Under the no action alternative no range improvements would be constructed. There would be no impacts to visual resources.

Wildlife Habitat

Maximizing the duration of the grazing season and increasing livestock numbers above past actual use levels, may degrade wildlife habitats in general because there would be an overall increase of the total forage removed. Direct competition for forage between livestock and wildlife species of similar dietary habits would occur on a yearlong basis. But effects on wildlife would be greatest during the fall and winter periods, times of serious to severe stress on the wildlife species.

Localized disturbance and temporary habitat degradation for ground-nesting species relying on herbaceous material for nest concealment could occur throughout the area being grazed at any given time.

Grazing after 9/15, significant increases browsing pressure by cattle on bitterbrush and other palatable shrub species.

Under the no action alternative no range improvements would be constructed. There would be no impacts to wildlife by not constructing the proposed improvements.

Threatened, Endangered and BLM Sensitive Species

The No Action Alternative would not affect any species currently listed or candidate for listing under the Endangered Species Act. Impacts upon BLM Sensitive Species vary from none for the arboreal and aerial species, limited positive or negative for ground and shrub habitat users, to limited for the plant species. Livestock use levels within sage grouse habitat areas may increase slightly over current light to no use levels if actual use were to increase to permitted use. If this should occur plant height and cover would be reduced as a direct result of increased livestock utilization. However, the reduction in plant height and cover by grazing would not be enough in identified upland sage grouse habitat areas to influence habitat quality. The sage grouse habitat areas have been identified in the canyons and along the ridgelines in the south eastern portion of the allotment. The greatest increase in livestock use would likely occur along canyon bottoms near water sources. The riparian habitats managed by BLM are fenced; however, utilization would be anticipated to increase on the privately owned riparian habitats. The habitat for *Astragalus oophorus* var. *lavinii* is open dry barren areas. Livestock typically do not congregate or forage in these types of areas therefore livestock is not listed as risk to this species. In addition *Astragalus* species contain alkaloid substances that are poisonous to livestock and animals typically will not eat these plants. Livestock grazing is not expected to affect the *Astragalus oophorus* var. *lavinii*. The habitat for *Ivesia webberi* consists of shallow shrink swell clay soils with a gravelly surface layer and is associated with low sagebrush sites. Trampling from livestock grazing is a potential risk factor for this species. Within the Buckeye Grazing Allotment this species is located within a mile of Highway 395. Due to the close proximity to the Highway and the edge of the allotment boundary livestock use has never been encouraged in this area of the allotment. No livestock impacts to *Ivesia webberi* are anticipated due to livestock. However, because the plant population has not been monitored since 2001, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts. The habitat for *Ivesia pityocharis* consists of periodically wet soils, meadow margins with shallow water tables, springs, moist drainages or ephemeral lakes. Because livestock tend to congregate around water sources livestock trampling is listed as a risk factor for *Ivesia pityocharis*. The *Ivesia* population is located along the south eastern boundary of the Buckeye Allotment. The portion of section 9 within the Buckeye Allotment is all privately owned and this area has not been historically grazed by cattle due to its location on top of the ridge. The other portion of section 9 and section 10 are both located in the Pine Nut

Allotment and consist of both private and BLM managed land. No livestock impacts to *Ivesia ptyocharis* are anticipated due to livestock in either allotment. Cattle have not historically used the area within the Buckeye Allotment and the wet meadows within the Pine Nut Allotment are fenced and do not receive sheep grazing therefore impacts to this species on BLM managed land due to livestock grazing are unlikely. However, because the plant population has not been monitored since 1993, under this alternative BLM would inspect the population on BLM managed lands for livestock impacts. Lack of location, population status, and current habitat condition precludes analysis beyond generalities; but in general, increasing livestock grazing in the allotment may increase negative impacts to habitat condition for sensitive species.

No indirect impacts to sensitive blue butterfly species due to livestock disturbance of Kearney buckwheat plants are anticipated under the no action alternative. The largest know populations of Kearney Buckwheat occur outside of the grazing allotment and the known populations within the allotment are located in an area that is not currently grazed by cattle due to livestock control issues around the residential areas near Johnson Lane. If the fence proposed in the proposed action is not constructed there would be nothing to keep cattle from leaving the allotment and entering the residential area, therefore this portion of the allotment would no be used by livestock under the no action alternative.

Under the no action alternative no range improvements are proposed therefore there would be no impacts to threatened, endangered or BLM sensitive species from construction.

Paleontology

Under the No Action Alternative no practices which encourage livestock to congregate such as water haul sites are proposed. Soil erosion due to livestock congregation is not anticipated. Thus the exposure of known fossil locations due to livestock impacts are not anticipated nor is the collection of fossils and loss of information.

D. No Grazing Alternative – Environmental Impacts

Range

Under the no grazing alternative a BLM grazing permit would not be issued for the Buckeye Allotment at this time. Few grazing permits are available on BLM managed lands and if the Buckeye permit were lost, it is unlikely that the operator could acquire another permit in the local area. The fees for private land grazing are higher than fees for BLM grazing which would increase the cost of running the livestock operation. The loss of the BLM grazing permit would also increase livestock management costs on private lands currently owned by the livestock operator. Due to the intermingled land ownership, private lands owned by the livestock operator would be virtually unusable until the property boundaries were fenced which would add a significant cost to the livestock operation.

This alternative would also not allow for the managed use of a renewable resource (range forage) allowed for in the Carson City Field Office Consolidated Resource Management Plan, dated May 11, 2001.

Under the no grazing alternative no range improvements would be constructed.

Vegetation

Under the no grazing alternative, vegetation would not be impacted by livestock grazing. The amount of above ground biomass would not be affected by livestock grazing. However, without disturbance the trend of plant communities becoming dominated by woody species is expected to continue (Appendix 3) along with the static to slightly upward trends (Appendix 8). Forage species on some areas of the allotment would reach an over mature stage of growth and the vigor of the plants would suffer. Grass plants would become wolfy with dead crown centers.

Under the no grazing alternative no range improvements would be constructed and there would be no additional impacts to vegetation.

Soils

Under the no grazing alternative no soil disturbance or compaction would occur due to livestock.

Under the no grazing alternative no range improvements would be constructed and there would be no additional impacts to soils.

Wetlands/Riparian

Under the no grazing alternative the condition of riparian areas are expected to remain stable or improve. There would be no impacts to riparian/wetlands on BLM lands within the Buckeye Allotment due to livestock grazing.

Under the no grazing alternative no range improvements would be constructed.

Water Quality

Under the No Grazing Alternative, any water quality impacts from livestock grazing would be eliminated. Only slight improvement would be expected, however, since water quality currently meets the rangeland health standard, and livestock grazing does not appear to significantly affect water quality.

Under the no grazing alternative no range improvements would be constructed.

Recreation

The presence or absence of livestock would not influence recreational uses in this area.

Under the no grazing alternative the fence would not be constructed and the public private land boundary would not be delineated. The livestock drift to private land issue

would be eliminated but the recreational use conflicts in this area would continue. No water haul locations would be designated.

Socio-economics

Under the no livestock grazing alternative, the loss of the BLM grazing permit would reduce the income potential for the livestock operation while significantly increasing operating costs. Decreasing returns and increasing costs would provide the livestock operator with an additional economic incentive to sell private agricultural lands. If private agricultural lands were sold the land would most likely be utilized for housing or commercial developments, due to the population growth in this area and the changing economy.

Under the no grazing alternative no range improvements would be constructed.

Visual Resources

Visual resources would not be impacted under the no grazing alternative. The criteria for both class III and class IV management areas would be met. In the absence of livestock grazing the plants would show less evidence of grazing.

Under the no grazing alternative no range improvements would be constructed.

Wildlife Habitat

Complete removal of licensed livestock grazing could allow the vegetal communities, and thus the wildlife habitats, to achieve as good a condition as site potentials allow within the context of other “change factors” operating in this portion of the Pine Nuts (pinyon pine and invasive species expansion, uncontrolled OHV use, expansion of the urban interface, wildfires, increased recreational demands for space, increased population, etc.). These change factors are so completely and synergistically inter-related with respect to current and possible potential habitat conditions as to make the changes associated with removing any particular one of them highly speculative and conjectural.

Under the no grazing alternative no range improvements would be constructed.

Threatened, Endangered and BLM Sensitive Species

Same as those listed above for Wildlife Habitat.

Paleontology

Under the no grazing alternative for the Buckeye Allotment fossils, would not be impacted from livestock congregation or construction of range improvement projects.

E. Mitigation Measures

There are no additional mitigating measures beyond what will be listed in the terms and conditions of term grazing permit.

F. Cumulative Impacts

All resource values have been evaluated for cumulative impacts. It has been determined that direct or indirect impacts would be negligible as a result of the proposed action and no grazing alternative. However, under the Change in kind of livestock and no action alternative direct or indirect impacts may occur, but no cumulative impacts are anticipated under any of the alternatives.

The issuance of the term grazing permit for the Buckeye Allotment is a specific action, and would cause no known cumulative impact to the environment when considered in combination with any known or anticipated actions on these or adjacent lands in the past, present or reasonably foreseeable future actions. Any effects of the grazing levels proposed would be limited to the project area. The grazing use levels considered under the proposed action and no grazing alternative are light to moderate and no use. Grazing at or below moderate utilization levels has not been shown to be injurious to plant or animal species in the area. The effects of grazing at moderate levels, along with associated activities in the management of this allotment such as the maintenance or construction of range improvements, would be limited to the immediate area of the allotment. They would not combine with any know or reasonably foreseen activities on these or adjacent lands to produce any detrimental cumulative impacts in the area.

G. Monitoring

Monitoring would continue as it has before for the Allotment. This includes the reading of frequency studies, performing use pattern mapping, gathering utilization data at key areas, monitoring riparian areas, etc., where applicable and as resources allow.

