U.S. Department of the Interior
Bureau of Land Management

Preliminary Environmental Assessment
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Term Grazing Permit 2704739 Renewal on the Sunnyside (21023), Hardy Spring (11022), and Shingle Pass (00906) Grazing Allotments

Location: *Lincoln, Nye, and White Pine Counties, Nevada*

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1.0 Introduction: Need for Action

This document identifies issues, analyzes alternatives, and discloses the potential environmental impacts associated with the proposed term grazing permit 2704739 renewal on the Sunnyside (21023), Hardy Spring (11022), and Shingle Pass (00906) Allotments. The project area is situated approximately 10 to 50 miles south of Lund, Nevada and is within Lincoln, Nye, and White Pine Counties, Nevada (see Figure 1, Appendix I).

1.0.1 Background

Current livestock management practices have been implemented since the Final Multiple Use Decision (FMUD) for the Sunnyside and Hardy Spring Allotments (1996) and through annual Livestock Grazing Use Agreements with the permittee. These management actions were also carried forward in the 1999 Grazing Permit Renewal for authorization 2704739 Environmental Assessment (EA-NV-040-99-031). The ten-year grazing permit issued under this EA expired on February 28, 2009. At which time, a new grazing permit was issued under the authority of Section 426, Public Law 111-8 ("Grazing Rider") until this authorization could be fully processed.

According to the licensed use data for the past ten years, grazing use under this permit has been lower than permitted use. This is due to the livestock operator voluntarily reducing the overall herd size to accommodate drought-like conditions across the allotments (Table 2.1, Appendix III). As conditions are beginning to improve, the operator will increase herd size toward the total active preference in order to better utilize available forage across the allotments. To ensure proper use across these allotments as the herd size increases, design features are incorporated into the proposed action in particular the establishment of maximum allowable use levels.

Monitoring data were reviewed and an assessment of the rangeland health of these allotments was completed in 2010 through a Standards Determination Document (SDD; see Appendix III). The results of this assessment are summarized in Table 1. Standard 3—Habitat and Biota—is not being met on all three allotments. Livestock grazing has not been identified as a significant factor in the non-attainment of this standard. Most likely this is due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation. It is important that good grazing management practices be followed in order to allow for progression towards this standard. Standard 1—Soils—and Standard 2—Ecosystem Components—are also not being met on the Shingle Pass Allotment. To address these concerns, new range improvements have been recommended and steps are being taken to fix existing range improvements in the area that are in poor condition. The Hot Flash Pasture of the Sunnyside Allotment also is not meeting Standards 1 and 2 due to poor post-fire recovery.

Table 1—Summary of Standard Achievement

ALLOTMENT	STANDARD 1 Soils	STANDARD 2 Ecosystem Components	STANDARD 3 Habitat and Biota
Sunnyside (21023)	Achieving the Standard	Achieving the Standard	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor
Hardy Spring (11022)	Achieving the Standard	Achieving the Standard	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor
Shingle Pass (00906)	Not Achieving the Standard but making progress towards; Livestock are a significant factor	Not Achieving the Standard but making progress towards; Livestock are a significant factor	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor

Definitions per the BLM Manual H-4180-1 – Rangeland Health Standards (1/19/01)
Significant Progress: Movement toward meeting standards and conforming to guidelines that is acceptable in terms of rate and magnitude. Acceptable levels of rate and magnitude must be realistic in terms of the capability of the resource, but must also be as expeditious and effective as practical.
Significant Factor: Principal causal factor in the failure to achieve the land health standard(s) and conform with the guidelines. A significant factor would typically be a use that, if modified, would enable an area to achieve or make significant progress toward achieving the land health standard(s). To be a significant factor, a use may be one of several causal factors contributing to less-than-healthy conditions; it need not be the sole causal factor inhibiting progress towards the standards.

1.1 Introduction of the Proposed Action.

The Bureau of Land Management (BLM), Egan Field Office proposes to issue and fully process the term grazing permit 2704739 to authorize grazing on the Sunnyside, Hardy Spring, and Shingle Pass Allotments. Changes to the existing permit are recommended to continue to achieve or progress towards the Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area as established by the Nevada Mojave-Southern Great Basin Resource Advisory Council (RAC), approved 2006. Allowable use levels will be established and other terms and conditions will be further clarified from the current permit. A high intensity/short duration prescribed grazing plan is also being implemented on the Hot Flash Pasture. Flexibility will be maintained in order to allow for adjustments to annual conditions and variability.

1.2 Need for the Proposed Action.

The need for the proposal is to provide for legitimate multiple uses of the public lands by renewing this term grazing permit with terms and conditions for grazing use that conform to guidelines and allow for achievement of standards for Nevada's Mojave-Southern Great Basin Area in accordance with all applicable laws, regulations, and policies. This permit is also in accordance with Title 43 CFR 4130.2(a) which states, "Grazing permits or leases authorize use on the public lands and other BLM-administered lands that are designated in land use plans as available for livestock grazing." Additionally, there is a need to fully process this permit as the current permit was issued under the Grazing Rider.

1.3 Objectives for the Proposed Action.

1.3.1. To renew these grazing term permits and authorize grazing in accordance with applicable laws, regulations, and land use plans (LUP) on approximately 418,315 acres of public land.

1.3.2. To improve vegetative health and growth conditions on the allotments and continue to meet or make progress towards achieving the Standards and Guidelines for rangeland health as approved and published by Nevada's Mojave-Southern Great Basin RAC.

1.4 Relationship to Planning

The proposed action is in conformance with the Ely District Record of Decision and Approved Resource Management Plan signed August 20, 2008, which states, "Manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health." In addition, "To allow livestock grazing to occur in a manner and at levels consistent with multiple use, sustained yield, and the standards for rangeland health (p 85-86)."

Management Action LG-1 states, "Make approximately 11,246,900 acres and 545,267 animal unit months available for livestock grazing on a long-term basis."

Management Action LG-5 states, "Maintain the current grazing preference, season-of-use, and kind of livestock until the allotments that have not been evaluated for meeting or making progress toward meeting the standards or are in conformance with the policies are evaluated. Depending on the results of the standards assessment, maintain or modify grazing preference, seasons-of-use, kind of livestock and grazing management practices to achieve the standards for rangeland health. Changes, such as improved livestock management, new range improvement projects, and changes in the amount and kinds of forage permanently available for livestock use, can lead to changes in preference, authorized season-of-use, or kind of livestock. Ensure changes continue to meet the RMP goals and objectives, including the standards for rangeland health."

1.4.1 Relationship to Other Plans

The proposed action is consistent with the following Federal, State, and local plans to the maximum extent possible.

- Lincoln/White Pine County Sage Grouse Conservation Plan (2004)
- State Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada Historic Preservation Office (October 26, 2009)
- Mojave-Southern Great Basin Resource Advisory Council (RAC) Standards and Guidelines (2006)
- Lincoln County Elk Management Plan (approved July, 1999) – Revised 2006
- Migratory Bird Treaty Act (1918 as amended) and Executive Order 13186 (1/11/01)
- Nye County Comprehensive Plan (April 5, 1994)
- Nevada Department of Wildlife's Bighorn Sheep Management Plan (October 2001)

1.4.2 Tiering
This document is tiered to the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).

1.5 Scoping and Public Involvement and Issues
The term permit 2704739 renewal proposal was internally scoped by the Egan Field Office ID Team/Resource Specialists on December 7, 2009 to identify any relevant issues.

A letter notifying the permittee of the term permit renewal was sent on December 14, 2009. Letters notifying wilderness interested publics of this project were sent January 6, 2010 for a 30-day comment period. No comments were received. Tribal Coordination Letters were sent out January 8, 2010 for this project notifying the tribes of a 30-day comment period. No comments were received.

This project proposal was posted on the Ely District Grazing Permit Renewal website on January 6, 2010. A letter notifying interested public of this term permit renewal was sent on December 22, 2009.

The Sunnyside, Hardy Spring, and Shingle Pass Allotments SDD (see Appendix III) will be posted to the Ely District Grazing Permit Renewal website for a thirty-day external review/public comment period with this environmental assessment (EA). Hard copies may also be sent to interested publics.

The following potential issues were identified through scoping. Concerns were expressed that the proposed action may have impacts on sage grouse habitat (summer, winter, nesting, and breeding), pygmy rabbit habitat, desert bighorn sheep habitat, Sunnyside green gentian habitat, White River catseye habitat, migratory birds, noxious and invasive species, crucial summer and winter ranges for mule deer, and fuels and ESR projects.

2.0 Alternatives Including the Proposed Action
2.1 Proposed Action
The BLM proposes to issue and fully process a new **term grazing permit 2704739** and authorize grazing on the Sunnyside, Hardy Spring, and Shingle Pass Allotments (Figure 1, Appendix I). Allowable use levels would be established and other terms and conditions would be further clarified from the current permit. A management system is being established for the Hot Flash Pasture of the Sunnyside Allotment. Livestock are held on private land during the month of November and seasons of use are being adjusted to reflect this situation. On the Shingle Pass Allotment, the number of cattle is being corrected from the current permit to more accurately reflect the active AUMs for this allotment.

2.1.1 Proposed term permit
The renewal of the term grazing permits would be for a period of up to 10 years. If base property is transferred during this ten year period with no changes to the terms and conditions the new term permit would be issued for the remaining term of this term permit.

Under the proposed grazing permit, cattle would continue to be grazed in two herds, one using the Sunnyside Allotment and the other using the Hardy Spring and Shingle Pass Allotments. Cattle would be in the Cave Valley Pasture of the Sunnyside Allotment and the Shingle Pass Allotment during the summer and early fall. During winter and early spring, cattle will be in the White River pasture of the Sunnyside Allotment and the Hardy Spring Allotment. All cattle will be kept on private lands in November and the southern herd will also be on private lands in April/May.

The proposed action allows for periods of grazing rest within the growing season on all allotments. The Sunnyside Allotment will have no livestock grazing during April and May. The Hardy Spring Allotment allows for late growing season rest, especially in the Lower Cover. The Shingle Pass Allotment has grazing deferred until late May allowing for early growing season rest.

