DOI BLM

ENVIRONMENTAL ASSESSMENT
LIVESTOCK GRAZING AUTHORIZATION

Nevada Cowhead Allotment

Surprise Field Office
DOI-BLM-CA-N070-2009-0001-EA
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CHAPTER 1: INTRODUCTION

This Environmental Assessment (EA) is prepared to disclose and analyze the environmental consequences of re-authorizing a livestock grazing permit/lease for 10-years as proposed on the Nevada Cowhead Allotment. The EA is a site-specific analysis of potential impacts that could result with the implementation of one of the alternatives. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in compliance with other laws and policies affecting the alternatives. If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a grazing decision would be issued along with a Finding of No Significant Impact (FONSI) statement, documenting the reasons why implementation of the selected alternative would not result in "significant" environmental impacts.

Background

The Nevada Cowhead Allotment is in the very northwest corner of Washoe County, Nevada, bordered by Oregon on the north and California on the west. The Nevada Cowhead Allotment is comprised of 39,568 public acres, and 2,895 acres are private land. Elevation ranges from 5200 feet to 6600 feet. Precipitation varies from 10 to 14 inches.

The Nevada Cowhead Allotment Management Plan, adopted in 1982, identifies a three pasture grazing system. The plan permitted 800 cows to be turned out on April 16 in the Plateau Pasture around Barrel Springs. Cattle would use the Plateau Pasture until July 31. The Upper Horse Creek Pasture or the Rim Pasture would be rested each year. The other pasture would be grazed beginning on May 15 until 60% utilization was reached on the key forage species, Thurber's needlegrass and Idaho fescue, or until October 31. The rested pasture would alternate each year.

In 1985 the Warner Sucker was listed as a threatened species. There is riparian stream habitat in Nevada Cowhead which flows downstream into occupied Warner sucker habitat in Oregon.

The utilization limits imposed on riparian vegetation associated with Warner sucker habitat necessitated the creation of the Lower Horse Creek Pasture and the Rock Creek Exclosure. These fences allow for the operator to utilize the uplands while controlling use of the riparian areas.

In 1998 a Rangeland Health Assessment (RHA) was completed for the Nevada Cowhead Allotment. This RHA determined that biodiversity standards were not being met. In response to this, the Plateau Pasture was divided into the North and South Plateau Pastures. This pasture separation was designed to allow for one pasture to be rested each year. The purpose was to allow the native perennial grasses one year of rest every other year in order to facilitate seed production and recruitment.

The Nevada Cowhead Allotment currently has six pastures: Barrel Springs, North Plateau, South Plateau, Northeast, Lower Horse Creek and the Rim Pasture. The Upper Horse Creek

Pasture was subdivided into an upland field (Northeast Pasture) and a private riparian pasture (Upper Horse Creek Pasture) in 1999.

The permittee is currently authorized to use 3,057 Animal Unit Months (AUMs) on the Nevada Cowhead Allotment, allowing 800 cattle from April 15 to July 15, and 200 cattle from July 16 to October 25, and 200 cattle from October 1 to October 30.

Because of the long trailing distances, livestock cannot be trailed from the home ranch and distributed in the designated turnout area in one day. Therefore, livestock may be rested a maximum of five days in the Lower Horse Creek Pasture.

Livestock are distributed in the designated turnout pasture/use area each year when turnout criteria has been met or the proposed turnout date has been reached, whichever comes later. Livestock remain in the first grazing unit until the end of the scheduled use period for the unit, or the appropriate utilization guideline is met, whichever occurs first.

Livestock are moved successively into the next scheduled grazing unit(s) and remain until the scheduled end of the use period, or the appropriate utilization guideline is met. Livestock are removed early if forage production or stock water is inadequate to operate within the planned schedule. Cattle are required to be removed from the allotment if they cannot be kept in the proper use area, especially later in the summer.

The Bally Mountain Allotment has historically been managed along with the Nevada Cowhead Allotment. The current pasture management incorporates Bally Mountain as a pasture of Nevada Cowhead. The current grazing system combines some pastures and AUM amounts for Nevada Cowhead and Bally Mountain Allotments in management, making it hard to discern how many cattle are in which Allotment during certain pasture moves. This practice has created confusion in the AUMs permitted for Nevada Cowhead, and would be discontinued with this permit renewal. The Bally Mountain Allotment permit was renewed in 2008 under NEPA document CA-370-08-12, and is not being assessed in this document.

Current Permitted Use

Current Mandatory Terms and Conditions are listed in below table:

Table 1. Current Mandatory Terms and Conditions for the Nevada Cowhead Allotment.

Allotment	Livestock		Grazing Period		% Public Land	AUMs		
	Number	Class	Begin	End		Active	Suspended	Total
Nevada Cowhead	800	cattle	4/15	7/15	93%	2250	3482	6539
	200	cattle	7/16	10/25	93%	624	0	
	200	cattle	10/01	10/30	93%	183	0	

Table 2. Current Pasture Management

Year	Barrel Springs	North Plateau	South Plateau	Rim Pasture	Northeast Pasture	Lower Horse Creek
1 (odd)	REST	800 C 4/15-7/31	REST	REST	200 C 8/1-8/31	800 C 4/15-4/20
2 (even)	800 C 4/15-5/15	REST	800 C 5/15-7/31	200 C 8/1-8/31	REST	800 C 4/15-4/20

Listed below are other field office Terms and Conditions currently included on all permits to ensure compliance with meeting Land Use Plan objectives and Rangeland Health Standards.

1. Grazing use offered or authorized by BLM is subject to all provisions of the grazing regulations (43 CFR Parts 4100) and other applicable law and regulation. Grazing use would be in accordance with the Rangeland Health Standards and Guidelines for California and Northwestern Nevada Final EIS approved by the Secretary of the Interior on July 13, 2000. Grazing use authorization may be modified in accordance with regulation to attain progress towards achieving rangeland health standards (subpart 4180.1 and 4180.2 Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration).

2. Salt and/or mineral supplements would be placed no closer than ¼ mile from any public water source, aspen stand, or meadow.

3. Grazing flexibility can be requested by the livestock operators to run increased numbers for a shorter season. Any changes in grazing use cannot exceed Active AUMs, and must be approved in advanced by a BLM authorized officer.

4. All range improvements must be maintained to standards prior to livestock turnout. All assigned fence maintenance must be completed annually, even if your permit is not activated. Failure to complete assigned fence maintenance may result in suspension of your grazing authorization.

Listed below are other Terms and Conditions currently included on the Nevada Cowhead Allotment permit to ensure compliance with meeting Land Use Plan objectives and Land Health Standards.

1. The manner and degree of use must comply with applicable reasonable and prudent measures contained in the Biological Opinion issued for the Nevada Cowhead and Bally Mountain Allotments. Grazing use on the Nevada Cowhead and Bally Mountain Allotments would be in accordance with the approved Biological Opinion.

2. Billing for these Allotments would be based on actual use reports that must be submitted within 15 days following the last authorized take off date for your permit. Your actual use report should be submitted no later than November 15th every year.

3. Grazing billings not paid within 30 days of receipt would be subject to an interest penalty.

4. Terms and Conditions of your permit may be modified if additional information indicates that revision is necessary to conform to 43 CFR 4180 (Rangeland Health Standards and Guidelines).

5. In accordance with Sec. 328, title 3, Division F of the Omnibus Appropriations Bill for FY2004, Public Law 108-108, which was enacted on 11/10/03, this grazing permit is renewed under section 402 of the Federal Land Policy and Management Act of 1976, as amended (43 USC 1752), Title III of the Bankhead-Jones Farm Tenant Act (7 USC 1010 ET SEQ). The terms and conditions contained in the expired or transferred permit continue in effect under this renewed permit until such time as the Secretary of the Interior completes processing of this permit in compliance with all applicable laws and regulations at which time this permit may be cancelled, suspended, or modified in whole or in part to meet the requirements of such applicable laws and regulations.

Purpose and Need for the Action

The purpose of the action is to consider whether to authorize grazing on the Nevada Cowhead Allotment. If authorized, grazing would be in accordance with 43 CFR 4100 and consistent with the provisions of the Taylor Grazing Act, Public Rangelands Improvement Act, and Federal Land Policy and Management Act. The purpose of the action is also to ensure that all authorizations implement provisions of, and is in conformance with, the Surprise Field Office Resource Management Plan and Record of Decision of April 2008 (RMP), is in conformance with the Secretary Approved Rangeland Health Standards, and meets other applicable goals and objectives.

The Surprise Field Office RMP applicable goals and objectives for livestock grazing, as noted on page 2-34 and 2-35 include the following:1) Sustainable, ecologically sound, and economically viable livestock grazing opportunities would be provided, where suitable, in the Surprise Field Office management area, 2) Adequate forage would be produced to support sustainable levels of livestock grazing where compatible with objectives for other resources and resource users, 3) Continue to modify and adjust grazing management within individual grazing allotments to ensure that a vigorous plant community is sustained in combination with livestock grazing.

The action is needed to respond to a replacement of appropriation act permits. Washington Office Instruction Memorandum No. 2003-071, calls for all grazing permits to be fully processed by using the information from the land health standards determination, and evaluations as needed to complete environmental impact analysis and documentation. In accordance with that policy, the Surprise Field Office would disclose and analyze the environmental consequences of a reasonable range of alternatives for re-authorizing a livestock grazing permit/lease for 10-years, and including a no grazing alternative for the Nevada Cowhead Allotment. All grazing permits are issued in accordance with 43 CFR 4100. Grazing permits must be consistent with the provisions of the Taylor Grazing Act, Public Rangelands Improvement Act, and Federal Land Policy and Management Act.

The grazing permit or authorization (including crossing or trailing permits) would include the type and level of use authorized, including the kind and number of livestock, the period of use, and the amount of active use in animal unit months (AUMs), and terms and conditions for grazing use.

Plan Conformance

- The proposed action is in conformance with the Proposed Surprise Field Office Resource Management Plan and final environmental impact statement issued in May 2007 as adopted by the Record of Decision approved in April 2008.

- The proposed action is in conformance with the Northeast California Northwest Nevada Rangeland Health Standards and Guidelines for Livestock Grazing of 2000.

Scoping and Issues

A scoping letter was sent to 66 interested publics on January 17, 2008. Western Watersheds Project (WWP) and Nevada Department of Wildlife contributed comments, and all comments received were considered. In addition, scoping has been conducted at meetings with the permittee through 2008, and 2009. Consultation was initiated with the United States Fish and Wildlife Service regarding the Warner sucker in December, 2009. A scoping letter with the Rangeland Heath Determination summary was sent to 14 interested publics in February, 2009. Nevada Department of Wildlife and Western Watershed Project (WWP) contributed comments that were considered.

The Modoc-Washoe Experimental Stewardship Program was actively included in the scoping process, and provided a Technical Review Team (TRT) to consider resource problems and objectives and provided recommendations to address problems. The TRT met in April, 2009 and visited the Nevada Cowhead Allotment in April, 2009. During May, 2009, the TRT met to create the Proposed Action. WWP submitted additional comments to the TRT summary report, including revised objectives and Terms & Conditions. These comments were incorporated in Alternative 3. On August 30, 2009, after the TRT process had concluded, WWP submitted another alternative, which has been incorporated as Alternative 4.

Summary of Issues Received During Scoping
As a result of the scoping process, the following general issues were identified: Sage grouse habitat, pygmy rabbit habitat, Warner sucker habitat, North Hays Range Cultural Resource Management Area, soil loss, monitoring, allotment objectives and range improvements.

Relationship to Statutes, Regulations, and Plans

Cultural Resources
The BLM has explicit responsibility to manage cultural resources on public lands consistent with applicable procedures and agreements. To comply with the National Historic Preservation Act the BLM is required to assess the condition of cultural resources on each grazing allotment prior to the renewing of grazing allotment permits. The BLM in consultation with the California and Nevada State Historic Preservation Offices (SHPO) has developed a protocol for the assessment procedures. The protocol allows for the renewal of grazing permits prior to the completion of the cultural resource assessments under a number of conditions and stipulations. Each grazing allotment assessment would be completed on a specified date. The results of the assessments may be used to modify grazing permits. If cultural resources are identified as receiving impacts as a result of livestock management or grazing on a specific allotment, the stipulations of the grazing permit would be modified to reflect compliance with the Bureau's responsibility to manage and protect cultural resources. Consultation regarding affected cultural resources would take place with the appropriate Native American tribe and the California and/or Nevada State Historic Preservation Office(s).

All cultural resource sites would be subject to review and evaluation for listing in the National Register of Historic Places. Pursuant to the Nevada and California SHPO protocol, supporting documentation would be submitted to the California and/or Nevada SHPO for review and concurrence for submission to the Keeper of the National Register. All cultural resources would be afforded protection consistent with law and policy, including appropriate mitigation measures.

Agreement between State Director and State Historic Preservation Officer Protocol Amendment for Renewal of Grazing Permit and Leases.
In August 2004, the State Director, California Bureau of Land Management and the California State Historic Preservation Officer (SHPO) addressed the issue of the National Historic Preservation Act (NHPA) Section 106 compliance procedures for processing grazing permit lease renewals for livestock as defined in 43 CFR 4100.0-5. The State Director and the SHPO amended the 2004 State Protocol Agreement between California Bureau of Land Management and the California State Historic Preservation Officer with the 2004 Grazing Amendment, Supplemental Procedures for Livestock Grazing Permit/Lease Renewal. This amendment allows for the renewal of existing grazing permits prior to completing all NHPA compliance needs as long as the 2004 State Protocol direction, the BLM 8100 Series Manual Guidelines, and specific amendment direction for planning, inventory methodology, tribal and interested party consultation, evaluation, effect, treatment, and monitoring stipulations are followed.

Rangeland Health

The field rangeland health assessment (RHA) for the Nevada Cowhead Allotment was completed in December 2008. The Rangeland Health Standards determination was completed in February 2009. A copy of the land health standards assessment and determinations for the Nevada Cowhead Allotment is available in the allotment files at the Surprise Field Office. The determination is posted on the Surprise Field Office homepage at http://www.blm.gov/ca/st/en/fo/surprise/grazing_permit_renewals.html.

The following table summarizes the outcome of the 2009 RHA determination. Areas of the allotment do (do not) meet the Secretary of the Interior Approved Rangeland Health Standards as follows:

Table 3. Rangeland Health Standards Determination

Rangeland Health Standard	Meets Standard	Does Not Meet Standard	Current livestock are a causal factor for not meeting Yes or No	Remarks (locations, etc.)
Upland Soils		✓	Yes	Ocular observations made during the upland health assessments in the Nevada Cowhead Allotment verified pedestalling is active throughout large areas of the allotment, which indicates current season of livestock use may be contributing to conditions. Utilization data has not been recorded higher than moderate, indicating current levels of livestock use may not be contributing to conditions.
Stream Health	✓			The standard achievement determination was based on data collected during the Riparian Functional Assessments, effectiveness monitoring of riparian habitat, and the 2003 fisheries habitat stream survey.
Riparian/ Wetland	✓			A variety of herbaceous and woody species and age classes were noted at most sites. Riparian and wetland vegetation is controlling erosion, stabilizing stream banks, shading water areas to reduce water temperature, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater and increasing recharge of ground water that is characteristic for these sites. Vegetation surrounding seeps and springs is controlling erosion and reflects the potential natural vegetation for the site.
Water Quality	✓			The presence of trout, speckled dace, a diverse assemblage of aquatic macro-invertebrates and a vigorous and healthy vegetation component along riparian corridors supports a conclusion that this standard is being met.

Bio-diversity	✓			All indicators for biodiversity were achieved with exception of one. The indicator which was not met supports the conclusion that the upland soil standard is not currently being met. The presence of pedestals provided evidence that the upland soils are not stable; however livestock utilization has not been recorded higher than moderate in the past decade. This has provided sufficient litter and organic matter to provide for replenishment of nutrients. No large-scale invasive infestations are known within this allotment; however components of cheatgrass and Japanese brome are present throughout the allotment. Juniper is actively encroaching within areas of the allotment.

CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES

Table 4. Brief description of alternative components presented in Chapter 2.

Alternative	Mandatory Terms and Conditions	Other Terms and Conditions	Pasture Rotation	Trailing	Proposed Range Improvements	Monitoring
1-Proposed	**800 Cattle, 4/15 – 7/15 200 cattle 7/16 – 10/26**	**4" upland stubble height in Northeast & Rim under shrub dripline, 30% utilization on willows, soil moisture turnout criteria, salt >.25 mile from lek, turnout .6 mile from lek**	**2 year, growing season deferment, 3 days use in Rock Creek Exclosure**	**Yes**	**4 stock reservoirs (Refer to table 6)**	**Utilization, photo points, cover data**
2- No Change	**800 Cattle, 4/15 – 7/15 200 cattle 7/16 – 10/26**	**Yes**	**2 year, rest rotation**	Yes	**None**	**Utilization, photo points, cover data**
3- Modified T&C	**800 Cattle, 5/1 – 7/15 200 cattle 7/16 – 10/26**	**6" upland stubble height in Northeast & Rim under shrub dripline, 20% utilization on willows, plant phenology turnout criteria, salt >1 mile from lek, turnout 1 mile from lek**	**2 year, growing season deferment, No use in Rock Creek Exclosure**	**Yes**	**4 stock reservoirs (Refer to table 6)**	**Utilization, photo points, cover data**
4- Reduced Stocking Rate	**400 Cattle, 4/15 – 7/15 100 cattle 7/16 – 10/26**	**6" upland stubble height in Northeast & Rim, 20% utilization on willows, plant phenology turnout criteria, salt 3 km from lek, turnout 3 km from lek**	**3 year rest rotation, No use in Rock Creek Exclosure**	**Yes**	**4 stock reservoirs (Refer to table 6)**	**Utilization, photo points, cover data**
5- No Grazing	**No Cattle**	**N/A**	**N/A**	**N/A**	**N/A**	**Photo points, cover data**

1. Management common to all Alternatives except No Grazing Alternative

A. Administrative Changes

- A new grazing permit would be issued.
- A change in permitted AUMs (from 3057 to 2880) to reflect separation from the Bally Mountain Allotment and correct past administrative errors.
- The Bally Mountain Allotment would be separated from the Nevada Cowhead Allotment for management purposes.

2. Management common to Proposed Alternative and Modified Terms and Conditions Alternative

A. Interim Grazing System

North Plateau Pasture and Barrel Springs Pasture would be the only pastures affected by the required water developments, so they would be the only pastures requiring changes between the interim and the final system. Each water development is expected to distribute roughly 50 cattle, therefore the North Plateau Pasture and the Barrel Springs Pasture would each be run with 100 less cattle until the stock reservoirs are constructed.

Table 5. Interim System

Year	Barrel Springs	North Plateau
1 (odd)	250 C 4/15 – 5/30	700 C 6/1-7/15
2 (even)	250 C 6/1 – 7/15	700 C 4/15-5/30

B. Creation of Desired Plant Communities

All action alternatives include creation of a DPC, which defines the vegetative community that BLM, in consultation with NDOW and other interested publics, has determined is appropriate considering the site potential and the desired product of that site. The DPC is not required to be similar to the Ecological Site Description (ESD), however the ESD describes the potential capability of a site, as well as some of the inherent limitations, allowing DPC's to be created according to reasonably attainable goals. DPCs for the Nevada Cowhead Allotment were created

for all major sites and some important minor sites. These DPCs would be referred to throughout the EA, and can be found as Attachment 1 in Appendix 1.

C. Other Permit Terms and Conditions

1. Grazing management in the Nevada Cowhead Allotment would be in conformance with this decision; all other past documents governing livestock use are suspended.

2. Annual pre-season livestock turn-out meeting would be held with permittee to discuss previous year's use and document current year's grazing schedule. Livestock may not be turned out before this meeting has been conducted without prior written approval from the authorized officer.