V. CONSULTATION AND COORDINATION**A. List of Preparers**

| | |
|------------------|--|
| Katrina Leavitt | Rangeland Ecologist |
| Russell Suminski | Lead Rangeland Management Specialist |
| Walt Devaurs | Lead Wildlife Biologist |
| Susan McCabe | Archaeologist |
| James deLaureal | Soil Scientist/Noxious Weeds |
| Gabe Venegas | Hydrologist |
| Dean Tonenna | Botanist/Threatened and Endangered Species |
| Terry Knight | Lead Recreation/Wilderness Specialist |
| Desna Young | Environmental Coordinator |
| Jim Gianola | Lead Wild Horse Specialist |
| Ken Nelson | Realty Specialist |

B. Persons, Groups and/or Agencies Consulted

Permittee of Record, Buckeye Allotment
Western Watersheds Project
U.S. Fish and Wildlife Service

Bureau of Indian Affairs
Mr. & Mrs. Michael Arett

VI. APPENDICES AND/OR ATTACHMENTS

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Tables**Table 1. Existing Range Improvements**

| Range Improvement Name | Range Improvement Number |
|-------------------------------|---------------------------------|
| Badger Spring/Well | 540186/544317 |
| Bull Run Spring | 544342 |
| Buckbrush Well | 540347 |
| Brunswick Canyon Well | ND |
| Buckeye Creek Well | 540339 |
| Fish Springs Well | 544297 |
| Uhaldi Ranch Well | 540341 |
| Ruhenstroth Well | 540159 |
| Williams Canyon Well | 540345 |
| Buena Suerte Spring | 546391 |
| Sunrise Cattleguard | 544497 |
| Pinenut Mtn. Drift Fence | 545001 |
| Phenology Plot #1 | 545116 |
| Phenology Plot #2 | 545117 |
| Phenology Plot #6 | 545121 |

Table 2- Comparison of Alternatives

| Issue | Alternative 1 Proposed Action | Alternative 2 Change in Kind of Livestock | Alternative 3 No Action | Alternative 4 No Livestock Grazing |
|---------------------------------|--|--|--|--|
| <u>Range</u> | | | | |
| Livestock Kind | Cattle | Sheep | Cattle | None |
| Season of Use | 04/01-09/15 | 04/01-09/30 | 03/01-02/28 | None |
| Animal Unit Months | 1,471 BLM | 2,549 BLM | 2,200 BLM | 0 BLM |
| Fencing | 12 Miles | None | None | None |
| Water Haul Locations | 5 Locations | 20 Locations | 0 | 0 |
| <u>Vegetation</u> | | | | |
| Utilization Level | Light Use | Light to Moderate Use | Moderate to Heavy Use | None from Livestock |
| Location in the Allotment | Throughout | Throughout | Central & Southern Portions | Throughout |
| <u>Soils</u> | Increase in Potential Soil Compaction Where Livestock Congregate Along Fences and Water | Increase in Potential Soil Compaction Where Livestock Congregate Along Fences and Water | Potential Soil Compaction Where Livestock Congregate | None |
| <u>Wetlands/Riparian</u> | Remain Stable or Improve | Remain Stable or Improve | Remain Stable | Remain Stable or Improve |
| <u>Water Quality</u> | Remain Stable or Improve | Remain Stable or Improve | Remain Stable | Remain Stable or Improve |
| <u>Recreation</u> | Improved | None | None | None |
| <u>Socio-economics</u> | Impacts to Permittee | Impacts to Permittee | None | Impacts to Permittee |
| <u>Visual Resources</u> | Meet VRM Goals | Meet VRM Goals | Meet VRM Goals | Meet VRM Goals |
| <u>Wildlife</u> | Improved | Slight Decline | Slight Decline | Improved |
| <u>Sensitive Species</u> | Improved | Slight Decline | Slight Decline | Improved |
| <u>Paleontology</u> | None | None | None | None |

Table 3 - Wildlife Species in the Buckeye Allotment and Adjacent Areas

| Species | Riparian Habitat ¹ | Pinyon/Juniper Habitat ¹ | Sagebrush Habitat ¹ | Salt Desert Scrub Habitat ¹ |
|-------------------------|-------------------------------|-------------------------------------|--------------------------------|--|
| Birds | | | | |
| Turkey Vulture | F | F | F | F |
| Sharp-shinned Hawk | B? | F | M | |
| Northern Harrier | M | M | M | M |
| Cooper's Hawk | B | B? | F | |
| Northern Goshawk | B? | F | F | |
| Red-tailed Hawk | B | B/F | B/F | F |
| Ferruginous Hawk | B? | B? | B? | |
| Rough-legged Hawk | | M | M/F | |
| Golden Eagle | F | F | F | F |
| American Kestrel | F | B | F | F |
| Prairie Falcon | F | F | F | F |
| Sage Grouse | F | F | B | |
| California Quail | B | B | B | B |
| Flammulated Owl | M? | B | | |
| Western Screech Owl | B | B? | | |
| Great Horned Owl | B | B | F | |
| Burrowing Owl | | | B | B |
| Long-eared Owl | B | B | | |
| Short-eared Owl | | M | | B |
| Lesser Nighthawk | | | | B |
| Common Nighthawk | B | B | B | B |
| Common Poorwill | B | B | B | B |
| Vaux's Swift | M | M | M | M |
| Calliope Hummingbird | B | M | | |
| Downy Woodpecker | B | B? | | |
| Hairy Woodpecker | B | B | | |
| Northern Flicker | B | B | F | |
| Dusky Flycatcher | B | B | | |
| Gray Flycatcher | | | B | B |
| Ash-throated Flycatcher | B | B | | |
| Horned Lark | | | B | F |
| Steller's Jay | | B | F | |
| Western Scrub Jay | | B | | |
| Pinyon Jay | | B | | |
| Clark's Nutcracker | | B? | | |
| Black-billed Magpie | | B | F | |
| Common Raven | F | B | F | |
| Mountain Chickadee | | B | | |
| Plain Titmouse | | B | | |
| Bushtit | B | B | B | B |
| Red-breasted Nuthatch | | B | | |
| Bewick's Wren | | B | | |
| Ruby-crowned Kinglet | | B | | |
| Blue-gray Gnatcatcher | B | B | | |
| Mountain Bluebird | | B | F | |
| American Robin | | B | F | |
| Northern Mockingbird | | B | | |
| Sage Thrasher | | | B | B |
| Cedar Waxwing | | W | | |

¹ Habitat types used by species: B=Breeding; B?=Suspected Breeding; F=Feeding; M=Migration; R=Roosting

Table 3 - Wildlife Species in the Buckeye Allotment and Adjacent Areas (continued)¹ Habitat types used by species: B=Breeding; B?=Suspected Breeding; F=Feeding; M=Migration; R=Roosting

| Species | Riparian Habitat ¹ | Pinyon/Juniper Habitat ¹ | Sagebrush Habitat ¹ | Salt Desert Scrub Habitat ¹ |
|-----------------------------|-------------------------------|-------------------------------------|--------------------------------|--|
| Loggerhead Shrike | | | B | B |
| Virginia's Warbler | B | B | | |
| Gray Vireo | | B | | |
| Yellow-rumped Warbler | | B? | | |
| Black-throated Gray Warbler | | B | | |
| Western Tanager | | B | | |
| Spotted Towhee | B | B | B | |
| American Tree Sparrow | | W | | |
| Chipping Sparrow | | B | | |
| Brewer's Sparrow | | | B | |
| Vesper Sparrow | | | B | |
| Lark Sparrow | | B | B | B |
| Black-throated Sparrow | | | B | B |
| Sage Sparrow | | | B | B |
| White-crowned Sparrow | B | F/W | F/W | |
| Dark-eyed Junco | B | F/W | F/W | |
| Western Meadowlark | B | | B | B |
| Brown-headed Cowbird | B | B | B | B |
| Northern Oriole | B | | | |
| Scott's Oriole | | B | | |
| Black Rosy Finch | | | W | |
| Cassin's Finch | B | B | | |
| Lesser Goldfinch | B | B | | |
| American Goldfinch | M | M | M | M |
| Mammals | | | | |
| Merriam Shrew | | | | B |
| Pacific Mole | B | | | |
| Little Brown Myotis | F | F/R | F | |
| Long-eared Myotis | | F/R | F | |
| Fringed Myotis | F | F | F | |
| Yuma Myotis | | F/R | F | F |
| California Myotis | | F/R | F | |
| Silver-haired Bat | | B?/F | | |
| Western Pipistrel | R/F | | | |
| Red Bat | | B?/F | | |
| Big Brown Bat | | B?/F | | |
| Hoary Bat | | B?/F | | |
| Spotted Bat | | | | F |
| Western Big-eared Bat | | F? | F | F |
| Pallid Bat | | R | F | |
| Mexican Freetail Bat | | F | F | |
| Black Bear | F | B?/F | | |
| Raccoon | B | | | |
| Shorttail Weasel | B | B? | | |
| Longtail Weasel | B | | | |
| Badger | B | | B | |

Table 3 - Wildlife Species in the Buckeye Allotment and Adjacent Areas (continued)¹ Habitat types used by species: B=Breeding; B?=Suspected Breeding; F=Feeding; M=Migration; R=Roosting

| Species | Riparian Habitat ¹ | Pinyon/ Juniper Habitat ¹ | Sagebrush Habitat ¹ | Salt Desert Scrub Habitat ¹ |
|----------------------------------|-------------------------------|--------------------------------------|--------------------------------|--|
| Striped Skunk | B | B | F | |
| Coyote | B | B | B | B |
| Red Fox | | B? | B? | |
| Kit Fox | | | | B? |
| Mountain Lion | F | F | F | |
| Bobcat | B/F | B/F | F | |
| Yellow-bellied Marmot | | | B | |
| Townsend's Ground Squirrel | | | B | |
| Whitetail Antelope Squirrel | | | B | B |
| Least Chipmunk | | B | B | |
| Valley Pocket Gopher | B | | B | |
| Little Pocket Mouse | | | B | B |
| Great Basin Pocket Mouse | | | B | B |
| Dark Kangaroo Mouse | | | B | |
| Ord Kangaroo Rat | | | B | |
| Great Basin Kangaroo Rat | | | B | B |
| Deer Mouse | B | B | B | |
| Pinyon Mouse | | B | | |
| Bushytail Woodrat | | B | | |
| Longtail Vole | B | | | |
| Sagebrush Vole | | B | B | |
| Porcupine | F | B | | |
| Blacktail Jackrabbit | | B | B | B |
| Brush Rabbit | B | B | B | |
| Pygmy Rabbit | | | B? | |
| Mule Deer | B | F | F | |
| Pronghorn | | | B | F |
| Reptiles & Amphibians | | | | |
| Great Basin Spadefoot | B | B | B | |
| Western Toad | B? | | | |
| Pacific Treefrog | B | | | |
| Leopard Frog | B | | | |
| Zebra-tailed Lizard | | | | B? |
| Leopard Lizard | | | B | B |
| Collared Lizard | | | B | B |
| Western Fence Lizard | | B | B | B |
| Sagebrush Lizard | | B | B | B |
| Side-blotched Lizard | | B | B | B |
| Desert Horned Lizard | | | B | B |
| Western Skink | B | B | B | B |
| Great Basin Whiptail | | | B | B |
| Rubber Boa | B | | | |
| Desert Striped Whipsnake | | B | B | B |
| Desert Patch-nosed Snake | | | | B? |
| Great Basin Gopher Snake | B | B | B | |
| Western Terrestrial garter Snake | B | B | B | |
| Great Basin Rattlesnake | | B | B | B |

