

**DOI BLM**

**ENVIRONMENTAL ASSESSMENT  
LIVESTOCK GRAZING AUTHORIZATION**

**Nevada Cowhead Allotment**

**Surprise Field Office**

**DOI-BLM-CA-N070-2010-0012-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 for the Nevada Cowhead Allotment. The EA is a site-specific analysis of potential impacts that could result with the implementation of the project. 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 various 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 1982 Nevada Cowhead Allotment Management Plan identifies a three pasture grazing system. The plan permitted 800 cows to be turned out on or after April 16 in the Plateau Pasture around Barrel Springs. Cattle are scheduled to 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, and 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. The Nevada Cowhead has several small streams that eventually flow into occupied Warner sucker habitat in Oregon. Following this listing, utilization limits were imposed on riparian vegetation associated with Warner sucker habitat, and necessitated the establishment of the Lower Horse Creek Pasture and the Rock Creek Enclosures. These fenced enclosures control grazing use on the riparian areas.

In 1998, a Rangeland Health Assessment (RHA) was completed for the Nevada Cowhead Allotment. This RHA determined that biodiversity standard was not being met. In order to progress towards meeting the standard, the Plateau Pasture was divided into the North and South Plateau Pastures. This pasture division was designed to allow for one pasture of rest each year, which facilitates seed production and recruitment of native perennial grasses.

In 1999, the Upper Horse Creek Pasture was subdivided into an upland field (Northeast Pasture) and a private riparian pasture (Upper Horse Creek Pasture). As result of these actions, the Nevada Cowhead Allotment now has six pastures, including: Barrel Springs, North Plateau, South Plateau, Northeast, Lower Horse Creek and the Rim Pasture. Refer to table 2 for current pasture management.

### ***Current Permitted Use***

The permittee is currently authorized for 3,057\* Animal Unit Months (AUMs) on the Nevada Cowhead Allotment, which permits 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 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  |
|-----------------|---------------------|--------------------|---------------------|--------------------|-------------------|--------------------|
| <b>1 (odd)</b>  | REST                | 800 C<br>4/15-7/31 | REST                | REST               | 200 C 8/1-8/31    | 800 C<br>4/15-4/20 |
| <b>2 (even)</b> | 800 C 4/15-<br>5/15 | REST               | 800 C 5/15-<br>7/31 | 200 C 8/1-<br>8/31 | REST              | 800 C<br>4/15-4/20 |

\* Note that 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, which also combines some pastures and AUM amounts for Nevada Cowhead and Bally Mountain Allotments. This practice caused some confusion for permitting use and reporting of actual grazing use for the Nevada Cowhead Allotment, and would be discontinued with this permit renewal authorization. The Bally Mountain Allotment permit was renewed in 2008 with NEPA document CA-370-08-12, and is not being assessed in this document.

### **Current Management Guidelines**

Because of the long livestock trailing distances from the home ranch to the allotment, livestock

are authorized to use Lower Horse Creek Pasture for a maximum of five days.

Livestock are distributed in the designated turnout pasture/use area each year when turnout criteria have been met or as of permitted turnout date, whichever comes later. Livestock remain in the first grazing unit until the end of the scheduled use period for the unit, or until the appropriate utilization guidelines are 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 until the appropriate utilization guidelines are 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.

### **Permit Terms and Conditions**

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 advance 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 Allotment. 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 15<sup>th</sup> 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.

This revised EA contains changes that were made for clarification purposes, but do not modify the basis for the decision. The September 15, 2010 proposed decision mandatory terms and conditions are the same as the previous proposed decision, but minor changes were made to pasture management and “other” terms and conditions. The following is a summary of clarifications made to this EA:

- Better description of the four proposed projects.
- Slight modification/clarification of T&C.
- Included the addition of sage grouse fence markers along a ¼ mile section of the existing Stateline fence.
- Included information on the „Alternative Considered but Dismissed’ section.
- Dismissed the previously analyzed „Modified Terms & Conditions’ Alternative.
- The description and impacts of proposed range improvement projects is provided in greater detail.
- A soil standard objective was added, and modifications were made, to the *Long and Short Term Objectives* section, to more clearly describe expectations for management outcomes.
- To better inform the public of the current situation on the allotment, additional detail is provided in the EA’s *Affected Environment* sections for Wetland/Riparian, Wilderness, Wildlife, Threatened & Endangered, BLM Sensitive sections.
- Included a discussion of wilderness characteristics.

- Expanded the impacts analysis discussions to more clearly describe the analysis conducted by the resources staff and better inform the public of the considerations which went into the decision.
- Added additional clarification to Cumulative Impacts section to better inform the reader of the analysis conducted by the resource staff and to better inform the public of the considerations which went into the decision.

### ***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), including 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 comply with BLM policy and regulations which requires that grazing permits to be fully processed by using the information from the land health standard determinations, 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.

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), terms and conditions for grazing use.

### ***Plan Conformance***

The proposed action is in conformance with the Proposed Surprise Field Office Resource Management Plan (RMP) and final environmental impact statement issued in May 2007 as adopted by the Record of Decision approved in April 2008. The RMP supports the proposed authorized use in the Nevada Cowhead Allotment as identified in Section 2.8.5 (p. 2-35)”:

The RMP states that livestock grazing would be available on 49 allotments (1,445,443 acres). The

Surprise Field Office would continue to authorize approximately 92,465 AUMs of livestock use annually. Review of existing permitted use-levels (AUMs) would be conducted on individual allotments through assessment of existing activity plans (allotment management plans, livestock grazing decisions, habitat management plans, watershed management plans, biological opinions, multiple-use decisions). Decisions regarding adjustments to existing levels of use, forage allocation, allotment boundaries, and changes to management level categories would be made at the activity plan level. When additional forage becomes available on a sustained yield basis, suspended AUMs can be appointed to permittees.

**Objective 1: Sustainable, ecologically sound, and economically viable livestock grazing opportunities would be provided, where suitable, in the Surprise Field Office management area.**

**Objective 2: Adequate forage would be produced to support sustainable levels of livestock grazing where compatible with objectives for other resources and resource users.**

**Objective 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.**

### ***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 provided 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 Health Determination summary was sent to 14 interested publics in February, 2009. Nevada Department of Wildlife and Western Watershed Project (WWP) provided comments that were considered, and incorporated into this document.

BLM periodically meets with local tribal groups to discuss this grazing permit renewal and other projects being proposed. BLM also conducts meetings with the permittees to discuss the allotment annual operating instructions (plans), and to address other matters that arise.

The Modoc-Washoe Experimental Stewardship Program was actively involved with the public scoping process, and provided a Technical Review Team (TRT) to review resource issues, objectives and provided potential recommendations. The TRT met several times in April, 2009 and also visited the Nevada Cowhead Allotment at that time. During May, 2009, the TRT met to develop the draft proposed action for this EA. WWP submitted additional comments to the TRT draft proposed action, including revised objectives and Terms & Conditions. These comments were incorporated into Alternative 3. On August 30, 2009, after the TRT process had concluded, WWP submitted another alternative, which has been incorporated into the EA as Alternative 4.

Although many water developments were discussed throughout scoping and with the TRT, 6 new water developments were eventually agreed upon. Of these, 4 water developments were considered higher priority, and are the Proposed Action's range improvements for implementation of the final grazing system. The 4 proposed priority projects are fully analyzed within this EA. The 2 other projects would be useful for cattle distribution, but will be analyzed

under separate NEPA document in the future if they are desired at that time.

### **Summary of Issues Received During Scoping**

As a result of the internal and external scoping process, the following general subjects were identified: Sage grouse habitat, pygmy rabbit habitat, Warner sucker habitat, North Hays Range Cultural Resource Management Area, livestock turnout criteria, desired plant communities, non-attainment of the rangeland health soil standard, 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 to assess the condition of cultural resources on each grazing allotment prior to the renewing of grazing allotment permits. However, 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](http://www.blm.gov/ca/st/en/fo/surprise/grazing_permit_renewals.html).

The following table summarizes the result of the 2009 RHA determination. The status of meeting Rangeland Health Standards are as follows:

**Table 3 - Rangeland Health Standards Determination**

| Rangeland Health Standard | Meets Standard | Does Not Meet Standard | Current livestock use is a causal factor for not meeting (Yes or No) | Remarks (locations, etc.)  |
|---------------------------|----------------|------------------------|--|--|
| <b>Upland Soils</b>       |                | ✓                      | 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.   |
| <b>Stream Health</b>      | ✓              |                        |  | 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.   |
| <b>Riparian/Wetland</b>   | ✓              |                        |  | A variety of herbaceous and woody species and age classes were noted at most sites. Riparian and wetland vegetation condition is adequate to control 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 at seeps and springs is controlling erosion and reflects the potential natural vegetation for the sites.   |
| <b>Water Quality</b>      | ✓              |                        |  | 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.  |
| <b>Bio-diversity</b>      | ✓              |                        |  | 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

The following alternatives were developed as a result of internal and external scoping, and consultation with the Nevada Cowhead Allotment Technical Review Team.

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               | Interim | 600 Cattle, 4/15 – 7/15<br>200 cattle<br>7/16 – 10/26 | 4” upland stubble height in Northeast & Rim under shrub dripline, 20% 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      | None                             | Utilization, photo points, cover data, trend sites |
|                          | Final   | 800 Cattle, 4/15 – 7/15<br>200 cattle<br>7/16 – 10/26 | 4” upland stubble height in Northeast & Rim under shrub dripline, 20% 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 ponds (Refer to table 6) | Utilization, photo points, cover data, trend sites |
| 2- No Change             |         | 800 Cattle, 4/15 – 7/15<br>200 cattle<br>7/16 – 10/26 | Yes   | 2 year, rest rotation  | Yes      | None                             | Utilization, photo points, cover data, trend sites |
| 3- Reduced Stocking Rate |         | 400 Cattle, 4/15 – 7/15<br>100 cattle<br>7/16 – 10/26 | 6” upland stubble height in Northeast & Rim, 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 ponds (Refer to table 6) | Utilization, photo points, cover data, trend sites |
| 4- No Grazing            |         | No Cattle   | N/A   | N/A  | N/A      | N/A                              | Photo points, cover data, trend sites              |

## ***1. Management common to all Alternatives except No Grazing Alternative***

### **Administrative Actions**

- A new grazing permit would be issued.
- A change in permitted AUMs from 3057 to 2880 to reflect separation of the Bally Mountain Allotment authorization from the Nevada Cowhead Allotment authorization.
- The Bally Mountain Allotment would also be separated from the Nevada Cowhead Allotment for management purposes.

## ***2. Management common to all Alternatives except the Interim System of the Proposed Action, the No Grazing and No Change Alternatives***

### **Range Improvements**

#### **Interim System**

The Interim System of the Proposed Action does not include any range improvements. The Interim System would be implemented until the range improvements are complete, at which time the Final Grazing System would be implemented.

#### **Final Grazing System**

The following range improvements will be implemented to meet rangeland health riparian standards and to implement the livestock management section under the Final Grazing System of the Proposed Action, as well as Alternatives 3 & 4. The locations of the projects can be found on Map 1- Appendix 1. Detailed layout of the proposed projects can be found as Map 8 and 9. An engineering drawing of a standard BLM stock pond can be found as Drawing 1 in Appendix 1.

*Listed below are new improvements proposed to maintain or achieve rangeland health. Existing projects are contained in the Surprise FO allotment files.*

**Table 5. Proposed Range Improvements to maintain, achieve, or make significant progression towards achievement of rangeland health standards on the Nevada Cowhead Allotment under the Final System of Alternative 1, as well as Alternative 3. Construction would begin on the proposed projects as early as fall 2011.**

| Project Name                | Location<br>Township/Range/ Section |
|-----------------------------|-------------------------------------|
| Barrel Springs Stock Pond 1 | T46N, R18E, sec. 16                 |
| Barrel Springs Stock Pond 2 | T46N, R18E, sec. 27                 |
| Poison Spring Stock Pond    | T47N, R18E, sec. 29                 |
| Northwest Stock Pond        | T47N, R18E, sec. 20                 |

All stock ponds would be constructed to BLM standards (see Drawing 1, Appendix 1). The small stock ponds or pit reservoirs are 100' by 100' and 10' deep, and can be constructed by using a small dozer or excavator. Construction of the pit reservoir would require removal of approximately 2,000 cubic feet of soil. Excavated soil would be contoured to match the topography in the area.

Approximately ¼ mile of the allotment boundary fence will have metal or plastic “markers” added in the vicinity of the Stateline lek to reduce the potential impact to flying sage-grouse. These markers will not be placed closer than ¼ mile from the Barrel Springs Byway.

**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 stock ponds that must be built in specific locations. If cultural resources are discovered in proposed stock pond 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 stock pond 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 (N.D.O.W., 2004) for construction/maintenance of spring developments as follows:
  1. Construct new spring developments to maintain their free-flowing nature and wet meadow characteristics, install wildlife escape ramps in new water troughs, retrofit existing troughs with wildlife escape ramps.
  2. Construct new livestock facilities (troughs, fences, corrals) at least 0.6 miles (1 km) from leks, restrict new water developments. Construct future livestock enclosures large enough to minimize raptor predation.
  3. If projects are within 0.6 of a lek, any new fences will use steel pipe for corners panels and gates. Steel pipe will have domed caps to reduce wildlife entrapment and discourage raptor perching. The top wire will be secured above the cross brace to discourage perching.
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 stock ponds would be contoured to match the local topography and to reduce erosion. The excavated soil 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 stock 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.
11. New fences would be built to pronghorn specifications. Top wires will be flagged, or fence markers would be added, the first year following construction to increase visibility and reduce the possibility for wildlife collision.

### **Monitoring**

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

Trend sites are or would be established on selected located in 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 represent all applicable ecological sites. All monitoring would be performed in accordance with BLM policy following protocols from BLM/Interagency 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 periodically (within 3-5 year intervals).

### ***Resource Objectives - Common to the Proposed Action and Modified Term and***

## *Conditions Alternatives*

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

#### *Vegetation Objectives*

##### **Long Term –**

- Manage the Claypan 10-14”, Gravelly Claypan 10-12”, and 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, over time the grass component should shift towards dominance of deep rooted native perennial grasses.
- Maintain or improve bitterbrush communities with a form class rating not exceeding 2.25.
- Control/reduce the existence of non-native and invasive species throughout the allotment.
- 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.
- 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.
- Continue progression towards DPC in aspen sites throughout the Nevada Cowhead Allotment.

##### **Short Term –**

- Annual utilization of native perennials (key species = *Poa secunda*, *Achnatherum thurberianum*, *Festuca idahoensis*, *Elymus elymoides*, *Pseudoroegneria spicata*) in the North and South Plateau Pastures does not exceed 40% at end of grazing period, and in the Barrel Springs Pasture does not exceed 60% at end of grazing period.
  - Utilization cages will be established and key forage plant method (landscape appearance method) would be used to measure utilization on the uplands.
- Range Readiness criteria; livestock could be turned out in the North and South Plateau Pastures (see permit terms and conditions) when a pickup<sup>1</sup> is capable of being driven at least 100 yards on the fenceline road (shown on attached map 2) without producing ruts exceeding 2 inches.
- Range Readiness; 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.
- Annual utilization of bitterbrush does not exceed 60% of current years’ leader growth at the end of the growing season.
- Determine practical methods to control or eradicate the Bulbous bluegrass in the North and South Plateau Pastures.

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<sup>1</sup> Pickup is defined as a ½ or ¾ ton rated pickup with standard sized tires.

- Identify criteria to be used in establishing a test plot in 2011.
  - Identify the test plot locations in 2012.
  - Apply seeding and/or treatments in identified plots by 2013.
- Identify areas within the Nevada Cowhead Allotment that have the highest site potential for juniper removal.
  - Project initiation by 2012.
- 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.

### ***Riparian Objectives***

#### **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 20% at the end of the use period.

### ***Soil Objectives***

#### **Long Term -**

- Continue progression towards soil stability by promoting deep rooted native perennial grasses, soil moisture turnout criteria, greater amounts of residual vegetative matter and increased amounts of litter where appropriate.
  - Short Term –
    - Comply with turnout criteria and utilization standards.

### ***Wildlife Objectives***

#### **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 (2318 for the Interim System). 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 Enclosure 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 in the Final System, and 600 head from 4/15-7/15 in the Interim System. On 7/15 600 head (400 head in the Interim System) are removed from the Allotment and taken to private lands, and 200 head remain on the Allotment 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 #20 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 range improvement projects would be constructed for the Final System of the Proposed Action. The following tables 6 & 7 summarize the mandatory terms and conditions, and proposed grazing system for the Interim and Final Grazing Systems.

**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. Note, each water development is expected to distribute roughly 50 cattle, therefore turnout would be reduced by 200 cattle until the stock ponds are constructed in the North Plateau Pasture and Barrel Springs Pasture.