3. Livestock permittee may adjust move dates to the next scheduled pasture in the rotation up to fifteen days earlier throughout the scheduled grazing use period without prior approval based on forage, water and utilization conditions. All subsequent pasture move dates would be adjusted accordingly, not to exceed permitted active use AUMs or duration of use above those permitted in any given pasture.

4. Any adjustments in move dates or numbers must be communicated to BLM within 7 days of the change and shall be recorded accurately on the actual use report.

5. Livestock are removed early if forage production or stock water is inadequate to operate the planned schedule. Cattle are required to be removed from the allotment if they cannot be kept in the proper use area, especially later in the summer.

6. Additional adjustments in livestock use may be required by BLM annually based on utilization, drought, water availability or other conditions.

7. Pastures must be 95% clean of livestock within 5 days of the move date and 100% clean within 10 days of the move.

8. Gates into adjacent pastures may be opened to facilitate livestock movement to the next scheduled use area up to five days ahead of the planned move. This Term & Condition may not be used in conjunction with Term & Condition # 3.

9. Protein supplements are not authorized in the allotment.

10. Range improvements assigned to the permittee must be maintained prior to livestock turnout and inspected periodically throughout the period of scheduled use to ensure livestock are restricted to those areas they are scheduled to be in.

11. Maximum allowable use for key native grasses is 60% (Barrel Springs, Northeast, Lower Horse Creek and Rim Pastures), except in the North and South Plateau Pastures where maximum utilization of key native grasses (Poa sp.) is 40%.

12. The Rim and Northeast Pastures can be used with the opposite year's pasture rotation (Rim = even, Northeast = odd), as long as use does not result in two consecutive year's use in either pasture.

13. Permittee is responsible for determining when annual allowable use has been reached and for moving livestock into the next scheduled use area or off the allotment within five days. BLM would monitor annual utilization levels for each pasture in accordance with monitoring protocols after cattle removal.

14. Any livestock remaining ten days or longer after the take-off date in any given pasture or at a time date or location not authorized are subject to unauthorized use violation process.

15. Billing for these Allotments would be based on actual use reports that must be submitted within 15 days following the last authorized take off date for your permit. If no actual use report is submitted, permittee(s) will be billed and liable for their full permitted active use.

16. Grazing billings not paid within 30 days of receipt would be subject to an interest penalty.

17. Terms and Conditions of your permit may be modified if additional information indicates that revision is necessary to conform with 43 CFR 4180 (Rangeland Health Standards and Guidelines).

3. Management common to all Alternatives except No Grazing and No Change Alternatives

A. Range Improvements

The proposed improvements are needed to implement the livestock management section. A map depicting the locations of the projects can be found as Map 1 in Appendix 1.

Listed below are new improvements proposed to implement proposed livestock management. Existing projects are contained in the Surprise FO allotment files.

Table 6. New improvements necessary to implement the proposed livestock management strategies for action alternatives in the Nevada Cowhead Allotment. Proposed projects start date is fall 2011.

Project Name	Location Township/Range/ Section	Benefit
Barrel Springs Reservoir 1	T46N, R18E, sec. 16	Create more water sources to disperse cattle.
Barrel Springs Reservoir 2	T46N, R18E, sec. 27	Create more water sources to disperse cattle.
Poison Spring Reservoir	T47N, R18E, sec. 29	Create more water sources to disperse cattle.
Northwest Reservoir	T47N, R18E, sec. 20	Create more water sources to disperse cattle.

The following Standard Operating Procedures would be adopted for all range improvement projects:

1. An archaeological inventory would be conducted in compliance with 36 CFR 800.4 through 800.5 prior to the survey, design, or construction of the identified range improvement projects.

2. Any cultural resource sites located within project locations would be avoided. With the exception of pit reservoirs that must be built in specific locations. If cultural resources are discovered in proposed pit reservoir locations, a determination of National Register significance would be made in consultation with the Nevada State Historic Preservation Office. If cultural resource sites are found to be not eligible to the National Register of Historic Places (NRHP) then the reservoir may be constructed, otherwise all NRHP eligible sites would be avoided by finding a more suitable location absent of cultural resources.

3. Appropriate water rights or other permits would be secured before construction begins.

4. Follow recommendations in Vya PMU sage-grouse strategy for construction/maintenance of developments includes: Construct new livestock facilities (troughs, fences, corrals) at least 0.6 miles (1 km) from leks.

5. Maintenance of new range improvements would be assigned to the permittee and cooperative agreements would be completed prior to construction.

6. Soil removed during construction of reservoirs would be mounded and shaped to reduce erosion and bare soils would be seeded with an approved mix to discourage weed establishment.

7. Equipment used for construction would be washed before entering the construction site to reduce the possibility of introducing weeds.

8. Blading (removal) of vegetation or other ground disturbance is not authorized outside of the immediate reservoir area.

9. New roads would not be established to project sites. Any disturbed access routes would be reclaimed at the conclusion of the construction phase.

10. Any adjustments in boundaries or "footprints" not larger than 500 feet are considered in this alternative to be within the scope of this alternative and the succeeding analysis.

B. Monitoring

Utilization data would be collected from each pasture near the pasture move date or final take-off date yearly. Utilization would be read on all major ecological sites, and resulting data would be used to create use pattern maps.

Trend sites are placed throughout the Nevada Cowhead Allotment. Vegetation species cover data would be read at these sites every decade to ensure continued vegetative health and upward trend. In addition, new trend sites would be established to ensure representation of all applicable ecological sites. All monitoring would be performed in accordance with BLM policy following protocols from BLM approved manuals and technical references.

Photographs would be taken at established photo monitoring plots throughout the allotment on a regular basis.

Upland stubble height would be measured within two weeks of take-off in the Northeast and Rim Pastures.

Permanent transects with photo points would be established in aspen stands to monitor age class and numbers.

Bitterbrush transects and upland trend studies would be read on a regular basis (within 3-5 year intervals).

C. Long Term (to be accomplished by 2019) and Short Term (measurable yearly) Allotment Objectives

Long Term –

Manage the Claypan 10-14" ecological site for continued progression towards DPC. This includes maintenance of the forb and shrub components on the site as well as an increase in grass cover. In addition, through time the grass component should shift towards dominance of deep rooted native perennial grasses.

Short Term –

- Annual utilization of native perennials (key species = *Poa secunda, Achnatherum thurberianum, Festuca idahoensis, Elymus elymoides, Pseudoroegneria spicatum*) in the North and South Plateau Pastures does not exceed 40% at end of grazing period.
    - Utilization cages and key forage method would be used.
- Livestock are not turned out in the North and South Plateau Pastures until a pickup is capable of being driven 100 yards on the fenceline road (shown on attached map 2) without producing ruts exceeding 2 inches.

Long Term –

Manage the Gravelly Claypan 10-12" ecological site for continued progression towards DPC. This includes maintenance of the shrub component on the site as well as an increase in grass and forb cover. In addition, through time the grass component should shift towards dominance of deep rooted native perennial grasses.

Short Term -

- Annual utilization of native perennials (key species = *Poa secunda, Achnatherum thurberianum, Elymus elymoides, Pseudoroegneria spicatum*) in the Barrel Springs Pasture does not exceed 60% at end of grazing period.
- Livestock are not turned out in the Barrel Springs Pasture until a pickup is capable of being driven 100 yards on the Steven's Homestead Road without producing ruts exceeding 2 inches.

Long Term-

Maintain or improve bitterbrush communities with a form class rating not exceeding 2.25.

Short Term -

- Annual utilization of bitterbrush does not exceed 60% of current years' leader growth at the end of the growing season.

Long Term –

Control/reduce the existence of non-native and invasive species throughout the allotment.

Short Term -

- Concentrate efforts on eradicating the Bulbous bluegrass in the North and South Plateau Pastures.

Long Term –

Establish test plots to examine the feasibility of seeding/increasing biodiversity and composition of native deep rooted perennials throughout the 1165 and 1175 soil map units.

Short Term -

- Identify criteria to be used in establishing a test plot by 2010.
- Identify the test plot locations by 2011.
- Apply seeding and/or treatments in identified plots by 2013.

Long Term –

Maintain the current PFC conditions in Rock Creek and Horse Creek.

Short Term -

- Maintain at minimum a 6" stubble height along the perennial portion of Rock Creek (within the Rock Creek Exclosure) and along Horse Creek.
- Annual utilization on the woody species (willows) within the Rock Creek Exclosure and along Horse Creek does not exceed 30% at the end of the use period.

Long Term –

Continue progression towards DPC in historic Juniper Woodland. Reduce juniper encroachment in sagebrush ecological sites to less than 15%, prioritizing treatments around springs and seeps, aspen stands, and important sage grouse habitat areas. Juniper removal is timed to avoid sage grouse nesting season.

Short Term –

- Identify areas within the Nevada Cowhead Allotment that have the highest site potential for juniper removal.
- Project initiation by 2012.

Long Term –

Continue progression towards DPC in aspen sites throughout the Nevada Cowhead Allotment.

Short Term –

- Identify aspen stands within the allotment that are receiving juniper encroachment and cattle impacts.
- Project initiation by 2013.
- Utilization of aspen suckers does not exceed 20% of suckers by the end of the grazing season.
- Explore off site water development in the Northeast Pasture.
- Explore other options for aspen stand management in the Northeast Pasture.

Long Term –

Maintain sage grouse habitat within the allotment.

Short Term -

- Stubble heights (measured on key grass species in the drip line of shrubs only) in the Northeast and Rim Pasture on key upland perennial grass species do not drop below 4 inches by the end of the grazing season.

Monitoring Objectives

1. Review current key areas with permittee and other affected interests to confirm they are appropriately located to continue being used and/or establish new key areas within two years.

2. Collect updated trend data for all key areas by 2012.

3. Periodically monitor to determine if terms and conditions and short term objectives are reducing and/or, eliminating cattle impacts to the two NRHP eligible sites within the Rock Creek Archaeological District that are receiving heavy cattle impacts.

4. Periodically monitor to determine if trailing is affecting NRHP eligibility of sites within the Rock Creek Exclosure.

Alternative 1 - Proposed Action

This permit would specify a total of 2880 AUMs of permitted livestock use. This alternative would decrease active AUMs by 177 AUMs that were tied to use of the Bally Mountain Allotment. Grazing use would occur using a seven pasture grazing system. This system includes the incorporation of the Rock Creek Exclosure Field into the rotation as a 3 day gathering/trailing pasture. The number of cattle permitted would remain at 800 head from 4/15-7/15 and 200 head from 7/16-10/26. The season of use would have the potential to increase from the proposed pasture management shown below (until 8/31) to the full season of use (until 10/26; see term & condition #5 below). A deferred rotation grazing system would be implemented which would alternate early use of the Barrel Springs & South Plateau Pastures with the North Plateau Pasture. A deferred grazing system is one that 'involves delay of grazing in a pasture until the seed maturity of the key forage species' (Holechek, Rex, & Carlton, Range Management Principles and Practices, 5th edition, 2004). The Rim Pasture and Northeast Pasture would be on a rest rotation, with only one pasture being used each year. The timing of use on the Lower Horse Creek Pasture would be adjusted to allow trailing for 5 days between 4/15 and 7/15. DPC objectives would be defined for the major ecological sites and some important minor ecological sites. Terms and conditions, including Allotment specific short and long term objectives, would be added to ensure grazing use conforms to the RMP and Land Health Standards. Four essential range improvement projects would be constructed. The following tables summarize the mandatory terms and conditions, and proposed grazing system.

Table 7. Mandatory Terms and Conditions for Proposed Alternative.

Allotment	Livestock		Grazing Period		% Public Land	AUMs		
	Number	Class	Begin	End		Active	Suspended	Total
Nevada Cowhead	800	cattle	4/15	7/15	93%	2250	3482	6362
	200	cattle	7/16	10/26	93%	630	0	

Table 8. Pasture Management

Year	Barrel Springs	South Plateau	North Plateau	Rim Pasture	Northeast Pasture	Lower Horse Creek	Rock Creek Exclosure
1 (odd)	350 C 4/15 – 5/30	450 C 4/15-5/30	800 C 6/1-7/15	200 C 7/16-8/31	REST	200 Cattle trailing for 5 days between 4/15 – 7/15	200 Cattle gathered/trailed for 3 days total between 4/15 – 7/15
2 (even)	350 C 6/1 – 7/15	450 C 6/1-7/15	800 C 4/15-5/30	REST	200 C 7/16-8/31	200 Cattle trailing for 5 days between 4/15 – 7/15	200 Cattle gathered/trailed for 3 days between 4/15 – 7/15

800 cattle from 4/15 – 7/15 = 2250 AUMs
200 cattle from 7/16–10/26 = 630 AUMs *
Total = 2880 AUMs
*Livestock use shown above in Northeast or Rim Pasture would not be available for use immediately. See terms and conditions (#5) for livestock use for explanation of how use in these fields would be determined.

1. After receiving written approval from the authorized officer, the livestock operator may turn out up to two weeks early (4/1) as determined by soil moisture criteria. Soil moisture is deemed dry enough when a pickup can be driven at least 100 yards off the Barrel Springs road without leaving greater than 2 inch ruts. The fenceline road would be used as the soil moisture test road for the North and South Plateau Pastures, and the Steven's Homestead Road would be used in the Barrel Springs Pasture.

2. To improve livestock distribution, salt and mineral supplements may be used in the allotment. These must not be located closer than ¼ mile from any natural or artificial water source, archaeological site, aspen stands, leks or riparian area.

3. Maximum allowable use on herbaceous riparian vegetation must provide a minimum of 6" of stubble height (on the perennial portions of Rock Creek and Horse Creek), maximum utilization of current years' growth of woody riparian vegetation is 20% for aspen and 30% for willows.

4. Upland stubble heights of perennial grasses in the Northeast and Rim Pasture would be at least 4 inches by the end of the grazing season. This stubble height would be measured on key grass species in the drip line of shrub canopies.

5. In the first year of rotation for both the Northeast and Rim Pastures, livestock use would not be authorized for more than 6 weeks of use (300 AUMs). Utilization and stubble height would be measured within two weeks after livestock removal. If the stubble

height and utilization objectives are met, then the following year these pastures would be used, livestock use in these pastures would be increased to provide for not more than 8 weeks of use (400 AUMs). Subsequent years' livestock use in these fields would continue to be monitored. Allowable use would be increased by increments of up to two weeks and up to one hundred AUMs per year until the stubble height or utilization objective is reached. Maximum use in these fields would not be increased above 630AUMs. If monitoring determines that livestock use exceeds either the stubble height or utilization objectives in these fields, permittee and BLM would determine appropriate changes in next years' scheduled use to ensure achievement of objectives. If agreement cannot be reached, than scheduled use would be reduced by 2 weeks (100 AUMs).

6. Livestock may not be turned out within 6/10 mile of an active lek site (minimize cattle concentration).

7. If cattle remain in the Rock Creek Exclosure past the three days of allowable use in any given year, ability to gather and trail through this area would be suspended or revoked.

Alternative 2 - Current Management (No Action)

The Nevada Cowhead Allotment currently has six pastures: Barrel Springs, North Plateau, South Plateau, Northeast, Lower Horse Creek and the Rim Pasture. The Upper Horse Creek Pasture was subdivided into an upland field (Northeast Pasture) and a private riparian pasture (Upper Horse Creek Pasture) in 1999. The permittee is currently authorized to use 3,057 Animal Unit Months (AUMs) on the Nevada Cowhead Allotment, allowing 800 cattle from April 15 to July 15, and 200 cattle from July 16 to October 25, and 200 cattle from October 1 to October 30.

Current permitted use would be continued, with certain administrative changes. Current permitted use is 3057 AUMs, and 3482 AUMs are held in suspension. This confusion in AUMs is due to the current connected management of Bally Mountain and Nevada Cowhead Allotments. The Bally Mountain Allotment has been separated for management purposes, thereby decreasing confusion of shared scheduling/pasture movements. The Bally Mountain Allotment permit was renewed in 2008 under NEPA document CA-370-08-12. The amount of permitted use would be decreased by 177 AUMs on the Nevada Cowhead Allotment to accurately represent the amount of permitted use. Grazing use would continue to be managed with a rest rotation. North Plateau, Northeast Pasture and Lower Horse Creek would be used together every other year, and South Plateau, Barrel Springs, Lower Horse Creek, and Rim Pasture would be used together on the opposite year. The overall period of use would be shortened by 4 days to 4/15-10/26. No new range improvements would be constructed. Existing terms and conditions would be carried forward and new short and long term allotment specific objectives would not be established. There would be no Desired Plant Community objectives defined. The following tables summarize the mandatory terms and conditions, and grazing system for the No Action Alternative.

Table 9. Current Mandatory Terms and Conditions for the Nevada Cowhead Allotment.

Allotment	Livestock		Grazing Period		% Public Land	AUMs		
	Number	Class	Begin	End		Active	Suspended	Total
Nevada Cowhead	800	cattle	4/15	7/15	93%	2250	3482	6539
	200	cattle	7/16	10/26	93%	630	0	

Table 10. Current Pasture Management

Year	Barrel Springs	North Plateau	South Plateau	Rim Pasture	Northeast Pasture	Lower Horse Creek
1 (odd)	REST	800 C 4/15-7/31	REST	REST	200 C 8/1-8/31	800 C 4/15-4/20
2 (even)	800 C 4/15-5/15	REST	800 C 5/15-7/31	200 C 8/1-8/31	REST	800 C 4/15-4/20

Alternative 3 – Modified Terms & Conditions

This permit would specify a total of 2880 AUMs of permitted livestock use. This alternative would decrease active AUMs by 177 AUMs that were tied to use of the Bally Mountain Allotment. Grazing use would occur using a six pasture grazing system. The number of cattle run would remain 800 head from 4/15-7/15 and 200 head from 7/16-10/26. The season of use would have the potential to increase from the proposed pasture management shown below (until 8/31) to the full season of use (until 10/26; see term & condition #5 below). A deferred rotation grazing system would be implemented which would alternate early use of the Barrel Springs & South Plateau Pastures with the North Plateau Pasture. The Rim Pasture and Northeast Pasture would be on a rest rotation, with only one being used each year. The timing of use on the Lower Horse Creek Pasture would be adjusted to allow trailing for 5 days between 4/15 and 7/15. Rock Creek Exclosure would not be authorized for grazing under this alternative. DPC objectives would be defined for the major ecological sites and some important minor ecological sites. Terms and conditions, including Allotment specific short and long term objectives, would be added to ensure grazing use conforms to the RMP and Land Health Standards. Four essential range improvement projects would be constructed. The following tables summarize the mandatory terms and conditions, and proposed grazing system.

Table 11. Mandatory Terms and Conditions for Proposed Alternative.

Allotment	Livestock		Grazing Period		% Public Land	AUMs		
	Number	Class	Begin	End		Active	Suspended	Total
Nevada Cowhead	800	cattle	4/15	7/15	93%	2250	3482	6362
	200	cattle	7/16	10/26	93%	630	0	

Table 12. Pasture Management –

Year	Barrel Springs	South Plateau	North Plateau	Rim Pasture	Northeast Pasture	Lower Horse Creek
1 (odd)	350 C 4/15 – 5/30	450 C 4/15-5/30	800 C 6/1-7/15	200 C 7/16-8/31	REST	200 Cattle trailing for 5 days between 4/15 – 7/15
2 (even)	350 C 6/1 – 7/15	450 C 6/1-7/15	800 C 4/15-5/30	REST	200 C 7/16-8/31	200 Cattle trailing for 5 days between 4/15 – 7/15

800 cattle from 4/15 – 7/15 = 2250 AUMs
200 cattle from 7/16–10/26 = 630 AUMs *
Total = 2880 AUMs

*Livestock use above in Northeast or Rim Pasture would not be available for use immediately. See terms and conditions (#5) for livestock use for explanation of how use in these fields would be determined.