Table 4 - Threatened, Endangered, and Special Status Species Potentially Occurring in the Buckeye Allotment and Adjacent Areas

| Species | Status ¹ | Habitat | Likelihood of Occurrence in Plan Area ² |
|---|---------------------|---|--|
| <u>Mammals</u> | | | |
| Pallid bat <i>Antrozous pallidus</i> | B | Found in arid environments and feeds on ground. Roosts in rock crevices, caves, and abandoned mines | P |
| Spotted bat <i>Euderma maculatum</i> | FSC/B | Lives in desert scrub and open forested areas, roosts in cliff faces and rock crevices. | P |
| Big brown bat <i>Eptesicus fuscus</i> | B | Found in habitat ranging from timberline meadows to lowland deserts, though most abundant in deciduous forest. Often abundant in suburban areas of mixed agricultural use. Roosts in buildings, tree crevices, bridges, dams. | P |
| Silver-haired bat <i>Lasionycteris noctivagans</i> | B | Typically forage in or near coniferous and/or mixed deciduous forests, adjacent to ponds, streams, or other bodies of water. Very little known about population dynamics. | P |
| Hoary bat <i>Lasiurus cinereus</i> | B | Not found near human structures typically preferring trees along forest borders. | P |
| California myotis <i>Myotis californicus</i> | B | | |
| Long-legged myotis <i>Myotis volans</i> | FSC | Brush, woodland, and forested habitats, but coniferous forests and woodlands with permanent water sources seem to be preferred. Wooded habitats in pinyon-juniper and coniferous forests, between 4,000 and 9,000 feet. | L |
| Western small-footed myotis <i>M. ciliolabrum</i> | FSC/B | Raises young in cliff faces and erosion overhangs, hibernates in caves and mines. Requires water; often seen to drink soon after emergence. | U |
| Fringed myotis <i>M. thysanodes</i> | FSC | Roosts in caves, mines, buildings, and crevices. Requires water; forages over water and open habitats. | U |

Sources: Calflora 2002; NNHP 2002; USFWS 2002; BCI 2002

¹ Status: FE = Federal endangered species; FT = Federal threatened species; FC = Federal candidate species; FPC = Federal proposed threatened; FSC = Federal species of concern; N = Considered sensitive by the NNHP; B = Considered sensitive by the BLM

² Likelihood of Occurrence: L = Viable habitat for species exists in project area, and species is known to exist in the region.; P = The species has been reported in the region, and some habitat may exist in the project area.; U = There is no viable habitat for this species in the project area.

Table 4 - Threatened, Endangered, and Special Status Species Potentially Occurring in the Plan Area (continued)

Sources: Calflora 2002; NNHP 2002; USFWS 2002; BCI 2002

¹ Status: FE = Federal endangered species; FT = Federal threatened species; FC = Federal candidate species; FPC = Federal proposed threatened; FSC = Federal species of concern; N = Considered sensitive by the NNHP; B = Considered sensitive by the BLM² Likelihood of Occurrence: L = Viable habitat for species exists in project area, and species is known to exist in the region.; P = The species has been reported in the region, and some habitat may exist in the project area.; U = There is no viable habitat for this species in the project area.

| Species | Status | Habitat | Likelihood of Occurrence in Plan Area |
|---|--------|---|---------------------------------------|
| Yuma myotis <i>M. yumanensis</i> | FSC | Roosts in caves, mines, buildings, and crevices. Requires water; forages over water and open habitats. | U |
| Pacific Townsend's big-eared bat <i>Corynorhinus townsendii townsendii</i> | FSC/B | Lives in cliffs, caves, and old mines between sea level and 3,500 feet. | U |
| Pale Townsend's big-eared bat <i>C. t. pallescens</i> | FSC | Roosts in caves, lava tubes, and abandoned mines between low arid deserts to upper fir zone. | U |
| Pygmy rabbit <i>Brachylagus idahoensis</i> | FSC | Burrows in deep loose soil in tall sagebrush habitat. | P |
| Birds | | | |
| Bald eagle <i>Haliaeetus leucocephalus</i> | FT | Wetlands and permanent open water sources. | U |
| Golden eagle <i>Aquila chrysaetos</i> | B | Found in mountainous areas, canyons, shrubland and grassland. During the winter found in shrub-steppe vegetation, also wetlands, river systems and estuaries. | L |
| Swainson's hawk <i>Buteo swainsoni</i> | B | Prefers open grasslands and desert-like habitats and it is common to see this hawk perched on a fence post in a prairie or open range | L |
| Prairie falcon <i>Falco mexicanus</i> | B | Nests on cliffs throughout the Western U.S. | L |
| Western yellow-billed cuckoo <i>Coccyzus americanus</i> | FSC | Wetlands and open water. | U |
| Sage grouse <i>Centrocercus urophasianus</i> | FSC/B | Generally prefers successional scrub habitat. | L |
| Short-eared owl <i>Asio flammeus</i> | B | Prefer marshes and bogs, treeless areas or open grasslands. | P |

Table 4 - Threatened, Endangered, and Special Status Species Potentially Occurring in the Plan Area (continued)

Sources: Calflora 2002; NNHP 2002; USFWS 2002; BCI 2002

¹ Status: FE = Federal endangered species; FT = Federal threatened species; FC = Federal candidate species; FPC = Federal proposed threatened; FSC = Federal species of concern; N = Considered sensitive by the NNHP; B = Considered sensitive by the BLM² Likelihood of Occurrence: L = Viable habitat for species exists in project area, and species is known to exist in the region.; P = The species has been reported in the region, and some habitat may exist in the project area.; U = There is no viable habitat for this species in the project area.

| Species | Status | Habitat | Likelihood of Occurrence in Plan Area |
|---|--------|---|---------------------------------------|
| Long-eared owl <i>Asio otus</i> | B | Inhabit dense vegetation close to grasslands or shrublands, open forests. Common in tree belts along streams of plains and desert oases. Prefers wooded areas of coniferous forest close to open country. | P |
| Western burrowing owl <i>Athene cunicularia hypugea</i> | FSC/B | Friable substrate with ground squirrel burrows. | P |
| Red-naped sapsucker <i>Sphyrapicus nuchalis</i> | B | Breeds in coniferous forests and montane riparian woodlands. | L |
| Loggerhead shrike <i>Lanius ludovicianus</i> | B | Sagebrush-grasslands and pinyon-juniper | L |
| Mountain quail <i>Oreortyx pictus</i> | B | Temperate range mainly along the Pacific mountain system to western Nevada. | L |
| Pinyon jay <i>(Gymnorhinus cyanocephalus)</i> | B | Foothills areas where pinyon pine occurs | L |
| Yellow-breasted chat <i>Icteria virens</i> | B | Tall willows, cottonwoods in riparian woodland with dense understory. | U |
| Vesper Sparrow <i>Pooecetes gramineus</i> | B | Dry grasslands and sagebrush. | P |
| <u>Invertebrates</u> | | | |
| Carson Valley silverspot butterfly <i>Speyeria nokomis carsonensis</i> | FSC | Shallow areas of clean lakes, ponds, and large rivers. | U |
| Carson wandering skipper <i>Pseudocopa eodes eunus obscurus</i> | FE | Grassland habitats on alkali substrates. | P |
| Mono checkerspot butterfly <i>Euphydryas editha monoensis</i> | FSC/B | Found in wet meadows and pine forests in foothills and high mountains. | U |
| Nevada viceroy <i>Limenitis archippus lahontani</i> | FSC | Moist open or shrubby areas, such as pond edges, valley bottoms, and wet meadows. | U |
| Carson Valley wood nymph butterfly <i>Cercyonis pegala carsonensis</i> | FSC | Generally found at the edges of swampy meadows. Entire population is thought to exist in only one meadow in Douglas County. | U |
| Western Lahontan springsnail <i>Pyrgulopsis longiglans</i> | N | Wetlands in West Walker River watershed | L |

Table 4 - Threatened, Endangered, and Special Status Species Potentially Occurring in the Plan Area (continued)

Sources: Calflora 2002; NNHP 2002; USFWS 2002; BCI 2002

¹ Status: FE = Federal endangered species; FT = Federal threatened species; FC = Federal candidate species; FPC = Federal proposed threatened; FSC = Federal species of concern; N = Considered sensitive by the NNHP; B = Considered sensitive by the BLM² Likelihood of Occurrence: L = Viable habitat for species exists in project area, and species is known to exist in the region.; P = The species has been reported in the region, and some habitat may exist in the project area.; U = There is no viable habitat for this species in the project area.

| Species | Status | Habitat | Likelihood of Occurrence in Plan Area |
|--|---------|---|---------------------------------------|
| Plants | | | |
| Bodie Hills draba <i>Cusickiella quadricostata</i> | FSC/N | Found in gravelly clay soils in scrub and woodland habitat. | P |
| Churchill Narrows buckwheat <i>Eriogonum diatomaceum</i> | B/N | Along the margins of ephemeral lakes on the east side of the Pine Nut Mountains. | L |
| Williams combleaf <i>Polyctenium williamsiae</i> | FSC/B/N | Dry, open, rocky, or sandy habitat in pine or scrub habitat. | L |
| Webber ivesia <i>Ivesia webberi</i> | FC/B/N | Generally found in volcanic ash substrate in sagebrush scrub habitat. | L |
| Margaret rushy milkvetch <i>Astragalus convallarius</i> var. <i>margaretae</i> | N | Rocky slopes and flats among sagebrush and pinyon-juniper communities between elevations of 4,700 and 7,800 feet. | L |
| Lavin eggvetch <i>Astragalus oophurus</i> var. <i>lavinii</i> | FSC/B/N | Rocky slopes and flats in sagebrush and pinyon-juniper habitat. | L |
| Pine Nut Mountain ivesia <i>Ivesia pityocharis</i> | FSC/B/N | Generally found in sandy soil in creosote bush scrub or shadscale scrub habitat. | L |
| Tiehm stroganowia <i>Stroganowia tiehmii</i> | FSC/B/N | Generally found in volcanic substrate, in sagebrush scrub, yellow pine forest, and northern juniper woodland. | L |
| Wassuk beardtougue <i>Penstemon rubicundus</i> | N | Mapped at elevation of 4,200 to 6,800 feet in open rocky, gravelly slopes on old tufa shores, or steep decomposed granite slopes, rocky drainage bottoms and roadsides. Found more abundant on recently disturbed sites such as eroded slopes from water run-off or burns within pinyon-juniper and sagebrush communities | L |

Appendix 1 - Description of Monitoring Data Buckeye Allotment (Page 1 of 1)

Monitoring is used to quantify effects of management and environmental variation at a location through time. Short term monitoring can be used to describe items such as how ecological processes are functioning and the nature of livestock grazing. Preliminary evaluations of soil stability, hydrologic function, and the integrity of the biologic community are described with observations of weather, soil and vegetation. The nature of livestock grazing is described using actual livestock use records and observations of the amount of plant production utilized by livestock. Monitoring can also be long term. Monitoring techniques such as frequency transects, photo trend plots, and exclosures are utilized to monitor the long term trend. Trend is a determination of the direction of change in the current plant community and associated soils in relation to management goals. Monitoring data for the Buckeye Allotment includes weather data from the Minden, NV station (Appendix 2), rangeland health assessments (Appendix 3), riparian assessments (Appendix 4), actual use records (Appendix 5), use pattern mapping (Appendix 6), frequency transects (Appendix 7), photo plots (Appendix 8), and exclosures (Appendix 9).