**Table 6. Interim System of the Proposed Action - Mandatory Terms and Conditions.**

| Allotment      | Livestock |        | Grazing Period |       | % Public Land | AUMs   |           |       |
|----------------|-----------|--------|----------------|-------|---------------|--------|-----------|-------|
|                | Number    | Class  | Begin          | End   |               | Active | Suspended | Total |
| Nevada Cowhead | 600       | cattle | 4/15           | 7/15  | 93%           | 1688   | 4044      | 6362  |
|                | 200       | cattle | 7/16           | 10/26 | 93%           | 630    | 0         |       |

**Table 7. Pasture Management for the Interim System of the Proposed Action**

| Year            | Barrel Springs       | South Plateau      | North Plateau      | Rim Pasture            | Northeast Pasture  | Lower Horse Creek   | Rock Creek Exclosure   |
|-----------------|----------------------|--------------------|--------------------|------------------------|--------------------|---|--|
| <b>1 (odd)</b>  | 250 C<br>4/15 – 5/30 | 450 C<br>4/15-5/30 | 700 C 6/1-<br>7/15 | 200 C<br>7/16-<br>8/31 | REST               | 200 Cattle<br>trailing for 5<br>days between<br>4/15 – 7/15 | 200 Cattle<br>gathered/trailed<br>for 3 days total<br>between 4/15 –<br>7/15 |
| <b>2 (even)</b> | 250 C<br>6/1 – 7/15  | 450 C 6/1-<br>7/15 | 700 C<br>4/15-5/30 | REST                   | 200 C<br>7/16-8/31 | 200 Cattle<br>trailing for 5<br>days between<br>4/15 – 7/15 | 200 Cattle<br>gathered/trailed<br>for 3 days<br>between 4/15 –<br>7/15       |

**Table 8. Final System of the Proposed Action - Mandatory Terms and Conditions.**

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

**Table 9. Pasture Management for the Final System of the Proposed Action**

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

## **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 vacated.
2. Annual pre-season livestock turn-out meeting would be held with permittee(s) to discuss previous year's use and document current year's grazing schedule. Livestock may not be turned out prior to this meeting, and/or without prior written approval from the authorized officer.
3. Management flexibility is provided to the permittee(s) to adjust move dates to the next scheduled pasture in the rotation up to fifteen days earlier throughout the scheduled grazing use period with prior BLM 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. Early (unscheduled) livestock removal may be required if forage production or stock water is inadequate to operate under 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. Ninety-five percent of livestock must be removed within 5 days of the move date and all livestock must be removed within 10 days of the move date. 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.
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, as long as the next scheduled use area is directly adjacent to the current use area. Note: this management provision is not used in conjunction with Term & Condition # 3 (above).
9. 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.

10. 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 is 40%. Refer to DPCs for key native grass species.
11. 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.
12. Billing for this allotment is based on actual use reports that must be submitted within 15 days following the last authorized take off date for your permit. If an actual use report is not submitted, the permittee(s) will be billed and liable for their full permitted active use.
13. Terms and Conditions of your permit may be modified if additional information indicates that permit revision is necessary to conform with 43 CFR 4180 (Rangeland Health Standards and Guidelines).
14. Livestock turnout will be determined by using soil moisture criteria. Soil moisture is deemed dry enough for livestock turnout when a pickup<sup>2</sup> 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 site for the North and South Plateau Pastures. The Steven's Homestead Road would be used for soil moisture test site for the Barrel Springs Pasture. Soil moisture criteria will be assessed by BLM according to RMP guidelines<sup>3</sup>.
15. Livestock turnout may be delayed until a soil moisture criterion is met (see Term & Condition #1). The permittee may request turn out up to two weeks early (4/1). Livestock turned out prior to 4/15 requires prior written approval from the authorized officer.
16. Salt and mineral supplements may be used in the allotment to improve livestock distribution. These supplements must not be located closer than ¼ mile from any natural or artificial water source, archaeological site, aspen stands, and riparian areas, or 6/10<sup>th</sup> from a sage grouse lek. Protein supplements are not authorized in the allotment.
17. 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),

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<sup>2</sup> Pickup is defined as a ½ to ¾ ton rated truck with standard size tires.

<sup>3</sup> Section 2-45 of the RMP states: "Minimize degradation of soils with high shrink-swell characteristics by limiting compacting activities (e.g., livestock grazing, OHV use, and BLM maintenance activities) to periods when soils are dry and firm enough to resist compression. (This means that soil compression must be no greater than two inches for the sum of all activities.) However, infrequent activities (i.e., those that occur at greater than 10-year intervals) would be appraised and managed according to changes in soil structure following the compacting activity (rather than by the compression standard)."

maximum utilization of current years' growth of woody riparian vegetation is 20% for aspen and willows. When the maximum utilization is reached, the permittee will remove livestock from the area.

18. Stubble heights of upland key 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 under the drip line of shrub canopies.
19. Livestock may not be turned out within 6/10th mile of an active lek site.
20. 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 after livestock removal. If the stubble height is >6 inches under the drip line, and utilization <40% for either the Northeast or Rim Pasture (whichever was used that year), then the following year that pasture is used, livestock use in that pasture would be increased by 2 weeks (100 AUMs) to provide for not more than 8 weeks of use (400 AUMs). If the stubble height is between 6 and 4 inches under the drip line, and utilization is between 40 and 60% for either the Northeast or Rim Pasture, then the following year that pasture is used, livestock use in that pasture would remain at the current level. . If the stubble height is <4 inches under the drip line, and utilization >60% for either the Northeast or Rim Pasture, then the following year that pasture is used, livestock use in that pasture would be decreased by 2 weeks (100 AUMs). In subsequent years, livestock use in these pastures would continue to be monitored. Allowable livestock use could 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 pastures would not be increased above 630AUMs. If monitoring determines that livestock use results in either the stubble height or utilization objectives are exceeded in these pastures, the permittee and BLM would determine appropriate changes in following year's scheduled use to ensure achievement of resource objectives. If agreement cannot be reached, than scheduled use would be reduced by 2 weeks (100 AUMs). The following chart explains this management provision.

| IF  | THEN   |
|---|--|
| Monitoring shows that utilization is light (under 40%) and stubble height under the shrub drip line is 6 inches or greater.   | Following year of scheduled pasture use, increase cattle use by 100 AUMs (200 cattle for 2 weeks).                       |
| Monitoring shows that utilization is moderate (40-60%) and stubble height under the shrub drip line is greater than 4 inches. | Following year of scheduled pasture use, maintain current use levels (No change in cattle numbers or AUMs is necessary). |
| Monitoring shows that utilization is heavy (over 60%) or stubble height under the shrub drip line is less than 4 inches.      | Following year of scheduled pasture use, decrease cattle use by 100 AUMs (200 cattle for 2 weeks).                       |

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

**Desired Plant Communities (DPC)**

All action alternatives include DPCs, 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 may or may not be similar to the Ecological Site Description (ESD) potential natural community. Nevertheless the ESD describes the potential capability of a site, as well as some of the inherent limitations, while developing DPC’s according to reasonably attainable goals. DPCs for the Nevada Cowhead Allotment were produced for all major sites and some important minor sites. These DPCs are discussed throughout the EA, and can be found as Attachment 1 in Appendix 1.

## ***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 AUMs (3482 AUMs are held in suspension) 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.

Under the No Action alternative, the current permitted use of 3057 AUMs would be continued, with certain administrative changes connected with scheduling/pasture movements in the Bally Mountain and Nevada Cowhead Allotments. In 2008 the Bally Mountain Allotment was separated for management and administrative purposes when the permit was fully process and renewed under NEPA document CA-370-08-12. To accurately represent this action, permitted use decreased by 177 AUMs for the Nevada Cowhead Allotment. The Nevada Cowhead Allotment would continue to be managed with a rest rotation grazing system as shown in Table 10. The North Plateau, Northeast Pasture and Lower Horse Creek pastures would be used in rotation every other year. The South Plateau, Barrel Springs, Lower Horse Creek, and Rim Pastures would be used the subsequent year with the rest rotation grazing system. The overall period of use would be reduced slightly - 4 days less (4/15-10/26). No new range improvements would be constructed. Existing terms and conditions would remain in effect; new short and long term allotment specific objectives would not be established. Desired Plant Community objectives would not be defined and implemented. The following Tables 10 & 11 summarize the mandatory terms and conditions, and grazing system for the No Action Alternative.

**Table 10 - Current Mandatory Terms and Conditions for the Nevada Cowhead Allotment.**

| Allotment      | Livestock |        | Grazing Period |       | % Public Land | AUMs   |           |       |
|----------------|-----------|--------|----------------|-------|---------------|--------|-----------|-------|
|                | Number    | Type   | 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 11 - Current Pasture Management**

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

***Alternative 3 – Reduced Stocking Rate***

This permit would specify a total of 1440 AUMs of livestock active permitted use. This alternative would also decrease active AUMs by 177 AUMs that were tied to the Bally Mountain Allotment and an additional 1440 AUMs would be suspended for the term of the permit. The number of cattle turned out would be 400 head from 4/15-7/15 and 100 head from 7/16-10/26.

Grazing use would be organized around a six pasture grazing system such that each pasture is grazed for two seasons within a three year rotation; meaning that each pasture receives at least one year of complete rest out of three grazing cycle. 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 are designed to allow more rest in the North Plateau to reach soil standards. 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.

The DPC objectives would be defined for the major ecological sites and some important minor ecological sites. Standards for plant phenological stage or growth for 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 range improvement projects would be constructed. The following tables 12 & 13 summarize the mandatory terms and conditions, and proposed grazing system.

**Table 12. Mandatory Terms and Conditions for the 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 13. Pasture Management –**

| Year | Barrel Springs  | South Plateau   | North Plateau   | Rim Pasture      | Northeast Pasture | Lower Horse Creek                                  |
|------|-----------------|-----------------|-----------------|------------------|-------------------|--|
| 1    | 100 C 4/15-7/15 | REST            | 300 C 4/15-7/15 | 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.
- Maintain or improve bitterbrush communities with a form class rating not exceeding 2.25.
- Control/reduce the existence of non-native and invasive plant species throughout the allotment.
- 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.<sup>4</sup>
- Maintain or improve PFC conditions in Horse Creek.
- 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.
- Continue progression towards DPC in aspen sites throughout the Nevada Cowhead Allotment.
- Improve sage grouse habitat within the allotment.

#### **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.

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<sup>4</sup> *Ibidem.*

- 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.
- Annual utilization of bitterbrush does not exceed 40% of current years' leader growth at the end of the growing season.
- 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).
- 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.
- Maintain at minimum a 6" stubble height along Horse Creek.
- Annual utilization on the woody species (willows) along Horse Creek does not exceed 20% at the end of the use period.
- 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.
- 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.
- 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 4 - No Grazing**

This alternative would cancel the permit on the Nevada Cowhead Allotment, and livestock 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.

### **Alternatives Considered but Dismissed from Further Analysis**

Other Alternatives considered include an adjustment of allotment boundaries to protect sensitive and listed species habitat.

The adjustment of allotment boundaries was not necessary based on review of Surprise RMP and resource data collected for the Nevada Cowhead Allotment. In addition the adjustment of allotment boundaries is outside the scope of this document, and was therefore dismissed from further analysis.

In the previous EA a „Modified Terms & Conditions’ Alternative was included and analyzed, however this alternative was dismissed in this EA, since the environmental effects were essentially same as the Reduced Stocking Rate Alternative, therefore it was deemed unnecessary to include the Modified Terms & Conditions Alternative.

## CHAPTER 3: ENVIRONMENTAL ANALYSIS

### RESOURCES OR ISSUES OF THE HUMAN ENVIRONMENT

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

**Table 14. List of resources or issues, and whether they are present and would be discussed in the EA.**

| Consideration of Resource or Issue           | Resource or Issue 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                                   |                          |                                   | ✓               |
| Wild Horses and Burros                       | ✓                        |                                   |                 |
| Wildlife                                     |                          |                                   | ✓               |
| Recreation                                   | ✓                        |                                   |                 |
| Soils  |                          |                                   | ✓               |
| Vegetation                                   |                          |                                   | ✓               |
| Livestock Management                         |                          |                                   | ✓               |

\* The following resources or issues 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. 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 recorded sites have been evaluated for National Register of Historic Places eligibility. Twenty-three of the 33 sites that were evaluated were found to be eligible for the NRHP. However, all 33 sites are located within an area that is eligible for the NRHP as an archaeological district. The remaining 136 sites have not been evaluated for their significance; therefore the BLM considers these sites to be eligible until a formal determination of eligibility can be made. Within the Rock Creek Enclosure there are 20 archaeological sites that are considered NRHP eligible as part of the Rock Creek Archaeological District. Lands within the enclosure 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 to be eligible for the NRHP. The remaining ten sites within the enclosure have yet to be individually evaluated. However, all twenty sites are considered to be eligible for the NRHP as part of the Rock Creek Archaeological District.

The following criteria were used to analyze potential impacts of livestock grazing on cultural resources:

Light – Livestock trails are non-existent or they contain no depth and are observable only by lack of vegetation. Concentrations of artifacts are contained in confined loci and are not distributed though out the site. Artifact breakage is not present. Cultural resource features are not affected. Soil erosion resulting from livestock grazing, wallowing areas, shading areas, and churned soil is not present. Cattle activity within the site is not affecting National Register of Historic Places (NRHP) eligibility.

Moderate – Livestock trails within the site are observable and contain depth, but their location is not affecting cultural features or artifacts within the site. Artifact dispersal does not appear to be occurring. Slight soil erosion is present from livestock grazing, but is not affecting portions of the site which contribute to the sites NRHP eligibility. Livestock wallowing areas, shading areas, and churned soil are not present within the site. NRHP eligibility is not being affected. However, a change in the pattern of use, such as new trailing routes, within the site could result in affects to NRHP eligibility.

Heavy – One or more of the following may be present at a site with heavy cattle impacts: Livestock trails are well established with depth and are affecting portions of the sites that contain artifacts or cultural features. Livestock wallowing areas, soil erosion, and churned soil may be evident. Cultural features are disturbed by cattle activity. Broken artifacts are present, and artifacts concentrations appear to be dispersed. Cattle activity is affecting NRHP eligibility.

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**

### **Impacts under Proposed Action**

#### **Impacts under Interim System**

Under the Interim System turnout would be reduced by 100 cattle in both the Barrel and North Plateau pastures, which would result in fewer impacts to cultural resources than under Proposed Action, and Current Management, but more than under the Reduced Stocking Rate or No Grazing alternatives.

#### **Impacts under Final System**

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 stock ponds would be constructed. The installation of the stock ponds 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 stock ponds would be established which could affect cultural resources that may be located along the trailing paths.

### **Impacts of Current Management**

Under 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 stock ponds. Conversely, by not constructing the stock ponds, archaeological sites that may be located in the vicinities of current watering areas would continue to receive the same amount of pressure from cattle.

### **Impacts of Reduced Stocking Rate**

Under this alternative, direct and indirect impacts to cultural resources would be less than under the Proposed Action, and Current Use, 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.

### **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.

### **B. Environmental Consequences**

#### **Impacts of Proposed Action**

##### **Impacts under Interim System**

Impacts under the Interim System would be expected to be minimally less than under the Proposed Action.

##### **Impacts under Final System**

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.

##### **Impacts of Current Management**

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

##### **Impacts of Reduced Stocking Rate**

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

##### **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 *Kidiütökadö* band of the Northern Paiute. Many members of the *Kidiütökadö* 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 will 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, these weeds are often classified as A rated. Currently the highest priority for treatment and eradication are A rated weeds.

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 (non-A rated) 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 along the North and South Plateau Pastures. Although bulbous bluegrass is not considered an invasive species, it is non-native and should be eradicated to prevent spreading. The area containing bulbous bluegrass is about 7 acres in size, and the bulbous bluegrass is highly concentrated and contained within this area. Cheatgrass was present but not abundant during the 2008 and 2009 field work, and was recorded in smaller amounts than in 1999. Japanese Brome, another invasive species, is also present in isolated pockets throughout the allotment. No other non-native or invasive weeds are known to occur on the allotment.

### **B. Environmental Consequences**

#### **Impacts of Proposed Action**

##### **Impacts under Interim System**

Impacts to invasive species under the Interim System would be expected to be similar to the impacts under the Proposed Action, however there would be no stock ponds developed under this alternative. Not constructing projects would further minimize any weed introduction to the

site.

### **Impacts under Final System**

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 impede the spread of non-native grasses on the uplands.

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 would assist in preventing the spread of noxious weeds into this riparian areas. Due to this limited use and corresponding utilization limits, the vegetation within Rock Springs is expected to continue progression towards late seral riparian condition class, 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 advance ecological condition stages, and successfully compete against the spread of noxious weeds. This improvement of composition, along with lower utilization limits, would assist in preventing the spread of noxious weeds into riparian areas throughout the allotment.

Project construction under the proposed action could also represent an opportunity for weeds to become introduced into the project area. However, the standard operating procedures (SOP) would minimize any weed introduction. The SOPs include:

1. Soil removed during construction of reservoirs will be mounded and shaped to reduce erosion and bare soils will be seeded with an approved mix to discourage weed establishment.
2. Equipment used for construction will be washed before entering the construction site to reduce the possibility of introducing weeds.