1. After receiving written approval from the authorized officer, the livestock operator may turn out up to two weeks early (4/1) as determined by plant phenology. Plant phenology is deemed appropriate when Sandberg's bluegrass is in the boot stage (Boot stage refers to inflorescence (seed head) being developed, but still within the leaf sheath).

2. To improve livestock distribution, salt and mineral supplements may be used in the allotment. These must not be located closer than ¼ mile from any natural or artificial water source, archaeological site, aspen stands, or riparian area. These must not be located closer than 1 mile from active sage grouse leks.

3. Maximum allowable use on herbaceous riparian vegetation must provide a minimum of 6 inches of stubble height (on the perennial portions of Rock Creek and Horse Creek), maximum utilization of current years' growth of woody riparian vegetation is 20% for aspen and 20% for willows.

4. Upland stubble heights of perennial grasses in the Northeast and Rim Pasture do not drop below 6 inches by the end of the grazing season. This stubble height would be measured on key grass species in the drip line of shrub canopies.

5. In the first year of rotation for both the Northeast and Rim Pastures, livestock use would not be authorized for more than 6 weeks of use (300 AUMs). Utilization and stubble height would be read within two weeks after livestock removal. If the stubble height and utilization objectives are met, and monitoring shows that sage grouse use of these pastures is stable or increasing, then the following year these pastures are used, livestock use in these pastures would be increased to provide for not more than 8 weeks of use (400 AUMs). Subsequent years' livestock use in these fields would continue to be monitored. Allowable use would be increased by increments of up to two weeks and up to one hundred AUMs per year until the stubble height or utilization objective is reached. Maximum use in these fields would not be increased above 630AUMs. If monitoring determines that livestock use exceeds either the stubble height or utilization objectives in these fields, Permittee and BLM would determine appropriate changes in next years' scheduled use to ensure achievement of objectives. If agreement cannot be reached, than scheduled use would be reduced by 2 weeks (100 AUMs).

6. Livestock may not be turned out within 1 mile of an active lek site (minimize cattle concentration).

Alternative 4 – Reduced Stocking Rate

This permit would specify a total of 1440 AUMs of livestock use as active preference. This alternative would decrease active AUMs by 177 AUMs, that were tied to use of the Bally Mountain Allotment, and an additional 1440 AUMs would be moved to suspended use for the term of the permit. Livestock would be managed to progress and promote adequate vegetative ground cover, and maintain soil moisture storage and soil stability appropriate for the ecological sites within the management units, and to protect important habits for wildlife. Maintaining adequate ground cover should allow soil organisms, plants, and animals to support the hydrologic, nutrient, and energy cycles.

Grazing use would be organized around a six pasture grazing system such that each pasture is grazed for the two season of use only once in three years, with each pasture receiving two consecutive years of rest between seasons. The number of cattle run would be 400 head from 4/15-7/15 and 100 head from 7/16-10/26. The season of use would have the potential to change from the proposed pasture management shown below as the important sage grouse nesting areas are defined, and is designed to allow more rest in the North Plateau to reach soil standards. A deferred rotation grazing system would be implemented on the 6 pastures which would allow early use of the Barrel Springs Pasture, South Plateau Pasture and the North Plateau Pasture one year in three. The timing of use on the Lower Horse Creek Pasture would be adjusted to allow trailing for 5 days between 6/15 and 7/15. Rock Creek Exclosure would remain closed to livestock and not be authorized for grazing under this alternative.

DPC objectives would be defined for the major ecological sites and some important minor ecological sites. Standards for plant phenological stage or growth of principal forage and dominant type species would be established for each ecological site to objectively determine turnout dates. Terms and conditions, including Allotment specific short and long term objectives, would be added to ensure grazing use conforms to the RMP and Land Health Standards. Four essential range improvement projects would be constructed. The following tables summarize the mandatory terms and conditions, and proposed grazing system.

Table 13. Mandatory Terms and Conditions for Reduced Stocking Rate Alternative.

Allotment	Livestock		Grazing Period		% Public Land	AUMs		
	Number	Class	Begin	End		Active	Suspended	Total
Nevada Cowhead	400	cattle	4/15	7/15	93%	1125	4902	6362
	100	cattle	7/16	10/26	93%	315	0	

400 cattle from 4/15 – 7/15 = 1125 AUMs
200 cattle from 7/16–10/26 = 315 AUMs *
Total = 1440 AUMs

*Livestock use above in Northeast or Rim Pasture would not be available for use immediately. See terms and conditions (#5) for livestock use for explanation of how use in these fields would be determined.

Table 14. Pasture Management –

Year	Barrel Springs	South Plateau	North Plateau	Rim Pasture	Northeast Pasture	Lower Horse Creek
1	400 C 4/15-7/15	REST	REST	100 C 7/16-10/26	REST	100 Cattle trailing for 5 days between 6/15 – 7/15
2	100 C 7/16-8/31	400 C 4/15-7/15	REST	REST	REST	100 Cattle trailing for 5 days between 6/15 – 7/15
3	REST	100 C 7/16-8/31	400 C 4/15-7/15	REST	100 C 7/16-10/26	100 Cattle trailing for 5 days between 6/15 – 7/15

1. After receiving written approval from the authorized officer, the livestock operator may turn out up to two weeks early (4/1) as determined by plant phenology for key perennial grasses.

2. To improve livestock distribution, salt and mineral supplements may be used in the allotment. These must not be located closer than 1 mile from any natural or artificial water source, archaeological site, aspen stands, or riparian area. These must not be located closer than 3 km from active sage grouse leks.

3. Maximum allowable use on herbaceous riparian vegetation must provide a minimum of 6 inches of stubble height (on the perennial portion of Horse Creek), maximum utilization of current years' growth of woody riparian vegetation is 20% for aspen and 20% for willows.

4. Upland stubble heights of perennial grasses in the Northeast and Rim Pasture do not drop below 6 inches by the end of the grazing season.

5. In the first year of rotation for both the Northeast and Rim Pastures, livestock use would not be authorized for more than 6 weeks of use (150 AUMs). Utilization and stubble height would be read within two weeks after livestock removal. If the stubble height and

utilization objectives are met, and monitoring shows that residual vegetation heights in sage grouse habitat are over 7 inches, then two years later when these pastures are used, livestock use in these pastures would be increased to provide for not more than 8 weeks of use (315 AUMs). If monitoring determines that livestock use exceeds either the stubble height or utilization objectives in these fields, livestock use would not be authorized for more than 6 weeks of use (150 AUMs).

6. Livestock may not be turned out within 3 km of an active lek site (to minimize cattle concentration at leks sites and in critical nesting habitat).

Long Term (to be accomplished by 2019) and Short Term Objectives (measurable yearly)

Long Term –

- All ecological sites progress to or meet DPC. This includes maintenance of the tree, forb, and shrub components on the site as well as an increase in grass cover, biological soil crusts, and decrease in bare soils. In addition, through time the grass component should shift towards dominance of deep rooted native perennial grasses. Cattle would not be turned out in sage grouse nesting and brood rearing areas.

Short Term -

- Annual utilization of long and short stature native perennials (key species = *Poa secunda*, *Achnatherum thurberianum*, and *Festuca idahoensis*) at all key sites do not exceed 40% at end of grazing period.
    - Utilization cages and key forage plant method would be used.
- The area of bare soils measurably decreases towards desired conditions.
- Livestock are not turned out until soils are firm enough in the general area of turn-out that livestock would not cause trampling damage to soil and vegetation; and until the phenological stage or growth of vegetation meets standards.

Long Term -

- Maintain or improve bitterbrush communities with a form class rating not exceeding 2.25.

Short Term -

- Annual utilization of bitterbrush does not exceed 40% of current years' leader growth at the end of the growing season.

Long Term -

- Control/reduce the existence of non-native and invasive plant species throughout the allotment.

Short Term -

- Concentrate efforts on eradicating the Bulbous bluegrass in the North and South Plateau Pastures.
- Avoid moving cattle from infested areas to non-infested areas (Bartuszeviga & Endress, 2008).
- Avoid any vegetation treatments that manipulate sagebrush and other important foundation shrub species (Prevey, Germino, Huntly, & Inouye, 2009).

Long Term -

- Establish test plots to examine the feasibility of seeding to increase biodiversity and composition of native deep rooted perennials without disturbing existing shrubs and perennial grasses throughout the 1165 and 1175 soil map units.[1]

Short Term -

- Identify rigorous, science-based criteria to be used in establishing a test plot by 2010.
- Identify the test plot locations by 2011.
- Complete NEPA analysis for seeding any identified plots by 2013.

Long Term -

- Maintain or improve PFC conditions in Horse Creek.

Short Term -

- Maintain at minimum a 6" stubble height along Horse Creek.
- Annual utilization on the woody species (willows) along Horse Creek does not exceed 30% at the end of the use period.

Long Term -

- Continue progression towards DPC in historic Juniper Woodland. Reduce juniper encroachment in sagebrush ecological sites, prioritizing treatments around springs and seeps, aspen stands, and important sage grouse habitat areas. Juniper removal is timed to avoid sage grouse breeding, nesting and brood rearing seasons.

Short Term -

- Identify areas within the Nevada Cowhead Allotment that have the highest potential to show improvement for juniper removal using rigorous, science-based criteria.
- Identify potential areas by 2010.
- Complete NEPA analysis for juniper removal by 2012.

[1] *Ibidem*.

Long Term -

- Continue progression towards DPC in aspen sites throughout the Nevada Cowhead Allotment.

Short Term -

- Identify aspen stands within the allotment that are receiving cattle impacts and juniper encroachment.
- Utilization of aspen suckers does not exceed 20% of suckers by the end of the grazing season.

Long Term -

- Improve sage grouse habitat within the allotment.

Short Term -

- Stubble heights in the Northeast and Rim Pasture on key upland perennial grass species do not drop below 6 inches by the end of the grazing season.
- Cattle are not turned out within 3 km of active lek sites. (to minimize cattle concentrations at leks and in prime sage grouse nesting areas).

Monitoring Objectives

1. Review current key areas with permittee and other affected interests to confirm they are appropriately located to continue being used and/or establish new key areas within two years.

2. Collect updated trend data for all key areas by 2012.

3. Periodically monitor to determine if terms and conditions and short term objectives are reducing and/or, eliminating cattle impacts to the two NRHP eligible sites within the Rock Creek Archaeological District that are receiving heavy cattle impacts, and take immediate steps to mitigate any impacts.

4. Periodically monitor to determine if trailing is affecting NRHP eligibility of sites within the Rock Creek Exclosure, and take immediate steps to mitigate any impacts.

Alternative 5 - No Grazing

This alternative would cancel the permit on the Nevada Cowhead Allotment. As a result, grazing would not be authorized on this allotment. Under this alternative, BLM would initiate the process in accordance with the 43 CFR parts 4100 and 1600 to eliminate grazing on the allotment and amend the Resource Management Plan.

CHAPTER 3: ENVIRONMENTAL ANALYSIS

SUPPLEMENTAL AUTHORITIES OF THE HUMAN ENVIRONMENT

The following supplemental authorities of the human environment are specifically required by statute, regulation, and executive order and must be considered in the Proposed Action and Alternatives. These authorities have either been analyzed in the Environmental Assessment or are not present or not affected by the Proposed Action or Alternatives.

Table 15. List of supplemental authorities, and whether they are present and would be discussed in the EA.

Consideration of Supplemental Authorities	Supplemental Authorities Review		
	N/A or Not Present*	Applicable or Present, No Impact*	Discussed in EA
Air Quality		✓	
Areas of Critical Environmental Concern	✓		
Cultural Resources			✓
Environmental Justice (E.O. 12898)	✓		
Farm Lands (prime or unique)	✓		
Floodplains	✓		
Global Climate Change			✓
Native American Religious Concerns			✓
Invasive, Non-Native Species			✓
Threatened or Endangered Species	✓		
Wastes, Hazardous Substances or Solid Wastes	✓		
Water Quality			✓
Wetlands/Riparian Zones			✓
Wild and Scenic Rivers (Eligible)	✓		
Wilderness	✓		
Other Elements Considered			
Wild Horses and Burros	✓		
Wildlife			✓
Recreation	✓		
Soils			✓
Vegetation			✓
Livestock Management			✓

***** The following supplemental authorities and other elements are either not present or would not be affected by proposed action or any of the alternatives and would not be discussed further in this EA.

CULTURAL RESOURCES

A. Affected Environment

The Nevada Cowhead Allotment is located in the Northern Hays Range; an area in which

cultural resource site densities are considered to be high. The Northern Hays Range Cultural Resource Management Area (CRMA) was created in 2007 as a result of the high density of cultural resource sites in the area. The CRMA is a designation that was developed by the Surprise Field Office that is intended to provide heightened awareness of sensitive resources by increasing Law Enforcement Patrols and providing research opportunities for scientific institutions. Approximately 85% of the Nevada Cowhead Allotment is located in the North Hays Range CRMA. There have been 14 archaeological inventories conducted on the Nevada Cowhead Allotment in preparation for BLM projects. Approximately 7,835 acres of public lands, or 19% of the entire allotment, were inventoried for the projects. As a result of the inventories 169 cultural resource sites have been recorded. The majority of the sites are prehistoric and associated with hunting and gathering activities, occupation sites, lithic procurement sites, and resource processing loci. Rock art is also an important element of this prehistoric landscape. Historic sites are associated with ranching and homesteading activities.

Thirty-three of the 169 known sites have been evaluated for National Register of Historic Places eligibility. Twenty-three of the 33 sites evaluated were found eligible to the NRHP. However, all 33 sites are located within an area that is eligible to the NRHP as an archaeological district. The remaining 136 sites have not been evaluated for their significance; therefore the BLM would consider these sites to be eligible until a determination of eligibility can be made. Within the Rock Creek Exclosure there are 20 archaeological sites that are considered NRHP eligible as part of the Rock Creek Archaeological District. Lands within the exclosure have been partially inventoried for cultural resources. The inventories have identified 20 prehistoric archaeological sites. Ten of the 20 sites were evaluated on an individual basis for NRHP eligibility. Six of the ten sites are considered eligible to the NRHP. The remaining ten sites within the exclosure have yet to be individually evaluated. However, all twenty sites are considered to be eligible as part of the Rock Creek Archaeological District.

In accordance with the 2004 State Protocol Agreement between California Bureau of Land Management and The California State Historic Preservation Officer and the 2004 Grazing Amendment, Supplemental Procedures for Livestock Grazing Permit/Lease Renewal, a Cultural Resource Assessment was conducted on the Nevada Cowhead Allotment in 2007. The assessment resulted in the identification of two archaeological sites, one previously recorded and one newly identified, that were being affected by cattle grazing. The effects to the site were trampling and soil churning during wet conditions. Both sites are located in the Rock Creek Archaeological district and are subject to heavy use in the spring as a result of the available water. An additional site located on both public and private lands near the confluence of two creeks is receiving heavy cattle use which is impacting the site. This site was determined NRHP eligible in 2005.

B. Environmental Consequences

1. Impacts of Proposed Action

Under the Proposed Action cultural resource sites have the potential to be affected by range management activities including cattle grazing. Sites that are located in areas where cattle tend

to congregate are most vulnerable to livestock impacts. Areas of congregation tend to occur at both developed and undeveloped watering locations, salting locations, along fence lines, and in areas where shade is provided. The types of impacts that can occur are: trailing, which can displace and/or break artifacts, and denude vegetation thereby destabilizing the soil causing erosion; wallowing, which causes subsurface disturbance to cultural resources containing buried deposits thereby compromising stratigraphic integrity of a site; and trampling, which causes artifact displacement and breakage.

Under this alternative a seven pasture grazing system would be implemented which incorporates the Rock Creek Exclosure as a gathering pasture, allowing for trailing of cattle for three days through the exclosure. Rock Creek is a narrow, steep drainage throughout most of the exclosure and cultural resources are dense within this area. It is highly likely that cattle would be trailing through NRHP eligible sites. Impacts associated with trampling and trailing could occur to cultural resources located within the exclosure. The impacts are expected to be light because of 1) the short duration of cattle use in the exclosure (three days); and 2) the short term objective of a 6" stubble height within the Rock Creek Exclosure, which would allow for a more conservative use of vegetation than in the past. Sites would be monitored (see Long Term Objectives) to insure that NRHP eligibility is not being affected by the proposed use. No long term impacts are expected, and any potential short term impacts are mitigated through the Term and Condition on the permit which stipulates "If cattle remain in the Rock Creek Exclosure past the three days of allowable use in any given year, ability to gather and trail through this area will be suspended or revoked."

Additional benefits of the short term objective of a 6" stubble height along Rock Creek and the soil moisture requirements for turn-out could reduce impacts to the two NRHP eligible cultural resource sites associated with Rock Creek that are being impacted by heavy cattle use as discussed above.

Under this alternative, impacts to the NRHP eligible sites located within the Rock Creek Archaeological District that are mentioned above, would continue to occur. The pasture rest rotation system proposed may improve ecological site function, which could lead to stabilized soils and reduced erosion problems, indirectly benefiting cultural resources.

Also under this alternative four reservoirs would be constructed. The installation of the reservoirs could disperse cattle into other areas of the allotment, which can reduce impacts that could be occurring to sites located within the vicinity of current watering areas, including Rock Creek. However, the dispersion of cattle into areas that have had little to no grazing use in the recent past could create new impacts to cultural resources that may be located in these areas. In addition, cattle trails leading to the reservoirs would be established which could affect cultural resources that may be located along the trailing paths.

2. Impacts of Current Management

Under the Current Management potential impacts to cultural resources from range management activities including cattle grazing would be greater than under the Proposed Action Alternative. Under this alternative cattle impacts to cultural resources located outside of the Rock Creek

Exclosure would continue to occur. The four range improvement projects would not be constructed, which would benefit any archaeological sites that may have been located in the vicinity of the proposed reservoirs. Conversely, by not constructing the reservoirs archaeological sites that may be located in the vicinities of current watering areas would continue to receive the same amount of pressure from cattle.

3. Impacts of Modified Terms & Conditions

Direct and indirect impacts to cultural resources under this alternative would be the same to those under the Proposed Action except that no cattle impacts to NRHP eligible sites within the Rock Creek Exclosure would occur.

4. Impacts of Reduced Stocking Rate

Under this alternative direct and indirect impacts to cultural resources would be less than under the Proposed Action, Current Use, and the Modified Terms and Conditions, but more than under the No Grazing alternative. Reduced stocking numbers and the pasture rest rotation would promote vegetation recovery, augmenting soil stabilization and reducing erosion that may be occurring in some cultural resource sites. Excluding cattle from the Rock Creek Exclosure would protect cultural resources from any impacts associated with livestock trailing.

5. Impacts of No Grazing

Under this alternative there would be no direct or indirect impacts to cultural resources from range management activities.

GLOBAL CLIMATE CHANGE

A. Affected Environment

Rising greenhouse gas (GHG) levels are likely contributing to global climate change. In the project area, climate change is typically expected to result in warmer, drier conditions and potentially more extreme weather events.

Climate change may result from: natural processes, such as changes in the sun's intensity; natural processes within the climate system (e.g. changes in ocean circulation); human activities that change the atmosphere's composition (e.g. burning fossil fuels) and the land surface (e.g. urbanization) (IPCC, 2007). Human activities related to the proposed action, livestock grazing, also contribute GHGs in the form of methane.

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

1. Impacts of Proposed Action

The amount of contribution to global climate change from the Proposed Action is unknown, however the minimal amount of GHG contribution possible under this alternative indicates that any contributions would not have an effect on the overall climate or any change thereof.

2. Impacts of Current Management

Impacts under Current Management are expected to be the same as under the proposed alternative.