Plant species that are selected for monitoring are called key species. Some of the factors that are considered when selecting key species include selecting species that are abundant, species that are important to wildlife, species that are critical to the attainment of specific management goals, and species that are palatable to livestock, wildlife or wild horses. Herbivores graze selectively, and can under certain grazing conditions suppress favored species of plants and bolster competitors that are less desirable as food.

Appendix 2 - Precipitation Data Buckeye Allotment (Page 1 of 1)

The precipitation data shown in Figures 1 & 2 is from Minden, Nevada, which is the closest weather station with consistent and reliable data. The 76-year mean precipitation for the Minden Recording Station (4,710 feet above sea level) is 8.11 inches. The elevation of the Minden weather station is below the lowest portion of the allotment. Although the total amount of precipitation received in the Buckeye allotment for a given year probably exceeded the amount received in Minden. Data from the Minden weather station is presented to document cyclic patterns in annual precipitation amounts. The Minden data is useful in relating wet and dry precipitation cycles to actual use and utilization data. The Minden precipitation data is also useful in determining what time of year precipitation was received. Annual precipitation for the Minden Recording Station is presented in Figure 1. The average monthly precipitation is shown in Figure 2. Elevations within the Buckeye allotment range from approximately 4,400 feet along the Carson River to over 9,400 feet on Mt. Siegel. The heaviest amounts of precipitation occur during the winter months in the form of snow.

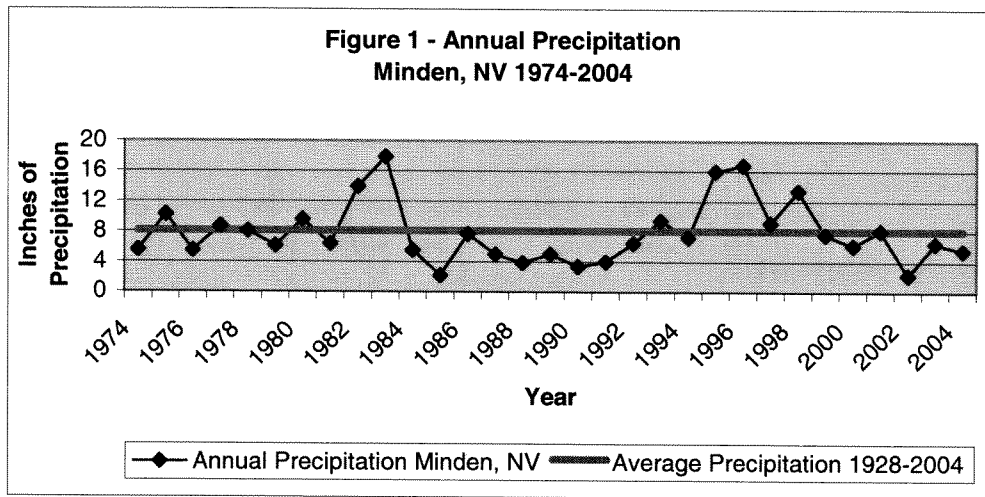
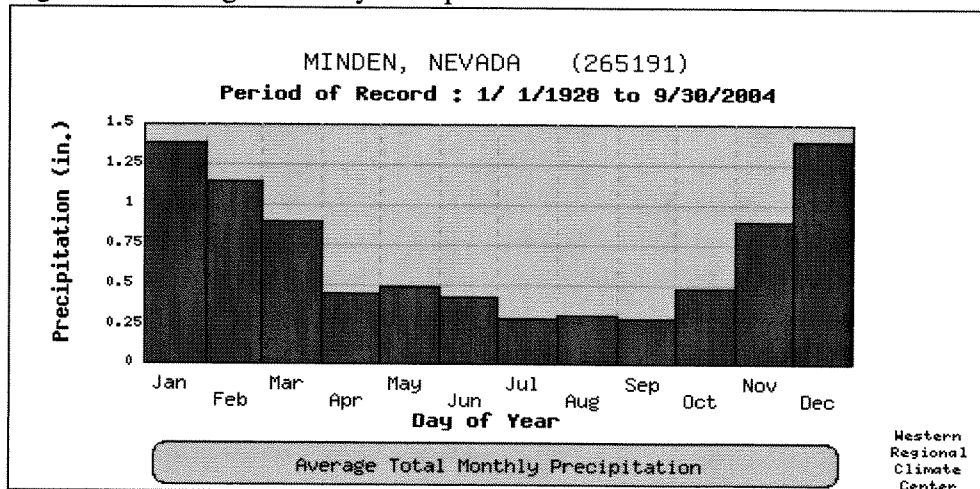


Figure 2 - Average Monthly Precipitation



Appendix 3 - Rangeland Health Assessments Buckeye Allotment (Page 1 of 3).

Interdisciplinary teams visited thirteen sites within the Buckeye Allotment during 2002. These teams interpreted the indicators of rangeland health at each of the sites visited (technical reference 1734-6).

| Ecological Site Number | Rangeland Health |
|------------------------|---|
| 026XY016NV | <p><u>Rangeland Health #16 & #18</u> Soil Site/Stability - These sites were rated as relatively stable. There is no evidence of recent rill formation. Minimal amounts of soil deposition around the base of shrubs but the deposition is common on the sites. Some evidence of past pedestal formation. Bare areas are higher than expected for this type of site. No gullies are present at these sites. Some soil loss has occurred in plant interspaces. There is no compaction layer in the soil. Hydrologic Function - The capacity of the sites to capture store and release water has been slightly reduced. The sites are dominated by perennial shrubs and the density of perennial grass plants is lower than expected for this type of site. Water infiltration rates have been slowed by these changes in plant community composition. There is evidence of litter movement within the sites. Integrity of Biotic Community - Functional plant groups are present at these sites but the abundance of those groups is not what is expected. Dominant plant species by cover is Wyoming sagebrush. Based on the ecological site description needlegrass is expected as a co-dominant species on this type of site. Perennial grass densities are lower than expected. Litter amount, plant production, and reproductive capability were slightly reduced due to recent climatic conditions. Slight plant mortality was observed. Cheatgrass is scattered throughout both sites. Estimated canopy cover at site #16 perennial grass 2-5%, forbs 0-1%, perennial shrubs 31-50%. Estimated canopy cover at site #18 perennial grass 6-15%, forbs 0-1%, shrubs 31-50%.</p> |
| 026XY020NV | <p><u>Rangeland Health #20 & #22</u> Soil Site/Stability - These sites were rated as relatively stable. There is no evidence of recent rill formation. Minimal amounts of soil deposition around the base of shrubs but deposition is common on the sites. Bare areas are higher than expected for this type of site. No gullies are present at these sites. There is no compaction layer in the soil. Hydrologic Function - The capacity of the sites to capture store and release water has been slightly reduced. The sites are dominated by perennial shrubs and the density of perennial grass plants is lower than expected for this type of site. Water infiltration rates have been slowed by these changes in plant community composition. There is no evidence of litter movement within the sites. Integrity of Biotic Community - Functional plant groups are present at these sites but the abundance of those groups is not what is expected. Dominant plant species by cover are Wyoming sagebrush and Green Ephedra. Based on the ecological site description needlegrass and Indian ricegrass are expected as dominant species on these types of sites. Perennial grass densities are lower than expected. Litter amount, plant production, and reproductive capability were slightly reduced due to recent climatic conditions. Slight plant mortality was observed. Pinyon and juniper have invaded and Cheatgrass is scattered throughout both sites. Estimated canopy cover at site #20, grass 6-15%, forbs 2-5%, shrubs 31-50%, and trees 0-1%. Estimated canopy cover at site # 22, grass 6-15%, forbs 2-5%, shrubs 16-30%, and trees 0-1%.</p> |

Appendix 3 - Rangeland Health Assessments Buckeye Allotment (Page 2 of 3).