### **Impacts of Current Management**

Under current management, both the invasive species cheatgrass and Japanese brome, and the thistles are expected to maintain current composition levels or increase. The rest rotation management system is expected to maintain, but not improve the vigor of native perennial species to the extent that the Proposed Alternative; due in part to improper livestock distribution in some areas of the allotment. The concentrated use would maintain the vigor of the present native species, which could allow non-native species to remain competitive. Biodiversity may not improve in the uplands.

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

### **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 2 of the pasture rotation. 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 one out of three 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 accelerate vegetative recovery as compared to the Proposed Alternative for the North Plateau Pasture. The improvement in vigor and reproduction of native perennial plants should retard the spread of invasive species on the uplands.

The South Plateau Pasture would receive impacts comparable to the Proposed Alternative during the 1<sup>st</sup> and 2<sup>nd</sup> 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 3<sup>rd</sup> 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 of the scheduled grazing period. In congregation areas, ground cover would decrease and which could 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, likely increasing the amount of deep rooted native perennial grasses at a slightly faster rate than the Proposed Action, if the seedbed is available to respond. 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 Enclosure 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.

### **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 north of Horse Creek, and a small seasonal tributary to upper Horse Creek. The Table below outlines functionality ratings and sizes or lengths of these systems.

**Table 15. 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 an associated spring. No previous water source inventory or riparian functional information exists for this site. Observations in 2008 and previous years indicate similar riparian conditions as Deer Camp Spring due to the limited grazing season in the Lower Horse Creek Pasture.

\*\*Other riparian sites 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 varies from 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 to Twelve mile Creek. Horse Creek on the Nevada Cowhead Allotment is perennial, beginning at the springs in the Upper Horse Creek Pasture on private land in T. 47 N., R. 19 E., sec. 32 NW, NW and on BLM land in T. 47 N., R. 19 E., sec 31 SW, SE.

Generally, the soils in the Horse Creek channel and floodplain are alluvium deposits composed of silt materials that can be 20 feet deep. There are volcanic rock is common throughout the stream channel. In some areas, such as where the canyon is narrow and surface rocks armor and affect the size of the stream channel. 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 stream sediments may have resulted from recent deposition. Several exclosures were built around Horse

Creek in the late 1990's including the Lower and Upper Horse Creek pastures. Marked improvements have occurred on Lower Horse Creek, as indicated by an increase in woody species (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 enclosure was built around the lower spring fed, perennial portion of Rock Creek in 2002. The enclosure was built to improve conditions along perennial portions of Rock Creek. Since the construction of the Rock Creek Enclosure, and construction of the pasture fences, herbaceous and woody species have increased dramatically on Rock Creek.

Greenline transects are established and were read at six stations along Horse Creek in 1998 and again in the late summer of 2006. A bank stability rating was calculated based on species composition. Results indicate that most stations along Horse Creek fall into the "high" rating with one station falling in the "low" rating (Station 5). A higher rating indicates better ability of plants to stabilize streambanks during high water flows.

Greenline transects were conducted along two stations in the Rock Creek enclosure in 2008. Bank stability ratings were somewhat higher than Horse Creek however a major component to the bank stability ratings in Rock Creek is the underlying rock structure. Table 16 contains a summary of bank ratings by station.

**Table 16– Bank stability ratings along Horse Creek 1998 and 2006, and Rock Creek in 2008**

| Horse Creek 1998 and 2006 |      |      |           |      |      |
|---------------------------|------|------|-----------|------|------|
|                           | 1998 | 2006 |           | 1998 | 2006 |
| Station 1                 | 6.95 | 7.55 | Station 4 | 5.76 | 6.65 |
| Station 2                 | 7.02 | 7.90 | Station 5 | 4.56 | 3.85 |
| Station 3                 | 3.86 | 5.80 | Station 6 | 4.53 | 6.75 |
| Rock Creek 2008           |      |      |           |      |      |
| Station 1                 | 7.42 |      |           |      |      |
| Station 2                 | 7.86 |      |           |      |      |

Bank stability rating index - 1-2 Very Low, 3-4 Low, 5-6 Mid, 7-8 High, 9-10 Excellent

The Proposed Action is similar to past management along Horse Creek and Rock Creek, therefore bank stability, riparian vegetation cover and shading as a result of implementation of the Proposed Action is expected to increase.

Geology of Rock Creek watershed is generally composed of basalt lava flows and associated shallow soils that contain low sagebrush vegetative community makes for inherent flashy surface flows following precipitation events. For example, in the spring of 1993, Rock 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 the early spring. Water from large precipitation events or rapid snowmelts would naturally flow to Twelvemile Creek

without much opportunity for infiltration.

## **B. Environmental Consequences**

### **Impacts of Proposed Action**

#### **Impacts under Interim System**

Impacts to riparian health under the Interim System would be expected to be similar to those under the Proposed Action, except stock ponds would not be developed. The distribution of livestock would not improve throughout the North Plateau or Barrel Springs Pasture and cattle would not be drawn away from riparian areas. But this impact is mitigated somewhat by turning out 200 less cattle that would be permitted in the Interim System. With 100 less cattle in Barrel Springs Pasture, and 100 less cattle in North Plateau Pasture, the existing water sources would be maybe sufficient to maintain proper cattle distribution and help draw cattle way from riparian area congregation.

#### **Impacts under Final System**

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 which would receive slightly more use in the Northeast Pasture than the current management system. 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 that area 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 would 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. Developing water sources near riparian areas is a common practice for reducing potential cattle impacts by drawing cattle away from sensitive riparian areas.

#### **Impacts of Current Management**

Impacts to riparian values from livestock would be roughly the same as for the Proposed Action in Horse Creek. Intensive compliance monitoring has limited the amounts of unauthorized use in recent years and related impacts to riparian habitats. All but station 5 along Horse Creek shows an increase in bank stability rating. It is uncertain if the bank stability rating at station 5 is related to past unauthorized or other reasons such as site potential.

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

### **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 because the soil would be less saturated at that time. 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 Enclosure, 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.

### **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. There would be an expected long-term benefit to riparian habitat with increases in age classes of woody and herbaceous vegetation and increased diversity of plants.

### **C. Maps**

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

## ***WILDERNESS/LANDS WITH WILDERNESS CHARACTERISTICS***

### **A. Affected Environment**

All BLM lands, including those in the project area, were inventoried for wilderness characteristics in 1979 as directed under the Federal Land Policy and Management Act of 1976 (FLPMA). Under section 603 of FLPMA, lands found to have wilderness characteristics in the original 1979 inventory were designated as Wilderness Study Areas (WSAs). Under a 2003 settlement agreement between the Department of Interior and State of Utah, the BLM agreed that it has no authority to establish new WSAs. However, under section 201 of FLPMA, the BLM is required to maintain current inventories of all public land resources, including wilderness characteristics. The wilderness characteristics inventory for lands within the project area was updated in 2009 as required under section 201 of FLPMA.

Wilderness characteristics are assessed using several screening criteria. Listed in order, they include; size, natural condition, outstanding opportunities for solitude or for primitive and unconfined recreation, and special or supplemental values (not required).

**Size** – To be sufficient size to have wilderness characteristics, an inventory unit is generally at least 5,000 contiguous roadless acres of public land where the imprint of human activity is substantially unnoticeable. In certain cases, a unit may be less than 5,000 contiguous acres if one of the following factors is present:

- It is clearly of sufficient size to make practicable its preservation and use in an

unimpaired condition.

- It is contiguous with a BLM WSA and is not separated from the WSA by a road, right-of-way, or non-federal land.
- It is contiguous with land managed by another federal agency that has been formally determined to have wilderness or potential wilderness characteristics.

**Natural Conditions** –The area within the unit boundary must appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable. Some imprints of human activity may exist in the area if they are substantially unnoticeable. More consideration is given to “apparent naturalness” rather than “natural integrity.” “Apparent naturalness” refers to whether or not an area appears to be in a natural condition to the average visitor who is not familiar with the biological composition of natural ecosystem versus human-affected ecosystems in a given area. Major influences on apparent naturalness are structures, evidence of significant past vegetative disturbance such as logging, and other obvious surface-disturbing activities. “Natural integrity” refers to the presence or absence of ecosystems that are relatively unaffected by human activity, such as the presence of native vegetative communities and absence of invasive species.

**Outstanding Opportunities for Solitude** – “Solitude” is defined as the state of being alone or remote from others; isolation; a lonely or secluded place. “Outstanding” is defined as standing out among others of its kind; conspicuous; prominent; superior to others of its kind; distinguished; excellent. This criteria considers an individual’s opportunity to avoid sights, sounds, and evidence of other people in the unit. Factors that affect opportunities for solitude are the size and configuration of the unit; vegetative and topographic screening; ability of visitors to find a secluded spot, even when others are present in the area. Do not consider the sights and sounds of human activity outside of the unit’s boundaries unless they are so extremely imposing that they cannot be ignored.

**Outstanding Opportunities for Primitive and Unconfined Recreation** – Primitive and unconfined recreation includes activities that provide dispersed, undeveloped recreation which do not require facilities or motorized equipment. Some examples include but are not limited to hiking, backpacking, fishing, hunting, caving, horseback riding, rock climbing, river running, cross-country skiing and bird watching. An area may possess outstanding opportunities for primitive and unconfined recreational activities possible in the unit, or the outstanding quality of one opportunity.

Supplemental values are also considered in the wilderness inventory, however only if the other criteria has been met. Supplemental values are ecological, geological, or other features of scientific, educational, scenic, or historic value that may be present. If present, a description of these values is included in the inventory. The description should include a discussion of the relative quantity and quality of these values including anthropological, rare, and endangered species, and heritage.

A wilderness inventory was conducted in 1979 and 1980 in accordance with BLM’s Wilderness Study Policy: Policies, Criteria and Guidelines for Conducting Wilderness Studies on Public Lands (47 CFR 5098-5122). This inventory identified five Wilderness Inventory Units that the Nevada Cowhead included all or part of. These units are: CA-020-1004, CA-020-1004A, CA-020-1005, CA-020-1006, CA-020-1006B (see map 7 in Appendix 1). These units were all found not to have wilderness character. These units were re-inventoried in 2009 (see map 8 in

Appendix 1). Unit CA-020-1004 was re-inventoried in 2009 by the Lakeview BLM and was found not to contain wilderness character. CA-020-1004A & CA-020-1005 were combined into one wilderness inventory unit and were re-inventoried in 2009 by the Lakeview BLM and found not to contain wilderness character. CA-020-1006B was re-inventoried by the Surprise Field Office in 2009 (as CA-NO-07-002) and was found not to contain wilderness characteristics. CA-020-1006 was re-inventoried as CA-NO-07-003 by the Surprise Field Office in 2009 and it was concluded that the area, or a portion of the area, has wilderness character. Inventory unit CA-NO-07-003 contains 129,066 acres, of which 10,946 acres are in Nevada Cowhead. The wilderness inventory unit contains the portions of the Barrel Springs Pasture south of the Barrel Springs Road, and the portions of the South Plateau Pasture to the west of the powerline.

## **B. Environmental Consequences**

### **Impacts of Proposed Action**

#### **Impacts under Interim System**

Impacts to wilderness characteristics would be the same under the Interim System as they would be under the Proposed Action.

#### **Impacts under Final System**

The proposed action would not impact the size of the area that has wilderness characteristics. The natural condition would be expected to improve as the vegetation shifted towards deep rooted native grass dominance. Although this will not change apparent naturalness to the casual visitor, it will through time increase the natural condition. There are no developments planned within the portion of Nevada Cowhead that overlays inside the CA-NO-07-003 wilderness inventory unit, so there would be no impacts to the natural condition of the area from development of the proposed stock ponds. Outstanding opportunities for solitude would be the same as they are currently. Occasional recreation, rancher, or other related motorized traffic may occasionally intrude on outstanding opportunities for solitude. Recreation-related traffic in the area would remain constant regardless of alternative. Rancher-related motorized traffic would remain fairly constant through all alternatives (except No Grazing). The rancher-related motorized traffic would occur in each area for 1.5 months each year, instead of 3 months every other year as in the No Action. Opportunities for unconfined and primitive recreation would not be expected to change under the Proposed Action.

#### **Impacts of Current Management**

The natural condition would be expected to improve/increase at a much slower rate than under the Proposed Action or the other alternatives, as there would be concentrated use on half of the allotment yearly. There are no developments planned under this alternative, so there would be no impacts to the natural condition (wilderness characteristics) of the area from development of the proposed stock ponds. Outstanding opportunities for solitude are not expected to change. Opportunities for unconfined and primitive recreation would not be expected to change under Current Management, and there would not be impacts to the size of the area that has wilderness characteristics.

#### **Impacts of Reduced Stocking Rate**

The natural condition would be expected to improve as the vegetation shifted towards deep

rooted native grass dominance. There are no developments planned within the portion of Nevada Cowhead that overlays inside the CA-NO-07-003 wilderness inventory unit, so there would be no impacts to the natural condition of the area from development of the proposed stock ponds. Outstanding opportunities for solitude are not expected to change. Opportunities for unconfined and primitive recreation and size of area containing wilderness characteristics would not be expected to change under the Reduced Stocking Rate alternative.

### **Impacts of No Grazing**

The proposed action would not impact the size of the area with wilderness characteristics. Natural conditions are expected to improve at a faster rate than under the other alternatives. This is due not only to changes in some grass species, but existing stock ponds may also eventually become abandoned, and re-established with vegetation, however reduced water sources would have a negative effect on large wildlife species populations. Other vegetative changes such as encroachment of western juniper onto important wildlife habitat would continue. Existing roads will continue to be used by recreationists. There would not a notable change in Outstanding Opportunities for solitude under this alternative. Opportunities for unconfined and primitive recreation are not expected to change.

### **C. Maps**

The 1979 wilderness inventory units in Nevada Cowhead can be viewed as Map 7 in Attachment 1, and the 2009 wilderness inventory units in Nevada Cowhead can be viewed as Map 8 in Attachment 1 of this EA.

## ***WILDLIFE/THREATENED AND ENDANGERED SPECIES***

### **A. Affected Environment**

#### **Wildlife:**

The allotment is considered summer or fall/transition habitat for mule deer (*Odocoileus hemionus*). Bitterbrush and mountain mahogany, important fall and winter forages, are found on limited habitats on the allotment (table 17). Western juniper provides important winter deer cover and very little winter forage. Mule deer with fawns sometimes occur along Horse Creek in the summer. To aid in thermoregulation, deer utilize various topographic aspects, south in the winter and north in the summer. Heavy shrub and tree cover also aids in thermoregulation. Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet. The diet of mule deer is quite varied and the importance of various classes of forage plants varies by season, however sagebrush and bitterbrush are important components throughout the year with sagebrush being very important to deer in the winter months. Table 18 indicates that the allotment can support mule deer throughout the year, providing both forage and thermal cover in close proximity.

**Table 17- Summary of major Vegetative Communities in the Nevada Cowhead Allotment based on soil survey information. Note: Private land included in this table and accounts for about 7% of the allotment.**

| ACRES           | PERCENT      | POTENTIAL COMMUNITY BASED ON SOILS  |
|-----------------|--------------|---|
| 66.5            | 0.2          | Bitterbrush   |
| 534.77          | 1.3          | Combination of big sagebrush and herbaceous vegetation                        |
| 1366.23         | 3.2          | Combination of big sagebrush and juniper                                      |
| 1399.18         | 3.3          | Combination of big sagebrush and low sagebrush                                |
| 403.49          | 1.0          | Combination of big sagebrush and mountain mahogany                            |
| 79.51           | 0.2          | Combination of big sagebrush, low sagebrush, and bitterbrush                  |
| 19963.39        | 47.0         | Combination of low sagebrush and juniper                                      |
| 14.46           | 0.0          | Combination of silver sagebrush and low sagebrush                             |
| 491.84          | 1.2          | Combination of Wyoming big sagebrush and low sagebrush                        |
| 15609.37        | 36.8         | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 1329.91         | 3.1          | Mountain big sagebrush  |
| 251.55          | 0.6          | Seasonally wet, no salt influence   |
| 49.07           | 0.1          | Timber (including white fir, ponderosa pine etc)                              |
| 13.07           | 0.0          | Unvegetated areas (rock, water, playa, etc)                                   |
| 867.61          | 2.0          | Wyoming big sagebrush   |
| <b>42439.96</b> | <b>100.0</b> | <b>TOTAL SUM</b>  |

Pronghorn antelope (*Antilocapra americana*) prefer open rangelands that support a variety of vegetative types, but locally can be found in areas with taller vegetation, including trees. Predation issues are generally considered to be the reason why pronghorn are not typically found in heavier cover types. Areas with low shrubs typify summer habitat with a diversity of native grasses and forbs (Gregg, Bray, Kilbride, & Dunbar, 2001) and low sagebrush types occur on a majority of the allotment (table 17). Vegetative heights where pronghorn are found can vary; however 10-18 inches has been reported for pronghorn in grassland and shrub steppe communities (Yoakum, 2004). There does not appear to be a dependence on open water, if there is sufficient moisture in the vegetation (Reynolds, 1984) (O'Gara, 1978). Although forbs are an important component of the diet, browse is the dominant food ingested (Pyshora, 1977). Like all big game species, forbs are preferred forage and contribute a high amount of protein and minerals to the diet of pronghorn antelope. Pronghorn 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.