The **proposed term permit 2704739** and terms and conditions are as follows (including Table 2):

Table 2—Proposed Term Permit 2704739

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land*	Type Use	AUMs**
Sunnyside 21023	600 Cattle	06/01 to 10/31	100	Active	3018
Sunnyside 21023	600 Cattle	12/01 to 03/31	100	Active	2387
Hardy Spring 11022	635 Cattle	12/01 to 05/15	100	Active	3466
Shingle Pass 00906	500 Cattle	05/15 to 10/31	100	Active	2795

*% Public Land is the percent of public land for billing purposes.
**AUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Allotment AUMs Summary

Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PREFERENCE
Sunnyside	5402	0	5402
Hardy Spring	3478	16	3494
Shingle Pass	2724	3428	6152

Other Terms and Conditions:

1. Maximum utilization levels of key forage species on the Sunnyside, Hardy Spring, and Shingle Pass Allotments will be established as follows:
   - Perennial native grasses: 50% of current year's growth
   - Perennial non-native seedings: 65% of current year's growth
   - Perennial shrubs and half-shrubs: 50% use on current annual production
   - Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

2. Cattle will be rotated throughout the allotments by providing water at different locations at different times. This includes the use of wells, reservoirs, and spring developments.
3. On the Sunnyside Allotment, grazing in the Hot Flash Pasture will be in accordance with the Hot Flash Pasture Livestock Grazing Agreement (see Appendix II).
4. On the Sunnyside Allotment, grazing use will occur in the Cave Valley Pasture from 06/01 to 10/31 and in the White River Pasture from 12/01 to 03/31.
5. On the Hardy Spring Allotment, livestock will be removed from the Lower Cove after April 1 each year by withholding water at Riordan's Well and from Lower Perish Spring Pipeline. Herding may also be needed to drift cattle out of the Lower Cove.
6. A 15-day window will be allowed to gather and move livestock when moving from a pasture or an allotment.
7. The placement of mineral or salt supplements will be a minimum distance of ½ mile from known water sources, riparian areas, winterfat bottoms, sensitive sites, populations of special status species, and cultural resource sites. Mineral and salt blocks will also be one mile from sage grouse leks.
8. On the Shingle Pass Allotment, the four fenced vegetation treatment (Big Spring Chaining, Upper Seeding, Triangle Seeding, and Freestone Seeding) will continue to be grazed with the surrounding native range until such a time that it is feasible to implement a grazing management system in these areas.
9. No motorized access is permitted within the South Egan Range and Far South Egans Wilderness Areas and the Riordan's Well Wilderness Study Area without approval of the District Manager. Motorized access may be permitted for emergency situations, or where practical alternatives for reasonable grazing management needs are not available and such motorized use would not have an adverse impact on the natural environment

Additional Terms and Conditions Common to All Grazing Allotments:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
3. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
4. Grazing use will be in accordance with the Standards and Guidelines for Grazing Administration. The Standards and Guidelines have been developed by the respective Resource Advisory Council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
5. If future monitoring data indicates that Standards and Guidelines for Grazing Administration are not being met, the permit will be reissued subject to revised terms and conditions.
6. Pursuant to 43 CFR 10.4 (G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at

43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.

7. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of any hazardous or solid wastes as defined in 40 CFR Part 261.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.

2.1.3 Invasive, Non-Native Species and Noxious Weeds

A Weed Risk Assessment was completed for this grazing permit renewal on May 12, 2010. The measures listed in the Weed Risk Assessment will be followed when grazing occurs on the allotments to minimize the effects on weeds.

2.1.4 Monitoring

The Ely District Approved Resource Management Plan (August 2008) identifies monitoring to include, "Monitoring to assess rangeland health standards will include records of actual livestock use, measurements of forage utilization, ecological site inventory data, cover data, soil mapping, and allotment evaluations or rangeland health assessments. Conditions and trends of resources affected by livestock grazing will be monitored to support periodic analysis/evaluation, site-specific adjustments of livestock management actions, and term permit renewals. Monitoring will determine when grazing will be authorized in burned areas, and will contribute to the selection of prescribed burn treatments or other types of treatments based on attainment of resource objectives" (pg. 88).

As herd size begins to increase, utilization will be closely monitored to ensure proper livestock grazing use, especially within wild horse herd areas where range conditions have been stressed in recent years.

2.2 No Action Alternative

The No Action Alternative represents the status quo – this permit would be renewed with no changes from the current permit. This alternative would not establish maximum allowable use levels or modify to the permit terms and conditions. A summary of the current term permit 2704739 is shown in Table 3.

Table 3—Summary of the Current Grazing Permit 2704739

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land*	Type Use	AUMs**
Sunnyside 21023	539 Cattle	06/01 to 03/31	100	Active	5387
Hardy Spring 11022	496 Cattle	10/15 to 05/15	100	Active	3473
Shingle Pass 00906	541 Cattle	05/15 to 10/30	100	Active	3006

*% Public Land is the percent of public land for billing purposes.
**AUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Allotment AUMs Summary

Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PERMITTED USE
Sunnyside	5402	0	5402
Hardy Spring	3478	16	3494
Shingle Pass	2724	3428	6152

Other Terms and Conditions:

1. All grazing use in the Hardy Spring and Sunnyside Allotments will be in accordance with the Final Multiple Use Decision dated March 6, 1996.
2. To improve livestock distribution, mineral block and/or salt black will be placed a minimal distance of ½ mile from water.
3. All livestock will be removed from the Sunnyside Allotment from April 1 through May 31 of each year.
4. All livestock will be removed from winterfat areas on the Hardy Spring Allotment by April 10 of each year through water management and herding. The livestock will be allowed to drift towards private meadows until no later than May 15.
5. The gates at the Triangle/Patterson Pass Seeding will be closed to prevent cattle movement onto the adjacent Big Seeding and native range
6. The permittee will be responsible for reporting actual use in the Upper and Triangle/Patterson Pass Seedings.

2.3 Alternatives Considered but Eliminated from Further Analysis

The Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November, 2007) analyzes five alternatives of livestock grazing (p.4.16-1 to 4.16-15.), including a no-grazing alternative (D). No further analysis is necessary in this document.

- The Proposed RMP
- Alternative A, The Continuation of Current Existing (No Action alternative)
- Alternative B, the maintenance and restoration of healthy ecological systems
- Alternative C, commodity production
- Alternative D, conservation alternative (no-grazing alternative)

3.0 Affected Environment and Environmental Effects

3.1 Allotment Information

The Sunnyside, Hardy Spring, and Shingle Pass Allotments encompass approximately 219,519, 124,008, and 74,788 public lands acres, respectively. These grazing allotments occur within Lincoln, Nye, and White Pine Counties, and are situated approximately 10 to 50 miles south of Lund, Nevada. The area stretches from the Quinn Mountain Range in the west, across the White River Valley, over the Egan Range, across Cave Valley to the Schell Creek Range in the west. These allotments occur largely in the White River Central and Cave Valley Watersheds with small portions in the White River South and Fox-Gap Mountain Watersheds (Figure 1, Appendix I). The White River Sheep Trail also crosses the Sunnyside and Hardy Spring Allotments.

The Sunnyside Allotment is split by Highway 318 forming two pastures—Cave Valley on the east and White River on the west. The Hot Flash Pasture has also been created within the Sunnyside Allotment as a result of the 1998 and 2006 Hot Flash Fires and has been managed to meet fire recovery objectives with little success. The Hardy Spring Allotment is also divided by Highway 318. Therefore the eastern portion of this allotment has generally been grazed in conjunction with the Shingle Pass Allotment. The Shingle Pass Allotment has four fenced vegetation treatments (Big Spring Chaining, Upper Seeding [part of Cave Valley Seeding], Triangle Seeding [part of the Patterson Pass Seeding], and Freestone Seeding) that are grazed with the surrounding native ranges (Figure 6, Appendix III). Additionally, grazing is further controlled through water management on all three allotments.

The Sunnyside Allotment is dominated by Inter-Mountain Basins Big Sagebrush Shrubland, Great Basin Pinyon-Juniper Woodland, and Inter-Mountain Basins Mixed Salt Desert Scrub with Great Basin Xeric Mixed Sagebrush Shrubland and Inter-Mountain Basins Greasewood Flat. These include Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), pinyon-juniper (*Pinus monophylla - Juniperus osteosperma*), winterfat (*Krascheninnikovia lanata*), shadscale (*Atriplex confertifolia*), black sagebrush (*Artemisia nova*), and greasewood (*Sarcobatus vermiculatus*) plant communities. This allotment also has small areas of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), mixed conifers, mountain mahogany (*Cercocarpus ledifolius*), playas, and rock outcrops.

The Hardy Spring Allotment is dominated by Inter-Mountain Basins Big Sagebrush Shrubland with Great Basin Pinyon-Juniper, Great Basin Xeric Mixed Sagebrush Shrubland, and Inter-Mountain Basins Mixed Salt Desert Scrub. These include Wyoming big sagebrush, basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), pinyon-juniper, black sagebrush, and winterfat plant communities. This allotment also has small areas of greasewood, playas, and rock outcrops.

The Shingle Pass Allotment is dominated by Great Basin Pinyon-Juniper Woodland with Inter-Mountain Basins Big Sagebrush Shrubland and Inter-Mountain Basins Montane Sagebrush Steppe. This includes pinyon-juniper, Wyoming big sagebrush, basin big sagebrush, and mountain big sagebrush plant communities. This allotment also has small areas of mixed conifer, black sagebrush, crested wheatgrass (*Agropyron cristatum*) seedings, and rock outcrops.