3. Impacts of Modified Terms & Conditions

Impacts under the Modified Terms & Conditions Alternative are expected to be the same as under the proposed alternative.

4. Impacts of Reduced Stocking Rate

Impacts under the Reduced Stocking Rate Alternative are expected to be minimally less than the proposed alternative. There would be roughly half the amount of GHG contribution as under the Proposed Alternative, however this amount would not have an effect on the overall climate or any change thereof.

5. Impacts of No Grazing

Impacts under No Grazing are expected to be fewer, albeit immeasurably so, as under the proposed alternative. Although there would be no GHG emissions due to livestock in this Allotment under this alternative, it is not thought to have the volume to create an effect in Global Climate Change.

NATIVE AMERICAN RELIGIOUS CONCERNS

A. Affected Environment

The Nevada Cowhead Grazing Allotment is within the territorial boundaries of the *Kidütökadö* band of the Northern Paiute. Many members of the *Kidütökadö* continue to reside at the Fort Bidwell Reservation. The BLM Surprise Field Office conducted consultation with the Fort Bidwell Tribal Council regarding the Nevada Cowhead Grazing Permit Renewal, in addition to other projects, on January 10, 2009. No concerns were expressed by the tribe regarding the renewal of the Nevada Cowhead Allotment Grazing Permit. Therefore, no impacts are expected and this issue would not be further discussed in this EA.

INVASIVE, NON-NATIVE SPECIES

A. Affected Environment

Weeds are defined in this EA as plants that are exotic or non-native plants. Non-native weeds have the ability to out-compete and replace native plants, often creating their own monotypic plant community. Uncontrolled weed infestations result in decreases of native vegetation diversity, reductions in forage and wildlife habitat. Once exotic weeds become established it can be extremely difficult to eradicate them and to restore native communities.

The 1999, field inspections revealed that cheatgrass, an invasive species, is the dominant understory species occurring in the lower elevation on the west end of the allotment. Also, several thistles were found on the wet and stringer meadows at the upper elevations. During the 2009 TRT field tour, bulbous bluegrass was identified in a concentrated area near the east end of the allotment where the North and South Plateau Pastures meet. Cheatgrass was present during the 2008 and 2009 field work, however it was recorded in smaller amounts than in 1999. Japanese Brome, also an invasive species, is also present in isolated pockets throughout the allotment. No other exotic or invasive weeds are known to occur on the allotment.

B. Environmental Consequences

1. Impacts of Proposed Action

The proposed action would be expected to improve the vigor and reproduction of native perennial species in the uplands, by deferring use every other year on half the allotment. The improvement in vigor and reproduction should retard the spread of invasive species on the uplands if enough native perennials are present.

The perennial portion of Rock Springs is fenced, limiting livestock use in that area to up to 3 days of gathering and trailing yearly between 4/15 and 7/15. Due to this limited use and corresponding utilization limits, the vegetation within Rock Springs is expected to continue progression towards late seral riparian specie composition, and successfully compete against the spread of weeds. Horse Creek is mainly within the Lower Horse Creek Pasture, where use is limited to 5 days of trailing between 4/15 and 7/15. This light use within Lower Horse Creek Pasture would allow the vegetation on Horse Creek to continue progression towards late seral riparian specie composition, and successfully compete against the spread of noxious weeds. This improvement of composition, along with utilization limits, should assist in preventing the spread of noxious weeds into riparian areas throughout the allotment.

2. Impacts of Current Management

Under current management, both the invasive species cheatgrass and Japanese brome, and the thistles are expected to increase. The rest rotation management system would not improve the vigor of native perennial species to the extent that the Proposed Alternative would, due to the large amount of cattle concentrated in small areas. The concentrated use would decrease the vigor of the present native species, allowing the more aggressive species to dominate. A decline in biodiversity is expected on the uplands.

Rock Creek Exclosure would receive no impacts from cattle under this alternative, thereby minimizing the spread of invasive species in this area.

3. Impacts of Modified Terms & Conditions

Impacts under the modified terms & conditions alternative are expected to be much the same as under the proposed alternative. However the upland stubble height requirement in the Northeast and Rim Pastures are not allowed to drop below 6 inches (as opposed to 4 inches in the Proposed

Alternative) which would subsequently decrease the amount of utilization in these two pastures. Native perennial species would display improved vigor and provide competition to further retard the spread of invasive species.

Rock Creek Exclosure would receive no impacts from cattle under this alternative, thereby minimizing the spread of invasive species in this area.

4. Impacts of Reduced Stocking Rate

Impacts under the Reduced Stocking Rate Alternative are expected to be greater than the Proposed Alternative in the Barrel Springs Pasture in year 1 and 2 of the pasture rotation. In year 1 of the Reduced Stocking Rate Alternative, 1125 AUMs are utilized in the Barrel Springs Pasture, as opposed to the 492 and 482 AUMs (1st and 2nd year of pasture rotation in the Proposed Action, respectively) utilized in the Barrel Springs Pasture under the Proposed Alternative. This large concentration of AUMs would decrease ground cover and allow invasive species to compete with native vegetation for establishment. During the second year of the pasture rotation, the Reduced Stocking Rate Alternative allows 144 AUMs of use from 7/16-8/31. By that time in the summer the majority of water and vegetation in this low elevation pasture would have dried up and the cattle would likely congregate around the few remaining water sites for the duration. This congregation would decrease ground cover and allow invasive species to compete with native vegetation.

Providing two years of rest in the North Plateau Pasture is expected to improve the vigor and reproduction of native perennial species in the uplands. This alternative should see an accelerated vegetative recovery as compared to the Proposed Alternative for the North Plateau Pasture. The improvement in vigor and reproduction should retard the spread of invasive species on the uplands if enough native perennials are present.

The South Plateau Pasture would receive impacts comparable to the Proposed Alternative during the 1st and 2nd year of the pasture rotation, with growing season rest being provided every other year in the Proposed Alternative and full rest every third year in the Reduced Stocking Rate Alternative. However, the Reduced Stocking Rate Alternative utilizes 144 AUMs in the South Plateau pasture from 7/16 – 8/31 in the 3rd year of the pasture rotation, and by that time in the summer the majority of water and vegetation in this low elevation pasture would have dried up and the cattle would likely congregate around the few remaining water sites for the duration. This congregation would decrease ground cover and allow invasive species to compete with native vegetation.

The upland stubble height requirement in the Northeast and Rim Pastures are not allowed to drop below 6 inches (as opposed to 4 inches in the Proposed Alternative) which would subsequently decrease the amount of utilization in these two pastures. In addition, each of these pastures is afforded two years of rest out of three, which would improve vigor of native perennial species and provide competition to further retard the spread of invasive species.

Rock Creek Exclosure would receive no impacts from cattle under this alternative, thereby minimizing the spread of invasive species in this area.

This alternative also includes an objective that specifies cattle would not be moved from an infested area to a non-infested area, thereby minimizing cattle borne spread of invasive species.

5. Impacts of No Grazing

The No Grazing Alternative would allow the most rapid recovery of the native species, in both vigor and composition. The accelerated recovery provided by this alternative would be expected to have the greatest benefits in slowing the spread of invasive species.

C. Maps

Data for existing locations of weeds around the Nevada Cowhead Allotment can be found in attached Map 3 of Appendix 1.

WETLANDS/RIPARIAN ZONES

A. Affected Environment

Undeveloped water sources within the Nevada Cowhead Allotment include: Deer Camp Spring, Horse Creek (Upper and Lower), Rock Creek, an unnamed seep to the north of Horse Creek, and a tributary to upper Horse Creek. Table 10 below outlines functionality ratings and sizes or lengths of these systems.

Table 16. Riparian systems in the Nevada Cowhead Allotment

Riparian Name	Size	Existing Developments	Fencing	Year of PFC rating	PFC rating	Pasture
Deer Camp Spring*	.25 miles perennial	none	None – all public	2008	PFC	Lower Horse Creek Pasture
Upper Horse Creek	1.2 miles perennial	none	173 acre (76% private)	2008	PFC	Upper Horse Creek Pasture
Lower Horse Creek	2.8 miles perennial	none	2,283 acre pasture (19% private)	2008	PFC	Lower Horse Creek Pasture
Rock Creek Exclosure	½ mile perennial	none	450 acre exclosure (all public)	2008	PFC	North Plateau Pastures
Unnamed Seep	0.25 acres	none	None – all public	2008	FAR, no apparent trend	Lower Horse Creek Pasture
Upper Horse Creek tributary	0.3 miles	none	None – all public**	2008	FAR, no apparent trend	Northeast Pasture

* Approximately 1.2 miles of additional riparian habitat exists on public lands downstream of Deer Camp Spring which appears to have another spring associated with it. No previous water source inventory or riparian functional information exists for this site. Observations in 2008 and previous years indicate it is in similar condition to Deer Camp Spring due to the limited grazing season in the Lower Horse Creek Pasture.

**Other portions above and below this reach are on private lands.

The Horse Creek watershed is approximately 18,350 acres in size (15,950 in Nevada, 2,400 in Oregon). The topography of the Horse Creek drainage is flat to gently rolling. Elevations range from 5,180 feet along the Oregon border to 6,775 in the southeast part of the Nevada Cowhead allotment. Horse Creek is a tributary of Twelve mile Creek. The portion of Horse Creek on the Nevada Cowhead Allotment is perennial, beginning at springs in the Upper Horse Creek Pasture on private land in T. 47 N., R. 19 E., sec. 32 NWNW and on BLM land in T. 47 N., R. 19 E., sec 31 SWSE.

In general, the channel of Horse Creek and the floodplain are composed of silt that is at least 20 feet deep. There are lava rocks through the entire course of the stream. In some areas, where the canyon is narrow and rocks are at the surface, they armor the channel and control the stream. In other areas, meadows have formed, presumably because of the lower gradients allowing for deposition. Cut banks in some of the meadow areas are ten feet deep. The layers in the cut banks tend to be deep and show little sign of organic matter accumulation; indicating that the creek is not cutting through old meadows but instead the sediments in the bottom of the steam may have resulted from recent deposition. Several pastures were built around Horse Creek in the late 1990's including the Lower and Upper Horse Creek pastures. Marked improvements have been seen along Lower Horse Creek including increases in willows and narrowing of the stream channel.

Rock Creek lies within the North and South Plateau Pastures of the Nevada Cowhead Allotment, except for its lowermost 0.5-mile (BLM Lakeview) and its uppermost 0.5 miles (Crooks Lake Allotment). An exclosure was built around the lower spring fed, perennial portion of Rock Creek in 2002. The exclosure was built to improve conditions along perennial portions of Rock Creek. Since the construction of the Rock Creek Exclosure in the late 1990's, herbaceous and woody species have increased dramatically within the Rock Creek exclosure.

The low sagebrush community over lava flows, which makes up most of the watershed, and its rock lining, make Rock Creek inherently flashy. For example, in the spring of 1993, the creek was approximately 3 feet deep at the Barrel Springs Road crossing, but 3 days later it was discontinuous. This same scenario has been noted every year during early spring trips into the allotment. Water from large precipitation events or rapid snowmelts would naturally flow to Twelvemile Creek without much opportunity for infiltration.

B. Environmental Consequences

1. Impacts of Proposed Action

Under the Proposed Alternative, riparian habitats within the allotment would be expected to improve, due to the light grazing, with the possible exception of the upper portion of Horse Creek. In the Rock Creek Exclosure and along the lower reach of Horse Creek, riparian habitats would be expected to continue improvements in vegetation diversity and cover with light grazing (Holland, Wayne, & M., 2005). Due to the steep rocky nature of the Rock Creek drainage, trailing cattle across Rock Creek would create localized short-term disturbances, impacting the herbaceous and woody vegetation in one location and having no direct impact elsewhere in the drainage. This localized disturbance would contribute to yearly short-term decreases in cover at

that location. This observation is based on intensive aerial and ground monitoring from 2001 to 2007. In consideration of these observations since creation of the exclosure, only localized impacts would be expected to riparian habitat. No long term impacts are expected, due to the Terms and Condition of the permit that specifies that trailing through the exclosure can be suspended or revoked due to cattle remaining in the Rock Creek Exclosure for longer than the three day trailing period in any given year.

2. Impacts of Current Management

Impacts to riparian values from livestock would be roughly the same as for the Proposed Action in Horse Creek. Intensive monitoring has limited the amounts of unauthorized use and related impacts to riparian habitats.

Under current management, livestock impacts within the Rock Creek Exclosure would not occur because the area is closed to livestock use. Intensive monitoring along Rock Creek has limited the amounts of unauthorized use and related impacts to riparian habitats.

3. Impacts of Modified Terms & Conditions

Impacts to riparian values from livestock would be the same as for the proposed action in Horse Creek; however the utilization limit would be set at 20% (as opposed to 30% in the proposed alternative) for willows. This lower utilization limit would likely have little impact on the health of the willows. Research indicates that 30% utilization levels on willows promotes species diversity and willow canopy (Holland, Wayne, & M., 2005). Under the modified Term & Conditions Alternative, there would be no livestock impacts to Rock Creek, as this area would remain closed to livestock use. Effects to riparian conditions would be similar to the Current Management Alternative.

4. Impacts of Reduced Stocking Rate

Negative impacts to riparian values from livestock grazing in Lower Horse Creek Pasture would be slightly less than the Proposed Action. Under this alternative fewer cattle would be trailed through Horse Creek from 6/15 – 7/15 for 5 days. This late use would alleviate most bank and upland disturbance due to the soil no longer being saturated at that time. The utilization limit would be set at 20% (as opposed to 30% in the proposed alternative) for willows. This lower utilization limit would have little impact on the health of willows. Research indicates that 30% utilization levels on willows promotes species diversity and willow canopy (Holland, Wayne, & M., 2005) considering the timing of livestock use within Horse Creek. Use in the Northeast Pasture would be reduced by half under this alternative, and only occur every third year, which would be expected to benefit aspen within the pasture by allowing young plants to grow past browsing height before grazing resumed again. Under this alternative, there would be no livestock impacts within the Rock Creek Exclosure, as this area would remain closed to livestock use.

Riparian reaches on private land within the Barrel Springs Pasture would experience heavier use than all other alternatives in one year out of three. This could lead to degradation of ephemeral riparian habitats on public land and perennial habitat on private lands. Vegetation diversity and vigor would be expected to decrease in the Barrel Springs Pasture.

5. Impacts of No Grazing

Riparian values on public lands would not be impacted by this alternative since grazing would not be authorized on public lands within the allotment.

C. Maps

A map depicting the developed and undeveloped water sources on the Nevada Cowhead Allotment is included as Map 4 in Appendix 1.

WILDLIFE/THREATENED AND ENDANGERED SPECIES

A. Affected Environment

Wildlife:

Sagebrush communities dominate the vegetation within the Nevada Cowhead Allotment. Greater sage-grouse (*Centrocercus urophasianus*) is the only known sagebrush obligate found on the allotment. Pygmy rabbit (*Brachylagus idahoensis*), also a sagebrush obligate, were surveyed for throughout the field office in 2006 and during planning for the Ruby pipeline in 2008/2009. No signs of pygmy rabbit were found in or adjacent to the allotment; therefore, this species is not expected to be impacted and would not be discussed further.

Much of the allotment is considered summer or fall/transition habitat for mule deer (*Odocoileus hemionus*) and summer and winter habitat for pronghorn antelope. Only small amounts of bitterbrush are found on the allotment. Western juniper provides important winter deer cover and very small amounts of winter forage. Mule deer with fawns have been seen in several years along Horse Creek in the summer. Pronghorn (*Antilocapra americana*) kidding is known to occur adjacent to the allotment and the presence of herds throughout the summer and fall may indicate that kidding occurs within the allotment, most likely along its western boundaries. Pronghorn use is most notable in the northern half of the allotment, from spring to fall. It is believed that in mild winters, pronghorn remain within the northern sections of the allotment. According to GIS information provided to the BLM from the Nevada Department of Wildlife (NDOW), California bighorn sheep (*Ovis canadensis californiana*) use may occur on several thousand acres in the extreme northeastern sections of the allotment. Because bighorn are not well adapted to deep snow, most use probably occurs in the spring to fall months. Very limited elk (*Cervus elaphus*) use is thought to occur in the allotment.

Populations of fish appear locally abundant in the Nevada Cowhead Allotment. Rock Creek has many dace throughout the watered portions of its channels, with trout appearing concentrated in pools near its northern edge. Horse Creek has no trout but many dace. Rock Creek is not likely capable of supporting more fish due to its ephemeral nature and generally low water flow from spring sources.

Cow Head Lake tui chub (*Gila bicolor vaccaceps*) occur on unfenced private inholdings in the Barrel Springs pasture. This species was formerly a proposed endangered species, however additional information, including surveys in 2001by the USGS, led the USFWS to determine that

"the proposed listing of the Cow Head tui chub (*Gila bicolor vaccaceps*) as an endangered species under the Endangered Species Act of 1973, as amended (Act), is not warranted" (Federal Register: October 11, 2006 (Volume 71, Number 196). This fish is now known to occur throughout private land streams and canals connected to the Cow Head Lake system. This species is currently awaiting addition to the BLM's sensitive species list.

Threatened or Endangered Species:

To date, Warner sucker (*Catostomus warnerensis*), a federally threatened fish, has not been found within the Nevada Cowhead Allotment, or within on any other lands managed by the Surprise Field Office. Critical habitat for the species is found downstream of the Nevada Cowhead Allotment on BLM managed lands in Oregon. Waters within the allotment which feed into this habitat include Horse Creek (perennial) and Rock Creek (intermittent). During USGS surveys for the Cow Head Lake tui chub in the summer of 2001, a single Warner sucker was found on private lands on an adjacent allotment to the Nevada Cowhead Allotment. The 2001 USGS survey also included Rock Creek and Horse Creek.

During spring flows, the small pools where the single Warner sucker was found can be connected to waters on private land within the Nevada Cowhead Allotment. These private reaches are known to contain Cow Head Lake tui chub but no Warner sucker. In 2006, landowner permission allowed an additional search to take place in the pool system where the single Warner sucker was found in 2001. No suckers were located on the second (2006) search.

No saltgrass habitats exist within the allotment and surveys for Carson wandering skipper (federally listed endangered) within the boundaries of the Surprise Field Office have all been negative, therefore this species would not be discussed further.

BLM Sensitive Species:

The Greater sage-grouse is found within the allotment and is considered a BLM sensitive species. Greater sage-grouse have been known to nest adjacent to the allotment, and use the allotment for breeding and brood rearing. Adult and young sage-grouse, or their sign, are often seen at several locations along and between Horse Creek and Rock Creek. Sage-grouse use within the allotment is considered yearlong. As part of early conservation efforts for sage-grouse, an analysis of habitat was made which included information on soils and vegetation, juniper, and areas known to have fires, seedings, and cheatgrass. Large scale polygons were developed to estimate the amount of intact habitat for sage-grouse as well as potential problem areas within the Surprise Field Office. This analysis indicates that about 14% of the allotment is "intact", with good sagebrush and understory components. Another 23% has sagebrush but generally has limited understory (can include low sagebrush sites which have less herbaceous cover, such as lek sites). More than 62% is thought to have heavier than normal juniper and the last 2% was unclassified. Two active sage-grouse leks (strutting grounds) are known to exist within the allotment. Both occur in sagebrush habitats classified as generally "lacking" adequate understory.

The Warner Valley redband trout (*Oncorhynchus mykiss* spp) is also a BLM sensitive species and occurs only in Rock Creek. Surveys in Rock Creek have found rainbow trout and rainbow/redband trout hybrids.

A more complete list of species known to exist on the allotment is contained within the 2008 Rangeland Health Determination (Surprise FO web site, posted 2/13/09).