Habitat for California bighorn sheep (*Ovis canadensis californiana*) includes steep rocky terrain for escape cover and bedding opportunities adjacent to open vegetation for foraging and water. Due to predation issues, high quality bighorn sheep habitat (steep areas) generally has water within ¼ mile, but can include a variety of vegetation types such as Mountain and low sagebrush, juniper woodland edges, perennial grasslands and bitterbrush areas. According to GIS information provided by the Nevada Department of Wildlife (NDOW), bighorn use may occur on several thousand acres in the extreme northeastern sections of the allotment (Northeast and Lower Horse Creek pastures) and known use occurs in the Rim Pasture. NDOW data generally corresponds with steep topographic features in the allotment. Because bighorn are not well adapted to deep snow, most use probably occurs in the spring to fall months.

Rocky Mountain elk (*Cervus elaphus nelsoni*) are generally found in heavily timbered areas with dense understories of brush, where they eat a wide variety of plants including grasses, forbs, and shrubs. Woodlands serve as important thermal and hiding cover. On the Nevada Cowhead allotment, elk are expected to occupy relatively scarce habitat, aspen, and pine woodlands that are close to wet meadows or creeks, (see table 17) except along Rock Creek and Horse Creek. There has only been one definite sighting of elk in the allotment. In high-quality elk habitat, water is usually available within 2 miles (3.2 km).

The Nevada Cowhead Allotment occurs entirely within NDOW unit 011. Hunt units are geographic boundaries that have been adopted by a board of wildlife commissioners and enacted into state law, primarily for the purpose of managing populations of game species. Maps for the hunt unit boundaries can be found online at <http://ndow.org/hunt/maps/units.shtm>. NDOW collects data based on hunt units and not on an allotment basis and often reports pooled information for big game from several units together. Mule deer data (see link below for the 2008-2009 big game status book) for units 011-015 indicate that mule deer numbers vary from trending downward to slightly increasing for the various mule deer populations in northwestern Nevada. The adjacent unit 033, the Sheldon Refuge, is also currently experiencing continued low recruitment levels. Pronghorn populations in hunt units 011 and 015 are expected to continue upward trends while those populations within adjacent units 012 and 013 are expected to remain static. According to NDOW, big game animals are experiencing declines due to drought conditions (7 of the last 10 years) affects on vegetation, and competition from wild horses. NDOW does not track bighorn or elk numbers in unit 011.

<http://www.ndow.org/about/pubs/index.shtm#general>

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, due to its ephemeral nature and generally low water flow from spring sources has no trout but many dace. Rock Creek is not likely to support more fish species. Current information shows that the Rock Creek exclosure and Horse Creek pasture has show marked improvements in riparian habitats in recent years. See the Warner sucker section below for additional information.

Cow Head Lake tui chub (*Gila bicolor vaccaceps*) occur on unfenced private lands in the Barrel Springs pasture within the allotment. This species was formerly a proposed endangered species, however additional information, including surveys in 2001 by 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” and available at <http://www.fws.gov/policy/library/2006/E6-16544.html>. This fish is known to occur throughout private land streams and canals within the allotment connected to the Cow Head Lake system.

The following general life history is taken from the 2006 federal register; references have been omitted for brevity:

Cow Head Lake tui chub generally occupy pool areas in streams and open water channels having dense aquatic vegetation. Spawning by most tui chubs usually takes place from late

April to late June, beginning in their second to fourth year. Fecundity is relatively high, and a female of 100 mm (4 in) produces about 4,000 eggs over a series of spawning events. Tui chubs in general evolved in the arid Great Basin where water bodies experience wide fluctuations in water conditions, and therefore they are highly tolerant of high alkalinity, high turbidity, and high temperatures. They also appear to tolerate relatively low levels of dissolved oxygen. While there have been no long-term diurnal studies of water quality in the Cow Head Basin, short-term surveys and measurements associated with distributional surveys in Cow Head streams and channels indicate that most water quality parameters are generally well within the documented tolerances of tui chubs, with the exception of localized low dissolved oxygen conditions near the bottom of desiccating pools and canals. There are no records of large fish die-offs caused by water quality in permanent pools or canals associated with the Basin, again indicating that water quality parameters are well within limits tolerated by tui chubs.

**Threatened or Endangered Species:**

The sage-grouse became a candidate species in February of 2010 with the USFWS 12 month finding of “warranted but precluded” for this species. Candidates are those species which the USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list but issuance is precluded by higher priority listing actions. “Candidate species and their habitats are managed as Bureau sensitive species”, (BLM Manual 6840, December 2008). See the BLM sensitive species section for a detailed account of this species.

Habitat in the Nevada Cowhead Allotment is not suitable for Carson wandering skipper (*Pseudocopa eunus obscurus*), a Federally listed endangered species, due to the lack of required saltgrass habitat (see table 17). Carson wandering skipper potential habitat sites have been surveyed for on the Surprise Field Office but none have been found. Therefore, Carson wandering skipper will not be discussed further.

To date, Warner sucker (*Catostomus warnerensis*), a federally listed threatened fish, has not been found within the Nevada Cowhead Allotment, or on any other public lands managed by the Surprise Field Office. Critical habitat identified in the federal register for the species is found downstream of the Nevada Cowhead Allotment 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 found during the second (2006) search.

Warner suckers are found in streams and lakes that feed to or are located in the Warner Valley, Oregon, north of the Surprise Field Office. The described habitat for this species is slow-moving water in substrates that provide longer pools greater than 4.5 feet deep, with abundant vegetation along its banks, submersed and floating vegetation, undercut banks, root wads or boulders, and

large beds of aquatic macrophytes (usually greater than 70% of substrate covered) (U.S. Fish and Wildlife Service 1998). Warner sucker spawning is influenced by temperature and water flows, and takes place over sand or gravel beds in slow pools. NTU (nephelometric turbidity units) levels are a measurement of turbidity in streams. Because catostomids (like Warner sucker) are not as readily impacted by sediment, it is reasonable to expect that Warner sucker would not be impacted until a higher nephelometric turbidity unit (NTU) level is reached. Warner sucker are known to occur in streams with temperatures ranging from 8°C to 30°C (Tait & Mulkey, 1993), although fish captured at higher temperatures showed signs of stress. Saiki et al. (Saiki, Monda, & Bellerud, 1999) conducted laboratory experiments related to determining the incipient lethal temperatures (abrupt transfer of fish between waters of different temperature) on Lost River and shortnose sucker larvae and juveniles (sucker species with similar life history traits in a nearby subbasin). They determined incipient lethal temperatures to be from 30.35 °C to 31.82 °C which resulted in fifty percent mortality.

### **BLM Sensitive Species:**

On BLM lands of the Surprise Field Office, historic and active Greater sage-grouse (*Centrocercus urophasianus*) strutting grounds known as “leks” are located primarily in open, low sagebrush habitats. Leks are areas where males display for breeding females. The same display areas are used year after year and are monitored by biologists to help determine population numbers. While table 17 indicates that a majority of the allotment could support lekking activity, due to the large amount of low sage, only two Greater sage-grouse leks, or sage-grouse leks exist in the allotment. These leks are located in the Lower Horse Creek and Barrel Springs pastures and are found in communities dominated by low sagebrush (table 19). Early research estimated that most females nested within 3.2 km (2 miles) of leks; however recent studies indicate that females may nest up to 5.1 km (3.2 miles) away. At least one female radio collared on the Surprise Field Office successfully nested 14.5 km (9 miles) from the lek she was captured on. Although many nests have been found in lower quality habitats these are almost always unsuccessful due to nest abandonment and predation. Sage-grouse nest on the ground, most often under taller sagebrush cover (15-38% shrub canopy; 29-80 cm shrub height (Connelly, Schroeder, Sonds, & Braun, 2000)) such as the “big” sagebrush types and Wyoming sagebrush. Successful nesting habitat contains taller grass cover (>18 cm or 7 in) in association with this sagebrush. Most pastures in the Nevada Cowhead Allotment have some potential to support sage-grouse nesting (see table 18), however the Lower Horse Creek and Barrel Springs pastures have a higher probability based on the known location of active leks. The Northeast Pasture is also expected to have proportionally more nesting due to its greater percentage of habitat in big sagebrush types. Peak egg-laying and incubation varies from late March through mid-June, with re-nesting stretching into early July. Sage-grouse utilize sagebrush stands as both winter and nesting habitat.

**Table 18. Summary of major Vegetative Communities in the Nevada Cowhead Allotment by pasture. Note: Private lands are included in this table; and account for 07% percent of the allotment.**

| <b>Lower Horse Creek</b> |         |   |
|--------------------------|---------|---|
| ACRES                    | PERCENT | COMMUNITY   |
| 134.53                   | 5.9     | Combination of big sagebrush and juniper                                      |
| 18.58                    | 0.8     | Combination of big sagebrush and low sagebrush                                |
| 244.78                   | 10.7    | Combination of low sagebrush and juniper                                      |
| 1692.19                  | 74.2    | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 81.06                    | 3.6     | Seasonally wet, no salt influence   |
| 110.2                    | 4.8     | Wyoming big sagebrush   |
| 2281.35                  | 100.0   | TOTAL SUM   |
|                          |         |   |
| <b>North Plateau</b>     |         |   |
| 1.1                      | 0.0     | Bitterbrush   |
| 281.37                   | 1.8     | Combination of big sagebrush and juniper                                      |
| 8787.98                  | 55.8    | Combination of low sagebrush and juniper                                      |
| 8.58                     | 0.1     | Combination of silver sagebrush and low sagebrush                             |
| 0.24                     | 0.0     | Combination of Wyoming big sagebrush and low sagebrush                        |
| 6548.81                  | 41.6    | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 50.45                    | 0.3     | Mountain big sagebrush  |
| 60.05                    | 0.4     | Seasonally wet, no salt influence   |
| 15738.58                 | 100.0   | TOTAL SUM   |
|                          |         |   |
| <b>South Plateau</b>     |         |   |
| 14.41                    | 0.2     | Bitterbrush   |
| 361.26                   | 4.0     | Combination of big sagebrush and juniper                                      |
| 6635.6                   | 74.2    | Combination of low sagebrush and juniper                                      |
| 2.22                     | 0.0     | Combination of silver sagebrush and low sagebrush                             |
| 1864.15                  | 20.9    | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 46.07                    | 0.5     | Mountain big sagebrush  |
| 15.01                    | 0.2     | Seasonally wet, no salt influence   |
| 8938.72                  | 100.0   | TOTAL SUM   |
|                          |         |   |
| <b>Barrel Springs</b>    |         |   |
| 380.8                    | 5.2     | Combination of big sagebrush and juniper                                      |
| 2922.57                  | 39.6    | Combination of low sagebrush and juniper                                      |
| 278.06                   | 3.8     | Combination of Wyoming big sagebrush and low sagebrush                        |
| 3800.22                  | 51.5    | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 7381.66                  | 100.0   | TOTAL SUM   |
|                          |         |   |
| <b>Rock Creek</b>        |         |   |
| 34.43                    | 7.7     | Combination of big sagebrush and juniper                                      |
| 204.14                   | 45.6    | Combination of low sagebrush and juniper                                      |
| 188.69                   | 42.1    | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 20.53                    | 4.6     | Mountain big sagebrush  |
| 447.79                   | 100.0   | TOTAL SUM   |
|                          |         |   |
| <b>Northeast Pasture</b> |         |   |
| 14.38                    | 0.3     | Bitterbrush   |
| 512.74                   | 11.5    | Combination of big sagebrush and herbaceous vegetation                        |
| 107.59                   | 2.4     | Combination of big sagebrush and juniper                                      |
| 1380.6                   | 31.1    | Combination of big sagebrush and low sagebrush                                |
| 78.05                    | 1.8     | Combination of big sagebrush, low sagebrush, and bitterbrush                  |
| 219.44                   | 4.9     | Combination of low sagebrush and juniper                                      |

|  |       |   |
|--|-------|---|
| 213.54   | 4.8   | Combination of Wyoming big sagebrush and low sagebrush                        |
| 329.16   | 7.4   | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 785.99   | 17.7  | Mountain big sagebrush  |
| 24.62  | 0.6   | Seasonally wet, no salt influence   |
| 49.07  | 1.1   | Timber (including white fir, ponderosa pine etc)                              |
| 725.45   | 16.3  | Wyoming big sagebrush   |
| 4440.61  | 100.0 | TOTAL SUM   |
|  |       |   |
| <b>Upper Horse Creek Pasture– (mostly private)</b> |       |   |
| 66.26  | 38.1  | Combination of big sagebrush and juniper                                      |
| 1.46   | 0.8   | Combination of big sagebrush, low sagebrush, and bitterbrush                  |
| 0.57   | 0.3   | Combination of low sagebrush and juniper                                      |
| 5.31   | 3.1   | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 7.63   | 4.4   | Mountain big sagebrush  |
| 60.75  | 34.9  | Seasonally wet, no salt influence   |
| 31.96  | 18.4  | Wyoming big sagebrush   |
| 173.94   | 100.0 | TOTAL SUM   |
|  |       |   |
| <b>Rim Pasture</b>                                 |       |   |
| 36.61  | 1.2   | Bitterbrush   |
| 16.5   | 0.5   | Combination of big sagebrush and herbaceous vegetation                        |
| 400.49   | 13.2  | Combination of big sagebrush and mountain mahogany                            |
| 948.31   | 31.4  | Combination of low sagebrush and juniper                                      |
| 3.67   | 0.1   | Combination of silver sagebrush and low sagebrush                             |
| 1180.26  | 39.0  | Low sagebrush, including early, Lahontan, and black sagebrush and rabbitbrush |
| 414.71   | 13.7  | Mountain big sagebrush  |
| 10.06  | 0.3   | Seasonally wet, no salt influence   |
| 13.07  | 0.4   | Unvegetated areas (rock, water, playa, etc)                                   |
| 3023.68  | 100.0 | TOTAL SUM   |
|  |       |   |

Brood-rearing habitats are wet meadow and riparian areas where the young can find abundant insects which are critical to their diets during the first few weeks of life. Sage-grouse feed on sagebrush buds, flowers throughout much of year, especially fall – early spring; also insects. Forbs are important food sources for brood rearing and pre-nesting hens. Portions of Horse Creek in the Lower Horse Creek Pasture are used year after year by sage-grouse in the summer.

Lek count trends are similar annually to the adjacent Sheldon National Wildlife Refuge (NWR), as shown in Tables 19 and 20 below. Both the Big Mud Lake and Horse Creek complexes on the Surprise Field Office are tracked within the Vya population management unit (PMU) and the Bald Mountain complex on NWR is tracked within the Sheldon PMU. Lek count numbers generally declined on both the Surprise Field Office and the Sheldon NWR in 2008, and then increased in 2009. Fall 2009 data indicates that both the Sheldon and Vya PMU chick/hen ratios are above the estimated ratio of 2.25 chicks/hen needed to sustain or increase population numbers in those PMU's. The 2009 data for the Vya PMU was 2.50 chicks/hen and the Sheldon ratio was 2.45 chicks/hen. The county ratio was 2.54 for 2009. Early indications are that 2010 lek counts are also up from previous years.

**Table 19 - Lek counts by year for the Big Mud Lake and Horse Creek complexes (NDOW and BLM Data). Only Horse Creek and Stateline leks occur within the Nevada Cowhead Allotment, all others below occur in the adjacent East Allotment. “NC” = no count.**

| <b>Big Mud Lake Complex</b> | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010* |
|-----------------------------|------|------|------|------|------|------|-------|
| Big Mud Lake                | 0    | 0    | 1    | NC   | NC   | 0    | 0     |
| Cinder Pit                  | NC   | 62   | 53   | 34   | 24   | 26   | 41    |
| East Cinder Pit Satellite   |      |      | 2    | 0    | NC   | NC   | NC    |
| Stateline                   | NC   | 10   | 11   | 6    | NC   | 1    | 19    |
|                             |      |      |      |      |      |      |       |
| <b>Horse Creek Complex</b>  |      |      |      |      |      |      |       |
| Horse Creek                 |      |      | 39   | 33   | 21   | 18   | NC    |
|                             |      |      |      |      |      |      |       |

\* Preliminary data from early April 2010.

**Table 20 - Lek counts by year for the Bald Mountain complex (NDOW Data). “NC” = no count. Seven other leks in this complex are no longer counted.**

| <b>Sheldon NWR</b> | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------------|------|------|------|------|------|------|
| Bald Mountain      | 161  | 210  | 149  | 113  | 35   | 52   |
|                    |      |      |      |      |      |      |

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 current or old pygmy rabbit use were found in or adjacent to the allotment. An analysis of soils around all active and old burrows found during the 2006 survey indicates that only about 15 acres (at two sites) within the allotment might be suitable habitat for pygmy rabbit. Data available to the BLM as of early 2010 indicates that this analysis correlates very well with the 2009 Ruby pipeline survey, all Ruby pipeline active sites falling within the predicted polygons. In addition, no pygmy rabbit or their sign have been seen within the allotment by BLM personnel. Pygmy rabbit are not thought to occur in the allotment and therefore will not be discussed further.