3.2 Resources/Concerns Considered for Analysis

Proposed Action

The following items have been evaluated for the potential for significant impacts to occur, either directly, indirectly, or cumulatively, due to implementation of the proposed action. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general and to the Ely BLM in particular.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Air Quality	No	Air quality in the affected area is generally good except for occasional dust storms. The proposed action could contribute to ambient dust in the air due to trailing, but the impact would be temporary and would not approach a level that would exceed air quality standards. Further analysis is not necessary.
Cultural Resources	No	A cultural needs assessment will be completed. All previously recorded sites will be evaluated for grazing impacts based on eligibility to the National Register of Historic Places. Monitoring of sites will take place as necessitated by the needs assessment process. Mitigation will occur if impacts to cultural sites are determined. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on cultural resources on page 4.9-5.
Forest Health	No	No Forest Health concerns occur within or adjacent to the project area.
Rangeland Standards and Health	No	An assessment and evaluation of current livestock grazing managements achievement of the standards and conformance to the guidelines was completed in conjunction with this project (SDD, Appendix III). However actual use over the past ten years has been lower than permitted use to accommodate drought-like conditions across the allotments. As livestock numbers increase, utilization levels will be closely monitored to ensure proper grazing use across the allotments. Grazing under the proposed action, with design features, will allow for achievement or progress towards Rangeland Standards and Health. No further analysis is needed. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing on pages 4.16-3 through 4.16-8.
Migratory Birds	No	Good grazing management practices and progress towards the RAC standards will aid in progressing towards the desired habitat condition for migratory bird species of concern. The potential for the proposed action to affect migratory birds is discountable due to the low density of livestock within the area.
Native American Religious Concerns and other concerns	No	No concerns were identified during tribal coordination.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
FWS Listed or proposed for listing Threatened or Endangered Species or critical habitat.*	No	Threatened, Endangered, Proposed, or Candidate species are not known to be present in the project area.
Wastes, Hazardous or Solid	No	No hazardous or solid wastes exist on the permit renewal area, nor would any be introduced by the proposed action.
Water Quality, Drinking/Ground	No	The Proposed and No-Action alternatives are not expected to affect water quality from surface or groundwater sources. The allotments contain approximately 0.73 miles of perennial streams with 0.1 miles in Sunnyside and 0.63 miles in Shingle Pass. Six water sources (three on public land and three on private land) are know in the Sunnyside Allotment which are used or pending approval for municipal or quasi-municipal beneficial uses. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on water resources on page 4.3-5.
Wilderness	No	The Far South Egans Wilderness Area is in the north central portion of the Sunnyside Allotment and the central portion of the Shingle Pass Allotment. The South Egan Range Wilderness Area is in the eastern portion of the Hardy Spring Allotment and the western portion of the Shingle Pass Allotment. The Riordan's Well Wilderness Study Area is located in the eastern portion of the Hardy Spring Allotment. Also a portion of the southern Sunnyside Allotment boundary borders the Weepah Wilderness Area. Trammeling activities will occur in the form of removal of vegetation through livestock grazing, but would not impair wilderness characteristics.
Environmental Justice	No	No environmental justice issues are present at or near the project area. No minority or low income populations would be unduly affected by the proposed action
Floodplains	No	No floodplains have been identified by HUD or FEMA within the allotment. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on water resources (including floodplains) on page 4.3-5.
Watershed Management	No	The proposed action would have no affect on watershed health or function. Further, the proposed action would not affect the physical, biological, or chemical ecological processes necessary to achieve State of Nevada water quality standards and sustain appropriate uses. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on watershed resources on page 4.19-5.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Wetlands/Riparian Zones	Yes	**Analyzed in Section 3.2.2.** The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on vegetative resources (including riparian areas) on page 4.5-9.
Noxious and Invasive Weed Management	No	The noxious species Russian knapweed, salt cedar, spotted knapweed, Scotch thistle, tall whitetop, and hoary cress occur within the project area along roads. Cheatgrass and other invasive species are found in the Hot Flash Pasture. Although improper grazing can increase the populations of the noxious and invasive weeds already present in the permitted area, the design features of the Proposed Action, including setting utilization levels of native species, would help to prevent weeds from establishing or spreading. Implementing proper grazing management of the Hot Flash Pasture could prevent a cheatgrass burn cycle and allow more desirable species to establish. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on noxious and invasive weed management on page 4.21-4.
Special Status Plant Species, other than those listed or proposed by the FWS as Threatened or Endangered	Yes	**The Sunnyside green gentian (*Frasera gypsicola*) is analyzed in Section 3.2.3**. Several populations of the **White River catseye** (*Cryptantha welshii*) have been documented on the Hardy Spring and Sunnyside Allotments in White River Valley. This species appears to tolerate or even increase with transient disturbances including animal trampling (NNHP, 2001). Populations of the **Tiehm blazing star** (*Mentzelia teihmii*) have been documented on the Sunnyside Allotment. Two of these occurrences are within the Kirch Wildlife Management Area boundary fence, therefore not grazed under this permit. The remaining three occurrences are greater than two miles from a livestock watering source, therefore would rarely receive any grazing use. One population of the **Charleston grounddaisy** (*Townsendia jonesii* var. *tumlosa*) has been documented on the Sunnyside Allotment. This occurs within the Kirch Wildlife Management Area boundary fence, therefore is not grazed under this permit. One population of the **Parish phacelia** (*Phacelia parishii*) has been documented on the Sunnyside Allotment. This occurs within the Kirch Wildlife Management Area boundary fence. Therefore is not grazed under this permit. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on special status species on pages 4.7-28 through 4.7-30. Special status species were also considered in the SDD (Appendix III).

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Wild Horses	No	The eastern portion of the Sunnyside Allotment is within the Silver King Wild Horse Herd Management Area. The western portion of the Hardy Spring Allotment is within the White River Wild Horse Herd Area (HA) and the south western portion of the Sunnyside Allotment is within the Golden Gate and Seaman Range HAs. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on wild horses on page 4.8-6. Site specific examination of the allotment did not reveal any concerns above those addressed in the Ely RMP/EIS.
Soil Resources	No	The proposed action is expected to display effects to soil resources as follows: potential for compaction along trails and near watering sites and scarification of surface soil along trails used by livestock. The probable extent of soil compaction or displacement attributable to the proposed action would be minimal and localized in nature and wholly a function of intensity and duration of use by livestock. Minimal impacts to localized physical soil characteristics would not alter the infiltration or percolation rates of the soils in the project areas. As such, impacts to the soil resources resulting from the proposed action would not affect the physical, chemical, or biological processes on or within the soil horizons. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on soil resources on page 4.4-4.
Prime and Unique Farmlands	No	There are approximately1020 acres of prime or unique farmlands in the project area. The limiting factor needed in order to place such lands into agricultural production is water. The proposed action would not alter the soil characteristics which led to the classification of potential prime or unique farmlands.
Special Designations other than Designated Wilderness	No	A portion of the White River Valley Area of Critical Environmental Concern (ACEC) is located within and adjacent to the Sunnyside and Hardy Spring Allotments (RMP Map 23, 2008). This ACEC was designated for the protection of the Sunnyside green gentian, Charleston grounddaisy, Parish phacelia, Tiehm blazing star, and White River catseye, BLM sensitive plant species. The management prescription for this ACEC allows for livestock grazing. See the “Special Status Plant Species” section above for discussion on the effects of the proposed action on these species.
VRM	No	The proposed action is consistent with the VRM classification 1, 2, 3, and 4 for the area. No direct or cumulative impacts to visual resources would occur.
Fish and Wildlife	No	Mule deer, pronghorn, and elk habitat occur throughout the project area. Crucial summer and winter range for mule deer occur within the project area. Mule deer tend to prefer to browse while cattle

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
		prefer to graze. Therefore there is only a small potential for conflict. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on fish and wildlife resources on pages 4.6-10 through 4.6-11. Site specific examination of the allotment did not reveal any concerns above those addressed in the EIS.
Special Status Animal Species, other than those listed or proposed by the FWS as Threatened or Endangered	Yes	Large portions of these allotments are located within summer, nesting, and winter habitat for **greater sage grouse** (*Centrocercus urophasianus*). There are 7 sage-grouse leks within the project area and an additional lek within a three mile buffer of the project area. **Analyzed in Section 3.2.1** The **pygmy rabbit** (*Brachylagus idahoensis*) has been documented to occur within the Sunnyside Allotment. The Sunnyside and Shingle Pass Allotments have potential habitat for the pygmy rabbit. The species prefers areas of tall sagebrush with deep friable soils for digging burrows. The grazing management practices outlined in the proposed action work to maintain or allow for progress towards the vegetative conditions outlined by the Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area (2006). This will help to maintain potential pygmy rabbit habitat within the allotments. **Desert bighorn sheep** (*Ovis canadensis nelsoni*) habitat occurs in the project area, with occupied habitat in the Egan Range. According to NDOW's Bighorn Sheep Management Plan (2001), it is important that bighorn sheep habitats are maintained in good to excellent ecological condition because livestock directly compete with bighorns for forage, water, and space. The current condition of this habitat is unknown. The proposed action is designed to maintain or move toward good to excellent ecological condition therefore minimizing effects to desert bighorn sheep. Special status raptor and bat species also exist on these grazing allotments. Grazing management practices in the proposed action would aid these areas in progress towards the habitat standards outlined by the Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area (2006). Several other special status animal species occur on the Wayne E. Kirch State Wildlife Management Area (WMA). This WMA occurs in the Sunnyside Allotment, however it is fenced and not grazed under this proposed grazing permit. Special status animal species also occur on privately owned lands in the project area. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on special status species on pages 4.7-28 through 4.7-30. Special status species were also considered in the SDD (Appendix III).
Grazing Uses	No	The proposed action will continue to meet the RMP goals and objectives, including progress toward meeting the standards for

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
		rangeland health. The proposed action is consistent with the need for the action; no further analysis is necessary. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing on pages 4.16-3 through 4.16-8.
Land Uses	No	There would be no modifications to land use authorizations through the proposed action. No impacts would occur to access and land uses.
Recreation Uses	No	The nature of grazing does not conflict with recreation resources and values.
Paleontological Resources	No	No currently identified paleontological resources are present in the project area.
Mineral Resources	No	There would be no impacts to minerals resources through the proposed action.
Vegetative Resources	No	The proposed action is expected to have an effect on vegetative resources as follows: grazing of vegetation, primarily grasses and winterfat, and occasional trampling of vegetation as livestock move through it. The impacts to vegetation by grazing or trampling based on the proposed action with design features would result in maintaining or improving plant health, reproduction, diversity, and composition by allowing the plants to maintain and continue photosynthetic processes to initiate regrowth for recovery and grow adequately for reproduction. The Ely RMP/EIS analyzed and disclosed general effects of livestock grazing and associated actions on vegetative resources on page 4.5-9. No further analysis is needed.
Wild and Scenic Rivers	No	No Wild and Scenic Rivers occur within or adjacent to the project area.

*Consultation required unless a “not present” or “no effect” finding is made

No Action Alternative

Effects of the no action alternative are similar to those described in the proposed action. However without the establishment of maximum allowable use levels, the no action alternative may have the potential to allow for overgrazing of the rangelands on the Sunnyside, Hardy Spring, and Shingle Pass Allotments. This could lead to degradation of habitats for fish and wildlife, special status species, and wild horses; a decreased rate of progress towards rangeland health standards; an increased potential for noxious and invasive weed expansion; and slow the recovery of vegetation resources.

3.2.1 Special Status Animal Species—Greater Sage Grouse

Affected Environment

The Greater Sage-Grouse is a high-profile, sensitive species currently considered to be warranted for listing as Threatened or Endangered but listing is precluded by other species of higher priority (USDI 2010). It has been identified as an "umbrella" species by the Ely District BLM, and chosen to represent the habitat needs of the sagebrush (*Artemisia* spp.) obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). Under the sage-grouse guidelines set forth by Connelly et al. (2000), the herbaceous (grass and forb) component should comprise at least 15 percent cover and sagebrush should comprise 15-25 percent cover.

Sagebrush habitats were evaluated against the Connelly Guidelines in the SDD (Appendix III). The Sunnyside, Hardy Spring, and Shingle Pass Allotments are generally not meeting these cover guidelines, however when compared to the expected cover for these ecological sites, it is unlikely that most of these areas would be able to meet these guidelines. Furthermore, these sites are in the mid-late phase of the herbaceous state recommended for wildlife habitat in sagebrush plant communities set forth in the Ely District ROD/RMP (page 30).

There are 7 sage-grouse leks within the project area and an additional lek within a three mile buffer of the project area (Figure 7, Appendix III). The status of these leks is active with the exception of one of unknown status. Large portions of the Sunnyside, Hardy Spring, and Shingle Pass Allotments are located within summer, nesting, and winter sage grouse habitat.

Sage-grouse often nest in suitable habitat within three miles of a lek site. The sage-grouse breeding and nesting period is generally considered to be approximately March 15 through May 31. The brood-rearing period is generally considered to be June 1 through October 31. The wintering period is generally considered to be November 1 through March 14. These allotments are part of the Quinn, Cave Valley, and Butte Valley sage-grouse population management units (PMU).

Environmental Effects

Proposed Action

The proposed action allows for periods of grazing rest within the growing season on all allotments. The Sunnyside Allotment will have no livestock grazing during April and May. The Hardy Spring Allotment allows for late growing season rest, especially in the Lower Cover. The Shingle Pass Allotment has grazing deferred until late May allowing for early growing season rest. These rest periods are beneficial to the vegetation in the project area and will help provide perennial grass cover and forage for sage-grouse habitat.