B. Environmental Consequences

1. Impacts of Proposed Action

The proposed action is designed to improve upland habitats, which would benefit many wildlife species. Improvements in grass and forb cover (see attachment 1) would benefit pronghorn in their spring through fall habitats, mule deer fall habitat, and sage-grouse spring/summer brood rearing habitats. Increased residual grasses every other year would benefit nesting habitat for sage-grouse and especially smaller birds and rodents. Since bighorn are found on the steeper slopes where cattle generally are not found, effects from this action are expected to be low to non-existent for bighorn sheep and similar to the current grazing system. Improvements in upland habitat may also benefit Warner sucker and other in-stream aquatics by reducing potential sediment loads into streams via increased upland vegetation adjacent to riparian habitats. Direct effects to sage-grouse are expected to be lower than the current action since fewer cattle would be in pastures with sage-grouse leks every other year and institution of a 0.6 mile livestock turnout buffer around the Stateline lek. Summer brood rearing would only be slightly affected since young are mobile quickly after birth and brood rearing appears concentrated around the Horse Creek system.

Riparian habitats within the allotment would improve except along Rock Creek where riparian habitats would be maintained or possibly decrease along the trailing route. Any effects to aquatic species are expected to be confined to Rock Creek and in the general vicinity of the trailing route. No long term impacts are expected, and any potential short term impacts are mitigated through the Term and Condition on the permit which stipulates "If cattle remain in the Rock Creek Exclosure past the three days of allowable use in any given year, ability to gather and trail through this area will be suspended or revoked."

Increased cover and less damage to soils along Horse Creek would be expected to reduce water temperatures along BLM managed lands and reduce any sediment load into Horse Creek. Indirect effects to Warner sucker and other aquatic species in the Twelvemile system are not expected to occur, given that there are no Warner sucker in either Rock Creek or Horse Creek, very limited occupied redband trout habitat in Rock Creek, the ephemeral nature of water flow in Rock Creek, the distance of Horse Creek to Twelvemile Creek, and the limited grazing that would occur. Based on the quality of habitat, the absence of the species within the allotment, and that proposed grazing management practices are unlikely to affect habitat and fish downstream from the allotment, BLM concludes that the proposed grazing of the Nevada Cowhead Allotment may affect, but is not likely to adversely affect the Warner Sucker. The effects of public and private lands downstream of Horse Creek in Oregon are unknown, however recent information indicates that most of these private and public lands are properly functioning or in upward condition trends (conversation with Jimmy Leal, Lakeview BLM fisheries biologist, summer 2009). Increases in riparian woody cover would be expected to increase nesting opportunities for cavity nesters and other birds which use trees and shrubs for nesting including blackbirds, robins, flycatchers, and bluebirds.

Water developments have both beneficial and negative effects to wildlife. Although stock reservoirs can be used by big game as well as shorebirds and waterfowl, the decrease in vegetation cover commonly observed around stock reservoirs limits their use by other wildlife. The potential decrease of vegetation around the new reservoirs would limit nesting of small birds and potentially any sage-grouse that may nest in the area. This impact would be most noticeable in odd years, when cattle would be in the North Plateau Pasture during the nesting season for most sagebrush obligate species. Given the known concentration of pronghorn use in the North Plateau Pasture of the allotment, the creation of additional reservoirs and reconstruction of unused reservoirs in that area may have negative impacts to pronghorn use of the pasture from spring through early summer, depending on year. These reservoirs however are expected to reduce livestock impacts to vegetation in other parts of the pasture, which would have benefits to wildlife, including pronghorn and sage grouse, in those areas. New reservoirs in the Barrel Springs pasture may reduce cattle concentration and impacts along riparian habitats associated with Cow Head Lake tui chub on private lands within the Nevada Cowhead Allotment; however BLM has no information as to the current condition of those riparian habitats.

2. Impacts of Current Management

Despite several instances of unauthorized cattle grazing in the allotment, the current management system of pasture fences and seasonal use requirements has shown steady improvements in riparian habitats. As no trailing would be allowed with the current grazing system, the Rock Creek exclosure would be expected to see further improvements in herbaceous and woody cover. Similar improvements would be seen along Horse Creek, however riparian habitats including large woody species like aspen would experience continued decreases in the Northeast Pasture. Given the current trends seen in riparian vegetation (see *Wetlands/Riparian Zones* - Affected Environment), increases in riparian vegetation are expected to reduce maximum summer water temperatures in Horse Creek, and possibly Rock Creek. Increases in the structural diversity of woody vegetation would continue, which would benefit cavity nesting birds, bat roosting, and raptor nesting/foraging opportunities.

Since stock reservoirs can be used to distribute livestock impacts, not creating new reservoirs would not improve the distribution of livestock throughout the North Plateau or Barrel Springs Pasture. However, by not creating new stock reservoirs there would be no loss of vegetation that is associated with the creation of stock reservoirs.

Direct effects to sage-grouse are expected to be higher than the proposed action since higher concentrations of cattle are in pastures with active sage-grouse leks. In the Current Management alternative, no turnout buffer currently exists around the Stateline lek. Effects to strutting birds in the Lower Horse creek pasture would be minimal to non-existent given the use period for cattle. Summer brood rearing impacts would also continue to be minimal because cattle use would occur away from most brood rearing areas.

3. Impacts of Modified Terms & Conditions

Impacts from this system are similar to the Proposed Action except that an larger (6 as opposed to 4 inches) residual stubble height is available on the uplands in Rim and Northeast pastures, and the Rock Creek exclosure would not have any livestock use authorized. Additional residual stubble on the uplands would create additional cover for ground nesting birds, thereby reducing the likelihood of predation. Rodent populations would also benefit for similar reasons. Increases in the availability of forbs would be expected to benefit sage grouse and big game. During years where cattle are turned out in the Barrel Springs Pasture, direct impacts to strutting birds around the Stateline lek would be less than the Proposed Action or Current Management because of the institution of a 1 mile turnout buffer around the lek.

No trailing of livestock through the Rock Creek exclosure would ensure that riparian habitats continue upward trends in vegetation recovery.

4. Impacts of Reduced Stocking Rate

Except for the Barrel Springs Pasture, long term impacts to most wildlife from this alternative would be expected to be positive due to expected changes towards DPC for vegetation and at a faster rate.

Year 1 stocking rates in the Barrel Springs Pasture would not likely be fully realized with the 40% utilization objective; therefore livestock use would be much shorter in this pasture, roughly estimated at only 30 days as opposed to 90. This shorter early season would have similar direct impacts to sage-grouse as both the Proposed and Current Management Alternatives, with the Proposed having slightly fewer impacts. If the 90 day grazing period were followed without the 40% utilization objective, then indirect impacts to sage-grouse and pronghorn habitats would be much greater in the Barrel Springs Pasture than in any other alternative. Heavy use in one year however could degrade riparian habitats and therefore cause negative impacts to Cow Head Lake tui chub on unfenced private lands within the pasture. Impacts would be greater in this pasture than any in the North Pasture, which has less occupied tui chub habitat. Wildlife habitat within the Barrel Springs Pasture would experience negative impacts since both grass and shrub species are not expected to move towards DPC, therefore long term negative impacts to wildlife would be expected with this alternative within this pasture.

The North Plateau Pasture would be used in one year out of three at the same level as the Proposed Action would use every year, and much less (about 40%) than current management prescribes every other year. This alternative would be expected to achieve similar habitat results as the Proposed Action, but at faster rates. Wildlife would therefore be expected to respond similarly. Impacts to Cow Head Lake tui chub in this pasture would likely be less with this alternative since use would be about the same or less than other alternatives.

Since the Reduced Stocking Rate Alternative is expected to move all other pastures (about 80% of the remaining lands) within the allotment towards herbaceous DPC goals, this alternative would be expected to benefit wildlife herbaceous habitats in the remaining pastures. The

application of a residual 6 inch stubble height requirement for the Northeast and Rim pastures, as opposed to 4 inches in the drip line of shrubs, may provide more nesting opportunities for sage-grouse in those pastures as well as hiding cover for other wildlife species including mule deer and pronghorn young. Since bighorn sheep use is expected to be variable but low within the entire allotment, this species would see little effects, either positive or negative from this alternative.

This alternative prescribes use in the Rim and Northeast pastures similar to the Proposed Alternative, but with 100 cattle instead of 200 cattle, and use is only to occur every third year. Lighter use of these pastures would be expected to positively affect aspen stands in these pastures. This would have positive affects to mule deer summer foraging/loafing habitat and any elk calving that may take place. Elk would benefit from herbaceous improvements described above. Improvements in aspen structural diversity would positively affect cavity nesting birds and raptor nesting opportunities.

5. No Grazing

Lack of cattle would cause some shifts in habitat use over both the short term and over the long term. Immediate increases in forage and cover for wildlife would be expected with increases in upland species diversity occurring slightly faster than the proposed action, if species components are available. Positive short-term shifts in habitat use would be seen with sage-grouse use of meadows and riparian areas and longer-term positive shifts could be expected with nesting habitat. Upland bird species breeding densities should increase with higher grass cover and rodent and raptor populations would likely see localized increases in numbers. Antelope and deer use associated with upland transition and summer habitats would be expected to increase. Quality kidding and fawning habitat should be available with increased opportunities for use. Bighorn sheep use could increase slightly but use is likely limited by steep escape cover in the allotment. Elk, which have been seen occasionally in the general area, could increase their use of the allotment.

No new reservoirs would be built with this alternative and therefore similar effects as the Current Management would be expected.

Riparian habitat on public land would be expected to see immediate improvements in quantity and diversity of vegetation in both Horse Creek and Rock Creek. Immediate benefits would also be seen in the public riparian habitats in the Northeast Pasture. Upland meadows associated with springs would see improvements over time without the need for additional fences, alleviating the possibility of fence-related problems.

Effects to fish in Horse Creek would be dependent on whether private riparian pastures along Horse Creek were used or not. Fish populations could improve slightly in Rock Creek over the long term but are limited by the ephemeral nature of Rock Creek.

C. Maps

A map depicting sage grouse habitat values on the Nevada Cowhead Allotment is included as Map 6 in Attachment 1.

SOILS

A. Affected Environment

The soil classification for the allotment is contained in the Washoe County, North Part Soil Survey #759 which was updated in 1995 and published in 1999 as an order III soil survey. Almost the entire Nevada Cowhead Allotment is situated on a lava flow. The soils are shallow, and have high clay contents with a high percentage of surficial rock, and consequently have very slow permeability. In addition, the permeability of these soils decreases when the soil is wet. Most the allotment is in the 10 - 12 inch precipitation zone, with the much of the precipitation occurring from November through February as snow. The effect of this is that most of the rainfall and much of the snowmelt becomes run-off and is not available to the plants. Plants are widely spaced, so they are not very effective at intercepting runoff.

B. Environmental Consequences

1. Impacts of Proposed Action

Deferring use in the North and South Plateau Pastures in alternating years would result in improved soil conditions by allowing increased residual vegetation and litter for soil protection and function. There is potential over time, with the proposed seasonal deferment, to restore deep- rooted grasses and move the vegetative community toward DPC. Increased vegetative cover, both litter and standing crop would reduce the potential for soil erosion. In addition, Terms & Conditions identify soil moisture conditions prior to turnout in order to minimize cattle impacts to soil disturbance/erosion. Also, the minimal use in Rock Creek and Horse Creek would be designed to increase sod-forming vegetation in riparian areas to protect soils from compaction, bank shearing and erosion.

2. Impacts of Current Management

The current management is comprised of a rest rotation system in which the North Plateau and Northeast Pasture are used in odd years and rested even years, and South Plateau, Barrel Springs and the Rim Pasture are used in even years and rested in odd years. The Lower Horse Creek Pasture is used yearly for trailing. This management system concentrates 2250 AUMs yearly on half of the Allotment. 800 cattle are run from 4/15-7/15 in the North Plateau (South Plateau every other year). Although this does provide one year of rest for each Plateau pasture, it also creates a large amount of concentrated use in the years that a particular pasture is not rested. This higher concentration of use contributes to soil disturbance. Although rest every other year provides an opportunity for vegetation to seed and establish, the years of concentrated use likely negate potential benefits of rest.

3. Impacts of Modified Terms & Conditions

Impacts under the Modified Terms & Conditions Alternative, the impacts would be the same as under the Proposed Alternative, however Rock Creek would receive no impacts from cattle. Terms & Conditions (# 1) dictate necessary vegetative conditions, which correspond closely to soil conditions, prior to turnout in order to minimize cattle impacts to soil disturbance/erosion.

4. Impacts of Reduced Stocking Rate

Increased vegetative cover, both litter and standing crop, would reduce the potential for soil erosion. Terms & Conditions (T & C #1) dictate necessary phenological conditions of key perennial grasses, which correspond closely to soil conditions, prior to turnout in order to minimize cattle impacts to soil disturbance/erosion.

Resting the North Plateau Pasture two out of every three years, and South Plateau Pasture one out of every three years would allow the soil conditions to improve by allowing increased residual vegetation and litter for soil protection and function. With the rest rotation pasture management and reduced stocking rate, restoration of deep- rooted grasses may occur more rapidly in the North Plateau Pasture than under the Proposed Alternative. However, the later use in the South Plateau Pasture (100 cattle, 7/16-8/31) during the third year of the rotation would create cattle concentration at the watering sites, and the impacts to the soil would be expected to be more severe at those locations.

Under this alternative, soil conditions in the Barrel Springs Pasture would not be expected to improve. Heavy use (400 cattle 4/15-7/15) every third year would decrease residual cover as well as impede the desired increase in deep rooted native perennial grasses. Since the Barrel Springs Pasture dries out earlier in the year, the later use (100 cattle 7/16-8/31) the second year of the rotation would concentrate the cattle around the watering sites, as well as concentrating use on the remaining deep rooted native perennial grasses and any palatable woody species. This use would not promote progress towards DPC in the Barrel Springs Pasture, and would decrease the residual vegetation and litter for soil protection and function. Utilization objectives for the Barrel Springs Pasture have been set at 40% under this alternative, which would not allow for resource degradation to occur, however it would also not allow the field to be used as outlined in the Pasture Management of the Reduced Stocking Rate Alternative. The operator would likely have to come off the Barrel Springs Pasture after 1 month at this stocking rate, creating incompatibilities with all subsequent pasture moves.

5. Impacts of No Grazing

In the short term, plant vigor and litter would improve rapidly. Organic matter would increase but would not be incorporated into the soil as fast as the proposed action alternative, since there would be little hoof action under this alternative. In the long term, litter buildup would increase and soil protection would be greater than for the proposed action.

C. Maps

A map depicting soil mapping units on the Nevada Cowhead Allotment is included as Map 6 in Attachment 1. Watershed information for the Nevada Cowhead Allotment is available on the Surprise CWMA GIS database.

VEGETATION

A. Affected Environment

Currently, aspen stands are usually restricted to one seral stage with seedlings and young age classes poorly represented. Aspen stands (*Populus tremuloides*) associated with north facing

slopes and away from late summer water were showing some younger age classes, but stands more accessible to hot season livestock use and juniper encroachment use are in danger of being lost. Low sagebrush (*Artemisia arbuscula*) sites adjacent to the major livestock use areas generally lacked vigor and species diversity. Each ecological site can be found described in greater detail in the Nevada Cowhead Rangeland Health Determination and current conditions are included in the DPC table. The Claypan 10-14" site has a suitable amount of sagebrush and forb component, however Poa species have largely replaced the deep rooted native perennial grasses expected for this site, such as bluebunch wheatgrass (*Pseudoroegneria spicata*) and Thurber's needlegrass (*Achnatherum thurberianum).* Thurber's Needlegrass and Webber's Needlegrass (*Achnatherum webberi)* were found to be lacking in the Gravelly Claypan 10-12" site, and Poa species had become the dominant grass at this site as well. Juniper is increasing in the Barrel Springs area of the allotment and is affecting species diversity. The potential plant community for low sagebrush is a combination of Thurber's needlegrass and/or Idaho fescue. Sandberg bluegrass is the understory dominant. It acts as an increaser with livestock grazing. There are several on-going juniper reduction projects in aspen stands and on low sagebrush sites in the allotment.

Potential exists to increase seral stage diversity within aspen, mountain brush and meadow sites, and to increase deep-rooted perennial grasses, litter, seedling and young age classes within low sagebrush sites. By increasing the seral stage diversity found within these communities, the value of the habitats for wildlife, fish, human visitors and livestock would be significantly improved.

The plant communities in the Rim Pasture and Northeast Pasture are mountain brush associations. Big sagebrush (*Artemisia tridentata* spp.) is the dominant species. Antelope bitterbrush (*Purshia tridentata*) and curlleaf mountain mahogany (*Cercocarpus ledifolius*) are important components on some sites. Aspen, bitter cherry (*Prunus emarginata*), serviceberry (*Amelanchier arborea)*, currants (*Ribes* spp.), and roses (*Rosa woodsii*) can also be found. Idaho fescue is the dominant grass. Arrowleaf balsamroot (*Balsamorhiza sagittata*) is a common perennial forb. The understory is diverse, having a mixture of numerous species of forbs and grasses.

BLM Sensitive Species

There are no BLM listed sensitive plant species found on the Nevada Cowhead Allotment, so they would not be discussed further in this document.

B. Environmental Consequences

1. Impacts of Proposed Action

Implementation of the Proposed Action would decrease the utilization of herbaceous species on the stream and wet meadow riparian communities as previously discussed. There would also be a reduction in woody species utilization by livestock on willows, aspen, and bitterbrush due to the decrease in hot season grazing. Monitoring data collected on public lands in the Surprise Resource Area since 1979 has demonstrated that livestock do not concentrate on woody species until after the grasses have dried in the summer. This alternative would result in a substantial decrease in duration of summer/fall livestock use in a majority of the allotment (livestock staying

in a given pasture for 1.5 months as opposed to 3 months), and therefore would be expected to result in substantially reduced woody species utilization, resulting in increases of size and vigor in these species. Some woody species utilization is associated with wildlife use of the allotment during the summer and fall.

Additional herding requirement of the proposed action would distribute livestock and forage utilization across the pasture landscape. This will allow for improvement of native grasses, forbs, and shrubs without a reduction in livestock numbers (Holechek, J. L., Rex, D. P., & Carlton, H. H., 2004).

The North Plateau and South Plateau/Barrel Springs Pastures would be seasonally deferred on alternating years. This grazing plan would allow The North Plateau Pasture to be used early one year, with cattle remaining for 6 weeks (4/15-5/30) and then used later the following year (6/1-7/15). The South Plateau/Barrel Springs pastures are on the opposite rotation. Early use would be concentrated on the Poa species, which are palatable and nutritious early in the season. The later use would be concentrated on the deep-rooted native perennials, which retain their palatability and nutrition later into the season. This means that use in these pastures would be focused on different species every other year, affording a year of lighter use to the species not favored by that rotation.

Later use (7/16-10/26) in the Northeast and Rim Pastures provides an opportunity for forage use when nutrition remains high in the fescues and wheatgrass and needlegrass present throughout these pastures. The yearly objective of no more than 60% utilization of native grasses and no less than a 4 inch stubble height in the drip line ensure that these areas would retain adequate seedbanks to continue recruiting seedlings. The vegetative health is further promoted by the yearly rest of each of these pastures on opposite years.

The terms and conditions limiting aspen sucker use to 20% (T & C # 3) would promote the health of an aspen stand in the Northeast Pasture. Minimizing late season concentration in this stand would allow the aspen stand to achieve sucker densities appropriate for the site, and eventually to achieve a diverse age group of aspen trees. In addition, the improved health of the aspen stand would encourage an understory of grasses, forbs and shrubs to be present within the stand.