The Warner Valley redband trout (*Oncorhynchus mykiss* spp) is also a BLM sensitive species. Within the Surprise Field Office, this species occurs only in Rock Creek. Surveys in Rock Creek have found rainbow trout and rainbow/redband trout hybrids. Little is known about the specific habitat requirements for Warner Valley redband trout however they have been found in many of the same areas as Warner sucker in Twelvemile Creek.

The majority of research on the effects of stream temperature on fishes is related to salmonids. Salmonids have lower incipient lethal temperature limits (24 °C to 30 °C) when compared to suckers (Bjornn & Reiser, 1991) and water temperatures for trout should generally not exceed 21° C (70° F) for long periods of time. Tui chub and dace however do very well in warmer waters (Bjornn & Reiser, 1991). Salmonids are able to survive with high stream temperature due to the diel fluctuations during the day and night that allow for recovery from elevated temperatures (Bjornn & Reiser, 1991). In small streams where daily maximum temperatures approach upper lethal levels, salmonids can thrive if the temperature is only high for a short time and then declines well in the optimum range (Bjornn & Reiser, 1991).

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**

### **Impacts of Proposed Action**

#### **Impacts under Interim System**

Impacts to wildlife and the associated habitat under the Interim System would be expected to be similar to those under the Proposed Action; however no stock ponds would be developed. This would not improve the distribution of livestock throughout the North Plateau or Barrel Springs Pasture, but with 25% reduction in numbers as compared to the Final System (600 instead of 800) the impacts would be expected to be similar.

#### **Impacts under Final System**

The proposed action is designed to improve upland habitats, which would benefit many wildlife species. Livestock use during even years in the Barrel Springs Pasture would not impact sage-grouse because most nesting is over by this time cattle enter the pasture. In odd years, potential impacts would be mitigated by turnout of cattle 0.6 miles away from the active lek in the Barrel Springs Pasture. Possible impacts to nesting, such as trampling, (as opposed to current management which rests the Barrel Springs Pasture every other year) are expected to be low due to the relatively stocking rates, and small amount of big sagebrush types, which are used by nesting sage-grouse in this pasture (see Table 18 above). 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.

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. These improvements would increase hiding cover and reduce predation on grouse and other small animals as well. Ensuring that utilization of aspen suckers does not exceed 20% of suckers by the end of the grazing season, and annual utilization of bitterbrush does not exceed 60% of current years' leader growth at the end of the growing season will benefit mule deer and song birds which forage on these species. Setting utilization limits also benefits overall aspen and bitterbrush stand health by ensuring that a broad range of age classes are available to replace older plants and that there is more available forage.

Increased residual grasses every other year, brought about by resting pastures or instituting deferred grazing, 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 in-stream aquatics by reducing potential sediment loads into streams via increased upland vegetation adjacent to riparian habitats.

Riparian habitats within the allotment would improve, except along Rock Creek where riparian

habitats would be maintained or possibly decrease. Negative effects could occur depending on the number of livestock placed in the enclosure and the pattern of use which occurs. Any negative effects would be associated with loss of vegetative cover along the stream and bank by trampling. No long term impacts are expected, and any potential short term impacts are mitigated through the permit terms and conditions riparian use levels, and the term and condition which stipulates “If cattle remain in the Rock Creek Enclosure 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. Turbidity data was collected in 2002 and 2003 on Horse Creek and Twelvemile Creek and in 2003 in Rock Creek (unpublished data on file with the Surprise Field Office). That data indicates that sediment levels in Horse Creek and Rock Creek are reduced from their upper reaches to their lower reaches. The following table is from the 2010 Warner sucker BO.

**Table 21– Turbidty levels (NTUs) in Horse, Rock, and Twelvemile Creeks for 2002 and 2003. Number in parentheses is number of days collected for average.**

|   |         |          | Approx. distance between upstream and downstream station            |
|---|---------|----------|---|
| Horse Creek   | 2002    | 2003     |   |
| Upper station (Northeast Pasture)   | 14 (1)  | 14.1 (2) |   |
| Middle station (Lower Horse Creek Pasture)  | 12 (1)  | 4.7 (2)  | 2.25 miles (most of water passes through Upper Horse Creek Pasture) |
| Lower station (Lower Horse Creek Pasture)   | 3.1 (1) | 4.9 (2)  | 2.15 miles  |
| <b>Rock Creek 2003</b>  |         |          |   |
| Upper station (Rock Creek Enclosure)  |         | 27.1 (2) |   |
| Lower station (Rock Creek Enclosure)  |         | 13.3 (2) | 2.25 miles  |
| <b>Twelvemile Creek</b>   |         |          |   |
| About 0.5 miles above confluence with Rock Creek, outside of field office boundaries. | 1.4 (1) | 9.2 (2)  |   |

Indirect effects to Warner sucker in the Twelvemile system are not expected to occur, given that there are no Warner sucker in either Rock Creek or Horse 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.

The BLM has consulted with the USFWS on the Nevada Cowhead Allotment concerning grazing actions for the federally threatened Warner sucker since 1994. Formal consultation to analyze effects to threatened species occurs via a separate biological assessment (BA). The USFWS returns a biological opinion (BO). Concerning the proposed action for 2005, the 2005 BO states, "...as proposed, is not likely to jeopardize the continued existence of the Warner sucker, and is not likely to destroy or adversely modify designated critical habitat". While the current Proposed Action makes a change to the use of the Rock Creek enclosure, the Biological Assessment for the new grazing permit states, "Improvement in riparian vegetation and function in the Horse Creek and Rock Creek drainages has been achieved through use of riparian pasture, riparian utilization criteria, and highly controlled and monitored grazing. The Proposed Action is designed to continue improvements in the riparian condition and overall watershed condition of tributaries to Twelvemile Creek in the Nevada Cowhead Allotment, and concomitantly to downstream Warner sucker habitat. 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 BLM is in the process of receiving a concurrence from the USFWS on this determination.

Negative effects to Warner redband and other aquatic species in Rock Creek are expected to be low given their regular occurrence in Rock Creek and the improvements in riparian habitat seen along this system. Fewer effects if any are expected to occur to downstream aquatic species in the Twelvemile system given the ephemeral nature of water flow in Rock Creek, the distance of Horse Creek to Twelvemile Creek, and the limited grazing that would occur in the Rock Creek enclosure or in the Horse Creek Pasture.

Water developments have both beneficial and negative effects to wildlife. Although stock ponds can be used by big game as well as shorebirds and waterfowl, the decrease in vegetation cover commonly observed around stock ponds limits their use by other wildlife. The potential decrease of vegetation around the new stock pond would limit nesting of small birds and potentially any sage-grouse that may nest in the area. This impact would be most noticeable in even 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 stock ponds and reconstruction of nonfunctional stock ponds in that area may have positive impacts to pronghorn use of the pasture from spring through early summer, depending on year. These stock ponds are also expected to reduce utilization from livestock in other parts of the pasture, which would have benefit wildlife, including pronghorn and sage grouse from increased cover and forage conditions. New stock ponds 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 did not assess riparian conditions on private lands.

Increased surface water from the four proposed stock ponds in the North Plateau and Barrel Springs pastures would add less than one acre of scattered, shallow water habitat within the allotment. Based on the information available at the government websites listed below, there is a low probability of West Nile virus in this area (Washoe County and Modoc County). Much higher rates of mosquito infection occur in southern parts of California and Nevada. There were no equine cases of the virus found from 2007 to 2009 in northeastern California (Modoc, Lassen, and Plumas counties). From 2006 to 2009, two human cases were reported (Modoc County in 2006). In both 2008 and 2009, 1 dead bird was reported “virus positive” (Modoc County).

Bird and human information for Washoe County is as follows. In 2006, the virus was not found in mosquito pools of northern Washoe however five bird infection cases were reported and seventeen human cases (unknown areas) were reported in the southern part of the county. In 2007, one human and one bird case was reported. In 2008, one bird case but no human cases and in 2009 at least one bird case was reported for Washoe County but no human cases. It is likely that all these cases occurred near the population centers of the Reno area in southern Washoe County, over 225 miles south of Nevada Cowhead Allotment. Since the proposed stock ponds would purposely be located away from existing water sources thereby adding some surface water to the general landscape, could elevate to some extent the risk of West Nile virus by increasing potential mosquito habitat in the allotment. However this risk is minimal due to the lack of West Nile incidences in Modoc and northern Washoe Counties.

<http://www.westnile.ca.gov/>

<http://www.co.washoe.nv.us/health/ehs/vector/wnvFact.html>

### **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. Under the current grazing system, the Rock Creek enclosure 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. This would continue to have negative impacts to mule deer, and some birds species which forage or nest in aspen. 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. Improvement of structural diversity of woody vegetation in Horse Creek and Rock Creek would continue, which would benefit cavity nesting birds, bat roosting, and raptor nesting/foraging opportunities.

Direct impacts to nesting sage-grouse, such as trampling and disturbance, are expected to be higher with current management than under the Proposed Action. The proposed action's year of deferred rotation takes place after most nesting has occurred, which is similar in effect to the one year of rest which occurs with current management. In those years where grazing occurs

during the lekking and nesting season, potential direct effects to sage-grouse are higher with current management (800 cattle in current management vs. 350 cattle in the proposed action) because higher concentrations of cattle are in the Barrel Springs Pasture and no turnout buffer currently exists around the active lek. Effects to strutting birds in the Lower Horse creek pasture would be minimal to non-existent given the use period for cattle of only three days for trailing. Summer brood rearing impacts would also continue to be minimal because cattle use during the summer would occur away from most brood rearing areas.

### **Impacts of Reduced Stocking Rate**

In comparison to the Proposed Action and especially current management, direct effects to nesting ground birds such as sage-grouse would be less since fewer cattle would be present during the same time period. Possible direct effects include trampling or disturbance to nesting birds. Late season use in the Northeast pasture (7/16-10/26) is expected to reduce residual nesting cover for sage-grouse in one out of three years however 2 out of 3 years of rest likely offsets these impacts. Wildlife habitat within the Barrel Springs Pasture would improve slowly due to late season use in the second year coupled with rest in the third year.

Although fewer cattle would be present in the Barrel Springs Pasture compared to the Proposed Action, they would be present later in the season which could degrade riparian habitats and therefore cause negative impacts to Cow Head Lake tui chub and sage-grouse brood rearing habitats. Impacts would be greater in this pasture than in the North Plateau Pasture, which has less occupied tui chub habitat.

The North Plateau Pasture would be used in two years out of three at the same level (25% less AUMs than Proposed in one of the two years of use) 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 (except No Grazing). Pronghorn antelope should respond favorably due to lack of competition for food.

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. 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 effects 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 as well as opportunities for raptor nesting.

Non-use of the Rock Creek enclosure is expected to provide continued benefits to riparian habitats in the allotment by reducing grazing pressure along Rock Creek with concurrent increases in riparian herbaceous and woody cover. Limited grazing by wildlife is still expected to occur. Increased riparian vegetation would increase shading thereby leading to reductions in water temperatures along Rock Creek. Due to Rock Creek's generally ephemeral nature, effects to downstream waters are probably minimal. Lack of livestock use in the enclosure would also eliminate sediment inputs into Rock Creek and Twelvemile Creek from livestock. Increased riparian vegetation would increase thermal and hiding cover for deer and possibly elk as well as increase opportunities for cavity nesting birds. These benefits are not expected to have any measureable effect to sage-grouse since their use of the Rock Creek enclosure is thought to be minimal due to the general topography of the surrounding rimrock.

### **Impacts of 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. Kidding and fawning habitat should improve. Bighorn sheep use could increase slightly but use is likely limited by steep escape cover in the allotment. Implementation of the no grazing would at best slightly improve sage grouse populations, based on sage grouse population trend information from the Surprise Field Office and Sheldon Wildlife Refuge; where cattle grazing has not occurred in about 18 years.

No new stock ponds would be built with this alternative and therefore no impacts on wildlife from development 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 including aspen woodland. 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 surface rock, and consequently have very slow permeability. In addition, the permeability of these soils decreases when the soil is wet. Most of the allotment is in the 10 - 12 inch precipitation zone, with 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**

#### **Impacts of Proposed Action**

##### **Impacts under Interim System**

Impacts to soils under the Interim System would be expected to be similar to the Proposed Action (since the turnout criteria would remain the same), however there would be no stock ponds developed. This would alleviate any potential impacts from water developments, however it would also maintain the concentrated use around the existing water developments in the Barrel Springs and North Plateau Pastures.

##### **Impacts of Final System**

Livestock grazing would be managed to progress and promote adequate vegetative ground cover, 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.

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.

The proposed action includes construction of four new 100'X100'X10' pit type reservoirs. Construction of the stock pond would require removal of approximately 2,000 cubic feet of soil per stock pond. The excavated soil would be recontoured and left on the site. Disturbed areas including soil stockpiles would be seeded, so impacts to soils would be reduced over the approximate 2 acres of disturbance per development.

Access to two of the project sites would be from the Barrel Springs Scenic Byway. Cross county travel is required for the remaining 2 project sites. Whether access to those 2 sites started on the Powerline road, or on Barrel Springs Scenic Byway, there would be several miles of off-road travel necessary with equipment. Cross-country travel to project sites would be minimized and in locations where compaction of soils occurs, ripping of the ground surface would be completed to increase infiltration and roughen the soil surface.

### **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.

No stock ponds would be developed under this alternative, so there would be no soil disturbance associated with developments.

### **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 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 slightly 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 be expected to improve at a similar rate as the Proposed Action. Use every third year (100 cattle 4/15-7/15) would allow for residual cover as well as encourage 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, and would promote soil

stability.

### **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, which generally is an "increaser" with past heavy livestock grazing. There are several on-going juniper reduction projects in aspen stands and on low sagebrush sites in the allotment. Although juniper is native in these ecosystems, the amount of juniper found throughout the allotment is more than expected according to the ecological site descriptions. Juniper encroachment has been documented throughout sagebrush-steppe communities, with a variety of factors contributing to this expansion (Miller & Rose, 1999). Scientific research has not been conclusive on the role livestock grazing has played in juniper expansion, however there is supporting evidence that juniper has had comparable encroachment in areas that are and are not grazed (Soule & Knapp, 1999).

Potential exists to increase seral stage diversity on 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 curleaf 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**

### **Impacts of Proposed Action**

#### **Impacts under Interim System**

Impacts under the Interim System would be expected to be similar to the Proposed Action, with slightly less utilization from cattle, due to slightly lower cattle numbers (200 less head total, 100 in the North Plateau Pasture, and 100 in the Barrel Springs Pasture). However the use would not be as dispersed as it would be with added water, which would negate the slightly lower use levels by concentrating that use in less total area.

#### **Impacts under Final System**

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 the Surprise Field Office lands since 1979 has demonstrated that livestock do not concentrate on woody species until after the grasses have been utilized or have dried late 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 less woody species utilization, resulting in increases of size and vigor in these species. Some woody species utilization has been associated with wildlife use of the allotment during the summer and fall.

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 (Holechek & Herbel, 1982). 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. This is expected to result in increases of deep rooted native perennial bunchgrasses, if there is a large enough bunchgrass component

present to provide seed stock.

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 under the shrub drip line ensures 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% 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, improved health of the aspen stand would encourage an understory of grasses, forbs and shrubs are presented 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 acreages) 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.

### **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 grazing use would be more concentrated than in the Proposed Alternative, and would be during the entire growing season. This would slow any 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.

### **Impacts of Reduced Stocking Rate**

The Barrel Springs Pasture would receive light/moderate use (100 cattle, 4/15-7/15) one out of three years. 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 deep rooted native perennials, as they retain their palatability much later than Poa species (Cruz & Ganskopp, 1998). Also, grazing use later in the year would concentrate cattle use on any palatable shrub species, such as bitterbrush. 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 in the long term; however the rest during the third year of the grazing cycle is likely mitigate these potential negative impacts. A 40% utilization objective for the Barrel Springs Pasture is expected to move the site towards DPC.

The North Plateau Pasture would be rested one out of every three years, with light/moderate use (400 cattle, 4/15-7/15) during one year of use, and light use (300 cattle, 4/15-7/15) on the other

year of use. This pasture would be expected to experience a progression towards DPC at a rate comparable to 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 therefore 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 quandary 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 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, complete monitoring is mandatory. This requirement would increase monitoring to unattainable levels given expected funding and staffing levels. Regardless this additional monitoring is not expected to achieve any greater land health when compared with the Proposed Alternative DPCs. Monitoring under the key area concept is expected to provide resource information about the conditions for the entire allotment. Vegetative effects under this alternative in the Lower Horse Creek Pasture are expected to be the same as under the Proposed Alternative.

### **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, a natural barrier such as rock rim has been 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**

#### **Impacts of Proposed Action**

##### **Impacts under Interim System**

The Interim System would have the same demands on the livestock operator as the Proposed Action.