| Ecological Site Number | Rangeland Health |
|------------------------|---|
| 026XY014NV | <p><u>Rangeland Health #23</u> Soil Site/Stability - This site was rated as relatively stable. There is no evidence of recent rill formation. Active benches of soil deposition behind obstacles (terraces) is rare. No gullies are present at this site. There is no compaction layer in the soil. Hydrologic Function - The capacity of the site to capture store and release water has been slightly reduced. The site is dominated by perennial shrubs and the density of perennial grass plants is lower than expected for this type of site. Water infiltration rates have been slowed by these changes in plant community composition. There is no evidence of litter movement within the site. Integrity of Biotic Community - Functional plant groups are present at this site but the abundance of those groups is not what is expected. Dominant plant species by cover is antelope bitterbrush. Based on the ecological site description needlegrass and Indian ricegrass are expected as co-dominant species on this type of site. Perennial grass densities are lower than expected. Litter amount, plant production, and reproductive capability were slightly reduced due to recent climatic conditions. Slight plant mortality was observed. Pinyon and juniper have invaded and Cheatgrass is scattered throughout the site. Estimated canopy cover, grass 6-15%, forbs 2-5%, shrubs 51-75% and trees 0-1%.</p> |
| 026XY025NV | <p><u>Rangeland Health #19 & #21</u> Soil Site/Stability - These sites were rated as relatively stable. There is no evidence of recent rill or water flow patterns. Active benches of soil deposition behind obstacles (terraces) is rare. Some evidence of past pedestal formation. Bare areas are higher than expected for this type of site. No gullies are present at these sites. There is no compaction layer in the soil. Hydrologic Function - The capacity of the sites to capture store and release water has been slightly reduced. The sites are dominated by perennial shrubs and the density of perennial grass plants is lower than expected for this type of site. Water infiltration rates have been slowed by these changes in plant community composition. There is no evidence of litter movement within the sites. Integrity of Biotic Community - Functional plant groups are present at these sites but the abundance of those groups is not what is expected. Dominant plant species by cover is low sagebrush. Based on the ecological site description needlegrass and blue grass are expected as a co-dominant species on this type of site. Perennial grass densities are lower than expected. Litter amount, plant production, and reproductive capability were slightly reduced due to recent climatic conditions. Plant mortality was common. Juniper trees are present in site #19 and Cheatgrass is scattered through site #21. Estimated canopy cover at site #19, grass 2-5%, forbs 0-1%, shrubs 16-30%, and trees 0-1%. Estimated canopy cover at site #21, grass 2-5%, forbs 0-1%, and shrubs 16-30%.</p> |
| 026XY038NV | <p><u>Rangeland Health #14</u> Soil Site/Stability - This site was rated as relatively stable. There is no evidence of recent rill formation. Some evidence of past pedestal formation. The amount of bare ground is low and no gullies are present. There is no compaction layer in the soil. Hydrologic Function - The capacity of the site to capture store and release water has been slightly reduced. The site is dominated by perennial shrubs and the density of perennial grass plants is lower than expected for this type of site. Water infiltration rates have been slowed by these changes in plant community composition. There is evidence of litter movement within the site. Integrity of Biotic Community - Functional plant groups are present at this site but the abundance of those groups is not what is expected. Dominant plant species by cover is mountain big sagebrush. Based on the ecological site description needlegrass is expected as a co-dominant species on this type of site. Perennial grass densities are lower than expected. Litter amount, plant production, and reproductive capability were slightly reduced due to recent climatic conditions. Slight plant mortality was observed. Estimated canopy cover, grass 2-5%, forbs 6-15% and shrubs 51-75%.</p> |

Appendix 3 - Rangeland Health Assessments Buckeye Allotment (Page 3 of 3).

| Ecological Site Number | Rangeland Health |
|------------------------|--|
| 026XY043NV | <p><u>Rangeland Health Samples #15 & #17, #32 (Woodland)</u></p> <p>Soil Site/Stability - These sites were rated as relatively stable. There is no evidence of recent rill formation but water flow patterns are present. Active benches of soil deposition behind obstacles (terraces) are common. The amount of bare ground is low. No gullies are present at these sites. Some soil loss has occurred. There is no compaction layer in the soil.</p> <p>Hydrologic Function - The capacity of these sites to capture store and release water has been slightly reduced due to a loss of understory species. There is evidence of slight litter movement within the sites.</p> <p>Integrity of Biotic Community - These sites are mature woodlands. Tree canopy cover is between 16-30 percent. Understory vegetation is strongly influenced by tree competition, over story shading duff accumulation etc. Plant mortality was common at these sites. Cheatgrass is scattered throughout the sites. Estimated canopy cover at sites #15, 17 & 32, grasses 0-1%, forbs 0-1%, shrubs 2-5%, and trees 16-30%.</p> |
| 026XY062NV | <p><u>Rangeland Health #33 & #34 (Woodland)</u></p> <p>Soil Site/Stability - These sites were rated as relatively stable. There is no evidence of recent rill formation but water flow patterns are present. Active benches of soil deposition behind obstacles (terraces) is common at site #33 and pedestal formation was common at site #34. Areas of bare soil are low the soil surface is gravelly. No gullies are present at these sites. Some soil loss has occurred. There is no compaction layer in the soil.</p> <p>Hydrologic Function - The capacity of site #33 to capture store and release water has been slightly reduced due to a loss of understory species. There is evidence of litter movement within the sites.</p> <p>Integrity of Biotic Community - Both sites are mature woodlands. Tree canopy cover is between 16-30 percent. Understory vegetation is strongly influenced by tree competition, over story shading, duff accumulation etc. Plant mortality was common at site #33 and slight at site #34. Cheatgrass is scattered throughout both sites. Estimated canopy cover at site #33, grasses 2-5%, forbs 0-1%, shrubs 6-15%, and trees 16-30%. Estimated canopy cover at site #34, grasses 16-30%, forbs 0-1%, shrubs 6-15%, and trees 16-30%.</p> |

Appendix 4 - Riparian Assessments Buckeye Allotment (Page 1 of 3)

Riparian areas were assessed for proper functioning condition from 1992-1994 and 2000-2003. The methods used for the 2000-2003 assessments are described in A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas (TR 1737-15 1998) and Lentic Areas (TR 1737-16 1999). Both acres and mileage were estimated during field surveys. Standards listed in the Riparian Wetland Initiative for the 1990's were utilized for the 1992-1994 classification of areas as riparian habitat.

Where comparative data is available the conditions of riparian areas have remained stable or improved. The condition of riparian areas is summarized below.

| Assessment Results 2000-2003 | Trend | Area Assessed Lentic | Area Assessed Lotic |
|---|--------------|---------------------------------|--------------------------------|
| Proper Functioning Condition | --- | 36 Acres | 4.50 Miles |
| Functional at Risk | Up | -- | -- |
| Functional at Risk | Down | -- | 0.75 Miles |
| Functional at Risk | Not Apparent | 0.30 Acres | 4.25 Miles |

| Name of Water Source (BLM) | Location | 1992-1994 PFC Assessments | 2000-2003 PFC Assessments | Notes |
|---|-----------------------------------|--|--|---------------------------------------|
| Badger Spring | T15N, R21E, Sec. 29 | Functional at Risk- Trend Not Apparent | Functional at Risk- Trend Not Apparent | Range Improvement Project (RIP) |
| Buckeye Creek | T13N, R21& 22E | Functional at Risk – Upward Trend | Functional at Risk – Trend Not Apparent | Mixed Land Status |
| Buena Suerte Spring | T11N, R22E, Sec. 09 | PFC | PFC lentic area. Functional at risk lotic area. Trend not apparent. | RIP & Mixed Land Status |
| Bull Run Spring | T15N, R21E, Sec. 23 | Non-Functional | Functional at Risk. Trend Downward. | RIP |
| Eldorado Canyon | T14N, R22E & T15N, R 21 & 22 E | Functional at Risk. | Functional at Risk. | Mixed Land Status |
| Pine Nut Creek | T12N, R21E, Sec 24 | Functional at Risk. Only 100 yards assessed. | Not Assessed | Mixed Land Status |
| Taperneck Spring | T15N, R21E, Sec. 18&19 | PFC | PFC | New Water Source |
| West Slope Spring | T14N,R22E,Sec.16 | Functional at Risk. | PFC | |

Appendix 4 - Riparian Assessments Buckeye Allotment (Page 2 of 3)

Badger Spring is located on BLM administered lands in the northern end of the allotment in Brunswick Canyon. In 2001 the area was rated functional at risk trend not apparent. The reasons for rating the area at risk included: 1) The condition of the upland watershed (bare ground and roads); 2) The water flow has been altered by an old range improvement but the improvement has not been maintained since before 1980; and 3) a diverse composition and age class of riparian vegetation is not present. The type of livestock utilizing the allotment was changed to cattle in 1995 and cattle have not used this portion of the allotment. Cattle near the Badger Spring area would likely head north down the canyon to the Carson River. Wild horses have been over utilizing vegetation around the spring. However, a wild horse gather was completed in 2003 and it is anticipated that at appropriate management levels, over utilization of riparian vegetation in this area would cease.

Buckeye Creek crosses both private and BLM administered lands. The drainage is approximately sixteen miles long of which BLM administers four miles. In 2002 the BLM portions of the creek were rated functional at risk trend not apparent. The system was rated functional at risk due to vertical instability, lateral instability and hydrologic regimes that barely supply enough water to support riparian vegetation. With the exception of segment 001 little evidence of grazing use was observed. Segment 001 is well outside of the herd management area (HMA) but wild horse use is impacting the springs and riparian vegetation in this area. Twenty-seven horses were counted in this area prior to the horse gather in 2003.

Buena Suerte Spring is located on the southern end of the allotment at the head of Mill Canyon. The Mill Canyon drainage is approximately two miles long and is almost entirely privately owned with the exception of Buena Suerte Spring. An exclosure fence was constructed around the spring to protect the springs and wildlife habitat. The area within the exclosure was rated functioning properly while the area outside was rated functional at risk. Along segments of the stream that were tree and shrub dominated the trend was upward. Segments of the stream dominated by sedges and grasses the trend was downward due to low stubble heights and nick points.

Bull Run Spring is located in the northern portion of the allotment on BLM administered lands north of Sullivan Canyon. The system was rated functional at risk due to the encroachment of pinyon and juniper on the spring source and low water flows.

Appendix 4 - Riparian Assessments Buckeye Allotment (Page 3 of 3)

Eldorado Canyon is located in the northern portion of the allotment. The drainage is approximately ten miles long of which approximately six miles are managed by the BLM. Four miles were rated as functioning and two miles were rated functional at risk trend not apparent. In general, the riparian vegetation appears to be in excellent condition. The plant community is dominated by a variety of mixed age class willows and occasional large old cottonwoods. The shrub, forb, and aquatic components of the community are also diverse and healthy. However, channel stability appears to be variable. The upper canyon (segment 001) exhibits signs of large flow events that caused substantial lateral and vertical channel movement. High eroded banks and small, active headcuts were observed in several locations. The channel appears to be recovering from these past events. Sullivan canyon (segment 003) exhibits down cuts near the junction with Eldorado Canyon. Middle Eldorado Canyon (segment 004) exhibited few signs of high flow events and associated erosion except near the junction with Sullivan Canyon. In general, the channel appears to be wider and more stable in this segment. Stream flow hydrology can be characterized as intermittent. Surface flow regimes and groundwater supplies appear to be adequate to support a healthy and vigorous riparian community. However, pinyon pine expansion in the watershed may pose a threat to the existing water supply.

Erastra Spring is located on private property so no assessment was completed. The spring is located in the northern portion of the allotment off the Sunrise Pass road and provides livestock water.

Lebo Spring is located on private property so no assessment was completed. The spring is located in the northern portion of the allotment off the Sunrise Pass road and provides livestock water.