Furthermore, allowable use levels will be established at 50 percent of the current year's growth for perennial, native grasses allowing for improved herbaceous vigor and plant community health. This allowable use level also allows perennial grasses to remain for sage-grouse habitat throughout the year, especially nesting habitat. As the proposed action allows for progress towards the vegetative communities outlined in the RAC Standards and Guidelines (BLM, 2006), the sage-grouse guidelines (Connelly et al. 2000), and the Ely ROD/RMP (BLM, 2008), it will also benefit greater sage-grouse populations within the project area.

No Action Alternative
Effects of the no action alternative are similar to those described in the proposed action. However without the establishment of maximum allowable use levels, the no action alternative may have the potential to allow for overgrazing of the rangelands on the Sunnyside, Hardy Spring, and Shingle Pass Allotments. This could lead to degradation of sage-grouse habitats.

3.2.2 Wetlands/Riparian Zones
Affected Environment
Eight locations have been identified as potential spring-fed water sources on the Sunnyside Allotment; four locations on the Hardy Spring Allotment; and 30 locations on the Shingle Pass Allotment. Many of the potential water sources provide water ephemerally within any given year or only occasionally from year to year. Some potential spring sources have not been field verified or quantified due to limited access to many mid-slope or steeper locations.

The BLM identified and visited 17 of these 42 potential sources as having a good probability of perennial or intermittent flows. Of the 17 candidates, nine locations were found to possess characteristics of natural riparian/wetland settings that may or may not have been altered by human activity. Human development may have altered the nine locations by manipulating flows to create consistent delivery of water or by placing water into stockwatering tanks or troughs. Sufficient riparian/wetland characteristics remain at these nine sources for an assessment of system health and function. The other eight potential locations were found to be unnatural settings in which groundwater sources were accessed by human development and accounted for all surface expression of water. Such sites were not assessed for riparian/wetland health or function due to their lack of riparian/wetland characteristics prior to site development.

The BLM assessed the nine riparian/wetland sites in the three allotments using riparian area management protocols created by the BLM, United States Forest Service, and the Natural Resources Conservation Service (TR 1737-15 and TR 1737-16) for assessing proper functioning condition for lentic and lotic systems.

No public land riparian resources were found on the Hardy Spring Allotment. Two public land riparian areas were located on the Sunnyside Allotment, both in the Cave Valley Pasture. Sidehill and Trough Springs were assessed in 2009 and found to be in the range considered as Proper Functioning Condition. Seven public land riparian areas were found on the Shingle Pass Allotment. Big Travis Spring, Little Geyser Spring, and Parker Spring North were assessed in 2009 and found to be in the range considered as Proper Functioning Condition. Big Spring, Haggerty Spring, Parker Spring South, and Unnamed Spring were also assessed in 2009 and found to be in the range of condition considered as Functional-At Risk. All assessments in all allotments found evidence of trampling in and near riparian areas. All springs with a summary assessment of Functional-At Risk showed animal trampling (livestock and/or wildlife) and road access issues as being common risk factors precluding the systems from reaching Proper Functioning Condition. Riparian systems assessed as being Functional-At Risk continue to provide high value resources but were rated as being less resilient than riparian systems assessed as being in Proper Functioning Condition.

In addition to livestock grazing under this proposed grazing permit, many of these spring sources show signs of heavy elk use. There is also cattle drift between the Shingle Pass and Sheep Pass

Allotments which effect the springs in the Parker Mountain area (Parker Springs and Unnamed Spring). Fencing and development of the springs in the Parker Mountain area has been recommended to protect or improve riparian areas and provide reliable stockwater. This would occur under separate environmental analysis.

Environmental Effects

Proposed Action

Since no public land riparian/wetland resources occur in the Hardy Spring Allotment and the White River Pasture of the Sunnyside Allotment, these areas are not considered in this analysis.

Under the proposed action, the season of use on the Cave Valley Pasture of the Sunnyside Allotment will be the beginning of June to the end of October and the season of use on the Shingle Pass Allotment will be mid-May through the end of October. Livestock would use riparian vegetation during portions of the year when growth is typically reduced (June, July, and August) due in part to lower precipitation in late spring to late summer. Riparian vegetation would be expected to take advantage of increased precipitation beginning in the early fall months to provide re-growth and energy storage in preparation for winter dormancy. Use of vegetation during drier months would not be expected to inhibit riparian vegetation communities but use in early fall months, depending on available moisture, could result in vegetation going into winter dormancy in a reduced vigor state. A direct effect to riparian/wetland resources from non-use during the fall and early spring months could allow some riparian systems to grow without livestock perturbation and allow riparian vegetation to rest and potentially recover, depending on weather, prior to winter dormancy.

Riparian soils would not be trampled in the spring when soil moisture content is typically at its greatest. The rest periods would directly and indirectly allow riparian/wetland systems to recover each year and potentially become more resilient systems or progress towards or remain in Proper Functioning Condition. Depending upon the vagaries of precipitation, the use of riparian systems in the early fall months could continue to lead to riparian soil disturbance due to trampling and 'post-holing' if soil moisture content is high or if groundwater is close to the soil surface.

No Action Alternative

Under the no action alternative, the condition of riparian/wetland resources would be expected to remain the same on the Hardy Spring Allotment due to the lack of such resources. Conditions would also be expected to remain the same on the Sunnyside Allotment due to the present response of riparian/wetland use. Riparian/wetland condition on the Shingle Pass Allotment would be expected to remain the same and with the similar resource response of loss of resiliency with downward trend of overall physical condition. The Shingle Pass Allotment riparian/wetland areas currently shown as Functional-At Risk would be expected to continue the downward trajectory of physical condition to eventually become Nonfunctional.

3.2.3 Special Status Plant Species—Sunnyside Green Gentian

Affected Environment

Six populations of the Sunnyside green gentian (*Frasera gypsicola*) have been documented on the Hardy Spring and Sunnyside Allotments. One occurrence is within the Kirch Wildlife

Management Area, therefore is not grazed under this permit. On the Sunnyside Allotment, these occurrences are greater than two miles from a livestock watering source, therefore would rarely receive any grazing use. The two occurrences on the Hardy Spring Allotment are along the White River corridor which has small areas of seasonal water available to livestock. Conflicting reports suggest that cattle may graze on this species.

Environmental Effects
Proposed Action
The proposed action would allow livestock grazing in the Hardy Spring Allotment from 12/01 to 05/15, potentially allowing the Sunnyside green gentian to be grazed by cattle. Winter grazing would not likely affect this species due to the dormancy of vegetation in the area. Grazing use on the Sunnyside green gentian could occur in the spring. This species flowers in June and July, which is well after livestock removal from this area. It is assumed that the Sunnyside green gentian reproduces sexually, therefore allowing plants to complete the flowering and seed set cycle would be beneficial.

No Action Alternative
Effects of the no action alternative are similar to those described in the proposed action because spring and summer grazing use is the same.

4.0 Cumulative Effects

According to the 1994 BLM publication (attached to WO-IB-94-310) Guidelines for Assessing and Documenting Cumulative Impacts, "the cumulative analysis can be focused on those issues and resource values identified by management, the public and others during scoping that are of major importance."

Additionally, the guidance provided in The National BLM NEPA Handbook H-1790-1 (2008), for analyzing cumulative effects issues states, "determine which of the issues identified for analysis may involve a cumulative effect with other past, present, or reasonably foreseeable future actions. If the proposed action and alternatives would have no direct or indirect effects on a resource, you do not need a cumulative effects analysis on that resource" (p.57). Also, a comprehensive cumulative impacts analysis can be found on pages 4.28-1 through 4.36-1 of the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).

The Cumulative Effects Study Area (CESA) on the special status species sage grouse and wetlands/riparian zones is defined as the Sunnyside, Hardy Spring, and Shingle Pass Allotment boundaries. Private and state owned land occurs within the allotment boundaries.

4.1 Past Activities

Hunting, trapping, wildlife viewing, and other activities occur on all allotments year round. OHV use may have occured on the roads and two-tracks on the allotments. Several oil and gas exploration wells have been drilled in the project area.

Livestock grazing, including sheep trailing, has a long history in the region dating back to the late 1800's. Throughout its history, livestock grazing has been characterized by localized areas

of intense use. Range improvements have occurred on all allotments to improve grazing management and include fencing and stockwater developments. Several vegetation treatment projects have taken place in the Cave Valley portion of the CESA. These include range seeding, chaining, and/or mowing projects.

Nevada has been prone to extended periods of drought. Under these conditions, wildfires can be frequent. In 2006, the King, Whipple, and Hot Flash Fires burned within the Sunnyside Allotment. A portion of the 2006 Gubler Fire burned into the Hardy Springs Allotment. The 1998 Hot Flash Fire and the 2002 Clif Fire also burned in the Sunnyside Allotment and the 1999 Lower Cove Fire burned in the Hardy Springs Allotment. These fires also have had some sort of rehabilitation implemented.

The Golden Gate, Seaman Range, and White River HAs wild horse gather was completed in 2009.

The Wayne E. Kirch Wildlife Management Area (KWMA) is located in the White River Valley in the Sunnyside Allotment. This area was established in 1968. KWMA is composed of a total of 14,815 acres, including five major reservoirs. The area has a mosaic of habitats and supports extremely diverse populations of wildlife (NDOW, unpublished).

A mowing and roller chopping project was implemented in Cave Valley under the Governor's Sage Grouse Plan for Lincoln County in 2009.

4.2 Present Activities

All allotments are currently being grazed by livestock with sheep also trailing through. Hunting, trapping, wildlife viewing, and other activities occur on all allotments year round. OHV use may occur on the roads and two-tracks on the allotments. Maintenance of range improvements is ongoing.

Charity Oil & Gas Exploration Wells are scheduled to be drilled during 2010. The north well is on the Hardy Spring Allotment and the southern well is just outside the project area. Oil and gas leasing continues throughout the area.

Existing gravel pits on the Sunnyside Allotment are in the process of being converted to a community pit and a Nye County pit.

The Southwest Intertie Project (SWIP) power line corridor crosses the Sunnyside and Hardy Spring Allotments. This corridor is 0.5 miles wide with one power line currently authorized.

Proposed Site 2 of the Horse Range Big Game Water Development Project is within the Hardy Spring Allotment. Proposed Site 1 is outside the project area and is the preferred site. This project is scheduled for installation during the summer of 2010.

Fencing as part of the implementation of the Governor's Sage Grouse Plan for Lincoln County will be installed during the summer of 2010 on the Sunnyside and Shingle Pass Allotments.

The Cave Valley Watershed Analysis is on-going and considers large portions of the Sunnyside and Shingle Pass Allotments.

4.3 Reasonably Foreseeable Future Actions (RFFA)

Wildfires could be likely within the CESA. Hunting, trapping, wildlife viewing, and other activities will probably occur on all allotments year round. OHV use could occur on the roads and two-tracks on the allotments. Maintenance of range improvements is ongoing. Oil and gas leasing will continue throughout the area. Sheep trailing will also continue in the area. Authorizing power lines within the SWIP corridor will continue through subsequent NEPA.