DPC objectives would be defined for the major ecological sites and some important minor ecological sites. By defining DPC and monitoring progression towards DPC in the major sites (sites comprising the greatest area) and the important minor ecological sites (small acreage, yet areas that are important ecologically, such as aspen stands) it will be ensured that the allotment as a whole improves vegetative conditions. Although all ecological sites will not be monitored, improvements of all sites are expected from improvements in key areas, which are chosen to represent larger areas.

2. Impacts of Current Management

Continuing present management would allow continued levels of concentrated grazing and browsing on key native plant communities by using only half of the allotment yearly. The deep rooted native perennials in the North and South Plateau Pastures would be utilized during growth

and seed production only every other year, however the use would be more concentrated than in the Proposed Alternative, and would be during the entire growing season. This would slow the vegetative improvement seen within these pastures. The aspen stand in the Northeast Pasture would not be expected to improve without the 20% utilization guideline. Heavily utilized plants would dominate woody species form classes.

3. Impacts of Modified Terms & Conditions

The impacts of this alternative are very similar to the impacts discussed for the Proposed Alternative, however the yearly objective for the Northeast and Rim Pastures is slightly modified to no more than 60% utilization of native grasses and no less than a 6 inch stubble height are reached on any year the pasture is used. This stubble height objective is likely to decrease the overall utilization in these pastures, which would promote a slightly more vigorous grass community.

4. Impacts of Reduced Stocking Rate

The Barrel Springs Pasture would receive concentrated heavy use (400 cattle, 4/15-7/15) one out of three years. This one year of heavy use would decrease the potential of this site to experience an increase in deep rooted native perennial grasses, and therefore retard its approach to DPC. However, a 40% utilization objective would be established in the Barrel Springs Pasture, which would promote the site towards DPC, however is incompatible with the stocking rate specified in this alternative. The cattle would likely have to be removed well before 7/15 in order to allow 400 cattle in this pasture to meet this utilization objective.

Late use (7/16-8/31) in the Barrel Springs Pasture in the second year of the rotation would cause the cattle to concentrate use on any remaining deep rooted native perennials, as they retain their palatability much later than Poa species (Cruz & Ganskopp, 1998). Also, this year of later use would concentrate cattle use on any palatable shrub species that are found in this pasture. This concentrated use of deep rooted native perennial grasses and palatable shrubs would be expected to have negative impacts on the potential of these species to increase throughout the pasture.

The North Plateau Pasture would be rested two out of every three years, with light use (400 cattle, 4/15-7/15) during the year of use. This pasture would be expected to experience a progression towards DPC at a faster rate than the Proposed Alternative. The South Plateau Pasture would be rested one of every three years, and then experience light use (400 cattle, 4/15-7/15) on the second year. During the third year, the South Plateau Pasture would be used late (100 cattle, 7/16-8/31). This late use, as in the Barrel Springs Pasture, would create cattle selection for the deep rooted native perennials and palatable shrubs and slow progression towards DPC.

The Northeast and Rim Pastures would each receive light use (100 cattle, 7/16- up to 10/26) every third year of the rotation. Under this grazing management, the Northeast and Rim Pastures would be expected to progress towards DPC at a faster rate than under the Proposed Alternative. Term & Condition # 4 stipulates that 'Upland stubble heights of perennial grasses in the Northeast and Rim Pasture do not drop below 6 inches by the end of the grazing season, however T & C # 5 requires a 7 inch residual vegetation height. These discrepancies would create a problem when implementing monitoring; however either upland requirement may prove

unattainable based on ecological site potential when not measured solely under the drip line of the shrub cover. Idaho Fescue, according to the U.S. Forest Service utilization gauge, is not expected to exceed 4 inches tall when 60% utilization has been reached. Most grass utilization occurs in the interspaces, with the grasses within the shrub canopies being selected for secondarily. Having moderate utilization would likely mean that interspaces would experience grass heights of 4 inches, whereas shrub canopies would retain grasses at heights nearer their full potential. Since sage grouse usually nest under shrub canopies, the grasses associated with these shrubs would be more indicative of useful residual vegetation for sage grouse nesting.

This alternative has a Long Term Objective that all ecological sites within the allotment progress towards DPC. This is not feasible to measure, since in order to say that a particular site is progressing towards DPC regular monitoring is mandatory. This requirement would increase monitoring to unattainable levels, but would not be expected to achieve any greater health on the Allotment, as the Proposed Alternative has DPCs established for all major and some important minor ecological sites. These are key areas that are able to give information about the conditions of the Allotment as a whole. Vegetative effects under this alternative in the Lower Horse Creek Pasture are expected to be the same as under the Proposed Alternative.

5. Impacts of No Grazing

Utilization of herbaceous and woody species would be expected to remain in the non-use to slight range, with some use from wildlife, primarily deer occurring during the summer and fall. These low levels of utilization would provide for maximum growth potential, seed production, and residual vegetation as the seasonal growth conditions allow. This would be a positive benefit to the affected species.

C. Maps

Data for all ecological sites in the Nevada Cowhead Allotment can be found in the Surprise CWMA GIS database, or is available from the NRCS website.

LIVESTOCK MANAGEMENT

A. Affected Environment

Actual Use Reports have been received yearly for the Nevada Cowhead Allotment since 1982. There has been an average of 1544 AUMs used annually since that time. The maximum amount of AUMs used in any year was 3143 AUMs, and there have been several years of rest (0 AUMs). The North and South Plateau Pastures were combined until 2005. In 2005 the pasture division fence was built, and the Plateau Pasture (which previously had the north and south use areas) became two separate pastures, North Plateau and South Plateau Pastures.

Currently, the Nevada Cowhead Allotment has five fenced pastures: North Plateau, South Plateau, Northeast, Lower Horse Creek and the Rim Pasture. The South Plateau Pasture is separated into the Barrel Springs Use Area and the South Plateau Use Area. Although not fenced off from each other, there is a rock rim that is very effective at dividing these use areas. The Upper Horse Creek Pasture was subdivided into an upland field (Northeast Pasture) and a private riparian field (Upper Horse Creek) in 1999.

B. Environmental Consequences

1. Impacts of Proposed Action

The Proposed Action Alternative would allow the North Plateau, South Plateau, and Barrel Springs Pastures to be used yearly, incorporating deferred rotation. This would increase the amount of time that the operator spends moving cattle from one pasture to the next. Deferred rotation would facilitate livestock management; however, since the cattle would be moved onto fresh feed more frequently, they are less likely to move into areas where they are not allowed to be. Consequently, the operator would be spending less time gathering stray cattle out of other areas.

Use of the Rock Creek Exclosure as a trailing pasture would facilitate efficient livestock management within the North Plateau Pasture. The large amount of juniper within the North Plateau Pasture can create difficulties in gathering, as cattle are hidden within the juniper. By pushing the cattle into the exclosure, the area to the west of the exclosure is able to be more effectively covered by the operator since the cattle would not be able to break away from the group and return to the juniper while the operator returns to gather the remaining cattle.

The stubble height requirement in the Northeast and Rim Pastures would necessitate vigilant effort from the operator to monitor the stubble and remove cattle in a timely manner. Term & Condition # 5 would also allow for the livestock operator to increase use in these two pastures if utilization objectives and stubble height objectives are not exceeded, allowing for adaptive management and use in these areas, as well as safeguarding the resources.

2. Impacts of Current Management

The Current Management Alternative would create hardships for the operator. Due to the concentration of cattle in one pasture for extended amounts of time, the cattle begin to drift into other areas and the operator is required to have heightened vigilance in controlling cattle movements.

3. Impacts of Modified Terms & Conditions

The Modified Terms and Conditions Alternative would have much the same impacts as the Proposed Alternative; however the additional effort would be required of the operator in order to ensure that the North Plateau pasture is totally clear of cattle when gathering.

4. Impacts of Reduced Stocking Rate

The Reduced Stocking Rate Alternative would have much the same impacts as the Modified Terms & Conditions Alternative; however the additional effort would be required of the operator in order to ensure that the Barrel Springs pasture is in compliance with the utilization guidelines. The utilization guidelines for the Barrel Springs Pasture are incompatible with the stocking rate and duration of use proposed in this alternative, which would require the operator to keep vigilant watch on utilization levels in this pasture and move their cattle early (probably 2 months early) in the 1st year of rotation when this pasture is used for 400 cattle from 4/15-7/15. This in turn would provide a hardship for the permittee in order to find an interim location for the cattle until the rotation allows the next pasture to be used.

5. Impacts of No Grazing

Under this alternative, there would be no grazing authorization issued. Impacts under this alternative would be catastrophic to the livestock permittee.

SOCIAL AND ECONOMIC VALUES

A. Affected Environment

Current authorized livestock use is for 800 cattle from April 15 to July 15 and 200 cattle from July 16 to October 31 for a total of 2880 AUMs active use on Nevada Cowhead.

Actual costs to conduct livestock operations on the Nevada Cowhead Allotment are unknown. Economic studies indicate that revenues per head are less for operations that use public lands; but that the profit per head is greater for operations that use public lands than for those without (USDI-BLM, 1998).

Since this is a relatively small allotment, the goods and services that the allotment provides to the local community is relatively slight (2880 AUMs X $36/AUM = $103,680 annually). Although the economic contribution to the local economy may be slight, the income is very important for the permittees.

B. Environmental Consequences

1. Impacts of Proposed Action

This alternative would maintain the current authorized use. Little change in the economic value of the authorized AUMs to the ranch operation and local community is expected. Employment opportunities for low income and minority groups are expected to remain unchanged. The proposed action would have little measurable effect on local socio/economic conditions. This is a small allotment and the actions proposed are for the next ten years. Therefore impacts to the local socio/economic conditions are expected to be insignificant for the next ten years.

Each stock reservoir proposed in this alternative is estimated to cost from $3,000 to $6,000 to construct. Four stock reservoirs are proposed, therefore the estimated cost to construction of these range improvements would vary from $12,000 to $24,000.

2. Impacts of Current Management

Livestock grazing practices would remain unchanged from those in the recent past. Therefore, there would be no impacts on the economics of livestock grazing.

3. Impacts of Modified Terms & Conditions

The Modified Terms and Conditions Alternative would be expected to have the same economic impacts as the Proposed Alternative.

4. Impacts of Reduced Stocking Rate

Impacts of Reduced Stocking Rate alternative would have a negative economic impact to the

permittee. The permittee would be authorized ½ the amount of cattle as stated in the Proposed Alternative, and consequently financial loss is expected to be about 50%. The smaller permitted herd may not be economic with the decreased financial abilities. Economy impacts are likely to include fewer local people would be employed by the permittee, and less money would be spent in the local communities.

5. Impacts of No Grazing

Implementation of a no grazing alternative would have the greatest effect on the livestock permittee. Loss of six months of public land forage could require rental of private pasture at a maximum estimated cost of up to $96,000/year. This cost would be offset by not having public land grazing fees, and non-fee related expenses such as costs associated with herding, project maintenance, generally higher fuel costs and lower animal performance, and higher death losses when compared with private pasture. The net increased cost to the permittee is not known by BLM, but could be substantial.

While BLM does not acknowledge real estate values placed on grazing permits or AUMs, the No Grazing action has the potential for economic loss of 2880 AUMs at an current estimated fair market value of $36 per AUM to the permit holder. The elimination of AUMs could be temporary until a longer-term solution could be worked out. Both the local community and the operators concern is the removal of AUMs would eliminate the value of the permit.

The no grazing action would prevent the permittees from using unfenced private lands within Nevada Cowhead allotment. Given the actual amounts of forage produced on these lands, this would maybe a minor negative impact to the permittees. Bally Mountain is mostly private and would require the permittee to fence out public land. There could be as much as 10 miles of fence at an estimated cost of $7,500/mile (exact amount of fencing has not been determined).

There would be a slight negative impact to the local socio/economic conditions. Depending upon the actual costs discussed above, the amount of this impact would vary.

Cumulative Impacts

Cumulative impacts are the "incremental impacts of a proposal when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes them" (40 Code of Federal Regulations 1508.7)

Table 17. Cumulative Effects Expected to Resources from Each Alternative Compared to Existing Conditions.

- = Negative Impact, -- = Most Negative Impact, 0 = No Expected Impacts, + = Positive Impacts, ++ = Most Positive Impacts					
Resource	Alternative 1- Proposed	Alternative 2- No Action	Alternative 3- Modified Terms & Conditions	Alternative 4- Reduced Stocking Rate	Alternative 5- No Grazing
Cultural Resources	-	-	+/-	+/-	++
Invasive, Non-Native Species	+	-	+	+	++
Wetlands/Riparian Zones	+	0	+	+/-	++
Wildlife/Federally Listed/Threatened & Endangered Species	+	0	+	+/-	++
Social and Economic Values	0	0	0	-	--
Rangeland Vegetation	+	-	+	+	++
Livestock Management	+	-	0	-	--

Past and Present Actions

On the basis of aerial photographic data, current GIS records and analysis, the following past and present actions have been identified within the allotment: maintaining and using roads and trails (transportation and access), ongoing juniper reduction projects, wildfire rehabilitation activities, dispersed recreational activities, and livestock grazing management.

Livestock Grazing Management

Livestock grazing has had a long history in the region dating back to the late 1800's. Today, it remains the dominant use in the cumulative impact assessment area. Throughout its history, ranching has remained a dispersed activity characterized by localized areas of more intensive use. In order to support the management of the Nevada Cowhead Allotment, a variety of range improvement projects have been implemented through the years. These include fences, cattleguards, spring developments, and reservoirs.

Transportation and Access

Past and present actions within the assessment area are supported by a transportation system which includes 43.2 miles of roads. The Bureau of Land Management currently maintains approximately 6.6 miles of roads, and approximately 36.6 miles of roads are either private or unimproved roads or dirt roads and two-tracks on public lands. Most of these roads have their origin in ranching access, and few are regularly maintained.

Dispersed Recreational Activities

Dispersed recreation occurs within the assessment area and includes: wildlife viewing, rock hounding, hunting, off-highway vehicle use and camping.

Wildfire Rehabilitation

There have been 14 recorded spot fires in the Nevada Cowhead Allotment between 1981 and 2005. Ordinarily these spot fires burned 0.1 acres, with one fire being as large as 1.5 acres. The Barrel Fire burned 342 acres of the eastern side of the Rim Pasture. Of those 342 acres, 259 acres were on BLM land.

Reasonable Foreseeable Future Actions

Since the life of the proposed action is ten years, this time frame is considered to be most appropriate for considering the incremental effect of reasonably foreseeable future actions. Many of the past and present actions discussed above are expected to persist through this time frame, though the relative intensity of these actions could vary depending on a variety of economic factors.

Vegetation management includes hazardous fuel reduction treatments and habitat improvement. Juniper thinning is expected to occur throughout the Nevada Cowhead Allotment.

The Ruby Pipeline is expected to begin construction in the spring of 2010. This is a natural gas pipeline that would bisect the allotment, running roughly south to north through the North and South Plateau Pastures. The draft EIS proposed action of the project has the path of the pipeline corresponding closely to the existing route for the power line within the Nevada Cowhead allotment. The reclamation plan for the pipeline route would require reseeding, and other measures to allow for soil and vegetation recovery. The details have not been finalized, but the affected pastures may be rested from livestock grazing for several years until vegetation recovery objectives are met.

Recreational use is expected to increase throughout the 10 year period.

There are no planned or proposed mineral exploration or wind energy test sites.

Cumulative Impacts to Affected Resources

Impacts associated with past, present, and reasonably foreseeable future actions are generally created by ground or vegetation-disturbing activities that affect natural and cultural resources in various ways. Of particular concern is the accumulation of these impacts over time. This section of the EA considers the nature of the cumulative effect and analyzes the degree to which the proposed action and alternatives contribute to the collective impact. Inter-related resources with similar impacts have been grouped together for the cumulative impact analysis.

CULTURAL RESOURCES

Impacts from the Past and Present Actions

Since many Great Basin prehistoric sites are surface or near surface sites, any ground disturbing activities destroy site integrity, spatial patterning and ability to determine site function. Datable organic features are either destroyed or contaminated. Previous localized grazing, range improvements, road construction/maintenance and gravel pits have caused these types of impacts to cultural resources. Grazing has probably affected a larger number of sites than is documented. Looting sometimes occurs but inadvertent actions from recreation, rock hounding and other off-road activities affect cultural resources as well.

Impacts from Reasonably Foreseeable Future Actions

Recreational use is expected to increase and these activities sometimes coincide with sensitive cultural resources causing displacement and mixed deposits of prehistoric/historic and modern debris. The proposed Ruby Natural Gas Pipeline would affect a significant number of cultural resources by damaging or destroying site integrity. Vegetation management activities could increase the visibility of cultural sites potentially exposing them to increased looting. Inventories associated with planning for vegetation management would increase the state of knowledge concerning the local and regional cultural setting.

Cumulative Impact

Proposed Action

The cumulative effects of the proposed action on cultural resources should be an incremental reduction in the rate of disturbance to site integrity, spatial patterning, and site function. Impacts to datable organic features would also be reduced. This reduction in impacts would be a result of the expected improvement in ecological condition over an extended period of time as concentrated grazing in sensitive riparian zones is reduced. Reintroduction of cattle into the Rock Creek Exclosure could contribute to incremental cumulative effects. Local and regional knowledge regarding the cultural setting would be increased as a result of implementation of the standard operating procedures which would require that all projects be preceded by inventory and site evaluation. The completion of inventories and evaluations would result in incorporation of mitigation measures which would act to further reduce long term cumulative impacts.

Current Management

The cumulative effects of this alternative on cultural resources would be a continued rate of disturbance to sites and organic features as a result of the no change in management. However, this alternative would not contribute to cumulative effects in the Rock Creek Exclosure. The failure to construct range improvement projects could lead to further degradation of cultural resources associated with riparian areas.

Modified Terms & Conditions

The cumulative impacts of Alternative 3 are the same as the Proposed Action with the exception of no grazing within the Rock Creek Exclosure under Alternative 3. Cumulative impacts to

cultural resources would be reduced in areas where the ecological setting is improved by stabilizing soils and increasing vegetation cover. This would reduce impacts such as trampling and erosion which affect cultural resource site integrity and spatial patterning. There would be no cumulative impacts to cultural resources within the Rock Creek Exclosure under this alternative.

Reduced Stocking Rate

Cumulative impacts to cultural resources under this alternative would be less than under the Proposed Action, Current Management, and Modified Terms and Conditions, but more than the No Grazing alternative. Cumulative impacts to cultural resources would be reduced in areas where the ecological setting is improved by stabilizing soils and increasing vegetation cover. This would reduce impacts such as trampling and erosion which affect cultural resource site integrity and spatial patterning. There would be no cumulative impacts to cultural resources within the Rock Creek Exclosure under this alternative.

No Grazing

Alternative 5 would not contribute to cumulative effects to cultural resources, because no grazing is being proposed under this alternative.

Invasive, Non-native Species

Impacts from Past and Present Actions

Past impacts from road maintenance, livestock grazing, agriculture, recreation ORV, and other ground disturbing activities have introduced and spread non-native species such as cheatgrass throughout the allotment.

Impacts from Reasonably Foreseeable Future Actions

Future increases in recreation are likely to increase the spread of invasive species throughout the Resource Area and continue the risk of introduction of noxious weeds. Recreation that occurs on the Nevada Cowhead Allotment is likely to increase the rate of spread of invasive species along roads, trails, and in camping areas. Project development in the Nevada Cowhead Allotment has the potential to increase invasive species spread and expose the allotment to introduction of noxious weeds, however through cleaning equipment prior to use, the threat of noxious and invasive species is reduced. Vegetation treatments including Juniper removal should release the native understory, making it more resilient in the event of disturbance, thereby decreasing the ability of noxious and invasive species to invade the site. Construction of the Ruby Pipeline has the potential to introduce noxious and invasive species; however rehabilitation measures such as plant inventory and treatments should be effective in preventing the spread of invasive species as associated with pipe line construction. Seeding of native vegetation in disturbed areas should mitigate any potential invasive species establishment or spread. The rehabilitation plan specifically contains requirements for the use of native seed for re-vegetation, weed inventory and treatment.