##### **Impacts under the Final System**

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 cattle would be moved onto rested areas more frequently and are therefore less likely to move into areas where they are not allowed to be. Consequently, the operator would be spending less time gathering stray cattle.

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.

### **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.

### **Impacts of Reduced Stocking Rate**

The Reduced Stocking Rate Alternative would have much the same impacts as the Proposed Alternative, however extra effort would be required in order to ensure the North Plateau Pasture is entirely clean of cattle when gathering.

### **Impacts of No Grazing**

Under this alternative, there would be no grazing authorization issued. Livestock management under this alternative would only occur on the Nevada Cowhead Allotment if livestock from adjoining allotments were found on Nevada Cowhead. In addition, this alternative could require the Nevada Cowhead Allotment continue to be used as a trailing route to adjoining allotments.

## ***SOCIAL AND ECONOMIC VALUES***

### **A. Affected Environment**

Surprise Valley is a rural area where ranching is the dominant element of the local economy and social values still promote agricultural pursuits. The permittees of the Nevada Cowhead Allotment are a small family ranch that relies on their cattle income. Livestock grazing on this allotment therefore provides necessary income to a local ranch family. Schadler Ranch is a medium sized family owned and operated cow/calf ranch. The ranch has been in the family since 1902, and five generations have lived and worked on the Schadler Ranch. The Nevada Cowhead Allotment has under current management, provided for a base herd of 800 head. At 75% calving rate, the Nevada Cowhead Allotment provides 600 calves yearly. Annually the calves from these cows are sold to market at an average of 750 pounds per calf for a low estimation of \$0.80 per pound (Schadler, personal comm.). The calf sales produce the sole income of the ranch. Therefore, yearly the Nevada Cowhead Allotment contributes roughly \$360,000 of the Schadler Ranch income, this income is very important to maintain their overall business operations.

In addition to the direct economic gain to this family, the community experiences indirect economic gain through taxes and other incomes from permitted livestock grazing on this allotment, and other allotments. Businesses in the Surprise Valley area are dependent on servicing local agricultural interests, and would experience a decline in economic activity. Since this is a small/medium sized allotment, the goods and services that the allotment provides to the local community are slight/moderate (2880 AUMs X \$36/AUM = \$103,680 annually).

## **B. Environmental Consequences**

### **Impacts of Proposed Action**

#### **Impacts under Interim System**

Impacts under the Interim System would be up to 150 less calves to sell on market, creating a potential loss of income of up to \$90,000 annually to permittee and reduced income to the local economy.

#### **Impacts under Final System**

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/medium sized 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 pond in this alternative is estimated to cost from \$3,000 to \$6,000 to construct. Four stock ponds are proposed; therefore the estimated cost to construct these range improvements would vary from \$12,000 to \$24,000.

#### **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.

#### **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  $\frac{1}{2}$  the amount of cattle as stated in the Proposed Alternative, and consequently financial loss is expected to be about \$180,000 a year. Even with this loss or revenue, the fixed costs of operating (trailing, monitoring, moving and overall maintaining the herd) would remain the same, further reducing the net revenue for the overall business operation.

The smaller permitted herd may not be economically viable for the operator to maintain a livestock business. Economy impacts are likely to include fewer local people employed by the permittee, as well as less money would be spent in the local communities.

#### **Impacts of No Grazing**

Implementation of a no grazing alternative would have the greatest effect on the livestock permittee. Loss of up to six months of public land forage could require rental of private pasture at a maximum estimated cost of up to \$20 a month per cow/calf pair (up to \$57,600). 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 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.

There would be a slight negative impact to the local socio/economic conditions. Depending upon the actual costs, 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 22. Cumulative Effects Expected to Resources from Each Alternative Compared to Existing Conditions.**

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

### ***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. Patent of all of the private lands within the allotment were the result of early ranching use. 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 stock ponds.

### **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 on the allotment, 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 fires in the Nevada Cowhead Allotment between 1981 and 2005. In general these fires burned only 0.1 acres, with one fire being as large as 1.5 acres. The exception was the 2005 Barrel Fire which burned 342 acres of the eastern side of the Rim Pasture. Of those 342 acres, 259 acres were on BLM land, the remainder was on private lands.

### ***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.

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. Treatment plans associated with this project incorporate data recovery and documentation. The results of this have been or will be increased documentation of the extent and distribution of cultural resources in the area, increased understanding of the timing and patterns of use and types of use in the area in prehistoric times. 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***

#### **1. Proposed Action**

**Interim** –The cumulative impacts of the Interim System of the Proposed Action would be the same as the Final System of the Proposed Action.

**Final** - 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 Enclosure 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. The combination of past, present and future impacts to the cultural resources on the Nevada Cowhead Allotment is expected to be positive.

## **2. 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 Enclosure. The failure to construct range improvement projects could lead to further degradation of cultural resources associated with riparian areas. The combination of past, present and future impacts to the cultural resources on the Nevada Cowhead Allotment is expected to be negative.

## **3. Reduced Stocking Rate**

Cumulative impacts to cultural resources under this alternative would be less than under the Proposed Action and Current Management, 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. The combination of past, present and future impacts to the cultural resources on the Nevada Cowhead Allotment is expected to be neutral.

## **4. No Grazing**

Under the No Grazing Alternative, the combination of past, present and future impacts to the cultural resources on the Nevada Cowhead Allotment is expected to be positive.

## **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 and bulbous bluegrass 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 new 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*

#### **1. Proposed Action**

**Interim** - The cumulative impacts of the Interim System of the Proposed Action would be quite similar to the Final System of the Proposed Action, except slightly more positive, since without water developments, one potential vector of weed establishment is removed.

**Final** - The cumulative effects of the proposed action on weed species would be neutral to slightly positive as compared to current management. 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. The past actions have not introduced many noxious and invasive weed species, and the foreseeable actions are not expected to introduce weeds and are expected to improve native vegetative communities thereby retarding any spread of weeds. Therefore the overall cumulative impact would be expected to be neutral to positive for noxious and invasive weeds.

#### **2. 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. The combination of past, present and future impacts to the invasive species in the Nevada Cowhead Allotment under Current Management is expected to be negative.

#### **3. Reduced Stocking Rate**

The cumulative effects of the proposed action on weed species would be 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.

#### **4. 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. 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. While the 115 foot wide construction right of way will be reclaimed, there will be indirect impacts by the temporary vegetation changes.

### *Cumulative Impact*

#### **1. Proposed Action**

**Interim** – There would be no positive or negative impacts from the stock ponds, as they are not built in the Interim System, so the differences between Interim and Final Systems would cancel out to neutral for wildlife. The combination of past, present and future impacts to the wildlife species in the Nevada Cowhead Allotment is expected to be quite similar to the Final System of the Proposed Action.

**Final** - Additional stock ponds created with the Proposed Action would remove vegetation around those stock ponds, but improved livestock distribution should reduce impacts to vegetation elsewhere. There are approximately 51 livestock ponds or “stock ponds” 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 stock ponds. Since not all stock ponds are the same size or retain water throughout the year the same, vegetation removal and soil compaction around them varies. Use of stock ponds by sage grouse, pronghorn antelope, mule deer and other wildlife can be substantial, use by native songbirds and rodents is generally less important, unless screening or perching vegetation is available which for the most part it is not except in areas of juniper cover. Increased threat of West Nile virus is not expected given the amount of stock ponds, watered edges associated with streams and springs, seasonal puddles, and private agricultural lands which are present in the areas that sage-grouse in

this area use. The 2010 Federal Register publication pertaining to sage-grouse states "...a complex set of environmental and biotic conditions that support the West Nile virus cycle must coincide for an outbreak to occur. Currently the annual patchy distribution of the disease is keeping the impacts at a minimum" (Federal Register, 2010) This recent Federal Register publication pertaining to sage-grouse also states "Mortality due to nest predation by ravens or other human-subsidized predators is increasing in some areas, but there is no indication this is causing a significant range-wide decline in population trends. Based on the best scientific and commercial information available, we conclude that predation is not a significant threat to the species such that the species requires listing under the Act as threatened or endangered." (Federal Register, 2010). Species such as ravens also range many miles from agricultural lands (Federal Register, 2010), therefore any potential increases in ravens from four new livestock ponds would be expected to be similar to normal levels in the area from activities associated with private agricultural lands. There is a low probability that these projects would cumulatively negatively affect sage-grouse by increasing potential threats of West Nile virus or raven predation given normal background levels.

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, and increased juniper and shrubs in the allotment. These impacts likely led to decreased numbers of some wildlife species due to forage loss and breeding habitat and increases in other wildlife species.

The Ruby pipeline will have some short-term negative impacts to wildlife in the allotment from interruption of some activities during construction. Direct and indirect 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. It is also likely that new stock ponds associated with the proposed action would also draw livestock away from the pipeline corridor seeded areas and aid in recovery of vegetation. The extent of wildlife habitat affected by the Ruby Pipeline in the cumulative effects study area is very low. The combined effects of the Proposed Action and the Ruby pipeline corridor would be temporary negative effects to wildlife within the pipeline corridor with negative effects decreasing from the corridor.

The combination of past, present and future impacts to the wildlife species in the Nevada Cowhead Allotment is expected to be positive.

## **2. Current Management**

There would be no cumulative effects with the additional stock ponds under this alternative. Wildlife using the general area around these proposed stock pond 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 could continue to impact wildlife directly through competition for food and to some extent water. A negligible benefit would occur from adding fence markers in the vicinity of the Stateline lek. The combination of past, present and future impacts to the wildlife in the Nevada Cowhead Allotment is expected to be neutral.

### **3. 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. Cover is expected to increase in throughout the pastures. The combination of past, present and future impacts to the wildlife species in the Nevada Cowhead Allotment is expected to be positive.

### **4. No Grazing**

Under the No Grazing Alternative, grazing management would be eliminated as a reasonably foreseeable future action. Cumulative effects related to permitted livestock grazing would also be eliminated in the analysis area.

## **Social and Economic Values**

### **Impacts from Past and Present Actions**

Surprise Valley is and has always been a rural area where ranching is the dominant element of the local economy and social values still promote agricultural pursuits. The permittees of the Nevada Cowhead Allotment are a small family ranch that relies on their cattle income. Schadler Ranch is a medium sized family owned and operated cow/calf ranch. The ranch has been in the family since 1902, and five generations have lived and worked on the Schadler Ranch. The Nevada Cowhead Allotment has under current management, provided for a base herd of 800 head. At 75% calving rate, the Nevada Cowhead Allotment provides 600 calves yearly. Annually the calves from these cows are sold to market at an average of 750 pounds per calf for a low estimation of \$0.80 per pound (Schadler, personal comm.). The calf sales produce the sole income of the ranch. The variability of the beef market from year to year can either negatively or positively impact the local ranching economy.

### **Impacts from Reasonably Foreseeable Future Actions**

Ranching is likely to continue to be the dominant local profession. As considerations of environmental impacts change, ranching practices must likewise be modified. If ranching practices are aimed at sustaining the rangeland resources, then future continuation of local ranching is likely. As costs associated with ranching rise, the revenue from the product (calves in this case) must also rise in order for the local economy to be sustainable.

## *Cumulative Impact*

### **1. Proposed Action**

**Interim** – The Interim System would have both positive and negative effects on the Schadler Ranch. Their numbers, and therefore their calf crop will be decreased. In addition, the Interim System would improve the riparian and upland conditions to ensure future sustainable use even as environmental regulations and considerations change. The past actions have negatively affected ranching operations, and present conditions are unreliable, however the reasonably foreseeable future action (Interim System of the Proposed Action) is expected to stabilize the permitted use on the Nevada Cowhead Allotment at a level that will be economically, and ecologically sustainable until the Final System is able to be implemented, therefore the overall impact is expected to be positive. If the Final System was never implemented, the negative economic impacts would begin to outweigh the positive impacts.

## **Final -**

The Final System would have both positive effects on the Schadler Ranch. The Final System would improve the riparian and upland conditions to ensure future sustainable use even as environmental regulations and considerations change. The past actions have negatively affected ranching operations, and present conditions are unreliable, however the reasonably foreseeable future action (Final System of the Proposed Action) is expected to stabilize the permitted use on the Nevada Cowhead Allotment at a level that will be economically, and ecologically sustainable, therefore the overall impact is expected to be positive.

### **2. Current Management**

The no action alternative would continue producing the same amount of income for the operator, however since there would not be as great vegetative improvements, the sustainability of the operation may be questionable, possibly leading to future financial losses. Due to past actions, as well as the unreliability of present conditions, the overall impact of the reasonably foreseeable future actions associated with the No Action Alternative would be neutral to negative.

### **3. Reduced Stocking Rate**

The cumulative effect of the Reduced Stocking Rate Alternative would decrease the Ranch income by roughly 50%. Costs of operating are expected to rise in the future; therefore the impact of the reduced income would become increasingly more negative. Due to financial hardships already experienced from past actions, as well as the unreliability of present conditions, the overall impact of the reasonably foreseeable future actions associated with the Reduced Stocking Rate Alternative would be negative.

### **4. No Grazing**

The past actions have negatively affected ranching operations, and present conditions are unreliable, however the reasonably foreseeable future action (if livestock grazing were eliminated,) would create negative impacts on the permittee of the Nevada Cowhead Allotment, as well as the community as a whole.

## **Wetlands and Riparian Zones**

### **Impacts from Past and Present Actions**

Wetlands and riparian areas prior to the mid-1980 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 many 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 recent years, BLM has

taken several actions to improve riparian resources on the Nevada Cowhead Allotment, and currently most wetlands and riparian areas are either in proper functioning condition, or have an upward trend.

### **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*

#### **1. Proposed Action**

**Interim** – The Interim System of the Proposed Action is expected to improve riparian conditions, since past conditions have resulted in riparian areas that still contain necessary riparian vegetation and the foreseeable future is expected to provide that vegetation deferment and lower utilization levels to grow and propagate, the cumulative effect is expected to be positive.

**Final** - 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. The combination of past, present and future impacts to the riparian systems in the Nevada Cowhead Allotment is expected to be positive.

#### **2. Current Management**

Riparian habitats under current management would be expected to remain the same or degrade. Riparian areas in the Northeast Pasture would continue to degrade with the long term future loss of aspen along the Upper Horse creek tributary. The combination of past, present and future impacts to the riparian areas in the Nevada Cowhead Allotment under Current Management is expected to be neutral to negative.

#### **3. 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. The combination of past, present and future impacts to the riparian areas in the Nevada Cowhead Allotment under the Reduced Stocking Rate Alternative is expected to be positive, and similar to the Proposed Action.

#### **4. 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. The combination of past,

present and future impacts to the riparian areas in the Nevada Cowhead Allotment under No Grazing is expected to be positive.

## **Rangeland Vegetation and Soils**

### **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 in some areas. Grazing activities are now of much shorter duration and with less numbers than previously, which has allowed for annual 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. Shifts in vegetative cover, and lack of deep rooted vegetative components and lacks of litter cover can affect soil stability. In addition, the removal of fire from the sagebrush ecosystem has resulted in vegetative shifts; an increase in Western juniper populations has become quite apparent. Other impacting uses include vehicle travel, and utility rights-of-ways. All of these uses would impact the vegetation, and these vegetative impacts can affect soil health and stability. Past concentrations of livestock in an area when the soil is saturated may have contributed to current soil conditions in those areas.

### **Impacts from Reasonably Foreseeable Future Actions**

Juniper thinning throughout the Nevada Cowhead Allotment is expected to maintain or improve native sagebrush ecosystems. The removal of juniper would allow for increases in sagebrush, native deep rooted grasses and forbs. The increases in the native deep rooted grasses, along with the deferred rotation schedule should promote soil stability recovery. In addition the removal of juniper would reduce fuel loading and enable fire behavior to be less extreme when the area does experience wildfire. Less extreme fire behavior would assist the maintenance of healthy vegetative and soil components. Sagebrush obligate wildlife species also benefit from less intense fires.

The Ruby Pipeline project would disturb vegetation within the construction right of way. However, re-vegetation efforts as identified in the reclamation plan for the project are expected to mitigate any long-term environmental impacts from pipeline construction. The Ruby Pipeline project would comply with the California Native Plant materials policy, which requires native seed materials for any seeding treatment or re-vegetation project. Although soil disturbance will also occur along the construction corridor, reseeding efforts should provide for establishment of native vegetation that would in turn promote soil stability.

Even though recreation is expected to increase slightly throughout the field area within the next 10 years, increased recreation is expected to have little impact on the vegetation or other resources. While no new recreation facilities are planned, any project, such as permanent campsites, would require a separate site specific environmental review.

## *Cumulative Impacts*

### **1. Proposed Action**

**Interim** – The Interim System of the Proposed Action is expected to improve vegetative conditions, since past actions have resulted in vegetative communities that still contain all expected native vegetative components, and the foreseeable future is expected to

provide that vegetation growing season deferment to grow and propagate, the cumulative effect is expected to be positive. Due to positive impacts to vegetation, and added protection to soil resources, the combination of past, present and future actions on the soil stability is expected to be positive.