4.4 Cumulative Effects Summary

Sage-Grouse

Proposed Action

Some of the interrelated projects would result in habitat loss either through disturbance or alteration. However, most of these projects, with the stipulations to maintain current conditions of habitat or rehabilitate lost habitat, should reduce the effects of interrelated projects. Other projects are designed to improve habitat therefore have beneficial effects. The proposed action is designed to maintain habitat which will reduce effects to sage-grouse habitat. The proposed action in combination with other actions is not anticipated to have any cumulative effects on sage-grouse habitat.

No Action Alternative

Uses of public lands are not expected to change in intensity, duration, or frequency within the allotments. As such, effects to sage-grouse habitat would remain similar to those currently existing in the Sunnyside, Hardy Spring, and Shingle Pass Allotments.

Wetlands/Riparian Zones

Proposed Action

Livestock would be moved from public land use to private land use in November and a portion of public lands in April and May. Such a change may result in additional stress to riparian/wetland resources on private land. It is possible however, that the alternate use of riparian/wetland systems on public and private land could result in an overall increase in physical and biological condition of such systems in the allotments as a whole. Alternating between use of private resources and public resources could provide ample rest per year for riparian/wetland vegetation species to rebound from use on a yearly cycle.

No Action Alternative

Uses of public land riparian/wetland resources are not expected to change in intensity, duration, or frequency within the allotments. As such, effects to riparian/wetland resources would remain similar in character to those currently acting upon the resources on the Sunnyside, Hardy Spring, and Shingle Pass Allotments.

Sunnyside Green Gentian

Proposed Action

All present and RFFAs and some past actions have considered the Sunnyside green gentian. Most of these projects have been designed to avoid this species to reduce effects. The proposed

action in combination with other actions is not anticipated to have cumulative effects on the Sunnyside green gentian or its habitat.

No Action Alternative
Uses of public lands are not expected to change in intensity, duration, or frequency within the allotments. As such, effects to the Sunnyside green gentian would remain similar to those currently existing in the Sunnyside and Hardy Spring Allotments.

5.0 Proposed Mitigation and Monitoring

5.1 Proposed Mitigation
Outlined design features incorporated into the proposed action are sufficient. No additional mitigation is proposed based on the analysis of environmental consequences.

5.2 Proposed Monitoring
Appropriate monitoring has been included as part of the Proposed Action. No additional monitoring is proposed as a result of the impact analysis.

6.0 List of Preparers - BLM Field Office Resource Specialists

Amanda Anderson	Rangeland Resources; Project Lead
Gina Jones	Ecologist; Planning and Environmental Coordinator
Mindy Seal	Vegetation; Noxious and Invasive, Non-native Species
Marian Lichtler	Wildlife, Special Status Species, Migratory Birds
Lisa Gilbert	Cultural Resources
Mark D'Aversa	Soil, Water, Wetlands and Riparian, Floodplains
Ruth Thompson	Wild Horse and Burro Resources
Dave Jacobson	Wilderness Values
Chris Mayer	Supervisory Rangeland Management Specialist

6.1 Tribes, Individuals, Organizations, or Agencies Consulted (in addition to permittee)
Nevada Department of Wildlife

Tribal Coordination:
Duckwater Shoshone Tribe
Ely Shoshone Tribe
Confederated Tribes of the Goshute Indian Reservation
Paiute Indian Tribe of Utah
Indian Peaks Band
Shivwits Band of Paiutes
Cedar City Band of Paiutes
Skull Valley Band of Goshute Indians
Las Vegas Paiute Tribe
Battle Mountain Band Council
Te-Moak Tribe of the Western Shoshone Indians of Nevada
Wells Band Council
South Fork Band Council
Elko Band Council

Kaibab Band of Paiutes Indians
Moapa Band of Paiutes
Yomba Shoshone Tribe

Public Notice of Availability
On December 22, 2009, letters were sent to interested persons and organizations informing them of these term grazing permit renewals. On January 6, 2010, this grazing permit renewal summary was posted on the BLM Ely District Website is located at: http://www.blm.gov/nv

An external review period of this preliminary EA will be issued.

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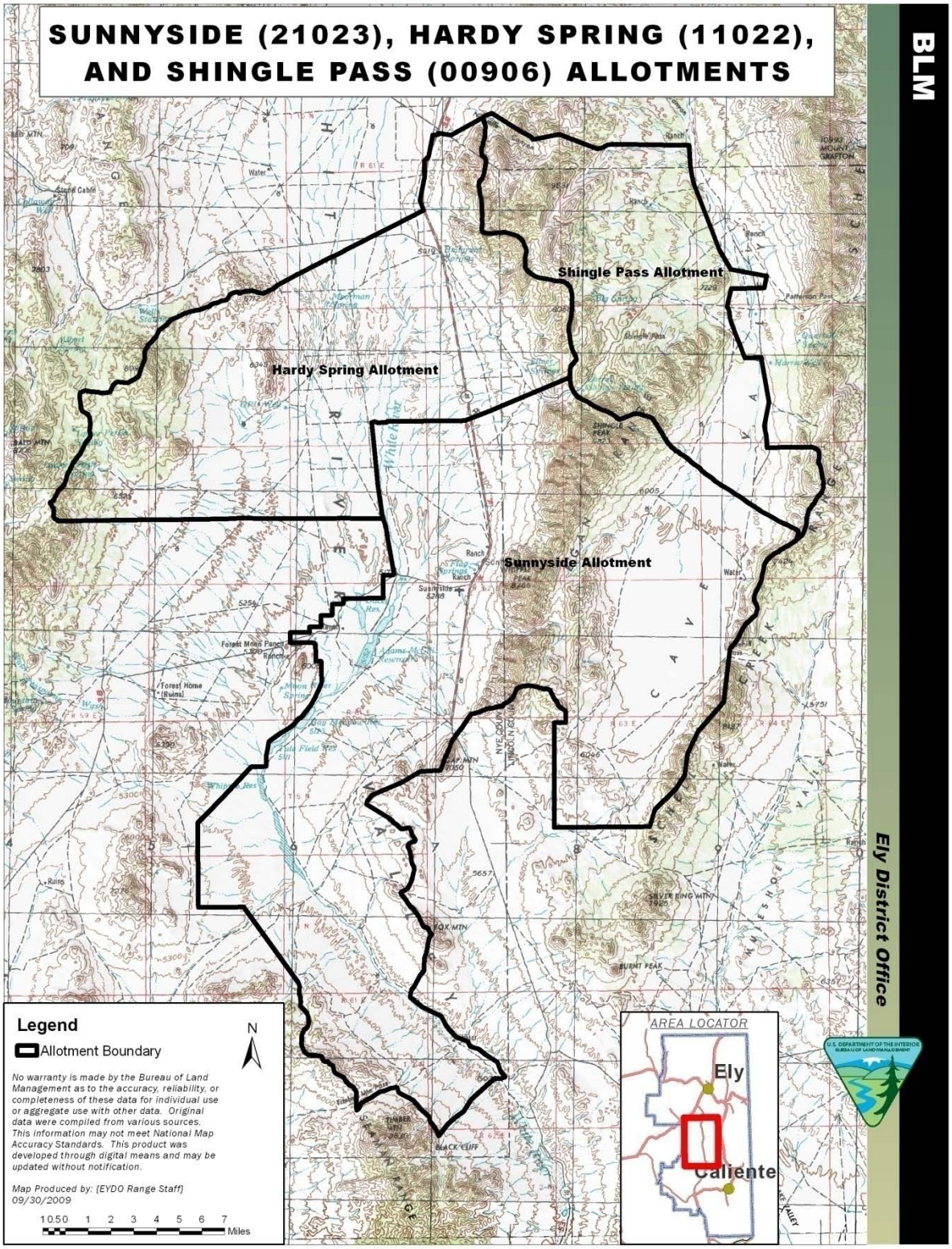
APPENDIX I

Figure 1. Project Area Map



APPENDIX II
HOT FLASH PASTURE LIVESTOCK GRAZING AGREEMENT

Part I. Introduction

The Hot Flash Pasture of the Sunnyside Allotment was created for the long-term management of the area burned by the Hot Flash Fires (1998 and 2006). During emergency stabilization and rehabilitation following the fires, the area was seeded with limited success. The area is now a cheatgrass/crested wheatgrass community.

The goal of this agreement is to provide prescribed grazing of the Hot Flash Pasture for the control of the invasive annual grass, cheatgrass. By controlling cheatgrass in the Hot Flash Pasture, it will be able to progress towards a healthy crested wheatgrass community while reducing the risk of another wildfire in the area.

Part II. Grazing Plan

The permittee and the assigned rangeland management specialist will work together cooperatively on an annual basis to implement a high intensity/short duration prescribed grazing treatment on the Hot Flash Pasture of the Sunnyside Allotment, as follows.

Approximately 200 head of cattle will be allowed to graze in the Hot Flash Pasture beginning when cheatgrass emerges in early spring, as determined annually by the assigned rangeland management specialist, or no later than March 15. The area will be evaluated regularly during grazing to determine that utilization on crested wheatgrass does not exceed 40 percent of the current year's growth. Once this threshold is reached, the permittee will remove all livestock within two days and will keep all livestock off the pasture for the remainder of the growing season.

If sufficient fall moisture causes a fall emergence of cheatgrass, a second grazing treatment may occur as long as seed dissemination on crested wheatgrass has occurred prior to turn out. When fall use is authorized, utilization on crested wheatgrass will not exceed 55 percent of the current year's growth. Once this threshold is reached, the permittee will remove all livestock within two days.

Part III. Monitoring and Evaluation

The Hot Flash Pasture will be monitored regularly during the treatment to ensure that over utilization of desirable species does not occur. This pasture will be evaluated after five years to determine treatment success and incorporate any needed modifications to this agreement and the management of the Hot Flash Pasture.

Part IV. Other Conditions

To ensure the success of the treatment, the permittee will continue to provide regular maintenance on the fences and water developments within this pasture as previously agreed upon.

Part V. Agreement

I, the undersigned, do hereby agree to, and accept this agreement. I understand that the implementation of this agreement is to be authorized on an annual basis.

Permittee	Date	Michael J. Herder Field Manager Egan Field Office	Date

APPENDIX III
STANDARDS DETERMINATION DOCUMENT

U.S. Department of the Interior
Bureau of Land Management

BLM

Standards Determination Document
April 2010

Standards Determination Document for the Sunnyside (21023), Hardy Spring (11022), and Shingle Pass (00906) Grazing Allotments

Location: *Lincoln, Nye, and White Pine Counties, Nevada*

U.S. Department of the Interior
Bureau of Land Management
Ely District Office
Egan Field Office
Phone: 775-289-1800
Fax: 775-289-1910

NATIONAL SYSTEM OF PUBLIC LANDS

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STANDARDS DETERMINATION DOCUMENT
Sunnyside (21023), Hardy Spring (11022), and Shingle Pass (00906) Grazing Allotments

INTRODUCTION

The Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area were developed by the Mojave-Southern Great Basin Area Resource Advisory Council (RAC) and approved in 2006. Standards and Guidelines are likened to objectives for healthy watersheds, healthy native plant communities, and healthy rangelands. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the standards.