Pine Nut Creek is located in the southern end of the allotment it is approximately ten miles long of which less than half a mile is managed by the BLM. No assessment was completed.

Pipe Spring is located on private property and has been dry (2000-2003). Pipe spring is located next to Lebo spring in the northern portion of the allotment.

Taperneck Spring is located in the north end of the allotment in Brunswick Canyon. This is a new water source that appeared after the construction of an effluent pond. The riparian area is in proper functioning condition. The flow from Taperneck Spring is approaching the Carson River and water quality should be tested.

West Slope Spring is located in the northern portion of the allotment off the Sunrise Pass road. West slope spring produces very little water but the condition of the riparian area has improved from functional at risk to proper functioning condition. The vegetation age classes are very young and livestock grazing would need to be monitored.

Appendix 5 - Actual Use Data (Livestock) Buckeye Allotment (Page 1 of 2).

*Indicates actual use data was not available and billed use was substituted.

| Grazing Year | Type of Livestock | Use Period | TOTAL AUMs USED (100%) | AUMs USED BLM (62%-96%) |
|--------------|-------------------|-------------|------------------------|-------------------------|
| 1976-1977* | Sheep | 03/01-04/30 | 5,080 | 4,047 |
| 1977-1978* | Sheep | 03/01-04/30 | 4,251 | 4,047 |
| 1978* | Sheep | 10/16-11/15 | 560 | 347 |
| 1979-1980* | Sheep | 11/16-02/28 | 8,108 | 5,027 |
| 1980-1981* | Sheep | 03/01-02/28 | 6,564 | 4,070 |
| 1981 | Sheep | 04/13-09/06 | 1,751 | 1,086 |
| 1982 | Sheep | 04/07-10/07 | 1,458 | 977 |
| 1983 | Sheep | 04/20-11/27 | 3,767 | 2,524 |
| 1984 | Sheep | 04/28-09/29 | 3,091 | 2,596 |
| | Cattle | 6/16-10/21 | 206 | 173 |
| | | | 3,297 | 2,769 |
| 1985 | Sheep | 04/27-09/20 | 1,659 | 1,394 |
| | Cattle | 04/20-10/15 | 350 | 294 |
| | | | 2,009 | 1,688 |
| 1986 | Sheep | 04/05-08/22 | 2,629 | 2,208 |
| 1987 | Sheep | Non-Use | 0 | Non-Use |
| 1988 | Sheep | Non-Use | 0 | Non-Use |
| 1989-1990 | Sheep | 8/15-09/01 | 26 | 25 |
| | | 12/05-01/10 | 142 | 136 |
| | | | 168 | 161 |
| 1990-1991 | Sheep | 10/10-01/08 | 587 | 387 |
| 1991-1992 | Sheep | 11/01-01/15 | 237 | 228 |
| 1992 | Cattle | No Data | No Data | No Data |
| 1993 | Sheep | No Data | No Data | No Data |

Percent public land listed on BLM grazing permits refers to the percent of the forage within the allotment which comes from the BLM Managed Land. Between 1976 and 1993 when sheep were utilizing the allotment the percent public land varied between 62% and 96%. From 1994 to 2005 when cattle have utilized the allotment the percent public land was 71%. The remainder of the forage was from private lands owned by the permittee.

Appendix 5 - Actual Use Data (Livestock) Buckeye Allotment (Page 2 of 2).

*Indicates actual use data was not available and billed use was substituted.

| Grazing Year | Type of Livestock | Use Period | TOTAL AUMs USED (100%) | AUMs USED BLM (71%) |
|---------------------|--------------------------|--------------------|-------------------------------|----------------------------|
| 1994* | Cattle | 06/21-07/28 | 16 | 16 |
| 1995 | Cattle | No Data | No Data | No Data |
| 1996* | Cattle | 07/01-07/15 | 49 | 49 |
| 1997 | Cattle | 02/18-09/15 | 2,041 | 1,449 |
| | | 11/01-12/01 | <u>306</u> | <u>217</u> |
| | | | 2,347 | 1,666 |
| 1998 | Cattle | 04/01-05/03 | 606 | 430 |
| 1999 | Cattle | 03/17-08/20 | 1,335 | 948 |
| 1999-2000* | Cattle | 12/01-02/28 | 1,183 | 840 |
| | | 06/11-07/15 | <u>297</u> | <u>211</u> |
| | | | 1,480 | 1,051 |
| 2000-2001* | Cattle | 10/01-12/12 | 620 | 440 |
| | | 05/01-07/15 | <u>627</u> | <u>445</u> |
| | | | 1,247 | 885 |
| 2001-2002 | Cattle | 11/19-12/07 | 81 | 58 |
| | | 04/02-07/24 | <u>710</u> | <u>510</u> |
| | | | 791 | 568 |
| 2003 | Cattle | 04/08-08/07 | 838 | 595 |
| 2004 | Cattle | 04/01-07/15 | 708 | 503 |

Percent public land listed on BLM grazing permits refers to the percent of the forage within the allotment which comes from the BLM Managed Land. Between 1976 and 1993 when sheep were utilizing the allotment the percent public land varied between 62% and 96%. From 1994 to 2005 when cattle have utilized the allotment the percent public land was 71%. The remainder of the forage was from private lands owned by the permittee.

Appendix 6 - Use Pattern Mapping Buckeye Allotment (Page 1 of 4)

Grazing results in temporary reductions of plant height and cover by removing above ground plant biomass. Utilization levels are used to describe the amount of forage removed by weight on individual key species from grazing (herbaceous vegetation) or browsing (woody vegetation). The removal of vegetation was described for this allotment using five use classes. Use data that was recorded after 1984 using six or seven use classes were consolidated into five classes to consistently describe use levels. The five use classes are described below.

Slight use indicates 0-20% of the key plant species production by weight was removed by grazing or current year's leader growth by browsing. The key plant species show no evidence or very light grazing. Plants may be topped or lightly used. Current seed stalks and young plants are little disturbed. The key browse plants have the appearance of no use or very light use. The available leaders are little used.

Light use indicates 21-40% of the key plant species production by weight was removed by grazing or current year's leader growth by browsing. The key species may be topped, skimmed or grazed in patches. Between 60 and 80 percent of current seed stalks remain intact. Most young plants are undamaged. On key browse plants there is obvious evidence of leader use. The available leaders appear cropped or browsed in patches and 60 to 80% of the available leader growth remains intact.

Moderate use indicates 41-60% of the key plant species production by weight was removed by grazing or current year's leader growth by browsing. Half of the available forage (by weight) on key species appears to have been utilized. Fifteen to 25 percent of current seed stalks remain intact. Key browse plants appear rather uniformly utilized and 40 to 60% of the available leader growth remains intact.

Heavy use indicates 61-80% of the key plant species production by weight was removed by grazing or current year's leader growth by browsing. More than half of the available forage on key species appears to have been utilized. Less than 10 percent of the current seed stalks remain. The key browse plants are hedged and some plant clumps may be slightly broken. Nearly all available leaders are used and few terminal buds remain. Between 20 and 40% of the available leader growth remains intact.

Severe use indicates 81-100% of the key plant species annual production by weight was removed by grazing or current year's leader growth by browsing. The key species appear to have been heavily to completely utilized and there are indications of repeated use. There is no evidence of reproduction or current seed stalks. There are indications the key browse species have been utilized repeatedly. There is no evidence of terminal buds and usually less than 20% of available leader growth remains intact. Some, and often much, of the second and third year's growth has been utilized. Hedging is readily apparent. Key browse plants frequently have broken branches.

Appendix 6 - Use Pattern Mapping Buckeye Allotment (Page 2 of 4)

The table of use pattern mapping data located below indicates the use class representative of use in the allotment by year. Between 1976 and 1980 sheep, wildlife and wild horse grazing were the primary types of use within the allotment. After 1984 cattle, wildlife and wild horses were the primary users of forage. Both livestock and wild horse use were included on the use maps.

During the period between 1977 and 1981 the heavy to severe use within the Buckeye Allotment indicated that there were too many sheep and wild horses in this area. The Pine Nut Wild Horse Herd Area was established in the early seventies and included the entire Buckeye Allotment. By the mid seventies BLM began monitoring wild horse numbers and gathering horses. High livestock numbers and a large wild horse population resulted in over utilization of the rangelands. By 1981 moderate utilization levels seem to indicate a reduction in the wild horse population and the number of livestock. In 1982 a record of decision required wild horses to be removed from the southern end of the Pine Nuts because this area was primarily private property.

Light use levels in 1984 and slight use levels in 1986 indicated when wild horse populations are managed, livestock (primarily sheep) use between 2,629 and 3,297 AUMs met management utilization goals. The goal was not to exceed moderate utilization levels. A 1995 decision established a Herd Management Area (HMA) at the north end of the Pine Nuts and set appropriate management levels (AML) for wild horses.

Moderate use levels occurred in 1997 with 2,347 AUMs of permitted livestock (cattle) use, and additional unauthorized livestock use in the central and southern portions of the allotment. This indicates a stocking rate for livestock above 2,347 AUMs could still meet the objective of not exceeding moderate use levels. Light utilization levels occurred in 2002 with 791 AUMs of livestock use in the south end of the allotment.

Appendix 6 - Use Pattern Mapping Buckeye Allotment (Page 3 of 4)

AUMs = Animal Unit Months from actual use records.

AUMs* = Animal Unit Months from billed use records.

| Year | Livestock Kind & Livestock Use | Utilization by Livestock & Wild Horses | Notes |
|------|--------------------------------|--|---|
| 1976 | Sheep 5,080 AUMs* | Slight 0-20% | The only heavy utilization observed occurred along Buckeye Creek in the south end of the allotment. Sheep use was indicated on the use map at 2,500 AUMs. Average precipitation received. |
| 1977 | Sheep 4,251 AUMs* | Severe 81-100% | Heavy and severe utilization rates were mapped throughout the allotment. The reasons cited for these high utilization levels included: 1) poor sheep distribution; 2) sheep being bedded in the same areas for too long a period; and 3) a large wild horse population. Sheep use was indicated on the use map at 2,500 AUMs. Average precipitation received. |
| 1978 | Sheep 560 AUMs* | Heavy 61-80% | Heavy and severe utilization rates were mapped throughout the allotment. The reasons cited for these high utilization levels were the same as those in 1977. Average precipitation received. |
| 1980 | Sheep 6,564 AUMs* | Heavy 61-80% | Heavy and severe utilization rates were mapped throughout the allotment. Average precipitation received. |
| 1981 | Sheep 1,751 AUMs* | Moderate 41-60% | Heavy and severe utilization rates were mapped in approximately half of the allotment. Average precipitation received. |
| 1984 | Sheep Cattle 3,297 AUMs | Light 21-40% | There were localized areas within the allotment with heavy to severe use but the majority of the allotment was slight use. Average precipitation received. |
| 1986 | Sheep Cattle 2,629 AUMs | Slight 0-20% | No use was indicated in the north end of the allotment. Slight use was indicated in the central and southern portions of the allotment with the exception of a small are in the south with severe use. Average precipitation received. |
| 1988 | Sheep No Use | Slight 0-20% | No Use. Below average precipitation received. |
| 1991 | Sheep 237 AUMs | Slight 0-20% | Approximately 10% of the allotment was utilized by livestock. Below average precipitation received. |
| 1992 | Cattle No Data | Light 21-40% | Use was limited to the northern and central portions of the allotment. The northern portion of the allotment had moderate use levels that was attributed to wild horses. The central portion of the allotment had light utilization levels that was attributed to cattle. Below average precipitation received. |

Appendix 6 - Use Pattern Mapping Buckeye Allotment (Page 4 of 4)

AUMs = Animal Unit Months from actual use records.