**Final** - 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. Native plant materials used by 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. All of these expected vegetation improvements would contribute to improvement of soil stability through improving water infiltration into the soil with increased root mass, as well as erosion through increases in protective ground cover.

## **2. 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 vegetative recovery, the current grazing management would negate the benefits with the degree of cattle concentration for long durations of time. This alternative would not provide for the amounts of residual ground cover to promote soil stability to the degree that the Proposed Action. Increases of deep rooted native perennial bunchgrasses would be expected to be slower under this alternative than under the Proposed Action, therefore the improvements to soil stability provided by increases in vegetative root mass and cover would also not be expected to the degree that they are in the Proposed Action. The cumulative impacts of the past present and future actions would be expected to be neutral.

## **3. 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, therefore soil stability would be expected to improve at a slightly faster rate as well. Cumulative impacts of the past present and future actions to both vegetative health and soil stability would be expected to be positive.

## **4. 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. Soil stability would be expected to improve at the fastest rate under this alternative.

## **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, conducting fence and other range improvement maintenance, ensuring cattle are only present when and where they are authorized.

## **Impacts from Reasonably Foreseeable Future Actions**

Rest from grazing use would be required for a minimum of two growing seasons following juniper reduction. 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*

#### **1. Proposed Action**

**Interim** – The cumulative impact of the Interim is similar to the Final Grazing System.

**Final** - Due to the rest requirement post treatment in juniper reduction areas, there is a possibility of the operator needing to find other arrangements for their cattle during several grazing seasons in certain pastures. With the combined past and present labor requirements, the foreseeable future is expected to require additional pasture moves yearly, however utilizing the Rock Creek exclosure as a gathering field will improve efficiency of gathering in the North Plateau Pasture. Therefore the cumulative effect is positive.

#### **2. Current Management**

With the combined past and present labor requirements, the foreseeable future is expected to maintain current management requirements. Therefore the cumulative effect is neutral.

#### **3. 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.

#### **4. No Grazing**

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

## List of Preparers

| SPECIALIST'S NAME | SPECIALIST'S TITLE                          |
|-------------------|---|
| Kathryn Dyer      | Rangeland Management Specialist             |
| Steve Surian      | Supervisory Rangeland Management Specialist |
| Elias Flores, Jr. | Wildlife Biologist                          |
| Penni Borghi      | Archaeologist                               |
| Bob Wick          | Wilderness Lead                             |

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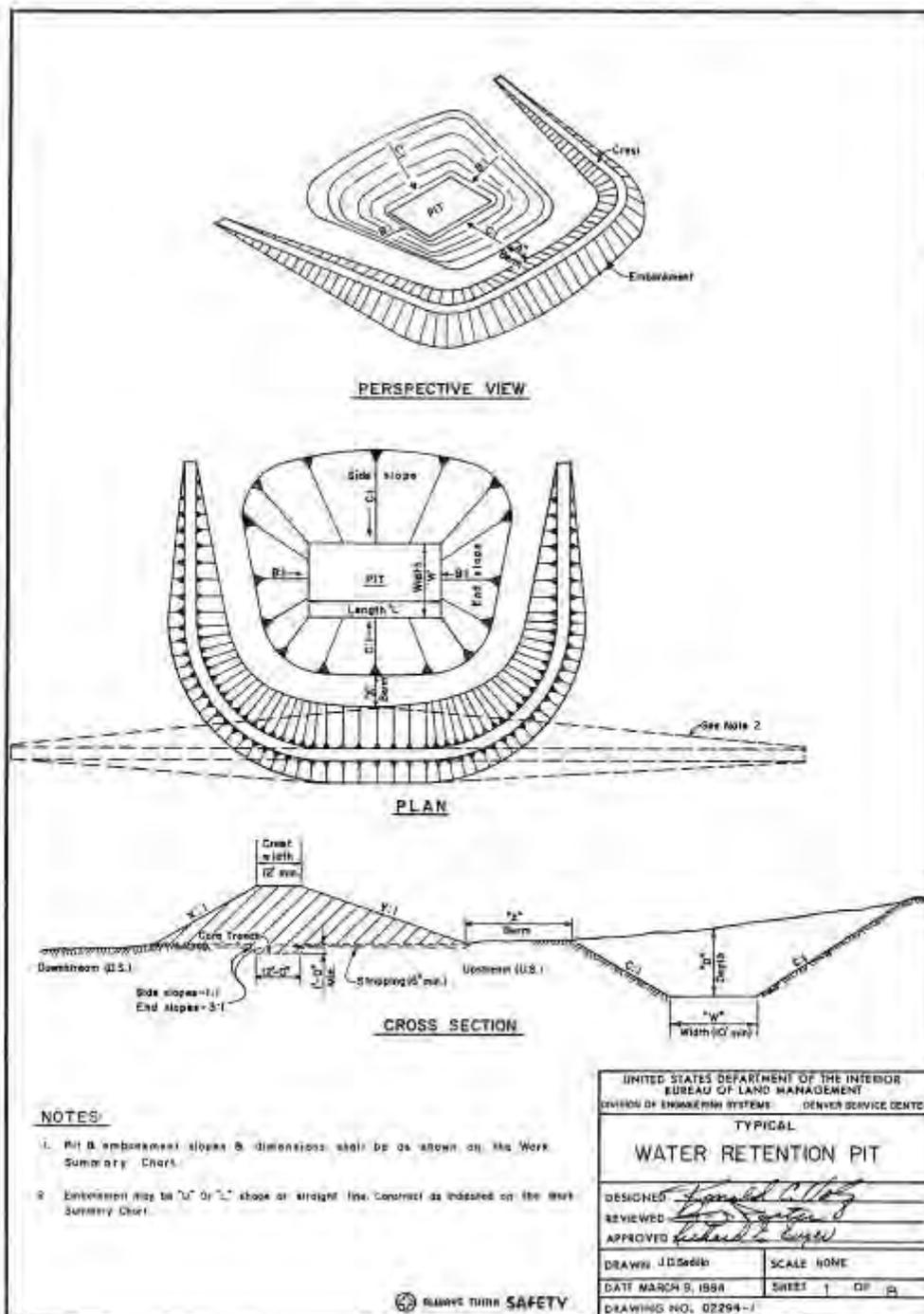
**Attachment 1. DPC descriptions for the Nevada Cowhead Allotment.**

|   | 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, prairie junegrass, squirreltail, 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 Allotment | 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, understory of $\geq 500$ 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 | $\geq 25\%$ grasses, $\geq 10\%$ 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 | $\geq 35\%$ grasses, $\geq 10\%$ 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 |

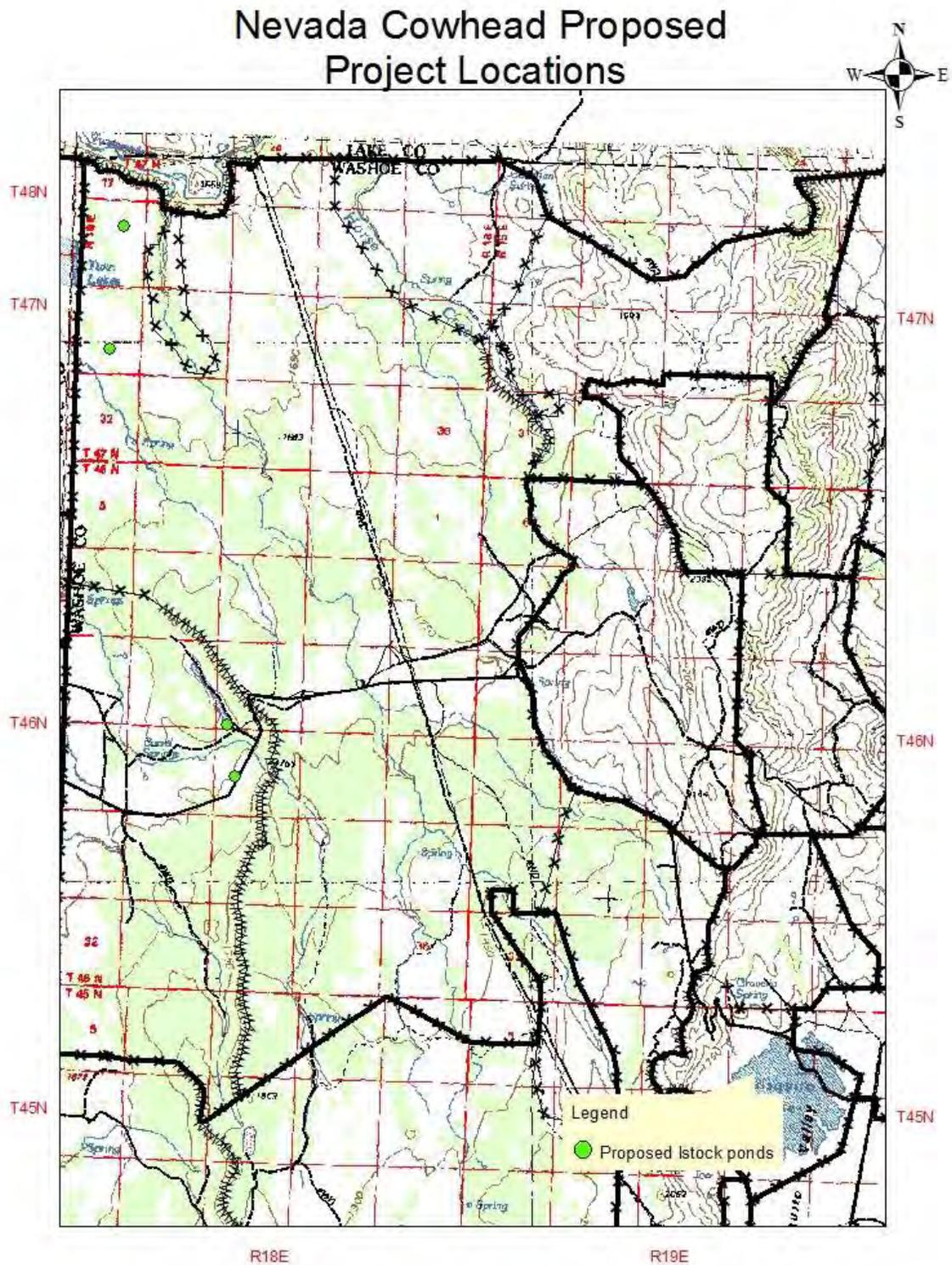
\* These Key Habitats are found in the Nevada Wildlife Action Plan (Team, 2006).

**Drawing 1. Engineering design for a typical BLM stock pond.**



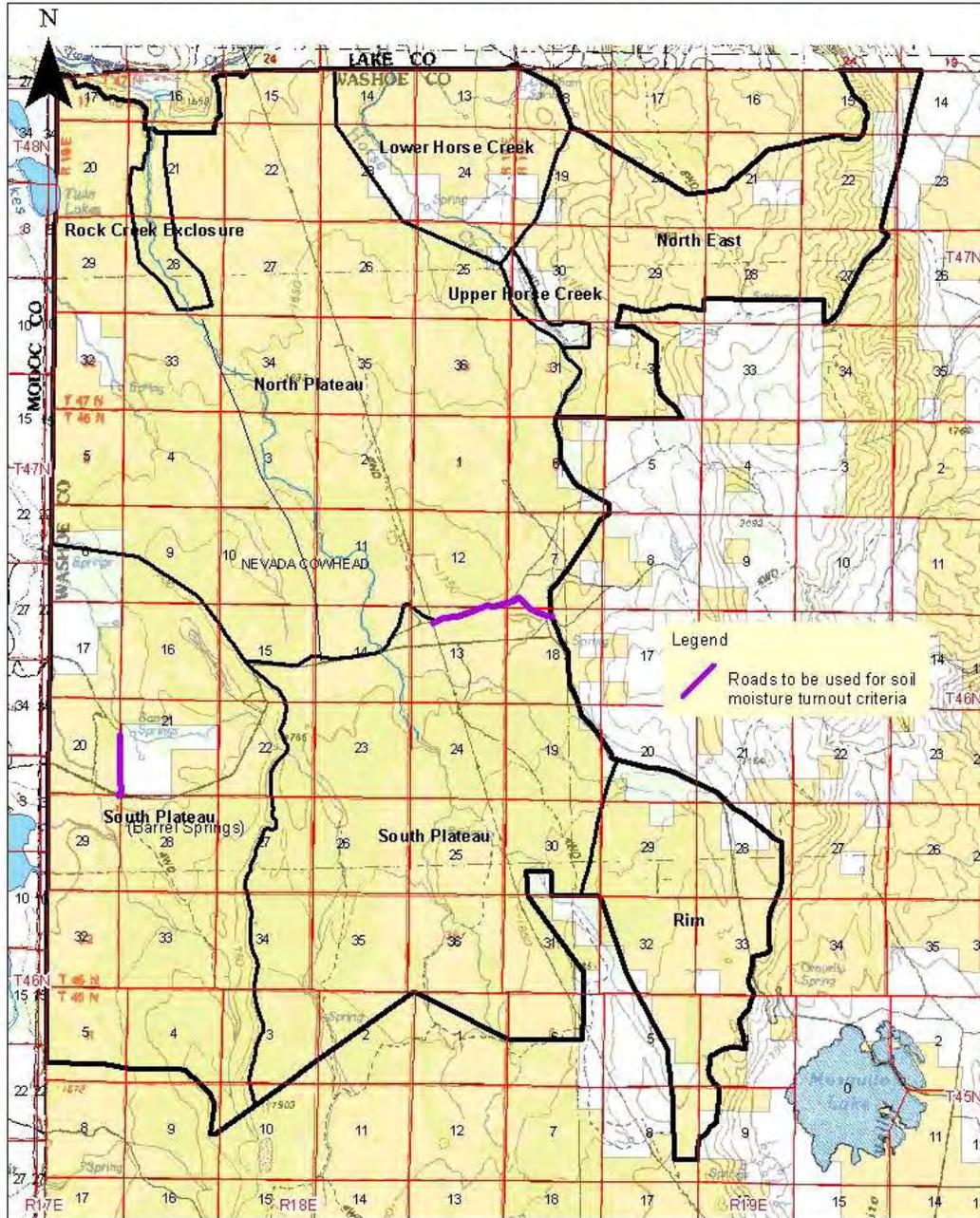
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Map 1. Proposed Projects in the Nevada Cowhead Allotment.



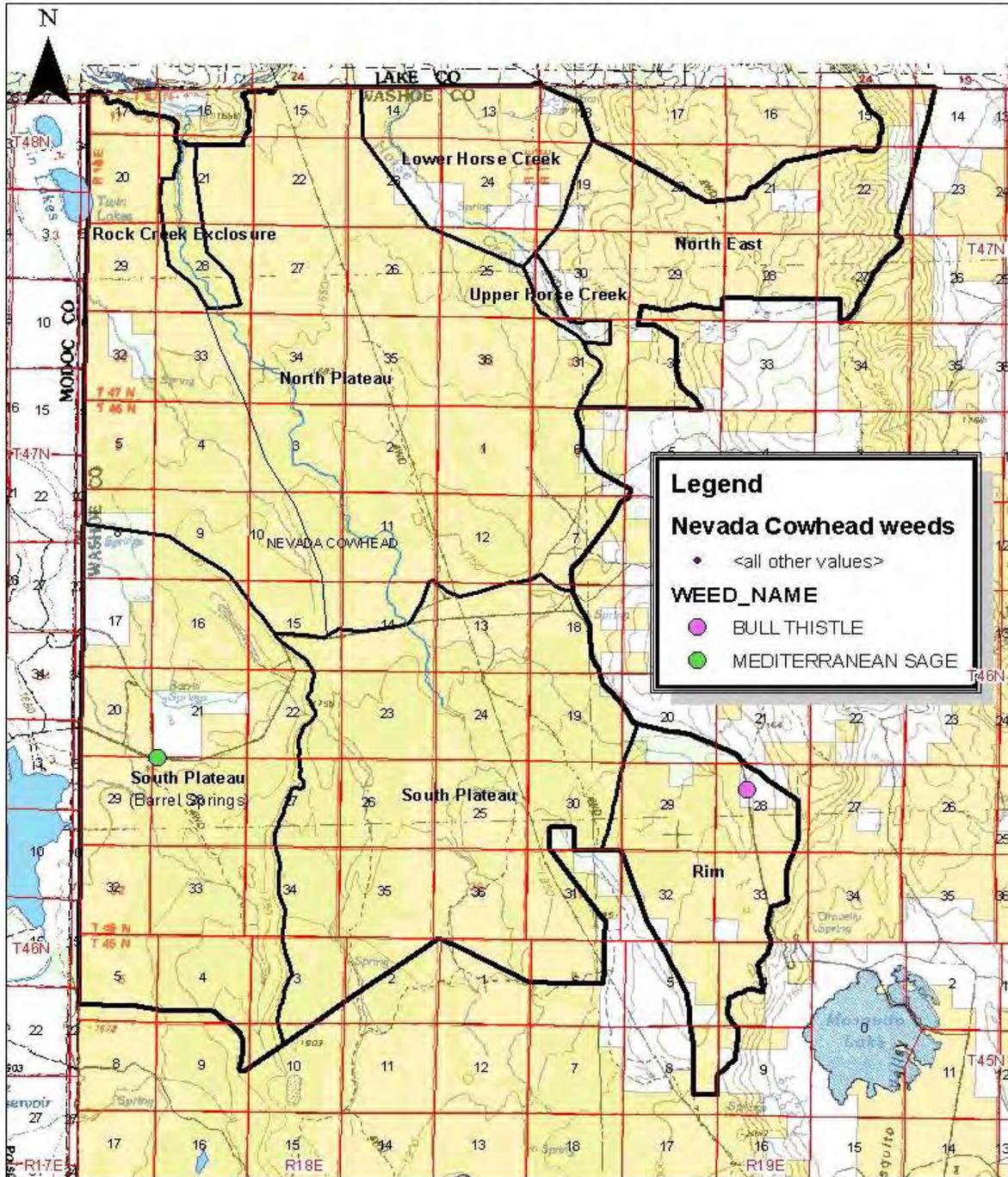
**Map 2. Nevada Cowhead Allotment Pastures and Roads proposed for use in soil moisture turnout criteria.**