This Standards Determination Document evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Mojave-Southern Great Basin Area for the Sunnyside, Hardy Spring, and Shingle Pass Allotments in the Ely BLM District. A small portion of the Hardy Spring and Shingle Pass Allotments are located in the Northeast Great Basin Resource Area. Due to the small size of this area, the Mojave-Southern Great Basin Standards and Guidelines will be used for the entire allotments. This document does not evaluate or assess achievement of the Wild Horse and Burro or the Off Highway Vehicle Standards or conformance to their respective Guidelines.

The Sunnyside Allotment encompasses approximately 219,519 public lands acres, the Hardy Spring Allotment encompasses approximately 124,008 public lands acres, and the Shingle Pass Allotment encompasses approximately 74,788 public lands acres. These grazing allotments occur within Lincoln, Nye, and White Pine Counties, and are situated approximately 10 to 50 miles south of Lund, Nevada. The area stretches from the Quinn Mountain Range in the west, across the White River Valley, over the Egan Range, across Cave Valley to the Schell Creek Range in the west. These allotments occur largely in the White River Central and Cave Valley Watersheds with small portions in the White River South and Fox-Gap Mountain Watersheds. The White River Sheep Trail also crosses the Hardy Spring and Sunnyside Allotments (Figure 1, Appendix II).

The Sunnyside Allotment is dominated by Inter-Mountain Basins Big Sagebrush Shrubland, Great Basin Pinyon-Juniper Woodland, and Inter-Mountain Basins Mixed Salt Desert Scrub with Great Basin Xeric Mixed Sagebrush Shrubland and Inter-Mountain Basins Greasewood Flat. These include Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), pinyon-juniper (*Pinus monophylla - Juniperus osteosperma*), winterfat (*Krascheninnikovia lanata*), shadscale (*Atriplex confertifolia*), black sagebrush (*Artemisia nova*), and greasewood (*Sarcobatus vermiculatus*) plant communities. This allotment also has small areas of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), mixed conifers, mountain mahogany (*Cercocarpus ledifolius*), playas, and rock outcrops.

The Hardy Spring Allotment is dominated by Inter-Mountain Basins Big Sagebrush Shrubland with Great Basin Pinyon-Juniper, Great Basin Xeric Mixed Sagebrush Shrubland, and Inter-Mountain Basins Mixed Salt Desert Scrub. These include Wyoming big sagebrush, basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), pinyon-juniper, black sagebrush, and winterfat

plant communities. This allotment also has small areas of greasewood, playas, and rock outcrops.

The Shingle Pass Allotment is dominated by Great Basin Pinyon-Juniper Woodland with Inter-Mountain Basins Big Sagebrush Shrubland and Inter-Mountain Basins Montane Sagebrush Steppe. This includes pinyon-juniper, Wyoming big sagebrush, basin big sagebrush, and mountain big sagebrush plant communities. This allotment also has small areas of mixed conifer, black sagebrush, crested wheatgrass (*Agropyron cristatum*) seedings, and rock outcrops.

Monitoring data on these allotments has been collected at key areas which have been established throughout the past 30 years. This evaluation will focus on data and livestock management over the past ten years. A summary of monitoring data for this evaluation period on the Sunnyside, Hardy Spring, and Shingle Pass Allotments is located in Appendix I.

The current term grazing permit 2704739 is issued for the period 03/01/2009 to 02/28/2019 and is summarized in Table 1.

Table 1—Summary of the Current Grazing Permit 2704739

Allotment Name	Livestock Number/Kind	Grazing Period Begin End	% Public Land*	Type Use	AUMs**
Sunnyside	539 Cattle	06/01 to 03/31	100	Active	5387
Hardy Spring	496 Cattle	10/15 to 05/15	100	Active	3473
Shingle Pass	541 Cattle	05/15 to 10/30	100	Active	3006

*% Public Land is the percent of public land for billing purposes.
**AUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Allotment AUMs Summary

Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PREFERENCE
Sunnyside	5402	0	5402
Hardy Spring	3478	16	3494
Shingle Pass	2724	3128	6152

Current livestock management practices have been implemented since the Final Multiple Use Decision (FMUD) for the Sunnyside and Hardy Spring Allotments (1996) and through annual Livestock Grazing Use Agreements with the permittee. These management actions were also carried forward in the Grazing Permit Renewal for 2704739 Environmental Assessment (NV-040-99-031).

The Sunnyside Allotment is split by Highway 318 forming two pastures—Cave Valley on the east and White River on the west. The Hot Flash Pasture has also been created within the Sunnyside Allotment as a result of the 1998 and 2006 Hot Flash Fires and has been managed to meet fire recovery objectives with little success. The Hardy Spring Allotment is also divided by Highway 318. The Shingle Pass Allotment has four fenced vegetation treatments (Big Spring Chaining, Upper Seeding [part of Cave Valley Seeding], Triangle Seeding [part of the Patterson

Pass Seeding], and Freestone Seeding) that are generally grazed with the surrounding native ranges (Figure 6, Appendix II). Specific management of these areas have been attempted, however the fences are regularly down and gates frequently left open by the public making any management nearly impossible. On all three allotments, grazing is further controlled through water management.

Under this grazing permit, cattle are grazed in two herds, one using the Sunnyside Allotment and the other using the Hardy Spring and Shingle Pass Allotments. Cattle are in the Cave Valley Pasture of the Sunnyside Allotment and the Shingle Pass Allotment during the summer and early fall. During winter and early spring, cattle are in the White River pasture of the Sunnyside Allotment and the Hardy Spring Allotment. In recent years, the permittee has kept cattle on private lands in November and April/May. The Hot Flash Pasture has been closed to grazing since the 2006 fire.

The eastern portion of the Sunnyside Allotment occurs within the Silver King Wild Horse Herd Management Area (HMA) and the southwestern portion occurs within the Golden Gate and Seaman Range Wild Horse Herd Areas (HA). The eastern portion of the Hardy Spring Allotment occurs within the White River HA (Figure 4, Appendix II).

Several special status species habitats are located within the allotments, including sage-grouse (*Centrocercus urophasianus*), desert bighorn sheep (*Ovis canadensis nelsoni*), pygmy rabbit (*Brachylagus idahoensis*), Sunnyside green gentian (*Fresera gypsicola*), White River catseye (*Cryptantha welchii*), Tiehm blazingstar (*Mentzelia tiehmii*), Charleston grounddaisy (*Townsendia jonesii* var. *tumulosa*), Parish phacelia (*Phacelia parishii*), as well as raptor nesting locations (Appendix III).

The Wayne Kirch State Wildlife Management Area occurs along the western boundary of the Sunnyside Allotment. Mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), and elk (*Cervus canadensis*) habitat occur within the allotments, including critical summer and winter range for mule deer. Migratory birds also use this area.

In 2006, the King (397 acres), Whipple (315 acres), and Hot Flash (481 acres) Fires burned within the Sunnyside Allotment. Approximately 425 acres of the 2006 Gubler Fire burned into the Hardy Spring Allotment. The 1998 Hot Flash Fire (1,040 acres) and the 2002 Cliff Fire (214acres) also burned in the Sunnyside Allotment and the 1999 Lower Cove Fire (458 acres) burned in the Hardy Spring Allotment. Following these fires, the burned areas were closed to livestock grazing for a period. The 2006 fires will be considered in this evaluation. Past burned areas have been reopened to normal grazing due to progress towards or achievement of recovery objects, with the exception of the Hot Flash Fires. The Hot Flash Pasture has been created to address management needs of burned areas of these two fires. This pasture needs to be included in the long-term grazing management plan of the Sunnyside Allotment. These burned areas were re-seeded with the exception of the Cliff Fire. Also see Appendix I, Section 7 and Appendix II, Figure 5.

Currently, there is a vegetation treatment project being implemented in Cave Valley near the Shingle Pass-Sunnyside Allotment Boundary (Figure 6, Appendix II). As part of this project, a

two-part fence (Shingle Pass-Sunnyside Allotment Fence) is also being installed to control livestock movement to and from the Cave Valley portion of the Sunnyside Allotment. The northern part of this fence will tie into the southwest portion of the Freestone Seeding Fence and cross westward past Sawmill Well to tie into a steep, rocky portion of the hillside. This portion of fence will prevent drift between the Shingle Pass and Sunnyside Allotments in Cave Valley. The southern portion of this fence will tie into the eastern Highway 318 Right of Way Fence in the vicinity of Gap Mountain and cross northeastward to tie into a steep hillside. This portion of fence will prevent drift between the Sunnyside and Fox Mountain Allotments. This fence in conjunction with the Trough Drift Fence will allow the eastern portion of the Sunnyside Allotment to be split into two pastures—Cave Valley, east of the Egan Range, and East White River, east of Highway 318 to the Egan Range.

The Cave Valley Watershed Analysis is currently in progress which considers portions of the Shingle Pass and Sunnyside Allotments. Currently the Implementation Strategy is being drafted for this watershed analysis. This is the final phase of the four-phase process. The Assessment, Evaluation, and Determination phases have yielded a list of general recommendations which includes to "maintain livestock management that adheres to [RAC] standards and guidelines" (BLM 2008).

A rabbitbrush treatment project is also being implemented on the Cave Valley Ranch Allotment with small portions extending into the Shingle Pass and Sheep Pass Allotments (Figure 6, Appendix II).

PART 1—STANDARD ACHIEVEMENT REVIEW

STANDARD 1. SOILS

Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle.

Soil indicators:

- Ground cover (vegetation, litter, rock, bare ground);
- Surfaces (e.g., biological crusts, pavement); and
- Compaction/infiltration.

Riparian soil indicators:

- Stream bank stability.

All of the above indicators are appropriate to the potential of the ecological site.

Sunnyside Allotment

Determination:

X Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

□ Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:
X In conformance with the Guidelines
□ Not in conformance with the Guidelines

Conclusion:
Within the Sunnyside Allotment, monitoring data, photo documentation, and professional observations show that the allotment is meeting the Soils Standard. The key areas and study sites (upland sites) are resisting accelerated erosion, maintain productivity, and sustaining the hydrologic cycle. Vegetative ground cover was measured within or exceeded the expected cover of the Ecological Site Descriptions (ESD) at all sites except SS-07-SS. Additionally, soils are also protected by rocks, biological crusts, and litter. Measured ground cover is summarized in Table 4.1 (Appendix I).

Key area SS-01 occurs on a Linoyer-Kunzler soil association (3974; NRCS 2002) with a Silty 8-10" P.Z. ecological site (028BY013NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 14 percent with an herbaceous litter cover of 6 percent, and a woody litter cover of 3 percent.

Key area SS-02 occurs on an Ursin-Veet-Armespan soil association (3310; NRCS 2002) with a Sandy Loam 8-12" P.Z. ecological site (029XY049NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-25 percent. Monitoring data indicate that this key area has a vegetative cover of 24 percent with a rock cover of 9 percent, an herbaceous litter cover of 7 percent, and a woody litter cover of 1 percent.

Key area SS-03 occurs on a Penoyer-Geer soil association (3190; NRCS 2002) with a Silty 5-8" P.Z. ecological site (029XY020NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 15 percent with an herbaceous litter cover of 13 percent.

Key area SS-05 occurs on Linoyer very fine sandy loam soil (3972; NRCS 2002) with a Silty 8-10" P.Z. ecological site (028BY013NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 77 percent with a biological crust cover of 1 percent, an herbaceous litter cover of 27 percent, and a woody litter cover of 7 percent.