Cumulative Impact

Proposed Action

The cumulative effects of the proposed action on weed species would be neutral to slightly positive. Exposure in the allotment to increases of existing invasive, nonnative species and introduction of noxious weed species would continue, however improvements in vegetative conditions expected under this alternative would slightly reduce the potential for these species to spread.

Current Management

Under this alternative, the cumulative effects to weed species would be greater than under the proposed alternative. The concentration of cattle under the rest rotation would not allow for rapid improvements in native vegetation, thereby increasing the chance for invasive species to spread. Currently noxious weeds are not wide-spread, but the exposure of the resources on the allotment to the introduction of weeds and invasive species would continue. Since no new water developments are included in this alternative, this eliminates one potential vector of weed establishment.

Modified Terms & Conditions

Cumulative impacts to invasive, non-native species under The Modified Terms & Conditions would be similar to the Proposed Action.

Reduced Stocking Rate

The cumulative effects of the proposed action on weed species would be neutral to slightly positive. Existing invasive, nonnative species and introduction of new weed species would continue to increase as result of recreation and other uses, however improvements in vegetative conditions expected in the long term under this alternative would slightly reduce the potential for these species to spread. Improvements in vegetative condition are expected at a slightly faster rate than the Proposed Alternative in most upland pastures, consequently the potential for weed species propagation is less. This alternative has the same impacts to riparian areas as the other "grazing" alternatives.

No Grazing

The cumulative effect of this alternative on noxious weed and invasive non-native species would be incrementally less than all other alternatives. This would be as a result of the elimination of grazing as one potential vector for establishment and spread of weeds.

Wildlife Including Sage Grouse/Federally Listed Threatened and Endangered Species

Impacts from Past and Present Actions

Minor to moderate amounts of displacement have resulted from disturbances to habitat for wildlife, including sage grouse, associated with livestock grazing management, transportation and access management, and dispersed recreation use. There are no known federally listed Threatened or Endangered Species in the allotment. Long term benefits to wildlife have been realized as result of stabilized or improved habitat conditions, especially riparian habitats.

Impacts from Reasonably Foreseeable Future Actions

Livestock management, dispersed recreation, and transportation and access would continue displacing wildlife in areas immediately adjacent to these activities. Livestock management activities would benefit the majority of wildlife species by improving water distribution and availability. Vegetation management would benefit wildlife as treatments reduce juniper competition, and restore vegetative conditions and diversity.

The proposed Ruby gas pipeline is scheduled to begin construction in the spring of 2010. This pipeline would bisect the allotment along the existing power line road. As of the summer of 2009, negotiations related to mitigation measures for the pipeline were still proceeding. It is expected that wildlife would be impacted directly via noise and the presence of equipment and personnel during construction of the pipeline and rehabilitation along the right of way which would be expected to last several months within the allotment. Temporary wildlife corridors, use of limited operating periods, and buffer zones would be used to reduce direct impacts. Indirect impacts could occur from temporary and permanent loss of vegetation and vegetation changes along the 115 foot wide construction right of way.

Cumulative Impact

Proposed Action

Additional reservoirs created with the Proposed Action would remove vegetation around those reservoirs, but improved livestock distribution should reduce impacts to vegetation elsewhere. There are approximately 51 livestock ponds or "pit reservoirs" within the allotment and adjacent allotments, two having been built recently. There is some possibility of another pit being proposed within the adjacent North Cowhead Allotment which has no pit reservoirs. Since not all reservoirs are the same size or retain water throughout the year, vegetation removal and soil compaction around them varies. Use of the reservoirs by sage grouse, pronghorn antelope, mule deer, and other wildlife is generally high, by use by native songbird and rodent use is considered insignificant, unless screening or perching vegetation is available which for the most part it is not except in areas of juniper cover.

Cattle grazing in upland habitats would continue to impact wildlife directly through competition for food and, to some extent, water, however most impacts to wildlife occurred in the past with changes in deep rooted perennial grasses, increased juniper and shrubs in the allotment. Very few direct impacts due to disturbance from livestock use and construction activities with the Ruby pipeline are expected to occur simultaneously. Livestock are not likely to be in pastures during the construction phase of the project.

Direct impacts would occur to vegetation that is destroyed along the pipeline route. Revegetation efforts would occur following construction. Vegetation composition may not be at pre-construction conditions for some time along the pipeline corridor and full recovery would likely take several decades, depending on ecological site potential. Following recovery of the pipeline corridor, livestock may have some impact on revegetated sections by concentrating on certain areas which have more palatable vegetation. It is also likely that new reservoirs associated with the proposed action would also draw livestock away from the pipeline corridor seeded areas and aid in recovery of vegetation. The combined effects of the Proposed Action and the Ruby pipeline corridor would be negative temporary effects to wildlife within the

pipeline corridor with negative effects decreasing from the corridor. Direct effects would be reduced for several years after construction due to rest from livestock associated with revegetation efforts.

The Ruby pipeline may have short-term benefits by implementing several years of rest within certain pastures or possibly the entire allotment while vegetation within the corridor recovers. Combined with the proposed livestock reservoir's dispersing impacts, overall affects may be positive to vegetation and wildlife in the allotment.

Current Management

There would be no cumulative effects of additional reservoirs under this alternative. Wildlife using the general area around these proposed reservoir sites would not be impacted either directly or indirectly from livestock using these sites. Current management would be similar to the other grazing alternatives, cattle grazing in upland habitats would continue to impact wildlife directly through competition for food and to some extent water.

Modified Terms & Conditions

Effects to wildlife would be similar to alternative 1, although this alternative would have slightly more beneficial short-term effects, with greater residual upland grass heights and non-use of the Rock Creek Exclosure. Positive cumulative impacts to wildlife in the general area would not likely be noticeably different between this alternative and the Proposed Action.

Reduced Stocking Rate

Cumulative impacts to riparian herbaceous habitats are expected to be similar to the Proposed Action and current management. Cumulative impacts may be similar to the Proposed Action and current management. While upland habitat cover is expected to be reduced in the Barrel Springs pasture due to the increased AUM's for the pasture, cover is expected to increase in other pastures.

No Grazing

Under the No Grazing Alternative, grazing management would be eliminated as a reasonably foreseeable future action. All cumulative effects to wildlife and sage grouse habitat in the analysis area that are associated with cattle use would cease.

Wetlands and Riparian Zones

Impacts from Past and Present Actions

Wetlands and riparian areas prior to the mid-1980's were considered "sacrifice areas", areas which were expected to be used severely in order to achieve proper use of the uplands. As a result, wetlands and riparian areas did not receive management emphasis except in relation to their ability to provide needed water for domestic animal use.

In 1991 the BLM initiated the "Riparian – Wetland Initiative for the 1990's which, for the first time, established national goals and objectives for management of riparian and wetland resources on BLM administered public lands. Chief among these objectives was the mandate that 75 percent or more are in proper functioning condition by 1997. Since the launching of this initiative, the BLM has provided management focus on achieving this goal, and many areas were

improved. Some areas continue to not achieve the goal of properly functioning condition. Livestock use is one of the activities which can negatively impact wetlands and riparian areas. As riparian zones decline, riparian vegetation is less capable of dissipating energy and filtering sediment. Erosion increases and water storage capacity is reduced. In the Nevada Cowhead Allotment, most wetlands and riparian areas are in proper functioning condition, however some are not.

Impacts from Reasonably Foreseeable Future Actions

Future activities from livestock grazing management, dispersed recreation and transportation would continue to impact wetlands and riparian areas within the assessment area. Under all alternatives, a reduction in impacts to riparian areas from livestock grazing management would be expected with more intensive and continued adjustment. Impacts to wetland riparian areas from dispersed recreation and transportation is low, but would be expected to continue in some areas. There would not be any expected impacts to wetlands and riparian areas in the Nevada Cowhead Allotment from vegetation management, wildfire rehabilitation, or the Ruby pipeline, as none of these are occurring on or near wetlands or riparian areas.

Cumulative Impact

Proposed Action

The cumulative impact of the Proposed Action would be continued long term improvements in local riparian systems. Riparian areas in the Northeast Pasture are expected to improve along have along aspen in the Upper Horse creek tributary, as a result of a 20% utilization guideline.

Current Management

Current management would be similar to the Proposed Action except that improvements in riparian habitats along Rock Creek are expected to be slightly greater with this alternative. Cumulative impacts to riparian habitats in the general area are expected to be similar between alternative 1, 2, and 3. Riparian areas in the Northeast Pasture would continue to degrade with the long term future loss of aspen along the Upper Horse creek tributary.

Modified Terms & Conditions

Cumulative impacts under this alternative would be similar to the current management (Alternative 2).

Reduced Stocking Rate

Current management would be similar to the Proposed Action except that improvements in riparian habitats along Rock Creek are expected to be slightly greater with this alternative. Riparian habitats in the Northeast Pasture would improve, as well as aspen vigor along the Upper Horse creek tributary.

No Grazing

Under this alternative, the cumulative impacts to wetlands and riparian areas would be incrementally reduced as livestock grazing use and management would be removed as a factor affecting riparian health. It would be expected that existing water developments would be removed, and natural flow patterns and conditions would re-establish.

Rangeland Vegetation

Impacts from Past and Present Actions

Unregulated grazing prior to the Taylor Grazing Act (1934) resulted in loss of certain vegetative components in many ecosystems. Although grazing is now regulated, the effects of past grazing practices can still be seen some areas. Grazing activities are now of much shorter in duration and with less numbers, that have allowed for yearly recovery. Grazing consumes a portion of the renewable production and periods of rest allow for recovery. Grazing is one of several land uses that result in impacts to vegetation. Other impacting uses include unpaved roads, and rights-of-ways. All of these uses would impact the vegetation. In addition, the removal of fire from the sagebrush ecosystem has resulted in vegetative shifts, with increasing juniper populations being quite apparent.

Impacts from Reasonably Foreseeable Future Actions

Juniper thinning throughout the Nevada Cowhead Allotment is expected to allow the native sagebrush ecosystem to improve. The removal of juniper would allow for increases in sagebrush, native deep rooted grasses and forbs. In addition the removal of juniper would enable fire behavior to be less extreme when wildlife does come through this area.

The Ruby Pipeline is expected to disturb vegetation in its corridor. However, the mitigation and revegetation that would accompany the project may have positive long term effects. Seeding with a native seed mixture is one mitigation measure proposed by the Ruby Pipeline.

Although recreation is expected to increase throughout the field area in the next 10 years, the increase in recreation should have little impact on the vegetation, unless permanent campsites are created.

Cumulative Impacts

Proposed Action

Cumulative impacts from this alternative are expected to provide benefits to rangeland vegetation. Juniper reduction would allow the sagebrush ecosystem to recover much quicker than grazing management alone. The native seed would be used by the Ruby Pipeline contractors to rehabilitate the natural gas corridor would provide benefits to the health of many ecological sites by increasing the amount of deep rooted native perennial grasses, thereby improving the seed bank of these species.

Current Management

Cumulative impacts under this alternative are expected to be less beneficial to the vegetative communities in the Nevada Cowhead Allotment than the Proposed Alternative. Although juniper removal and Ruby Pipeline seeding/rehabilitation would assist the vegetative recovery, the current grazing management would negate the benefits with the degree of cattle concentration for long durations of time.

Modified Terms & Conditions

The cumulative impacts under this alternative are expected to be the same as under the Proposed Alternative.

Reduced Stocking Rate

The cumulative impacts under this alternative are expected to be very similar to the Proposed Alternative, however vegetation is expected to approach DPC at a faster rate in this alternative.

No Grazing

With the removal of livestock grazing, all other activities affecting vegetation would continue. Juniper removal and Ruby Pipeline rehabilitation seeding would be expected to have positive impacts to the vegetative community.

Livestock Management

Impacts from Past and Present Actions

There has been an increase in the amount of pastures in the Nevada Cowhead Allotment since the mid 1990's. This increase in pastures has facilitated livestock management, while also placing greater demands on the operator to move their cattle in a timely manner and ensure that cattle are only present when and where they are authorized.

Impacts from Reasonably Foreseeable Future Actions

There is a potential for required rest on the pastures affected by the Ruby Pipeline construction, which would require the permittee to find other accommodations for the cattle. Rest would also be required for a minimum of two growing seasons following juniper reduction, which would have similar impacts on the cattle operation. The increase in recreation may impact the livestock operator, since recreational land users occasionally leave gates open after passing through them. This allows the cattle to move into areas where they aren't allowed, and therefore requires the livestock operator to herd their cattle back into the appropriate use area.

Cumulative Impacts

Proposed Action

Due to the probability of rest required post seeding on the Ruby Pipeline corridor, as well as post juniper reduction, there is a possibility of the operator needing to find other arrangements for their cattle during several grazing seasons in certain pastures.

Current Management

The cumulative effects under the Current Management Alternative would be similar to the Proposed Alternative.

Modified Terms & Conditions

The cumulative effects under the Modified Terms & Conditions Alternative would be similar to the Proposed Alternative.

Reduced Stocking Rate

The cumulative effects under the Current Management Alternative would be similar to the Proposed Alternative, but the operator would either need to reduce their herd size by approximately 50% or find other arrangements for additional forage.

No Grazing

The cumulative effect of this Alternative would be that the operator no longer had to manage their cattle on public lands.

List of Preparers

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Elias Flores, Jr.	Wildlife Biologist
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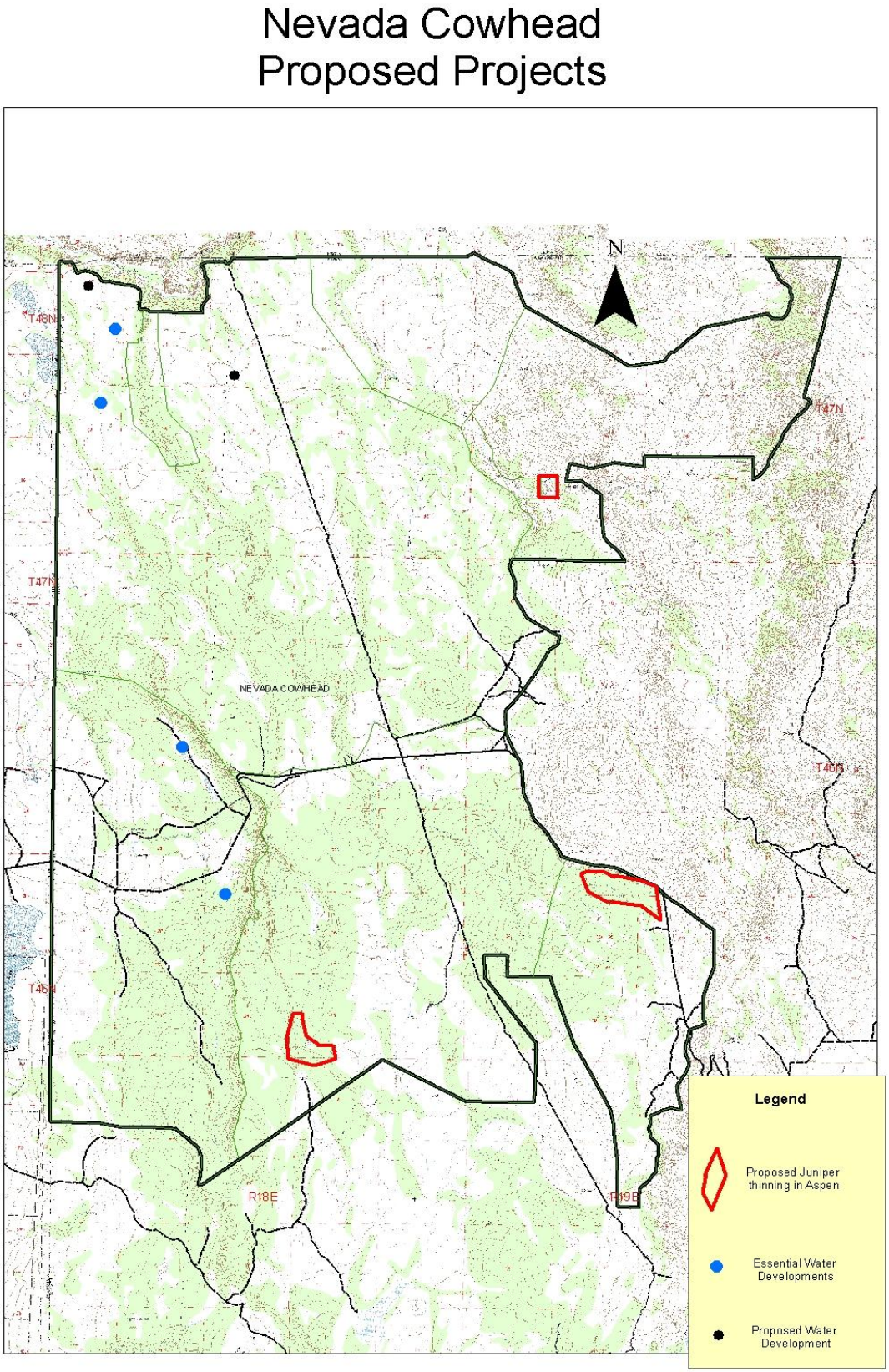
Attachment 1. DPC descriptions for the Nevada Cowhead Allotment.