AUMs* = Animal Unit Months from billed use records.

| Year | Livestock Kind & Livestock Use | Utilization by Livestock & Wild Horses | Notes |
|------|--------------------------------|--|--|
| 1997 | Cattle 2,347 AUMs | Moderate 41-60% | Use was throughout the allotment. The use in the northern portion of the allotment was wild horse use. There was moderate use in the bottom of Badger and Hackett Canyons the surrounding uplands received light to slight use. Cattle use occurred in the central and southern portions of the allotment. Livestock use was moderate and heavy east of Fish Springs and severe along portions of Buckeye Creek and bottoms of the southern drainages. This utilization was a combination of permitted (2,347 AUMs) and non-permitted use. Average precipitation received. |
| 2002 | Cattle 791 AUMs | Light 21-40% | Wild horse use occurred in the northern portion of the allotment. Use was heavy and severe along the Carson River. Light cattle use occurred in the southern portion of the allotment. Below average precipitation received. |

Appendix 7 - Key Area Frequency Data Buckeye Allotment (Page 1 of 2)

Three key areas were established in 1982 within the Buckeye allotment. There are a total of 200 presence or absence frames per location. All values were compared to the Baseline Data collected in 1982. Bolded values indicate a significant difference at (P>0.05). ND indicates no data was collected

Frequency data is as follows:

Key Area B001: A 40-inch frame size was used for all perennial plant species. This key area has 20 transects with 10 quadrats per transect.

| Key Area B001: | Putr | (Elel)* | (Epvi)* |
|----------------|------------|------------|---------|
| 08/10/82 | 26% | 7% | 7% |
| 04/29/85 | 22% | 11% | 5% |
| 06/15/88 | 19% | 6% | 5% |
| 07/18/90 | 25% | 6% | 5% |
| 07/11/02 | 50% | 37% | 6% |

95% Confidence Intervals:

| | | |
|-----------|-------------|-------------|
| Putr- 26% | (Elel)*- 7% | (Epvi)*- 7% |
| 20-32 | 3-11 | 3-11 |

Key Area B002: A 40-inch frame size was used for all perennial plant species. This key area has 10 transects with 20 quadrats per transect.

| Key Area B002: | Orhy | Eltr* | (Elel) | (Artr) | (Epvi)* |
|----------------|------------|------------|------------|------------|------------|
| 08/26/82 | 14% | 8% | 54% | ND | 1% |
| 05/14/85 | 20% | 15% | 85% | ND | ND |
| 06/20/88 | 15% | 14% | 81% | 40% | 2% |
| 08/15/91 | 28% | 20% | 85% | 30% | 2% |
| 10/21/94 | 24% | 2% | 49% | 28% | 4% |
| 07/09/02 | 24% | 20% | 45% | 58% | 12% |

95% Confidence Intervals:

| | | | | |
|----------|----------|------------|------------|------------|
| Orhy-14% | Eltr*-8% | (Elel)-54% | (Artr)-40% | (Epvi)*-1% |
| 9-19 | 4-12 | 47-67 | 33-47 | 0-4 |

Appendix 7 - Key Area Frequency Data Buckeye Allotment (Page 2 of 2)

Key Area B003: A 30-inch frame size was used for all perennial plant species. This key area has 10 transects with 20 quadrats per transect.

| Key Area B003: | Pone | Stoc | Artrv | (Elel)* |
|----------------|------------|------------|------------|------------|
| 08/17/82 | 32% | 78% | 42% | 99% |
| 08/16/85 | 29% | 76% | 42% | 100% |
| 07/11/88 | 31% | 92% | 52% | 92% |
| 09/06/91 | 40% | 93% | 58% | 98% |
| 10/25/94 | 32% | 61% | 52% | 70% |
| 06/24/97 | 53% | 83% | 58% | 75% |
| 09/25/00 | 38% | 90% | 65% | 86% |

95% Confidence Intervals:

| | | | |
|----------|----------|-----------|-------------|
| Pone-32% | Stoc-78% | Artrv-42% | (Elel)*-99% |
| 26-38 | 72-84 | 35-49 | 96-100 |

* As identified on page 29 of the Nevada Rangeland Monitoring Handbook (September of 1984), as a rule of thumb, it is expected that all frequency percentages for important species should fall between 10 and 90 percent or, if possible, between 20 and 80 percent. This will provide the greatest possible chance of detecting an important trend for a species when the plot is read again. It has been shown that when initial frequency percentages are relatively high; say between 60 and 80 percent, smaller vegetation changes can be measured with statistical significance.

Appendix 8 - Photo Trend Plots Buckeye Allotment (Page 1 of 3)

Nine photo trend plots (PTP) were established in the allotment, but two plots have been abandoned. Photos were taken between 1974 and 2004.

Jacobsen Ranch #1 (JR#1-PTP) is located in the central portion of the Buckeye Allotment (T12N, R21E, NE ¼ Sec. 11). The Jacobsen Ranch Allotment was combined with the Buckeye Allotment in 1984. **Soil:** The soils in this location were stable between 1976 and 2002. There has been no evidence of soil movement such as rills, pedestalling or soil deposition. **Litter:** A fair amount of vegetative litter has accumulated. Litter movement by wind and water has been minimal. **Vegetation:** The characteristic vegetation at this location is Wyoming big sagebrush (*Artemisia tridentata var wyomingensis*). The initial photo and the photos through 2002 show a shrub dominated site with very few understory species. When the photo plot was established squirreltail (*Elymus elymoides*) was the dominant grass species and there were trace amounts of needlegrass (*Stipa speciosa*) present within the site. The grass species persisted in the photo plot between 1976 and 1996 but vigor was poor and by 2002 no grass plants were left within the plot. In 1976 four sagebrush plants were visible within the photo plot. A sagebrush seedling established within the photo trend plot between 1990 and 1993. The sagebrush plants consistently produced seed stalks and increased in size until 1996. The vigor of the older sagebrush plants declined between 1996 and 2002 but remained high for the younger sagebrush. One of the original sagebrush plants is dead in the 2002 photograph while the other three plants have lost leaves. Older sagebrush plants are being lost at this site, however, there are several sagebrush seedlings present. Between 1976 and 1990 a closed stand of mature plants maintained dominance. Beginning in 1993 the number of sagebrush seedlings begins to increase and the shift to a younger age class becomes noticeable. Cover provided by standing dead vegetation and litter has increased as large old plants have died. Cover by live vegetation has decreased because young plants are smaller than the mature plants that are being lost. The ratio of dead and live plant cover has been reversed but the total ground cover at the site has remained stable. **Trend:** The trend at this site is static.

Buckeye #1 (BE#1-PTP) is located in the northern portion of the allotment (T15N, R21W, NW ¼ Sec. 16). **Soil:** The soils in this location were stable between 1976 and 2004. There has been no evidence of soil movement such as rills, pedestalling or soil deposition. **Litter:** A fair amount of litter has accumulated and there has been little litter movement. **Vegetation:** The characteristic vegetation at this location is low sagebrush (*Artemisia arbuscula*), Antelope Bitterbrush (*Purshia tridentata*), Singleleaf Pinyon (*Pinus monophylla*), and Utah juniper (*Juiperus utahensis*). The initial photo and photos through 1980 show one bitterbrush plant, two sagebrush and two grass plants (*Stipa thurberania* & *Elymus elymoides*) in the plot. The 1983 photo shows the establishment of another bitterbrush and seven needlegrass plants in the plot. Reproduction is occurring at this site and ground cover has increased along with plant size. Plant vigor within the photo plot was high in 2004 with the exception of the bitterbrush plants. The bitterbrush plants have lost their leaves and appear dormant or dead. The panoramic photos from 1975 through 1996 show an increase in pinyon and juniper trees. **Trend:** The trend at this site is upward.

Appendix 8 - Photo Trend Plots Buckeye Allotment (Page 2 of 3)

Buckeye #2 (BE#2-Abandoned) was located in the northern portion of the allotment (T15N, R21E, NW ¼ Sec. 28). The characteristic vegetation at this location was Wyoming big sagebrush (*Artemisia tridentata var wyomingensis*) and Antelope Bitterbrush (*Purshia tridentata*). The plot was abandoned on August 9, 1983. The reason stated for the abandonment of the plot was the site was not representative of the allotment.

Buckeye #2A (BE#2A-PTP) is located in the northern portion of the allotment (T15N, R21E, SE ¼ Sec. 33). **Soil:** There has been some slight soil instability at this site. There is a small rill running diagonally from the upper left corner of the plot to the lower right corner of the plot. Soil movement between 1983 and 1986 resulted in the pedestalling of grass plants within the plot. However, the soil movement appears to be limited to a localized area. **Litter:** Litter is present at this site. Litter movement has been occurring and litter has been deposited against obstacles. **Vegetation:** The characteristic vegetation at this location is Wyoming big sagebrush (*Artemisia tridentata var wyomingensis*) and Antelope Bitterbrush (*Purshia tridentata*). The initial photo indicates the area burned prior to 1975 when the plot was established. Five perennial grass (*Agropyron cristatum*) and one bitterbrush plant were present in the initial photo of the plot. The vigor of the grass plants within the erosion rill was low due to pedestalling. Where as the grass and shrub plants located outside of the erosion feature exhibited high vigor. The plants have increased in size through time and have been producing seeds. Between 1974 and 2004 this site transitioned from an area primarily dominated by grass to an area dominated by shrubs. Ground cover has increased dramatically during the twenty nine year period photographs were taken. **Trend:** The panoramic photos show vegetation reestablishing on the burn. Overall the trend is upward, with the exception of the localized soil loss within the plot.