Study site SS-06-SS occurs on a Palinor-Parisa soil association (3302; NRCS 2002) with a Shallow Calcareous Loam 8-10" P.Z. ecological site (028BY011NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 48 percent with a rock cover of 9 percent, a biological crust cover of 3 percent, an herbaceous litter cover of 7 percent, and a wood litter cover of 4 percent.

Study site SS-07-SS occurs on a Handpah-Watoopah-Candelaria soil association (3335; NRCS 2002) with a Shallow Calcareous Loam 8-12" P.Z. ecological site (029XY008NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is

20-30 percent. Monitoring data indicate that this key area has a vegetative cover of 18 percent with a rock cover of 12 percent, an herbaceous litter cover of 1 percent and a woody litter cover of 3 percent. While the vegetative cover is lower than expected, the site appears to be stable.

Key area SSCV-02 occurs on a Chuffa-Linoyer-Playas soil complex (2071; NRCS 2007) with a Silty 8-10" P.Z. ecological site (028AY030NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 5-15 percent. Monitoring data indicate that this key area has a vegetative cover of 17 percent with an herbaceous litter cover of 13 percent and a woody litter cover of 2 percent.

Key area SSCV-03 occurs on a Heist soil association (1340; NRCS 2007) with a Loamy 8-10" P.Z. ecological site (028AY015NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-25 percent. Monitoring data indicate that this key area has a vegetative cover of 32 percent with a rock cover of 3 percent, a biological crust cover of 6 percent, an herbaceous litter cover of 8 percent, and a woody litter cover of 8 percent.

Key area SSCV-04 occurs on a Littleailie-Lojet soil association (2123; NRCS 2007) with a Shallow Calcareous Loam 8-12" P.Z. ecological site (029XY008NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 20-30 percent. Monitoring data indicate that this key area has a vegetative cover of 40 percent with a rock cover of 17 percent, a biological crust cover of 1 percent, an herbaceous litter cover of 4 percent, and a woody litter cover of 2 percent.

Key area SSCV-05 occurs on a Chuffa-Linoyer-Playas soil complex (2071; NRCS 2007) with a Silt Flat ecological site (028AY001NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 5-10 percent. Monitoring data indicate that this key area has a vegetative cover of 38 percent with an herbaceous litter cover of 9 percent and a woody litter cover of 2 percent.

The 2006 Whipple, King, and Hot Flash Fires have lowered the percent ground cover on these burned portions of the Sunnyside Allotment. The 2006 Whipple Fire has a perennial species cover of 2.33 percent in the seeded portion, 9.00 percent in the unseeded portion, and 12.56 percent in the AA plots (additional aerial seeding plots). This burn had a three-year recovery objective of 5 percent ground cover. The 2006 King Fire has a perennial species cover of 0.67 percent in the seeded portion, 24.00 percent in the unseeded portion, and 12.88 percent in the AA plots. This burn had a three-year recovery objective of 15 percent ground cover. The 2006 Hot Flash Fire has a perennial species cover of 0.00 percent in the seeded and unseeded portions, and 0.25 percent in the AA plots. This burn had a three-year recovery objective of 15 percent ground cover. The Whipple and King burned areas are largely meeting these recovery objectives. The Hot Flash burned area is not meeting this recovery objective (Section 7, Appendix I).

Soil compaction and displacement are likely near watering sites and trails used by livestock. The degree and magnitude of impacts from livestock use are expected to be localized near trails and watering sites and are not expected to alter soil productivity or increase erosion potential. Minimal impacts to localized physical soil characteristics would not alter the infiltration or

percolation rates of the soils in the project areas. As such, impacts to the soil resources resulting from livestock grazing would not affect the physical, chemical, or biological processes on or within the soil horizons.

Two spring-fed riparian areas are known to exist on the Sunnyside Allotment. Trough Spring is currently a lotic system of approximately 680 feet. The Trough Spring riparian area was found to be in proper functioning condition in 2009. Sidehill Spring is a developed spring with a small lentic riparian system occurring above the development. The Sidehill Spring riparian area was found to be in proper functioning condition in 2009.

Maintaining adequate ground cover at upland sites facilitate the Sunnyside Allotment in dissipating energies from overland flow events thus preventing accelerated erosion. Proper ground cover also indicates that the area is able to sustain watershed function. Riparian areas also have adequate stream bank stability. Overall, the Sunnyside Allotment is achieving the Soils Standard. The Hot Flash Pasture is not maintaining adequate ground cover to meet this standard.

Hardy Spring Allotment

Determination:

X Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

□ Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Within the Hardy Spring Allotment, monitoring data, photo documentation, and professional observations show that the allotment is meeting the Soils Standard. The key areas and study sites (upland sites) are resisting accelerated erosion, maintain productivity, and sustaining the hydrologic cycle. Vegetative ground cover was measured within or exceeded the expected cover of the ESD at all sites. Additionally, soils are also protected by rocks, biological crust, and litter. Measured ground cover is summarized in Table 4.1 (Appendix I).

Key area HS-02 occurs on Palinor very gravelly loam (3300; NRCS 2002) with a Shallow Calcareous Loam 8-10” P.Z. ecological site (028BY011NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 33 percent with a rock cover of 11 percent, a biological crust cover of 2 percent, an herbaceous litter cover of 2 percent, and a woody litter cover of 3 percent.

Key area HS-03 occurs on a Linoyer-Revel soil association (3970; NRCS 2002) with a Silty 8-10” P.Z. ecological site (028BY013NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data

indicate that this key area has a vegetative cover of 14 percent with a biological crust cover of 1 percent, an herbaceous litter cover of 24 percent, and a woody litter cover of 9 percent.

Key area HS-05 occurs on a Linoyer-Kunzler soil association (3974; NRCS 2002) with a Silty 8-10" P.Z. ecological site (028BY013NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 29 percent with an herbaceous litter cover of 12 percent and a woody litter cover of 1 percent.

Key area HS-07 occurs on a Duffer-Equis soil association (3280; NRCS 2002) with a Saline Meadow ecological site (028BY002NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-25 percent. Monitoring data indicate that this key area has a vegetative cover of 74 percent with an herbaceous litter cover of 19 percent.

Study site HS-08-SS occurs on a Kunzler, dry-Syxomat soil association (3211; NRCS 2002) with a Loamy 8-10" P.Z. ecological site (028BY010NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 34 percent with a biological crust cover of 2 percent, an herbaceous litter cover of 7 percent and a woody litter cover of 8 percent.

Key area HS-09 occurs on Palinor very gravelly loam (3300; NRCS 2002) with a Shallow Calcareous Loam 8-10" P.Z. ecological site (028BY011NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 40 percent with a rock cover of 14 percent, an herbaceous litter cover of 7 percent and a woody litter cover of 3 percent.

Study site HS-10-SS occurs on a Handpah-Palinor-Parisa soil association (3334; NRCS 2002) with a Shallow Calcareous Loam 8-10" P.Z. ecological site (028BY011NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 36 percent with a rock cover of 17 percent, an herbaceous litter cover of 3 percent and a woody litter cover of 1 percent.

The 2006 Gubler Fire has lowered the percent ground cover on this portion of the Hardy Spring Allotment. This fire has a perennial species cover of 0.67 percent in the seeded portion, 0.00 percent in the unseeded portion, and 4.91 percent in the AA plots. Also within the basin big sagebrush hand seeding treatment area (which was also aerially seeded), the perennial species cover is 11.83 percent in the seeded plots and 11.67 percent in the unseeded plots. This burned area had a three-year recovery objective of 10 percent canopy cover. Portions of this area are not meeting this recovery objective (Section 7, Appendix I). This fire burned less than one percent of the Hardy Spring Allotment

Soil compaction and displacement are likely near watering sites and trails used by livestock. The degree and magnitude of impacts from livestock use are expected to be localized near trails and watering sites and are not expected to alter soil productivity or increase erosion potential.

Minimal impacts to localized physical soil characteristics would not alter the infiltration or percolation rates of the soils in the project areas. As such, impacts to the soil resources resulting from livestock grazing would not affect the physical, chemical, or biological processes on or within the soil horizons.

No riparian areas are known to exist on public land in the Hardy Spring Allotment.

Maintaining adequate ground cover at all upland sites facilitate the Hardy Spring Allotment in dissipating energies from overland flow events thus preventing accelerated erosion. Proper ground cover also indicates that the area is able to sustain watershed function. Therefore, the Hardy Spring Allotment is achieving the Soils Standard.

Shingle Pass Allotment

Determination:

□ Achieving the Standard

X Not Achieving the Standard, but making significant progress towards

□ Not Achieving the Standard, and not making significant progress toward standard

Causal Factors:

X Livestock are a causal factor to not achieving the standard.

□ Livestock are not a causal factor to not achieving the standard

X Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Within the Shingle Pass Allotment, monitoring data, photo documentation, and professional observations show that the allotment is not meeting the Soils Standard due to exposed stream banks. The key areas (upland sites) are resisting accelerated erosion, maintain productivity, and sustaining the hydrologic cycle. Vegetative ground cover was measured within or exceeded the expected cover of the ESD at all sites. Additionally, soils are also protected by rocks, biological crust, and litter. Measured ground cover is summarized in Table 4.1 (Appendix I).

Key area SSCV-01 occurs on a Heist soil association (1340; NRCS 2007) with a Loamy 8-10" P.Z. ecological site (028AY015NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 10-25 percent. Monitoring data indicate that this key area has a vegetative cover of 38 percent with a rock cover of 3 percent, an herbaceous litter cover of 7 percent, and a woody litter cover of 2 percent.

Key area SHP-01 occurs on a Palinor-Urmafot-Urmafot soil association (1211; NRCS 2007) with a Shallow Calcareous Loam 8-10" P.Z. ecological site (028BY011NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 32 percent with a

rock cover of 1 percent, a biological crust cover of 18 percent, and a woody litter cover of 6 percent.

Key area SHP-02 occurs on an Eoj-McIvey soil association (1180; NRCS 1998) with a Claypan 12-14" P.Z. ecological site (028BY037NV). According to the ESD, the approximate vegetative ground cover (basal and crown) for this ecological site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 52 percent with a rock cover of 3 percent, an herbaceous litter cover of 6 percent, and a woody litter cover of 3 percent.

Key area CVE-01 occurs on a Heist soil association (1340; NRCS 2007). This key area is within a crested wheatgrass seeding. Monitoring data indicate that this key area has a vegetative cover of 32 percent with a rock cover of 6 percent, an herbaceous litter cover of 20 percent, and a woody litter cover of 1 percent. This is as expected for this seeding.

Soil compaction and displacement are likely near watering sites and trails used by livestock. The degree and magnitude of impacts from livestock use are expected to be localized near trails and watering sites and are not expected to alter soil productivity or increase erosion potential. Minimal impacts to localized physical soil characteristics would not alter the infiltration or percolation rates of the soils in the project areas. As such, impacts to the soil resources resulting from livestock grazing would not affect the physical, chemical, or biological processes on or within the soil horizons.