	ECOLOGICAL STATUS	POTENTIAL VEGETATIVE COMPOSITION	SPECIES COMPOSITION	EXISTING SITUATION	RESOURCE OBJECTIVES		
Pasture	Ecological site number & name & corresponding key habitat*	Potential Native Vegetation (by weight)	Dominant plants (% cover in 2008)	aerial % cover in 2008	Desired Plant Community (DPC) by % cover	Potential Natural Community (PNC) by weight (% of total weight)	Proposed Ecological Stage, and Desired Functional/Structural groups (list in order of descending dominance by above-ground weight using symbols >>,>,= to indicate much greater than, greater than, and equal to)
Lower Horse Creek, North Plateau, South Plateau	023XY031NV; CLAYPAN 10-14 P.Z.; Sagebrush*	65% grasses, 10% forbs, 25% shrubs	low sage 31%, Poa 25%, Squirreltail 5%, Idaho Fescue 0.3%, Lomatium 6%, Eriogonum 1%, other Perennial forbs 8%	31% grasses, 15% forbs, 31% shrubs	≥35% grasses, ≥15% forbs, 20-30% shrubs, bare ground < 40%	Bluebunch wheatgrass 30-50%, Thurber's needlegrass 15-35%, POA 5-10%, other perennial grasses 2-5%, perennial forbs 5-15%, low sage 10-20%, other shrubs 5-10%. Ground cover (basal and crown) approximately 20-35%	Deep-rooted, cool season, perennial bunchgrasses>>low shrubs (low sagebrush)>deep-rooted, cool season, perennial forbs>shallow-rooted, cool season, perennial bunchgrasses>associated shrubs>fibrous, shallow-rooted, cool season, perennial and annual forbs
South Plateau, Barrel Springs	023XY059NV; GRAVELLY CLAYPAN 10-12 P.Z.; Sagebrush*	55% grasses, 10% forbs, 35% shrubs	low sage 20%, Poa 18%, Squirreltail 1%, Lomatium 4%, Aster 2%, other Perennial forbs 5%	18% grasses, 10% forbs, 21% shrubs	≥25% grasses, ≥15% forbs, 20-35% shrubs, bare ground < 40%	Thurber's needlegrass 40-50%, Webber's needlegrass 5-15%, POA 5-10%, Bluebunch wheatgrass 2-8%, other perennial grasses 2-8%, perennial forbs 5-15%, low sage 25-35%, rabbitbrush 2-5%, other shrubs 2-8%. Ground cover (basal and crown) approximately 20-30%	Deep-rooted, cool season, perennial bunchgrasses > low shrubs (low sagebrush) > deep-rooted, cool season, perennial forbs >shallow-rooted, cool season, perennial bunchgrasses = associated shrubs = fibrous, shallow-rooted, cool season, perennial and annual forbs
North Plateau, South Plateau	023XY091NV; JUOC WSG:OR3; Juniper Woodland; Lower Montane Woodlands*	overstory canopy of about 25%, understory of 40% grasses, 10% forbs, and 50% shrubs and young trees.	To Be Determined	To Be Determined	Overstory canopy of juniper 20-25%, understory ≥20% grasses, ≥10% forbs, and ≤50%, bare ground < 40%	Mature Woodland: Western juniper 20-30%, wildrye, idaho fescue, bluegrass, prarie junegrass, squirelltail, phlox, hawksbeard, arrowleaf balsamroot, low	Juniper overstory > Deep-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs >shallow-rooted, cool season, perennial bunchgrasses = associated shrubs = fibrous, shallow-rooted, cool season, perennial and

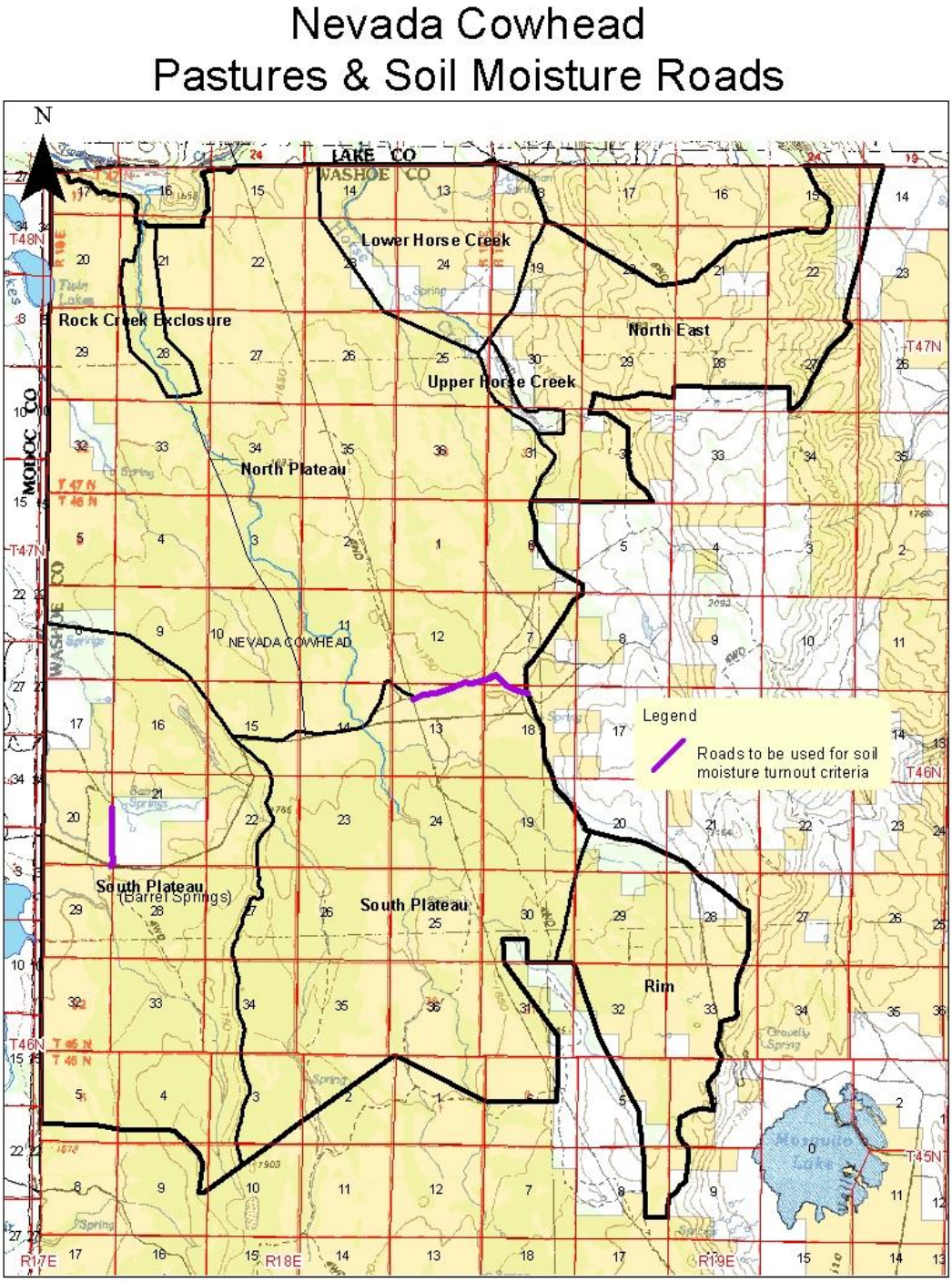
						sagebrush, bitterbrush, serviceberry, snowberry, currant	annual forbs
Through out Allot ment	023XY027NV; Aspen Thicket; Aspen Woodland*	20% grasses, 20% forbs, and 60% shrubs/trees	To Be Determined	To Be Determined	Overstory canopy of only aspen, mid level aspen, understor y of ≥500 aspen suckers per acre, 10-20% grasses, 10-20% forbs, other shrubs 5-10%, bare ground < 40%.	Mountain brome 5-10%, needlegrasses 5-10%, Slender wheatgrass 2-5%, other perennial grasses 2-5%, perennial forbs 15-30%, Quaking aspen 50-65%, mountain snowberry 2-5%, other shrubs 2-15%. Ground cover (basal and crown) approximately 50-75%.	Aspen overstory > Aspen understory > Deep-rooted, cool season, perennial bunchgrasses > deep-rooted, cool season, perennial forbs >shallow-rooted, cool season, perennial bunchgrasses = associated shrubs = fibrous, shallow-rooted, cool season, perennial and annual forbs
Rim	023XY017NV; CLAYPAN 14-16 P.Z.; Sagebrush*	65% grasses, 10% forbs, 25% shrubs	low sage 18%, bitterbrush 9%, Poa 9%, Squirreltail 1%, phlox 5%, other Perennial forbs 2%	To Be Determined	≥25% grasses, ≥10% forbs, 20-30% shrubs, bare ground < 40%	Idaho Fescue 30-40%, Bluebunch wheatgrass 30-40%, Thurber's needlegrass 2-15%, Poa 2-8%, other perennial grasses 2-5%, perennial forbs 5-15%, Low sage 10-20%, other shrubs 5-10%. Ground cover (basal and crown) approximately 20-35%	Deep-rooted, cool season, perennial bunchgrasses>>low shrubs (low sagebrush)>deep-rooted, cool season, perennial forbs>shallow-rooted, cool season, perennial bunchgrasses>associated shrubs>fibrous, shallow-rooted, cool season, perennial and annual forbs
North east	023XY039NV; LOAMY SLOPE 10-14 P.Z.; Sagebrush*	70% grasses, 10% forbs, 20% shrubs	To Be Determined	To Be Determined	≥35% grasses, ≥10% forbs, 15-25% shrubs, bare ground < 30%	Bluebunch wheatgrass 40-60%, Thurber's needlegrass 15-30%, Basin Wildrye 2-8%, other perennial grasses 2-8%, perennial forbs 5-15%, Wyoming big sage 15-25%, Bitterbrush 1-5%, other shrubs 5-10%. Ground cover (basal and crown) approximately 35-45%	Deep-rooted, cool season, perennial bunchgrasses >> tall shrubs (Wyoming big sagebrush) > associated shrubs = deep-rooted, cool season, perennial forbs > fibrous, shallow-rooted, cool season, perennial and annual forbs = shallow-rooted, cool season, perennial grasses and grass-like plants

* These Key Habitats are found in the Nevada Wildlife Action Plan (Team, 2006).

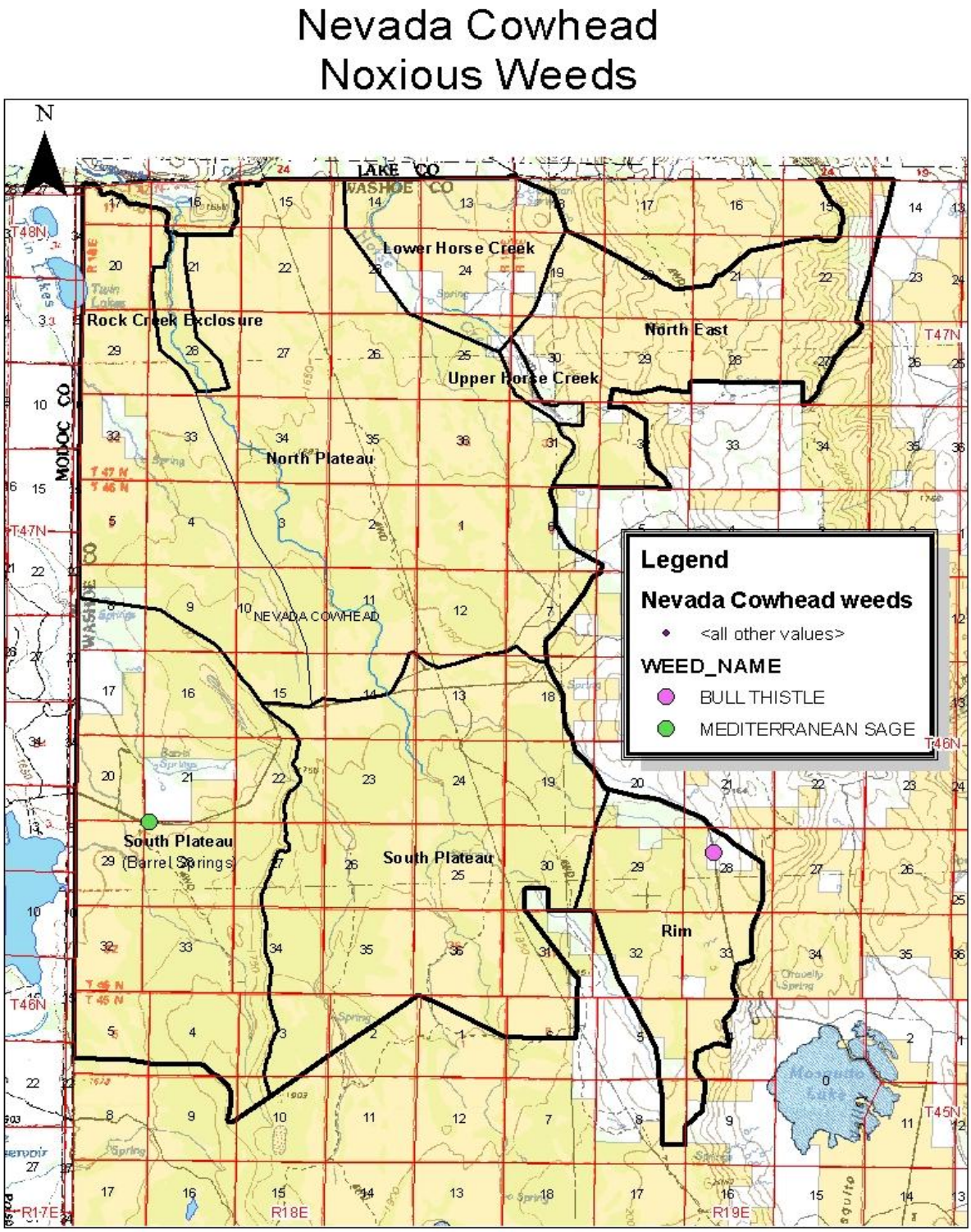
Map 1. Proposed Projects in the Nevada Cowhead Allotment.



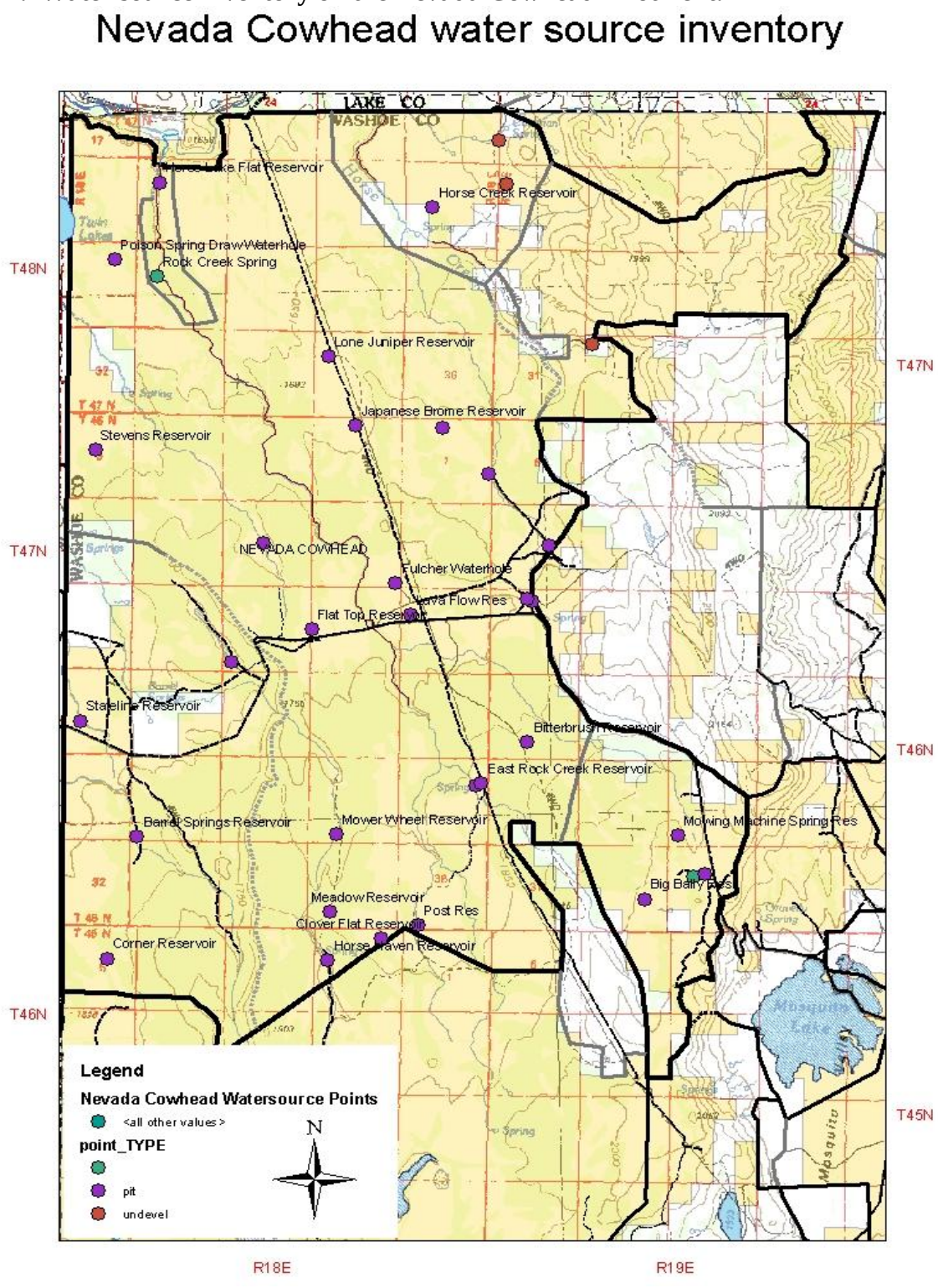
Map 2. Nevada Cowhead Allotment Pastures and Roads proposed for use in soil moisture turnout criteria.



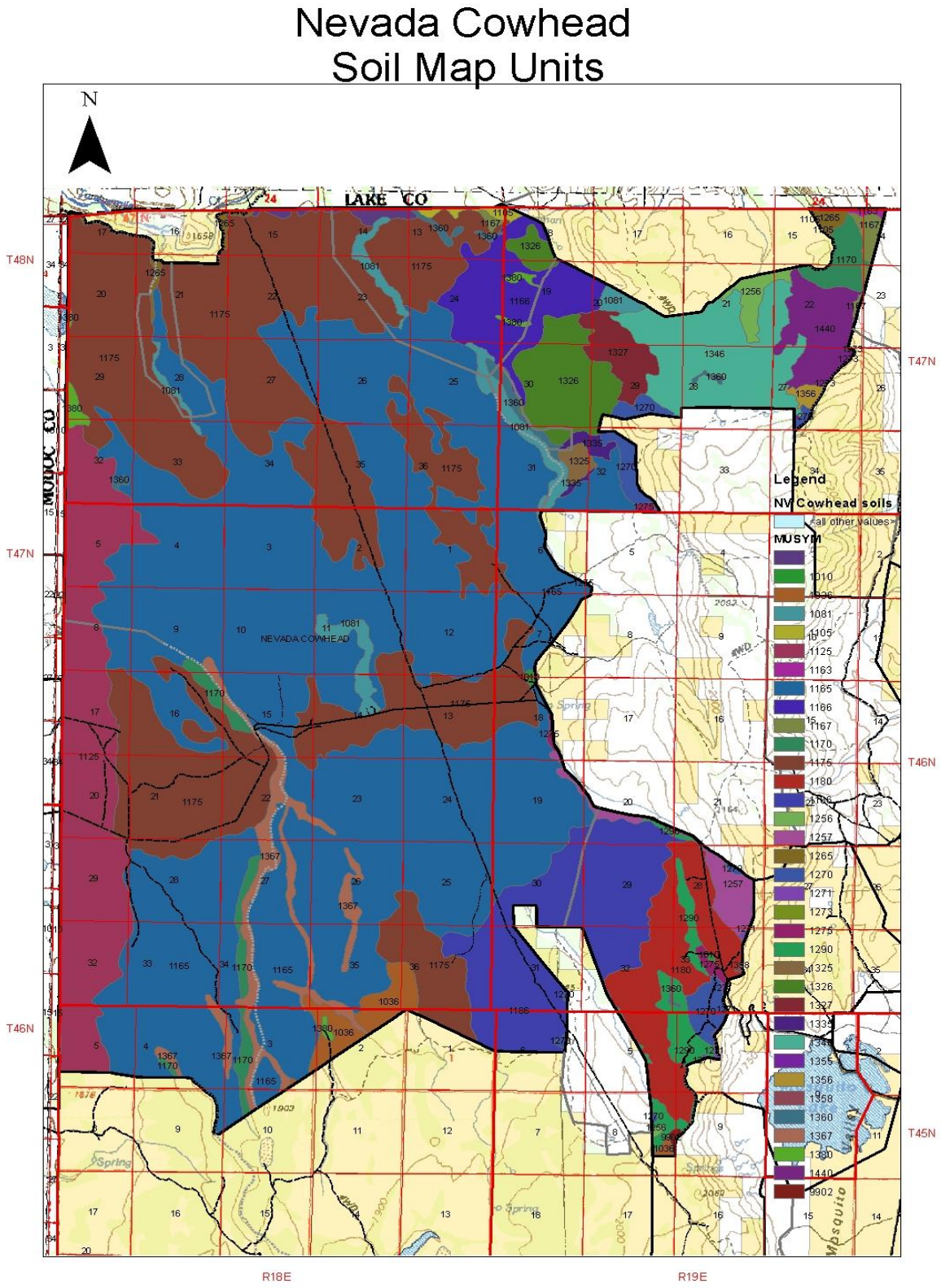
Map 3. Noxious Weeds identified in the Nevada Cowhead Allotment.



Map 4. Water source inventory on the Nevada Cowhead Allotment.



Map 5. Soil Mapping Units of the Nevada Cowhead Allotment.



Map 6. Sage grouse habitats within the Nevada Cowhead Allotment.