Buckeye #3 (BE#3-Abandoned) was located in the northern end of the allotment (14N, R20E, SW ¼ Sec. 14). The characteristic vegetation at this location was Wyoming big sagebrush (*Artemisia tridentata var wyomingensis*) and Antelope Bitterbrush (*Purshia tridentata*). The plot was abandoned on August 10, 1983. No reason was stated for the abandonment of the plot.

Buckeye #4 (BE#4-PTP) is located in the central portion of the allotment (T14N, R21E, NE ¼ Sec. 25). **Soil:** There was no evidence of erosion taking place at this site between 1975 and 2002. **Litter:** Litter has been accumulating and remaining on site. **Vegetation:** The characteristic vegetation at this location is Wyoming big sagebrush (*Artemisia tridentata var wyomingensis*) and Antelope Bitterbrush (*Purshia tridentata*). The initial photo and the photos through 1990 show one rabbitbrush, two bitterbrush and two sagebrush plants within the plot. By 1993 the shrubs are getting larger and competing with each other for resources and by 2002 two large bitterbrush plants dominate the plot. The panoramic photos show no perennial grasses between shrubs. In the background pinyon and juniper trees have increased between 1975 and 2002. Plant vigor is high, shrubs and trees have been increasing in size, and producing seed. There are few dead branches and the plants have an overall healthy appearance. **Trend:** The trend is upward.

Appendix 8 - Photo Trend Plots Buckeye Allotment (Page 3 of 3)

Buckeye #5 (BE#5-PTP) is located in the central portion of the allotment (T14N, R21E, NE ¼ Sec. 23). **Soil:** There was no evidence of erosion taking place at this site between 1975 and 2002. **Litter:** Litter has been accumulating and remaining on site. **Vegetation:** The characteristic vegetation at this location is low sagebrush (*Artemisia arbuscula*). Scattered Singleleaf Pinyon (*Pinus monophylla*), and Utah juniper (*Juniperus utahensis*) are also visible in the panoramic photographs. The initial photo shows five sagebrush and twelve perennial grass (*Stipa thurberania* & *Elymus elymoides*) plants. Both shrubs and grasses are still present in the plot in 2002 but the plants are showing signs of stress from drought. **Trend:** The trend is static.

Buckeye #6 (BE#6-PTP) is located in the central portion of the allotment (T13N, R21E, NW ¼ Sec 20). **Soil:** There was no evidence of erosion taking place at this site between 1975 and 1986. However, in the 1990 photograph rills are visible. The size of the rills increase through 1996. Then in the 2002 photograph the rills are beginning to fill in with soil and the edges of the rill are becoming rounded. **Litter:** Litter has been accumulating and remaining on site. **Vegetation:** The characteristic vegetation at this location is winterfat (*Ceratoides lanata*). The panoramic photographs show a low sagebrush (*Artemisia arbuscula*) community around the winterfat site. The initial photo shows one sagebrush and three winterfat plants. In the 1986 photo the sagebrush plant appears to be dead. Plant vigor for both sagebrush and winterfat is generally good at this site. **Trend:** The trend is static.

Buckeye #7 (BE#7-PTP) is located in the southern portion of the allotment (T11N, R21E, SW ¼ Sec. 16). **Soil:** There was no evidence of erosion taking place at this site between 1976 and 2002. **Litter:** Litter has been accumulating and remaining on site. **Vegetation:** The characteristic vegetation at this location is mountain big sagebrush (*Artemisia tridentata vaseyana*). The initial photo shows twenty three perennial grass (*Poa secunda*, *Stipa thurberannia* and *Elymus elymoides*) plants within the plot by 2002 the plot is dominated by a sagebrush plant and two perennial grass plants are visible. **Trend:** The trend is upward.

Overall it appears that the trend for plant communities within the grazing allotment is static to slightly upward.

Appendix 9 - Plant Phenology Exclosures (Photo Trend Plots) Page 1 of 2

There are three exclosure plots located within the Buckeye Allotment where livestock grazing has not occurred since 1977. Photo trend plots were established both inside and outside of the exclosure plots so a comparison could be made between areas grazed and not grazed by livestock.

Plot #1 - Is located in the northern portion of the allotment (T13N, R20E, Sec. 1) **Soil:** There was no evidence of erosion taking place at this site between 1977 and 2005 either inside or outside the exclosure. **Litter:** Litter has been accumulating and remaining on site both inside and outside the exclosure. **Vegetation:** The characteristic vegetation at this location is Wyoming sagebrush (*Artemisia tridentata var wyomingensis*).

The initial photo within the exclosure shows six perennial grass (*Achnatherium hymenoides* and *Elymus elymoides*) plants. By 2005 there are three needle and thread (*Hesperostipa comata*), three Indian ricegrass (*Achnatherium hymenoides*), and one sagebrush (*Artemisia tridentata*) in the plot. There was both a shift in species composition and an increase in vegetative cover within the plot.

The initial photo outside the exclosure shows five perennial grass (*Achnatherium hymenoides* and *Elymus elymoides*) and two sagebrush plants (*Artemisia tridentata*) within the plot. By 2005 there are four perennial grass (*Achnatherium hymenoides* and *Elymus elymoides*) plants. Shrubs within the photo plot died. Dead shrubs are visible both inside and outside the exclosure. Cover within the photo plot has decreased but cover at the site has increased.

Trend: The trend is static.

Plot #2 - Is located in the northern portion of the allotment (T14N, R21E, Sec. 33) **Soil:** There was no evidence of erosion taking place at this site between 1977 and 2005 either inside or outside the exclosure. **Litter:** Litter has been accumulating and remaining on site both inside and outside the exclosure. **Vegetation:** The characteristic vegetation at this location is low sagebrush (*Artemisia arbuscula*).

The initial photo within the exclosure shows seven perennial grass (*Stipa thurberannia* and *Elymus elymoides*) and seven low sagebrush plants. In 2005 there were eleven perennial grass (*Stipa thurberannia* and *Elymus elymoides*) and nine low sagebrush plants. Cover within the plot has increased.

The initial photo outside the exclosure shows three perennial grass (*Stipa thurberannia* and *Elymus elymoides*) and seven low sagebrush plants within the plot. In 2005 there are six perennial grass (*Stipa thurberannia* and *Elymus elymoides*) and seven low sagebrush plants.

Trend: The trend is static.

Appendix 9 - Plant Phenology Exclosures (Photo Trend Plots) Page 2 of 2

Plot #3 is located in the northern portion of the allotment (14N, R22E, Sec17) **Soil:** There was no evidence of erosion taking place at this site between 1977 and 2005 either inside or outside the exclosure. **Litter:** Litter has been accumulating and remaining on site both inside and outside the exclosure. **Vegetation:** The characteristic vegetation at this location is Antelope Bitterbrush (*Purshia tridentata*), and Singleleaf Pinyon (*Pinus monophylla*).

The initial photo within the exclosure shows four perennial grass (*Poa secunda* and *Elymus elymoides*) plants and four shrubs (*Purshia tridentata*, *Artemisia tridentata* and *Ribes Sp.*) In 2005 there is only one large bitterbrush in the plot. Cover within the plot has increased through time. The bitterbrush has grown larger and crowded out the other plants.

The initial photo outside the exclosure shows twenty five perennial grasses (*Elymus elymoides*) and one shrub (*Purshia tridentata*) within the plot. In 2005 there were two perennial grasses (*Elymus elymoides*) and one shrub (*Purshia tridentata*) within the plot. Cover within the plot has increased through time. The bitterbrush has grown larger and crowded out the other plants.

Trend: The trend is static.

Appendix 10 - The Sierra Front-Northwestern Great Basin Standards for Rangeland Health and Guidelines for Grazing Management (S&G) (Page 1 of 1)

Interdisciplinary teams made up of various resource specialists completed an S & G Assessment for the Buckeye Allotment in 2003. The Assessment considered impacts on a wide variety of resources, and the relationship of grazing as to meeting or making progress towards the meeting the S&G's described below. The analysis determined that the standards for rangeland health are being met and conforming with guidelines for livestock grazing management. The standards and guidelines assessment from 2003 is filed at the CCFO and available upon request.

The Sierra Front-Northwestern Great Basin Standards for Rangeland Health and Guidelines for Grazing Management

Soils: Soil processes will be appropriate to soil types, climate and land form as indicated by: 1) Surface litter is appropriate to the potential of the site; 2) Soil crusting formation in shrub interspaces, and soil compaction are minimal or not in evidence, allowing for appropriate infiltration of water; 3) Hydrologic cycle, nutrient cycle and energy flow are adequate for the vegetative communities; 4) Plant communities are diverse and vigorous and there is evidence of recruitment; and 5) Basal and canopy cover (vegetative) is appropriate for site potential.

Riparian/Wetlands: Riparian/wetland systems are in proper functioning condition as indicated by: 1) Sinuosity, width/depth ratio and gradient are adequate to dissipate stream flow without excessive erosion or deposition; 2) Riparian vegetation is adequate to dissipate high flow energy and protect banks from excessive erosion; and 3) Plant species diversity is appropriate to riparian-wetland systems.

Water Quality: Water quality criteria in Nevada and California State Law shall be achieved or maintained as indicated by: 1) Chemical constituents do not exceed the water quality standards; 2) Physical constituents do not exceed the water quality standards; 3) Biological constituents do not exceed the water quality standards; and 4) The water quality of all water bodies, including ground water located on or influenced by BLM lands will meet or exceed the applicable Nevada or California water quality standards. Water quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements as set forth under State law, and as found in Section 303(c) of the Clean Water Act.

Plant and Animal Habitat: Populations and communities of native plant species and habitats for native animal species are healthy, productive and diverse as indicated by: 1) Good representation of life forms and numbers of species; 2) Good diversity of height, size, and distribution of plants; 3) Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and 4) Vegetative mosaic, vegetative corridors for wildlife, and minimal habitat fragmentation.

Special Species Habitat: Habitat conditions meet the life cycle requirements of special status species as indicated by: 1) Habitat areas are large enough to support viable populations of special status species; 2) Special status plant and animal numbers and ages appear to ensure stable populations; 3) Good diversity of height, size, and distribution of plants; 4) Number of wood stalks, seed stalks, and seed production adequate for stand maintenance; and 5) Vegetative mosaic, vegetative corridors for wildlife, and minimal habitat fragmentation.