## Nevada Cowhead Pastures & Soil Moisture Roads

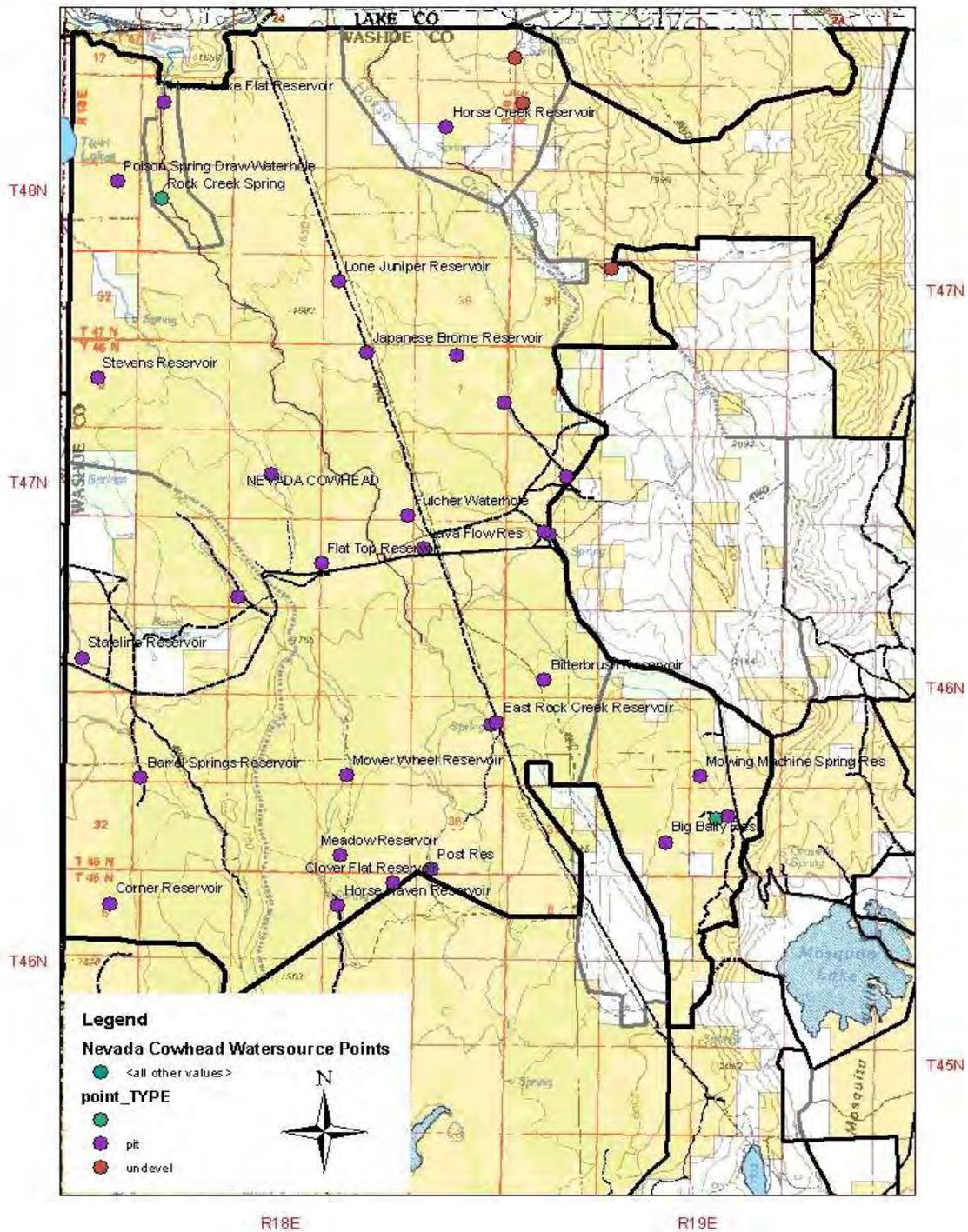


Map 3. Noxious Weeds identified in the Nevada Cowhead Allotment.

## Nevada Cowhead Noxious Weeds

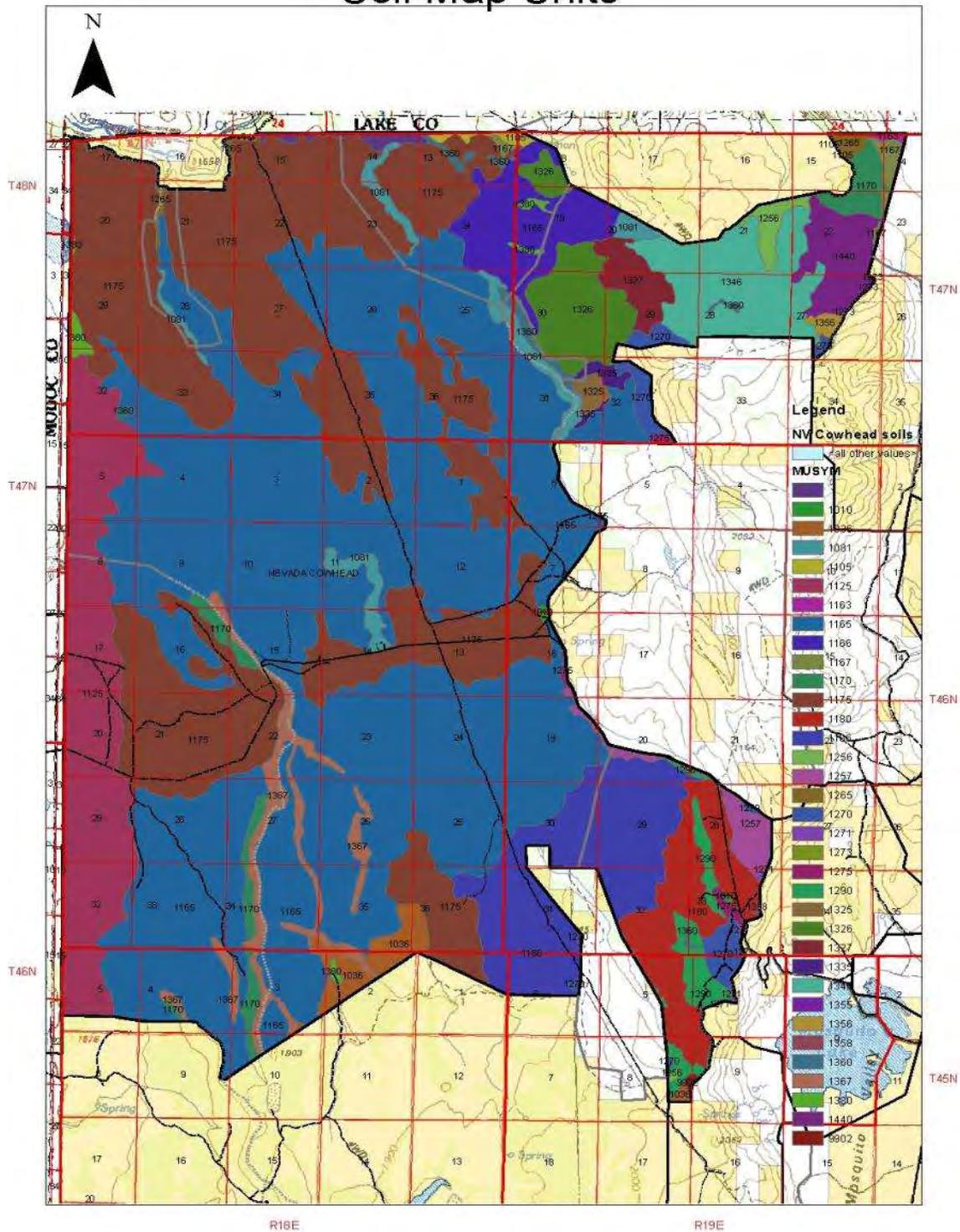


**Map 4. Water source inventory on the Nevada Cowhead Allotment.**  
**Nevada Cowhead water source inventory**



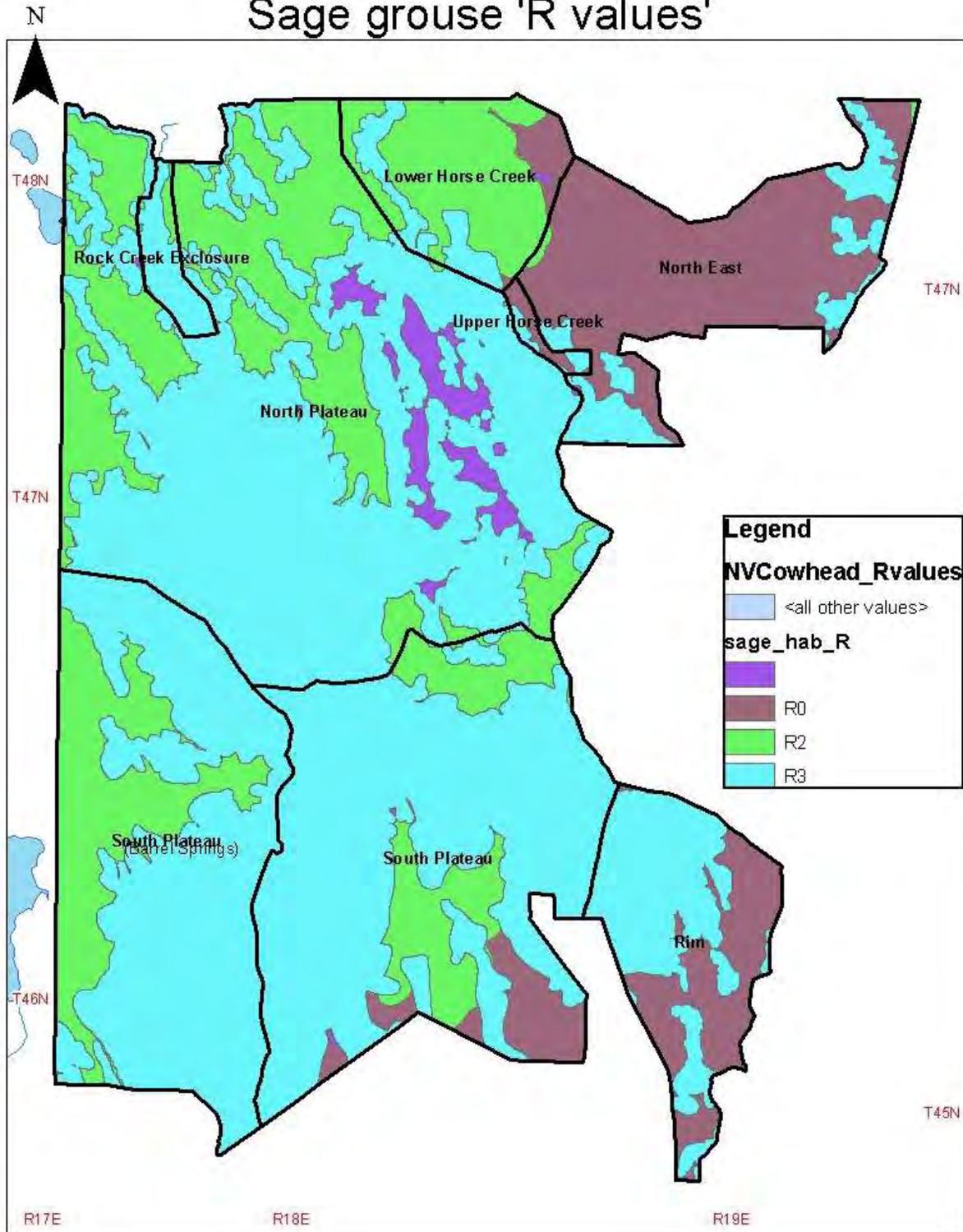
Map 5. Soil Mapping Units of the Nevada Cowhead Allotment.

## Nevada Cowhead Soil Map Units

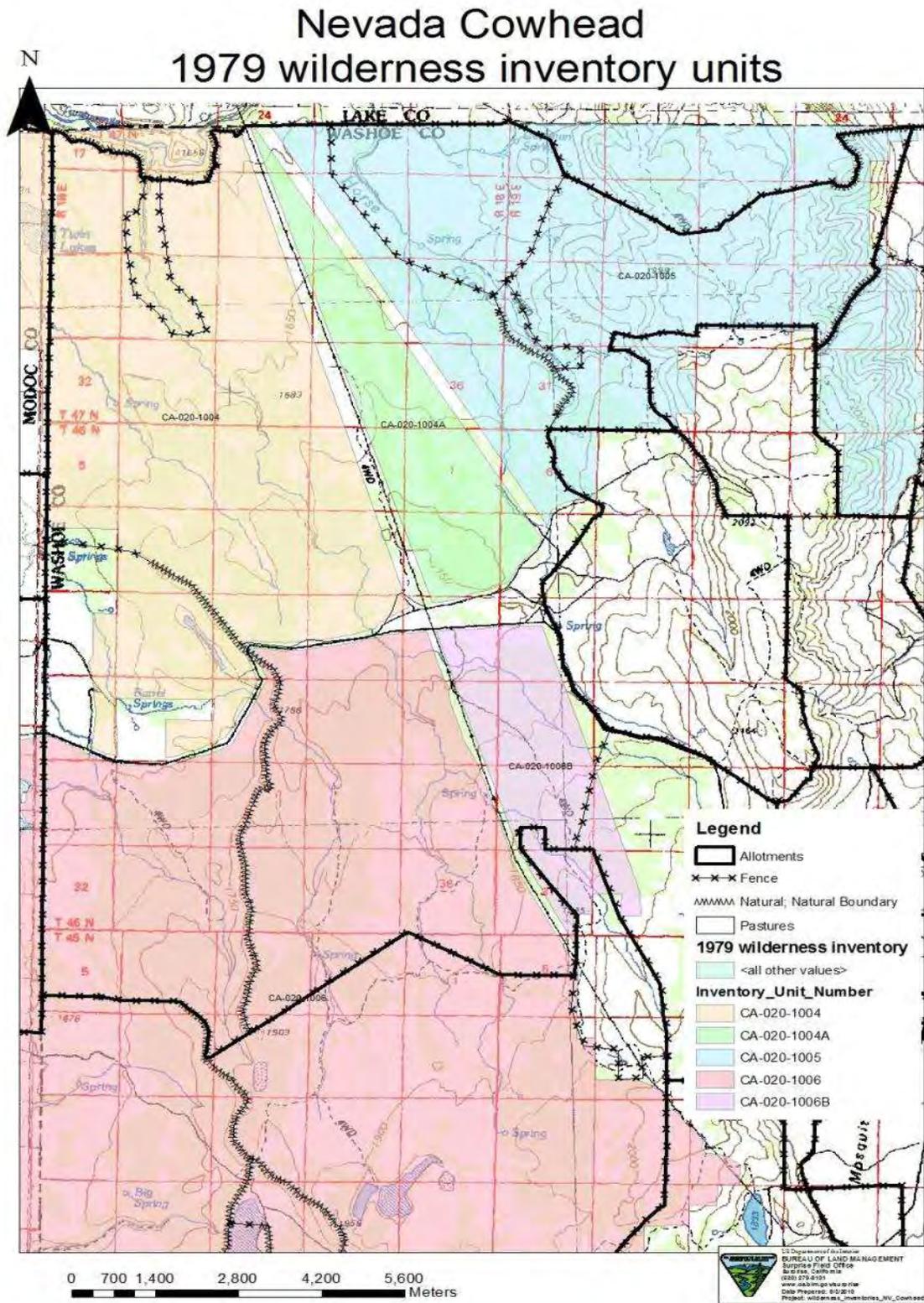


Map 6. Sage grouse habitats within the Nevada Cowhead Allotment.

## Nevada Cowhead Sage grouse 'R values'



Map 7. Map of wilderness inventory units from 1979 within the Nevada Cowhead Allotment.



**Map 8. Map of wilderness inventory units within the Nevada Cowhead Allotment. A portion of the Nevada Cowhead Allotment lies within wilderness inventory unit CA-NO-07-003, which was identified as having wilderness characteristics in all or part.**