Six, spring-fed riparian areas are known to exist on the Shingle Pass Allotment. Little Geyser Spring is currently a small lotic system with a historic development that is no longer functioning. The Little Geyser Spring riparian area was found to be in proper functioning condition in 2009. The old development is obstructing the stream's natural movement and is attracting elk for wallowing and some hoof action on the banks. No sign of livestock use has been observed at Little Geyser Spring.

An unnamed spring (near West Parker Spring) is a small lentic system with exposed banks. This riparian area was found to be functioning at risk with a downward trend in 2009. The riparian area is trampled with a lot of hoof action creating bare banks. This area receives livestock use both from cattle authorized on the Shingle Pass Allotment as well as some drift from the nearby Sheep Pass Allotment. Steps are currently being taken to repair the allotment boundary drift fences. This area would also benefit from fencing and development to prevent overuse of the riparian area.

Parker Springs is a complex of two spring sources. The southern source is currently flowing down a narrow channel with steep banks. This riparian area was found to functioning at risk and the trend was not apparent in 2009. Matted sedges and rushes were noted at the site. Elk and cattle are creating excessive hoof action in the channel, particularly the upper portion of the channel. Again cattle from the neighboring allotment are believed to be using this area as well. The northern source was once developed with a small amount of water currently flowing out of an old pipe, into a silted over trough and across the road and converges with the southern stream. During 2009, this riparian area was found to be in proper functioning condition given its current

capability. The surface water from this complex ends shortly after the two streams come together.

Big Travis Spring is currently a small lotic system which was once developed with water currently flowing out of a pipe. This riparian area was found to be in proper functioning condition in 2009. There were portions with bare banks associated with two elk wallows in the riparian area.

Haggerty Spring is currently a lotic system flowing down Haggerty Wash with an irrigation water diversion. This riparian area associated with the upper reach of this system was found to be functioning at risk with an upward trend in 2009. Bare uplands above the stream banks were identified as a potential risk factor.

Big Spring is currently a lentic system with surface flows and ponding. This riparian area was found to functioning at risk with an upward trend in 2009. The natural flow patterns are altered by a dike and water development. Vehicle access and potential hoof action were identified as risk factors.

Maintaining adequate ground cover at all upland sites facilitate the Shingle Pass Allotment in dissipating energies from overland flow events thus preventing accelerated erosion. Proper ground cover also indicates that the area is able to sustain watershed function. Riparian areas, with the exception of Parker Spring south and the unnamed spring, also have adequate stream bank stability. Therefore, the Shingle Pass Allotment is not achieving the Soils Standard due to exposed stream banks at Parker Spring south and the unnamed spring. The Shingle Pass Allotment is making significant progress towards this standard because most sites have met or moving towards the standard.

Livestock are a significant factor in the non-attainment of this standard, however failure to meet this standard is also related to other issues or concerns (see Part 2 below).

STANDARD 2. ECOSYSTEM COMPONENTS

Watersheds should possess the necessary ecological components to achieve state water quality criteria, maintain ecological processes, and sustain appropriate uses. Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).

Upland Indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to the potential of the ecological site.
- Ecological processes are adequate for the vegetative communities.

Riparian Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.

- Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
    - Width/Depth ratio;
    - Channel roughness;
    - Sinuosity of stream channel;
    - Bank stability;
    - Vegetative cover (amount, spacing, life form); and
    - Other cover (large woody debris, rock).
- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Water Quality Indicators:

- Chemical, physical and biological constituents do not exceed the state water quality standards.

The above indicators shall be applied to the potential of the ecological site.

Discussion:
Ecological processes are defined by the Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area as **"**Natural functions including the hydrologic cycle, the nutrient cycle, and energy flow (see also 43 CFR 4180.1(b))." Proper ground cover is generally indicative of adequate ecological processes. Ground cover allows for soil surface stability and infiltration in the hydrological cycle so that water is able to continue to flow through the ecosystem. Litter and plant root systems return organic matter and other nutrients to the soil in the nutrient cycle. Vegetative cover also allows energy to continue to flow through the ecosystem because the plants capture the sun's energy converting it into usable forage for herbivores is in the food chain.

Sunnyside Allotment
Determination:
X Achieving the Standard
□ Not Achieving the Standard, but making significant progress towards
□ Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:
X In conformance with the Guidelines
□ Not in conformance with the Guidelines

Conclusion:
Within the Sunnyside Allotment, monitoring data and professional observations show that the upland sites are maintaining appropriate ground cover for the ecological sites. Upland site cover data is summarized above under Standard 1 (Soils) and in Table 4.1 (Appendix I).

Throughout the Sunnyside Allotment, fire is a natural component of the ecosystem and affects the ecological processes. Fire initially reduces vegetative cover resulting in increased potential for runoff and soil erosion. Fire alters kinds, amounts, and distribution of vegetation on a site which in turn alters the amount of organic matter and other nutrients being returned to the soil. As the recently burned areas continue to recover from the fire events, these impacts to the ecological processes will be lessened.

Two, spring-fed riparian areas are known to exist on the Sunnyside Allotment. Trough Spring and Sidehill Spring riparian areas are described above under Standard 1 (Soils) and in Table 8.1 (Appendix I). Both areas were found to be in proper functioning condition in 2009.

Water quality data has not been collected on the Sunnyside Allotment, however no water quality problems are known to exist.

Maintaining adequate ground cover at upland sites suggests that the Sunnyside Allotment is able to maintain ecological processes and sustain appropriate uses. Riparian areas in the Sunnyside Allotment are in proper functioning condition. Overall, the Sunnyside Allotment is achieving the Ecosystem Components Standard. The Hot Flash Pasture is not maintaining adequate ground cover to support the ecological processes and meet this standard.

Hardy Spring Allotment

Determination:

X Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

□ Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Within the Hardy Spring Allotment, monitoring data and professional observations show that the sites are maintaining appropriate ground cover for the ecological sites. Upland site cover data is summarized above under Standard 1 (Soils) and in Table 4.1 (Appendix I).

On the Hardy Spring Allotment, fire is a natural component of the ecosystem and affects the ecological processes. Fire initially reduces vegetative cover resulting in increased potential for runoff and soil erosion. Fire alters kinds, amounts, and distribution of vegetation on a site which in turn alters the amount of organic matter and other nutrients being returned to the soil. As the recently burned areas continue to recover from the fire events, these impacts to the ecological processes will be lessened.

No public riparian areas are known to exist on the Hardy Spring Allotment.

Maintaining adequate ground cover at all upland sites suggests that the Hardy Spring Allotment is able to maintain ecological processes and sustain appropriate uses. Therefore, the Hardy Spring Allotment is achieving the Ecosystem Components Standard.

Shingle Pass Allotment

Determination:

□ Achieving the Standard

X Not Achieving the Standard, but making significant progress towards

□ Not Achieving the Standard, and not making significant progress toward standard

Causal Factors:

X Livestock are a causal factor to not achieving the standard.

□ Livestock are not a causal factor to not achieving the standard

X Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Within the Shingle Pass Allotment, monitoring data and professional observations show that the sites are maintaining appropriate ground cover for the ecological sites. Upland site cover data is summarized above under Standard 1 (Soils) and in Table 4.1 (Appendix I).

Six, spring-fed riparian areas are known to exist on the Shingle Pass Allotment. These riparian areas are described above under Standard 1 (Soils) and in Table 8.1 (Appendix I). Little Geyser Spring, Parker Spring north, and Big Travis Spring riparian areas were found to be in proper functioning condition in 2009. Haggerty Spring/Wash and Big Spring riparian areas were found to be functioning at risk with an upward trend in 2009. Parker Spring south riparian area was found to be functioning at risk and the trend was not apparent in 2009. The unnamed spring was found to be functioning at risk with a downward trend in 2009.

Water quality data has not been collected on the Shingle Pass Allotment, however no water quality problems are known to exist.

Maintaining adequate ground cover at all upland sites suggests that the Shingle Pass Allotment is able to maintain ecological processes and sustain appropriate uses. Riparian areas in the Shingle Pass Allotment are in proper functioning condition or functioning at risk. Parker Spring south and the unnamed spring are the only riparian areas that are not progressing towards proper functioning condition. Therefore, the Shingle Pass Allotment is not achieving the Ecosystem Components Standard due to poor riparian conditions at Parker Spring south and the unnamed spring. The Shingle Pass Allotment is making significant progress towards this standard because most of these sites are meeting or moving towards the standard.

Livestock are a significant factor in the non-attainment of this standard, however failure to meet this standard is also related to other issues or concerns (see Part 2 below).

STANDARD 3. HABITAT AND BIOTA

Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.

Habitat Indicators:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, and age classes);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

Wildlife Indicators:

- Escape terrain;
- Relative abundance;
- Composition;
- Distribution;
- Nutritional value; and
- Edge-patch snags.

The above indicators shall be applied to the potential of the ecological site.

Sunnyside Allotment

Determination:

□ Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

X Not Achieving the Standard, and not making significant progress toward standard

Causal Factors:

□ Livestock are a causal factor to not achieving the standard.

X Livestock are not a causal factor to not achieving the standard

X Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Rangeland monitoring data (Appendix I) and professional observations indicate that vegetation structure, distribution, and productivity on the Sunnyside Allotment are consistent with the Rangeland Ecological Site Descriptions (ESD). However, vegetative composition differs from the ESD, generally with percent composition by weight showing shrubs are higher than what is expected while grasses are lower when compared to the historic climax plant community (HCPC) in the ESD.

Key area SS-01 occurs on a Silty (028BY013NV) ecological site. The expected vegetative composition by weight for this ecological site is 30 percent grasses, 5 percent forbs, and 65 percent shrubs. Composition by weight measured at SS-01 in 2009 was trace amount grasses, 6 percent forbs, and 94 percent shrubs. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The annual total production was measured at 517 pounds per acre in 2009. Similarity index for this key area was calculated to be 51 percent.

Key area SS-02 occurs on a Sandy Loam (029XY049NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 5 percent forbs, and 45 percent shrubs. Composition by weight measured at SS-02 in 2009 was 1 percent grasses, a trace amount of forbs, and 99 percent shrubs. Total annual production expected for this ecological site is 1,100 pounds per acre on a favorable year, 800 pounds per acre on a normal year, and 500 pounds per acre on an unfavorable year. The total annual production was measured at 1,199 pounds per acre in 2009. Similarity index for this key area was calculated to be 31 percent.

Key area SS-03 occurs on a Silty (029XY020NV) ecological site. The expected vegetative composition by weight for this ecological site is 20 percent grasses, 5 percent forbs, and 70 percent shrubs. Composition by weight measured at SS-03 in 2009 was a trace amount of forbs and 100 percent shrubs. Total annual production expected for this ecological site is 500 pounds per acre on a favorable year, 350 pounds per acre on a normal year, and 200 pounds per acre on an unfavorable year. The total annual production was measured at 289 pounds per acre in 2009. Similarity index for this key area was calculated to be 80 percent.

Key area SS-05 occurs on a Silty (028BY013NV) ecological site. The expected vegetative composition by weight for this ecological site is 30 percent grasses, 5 percent forbs, and 65 percent shrubs. Composition by weight measured at SS-05 in 2009 was 5 percent forbs and 96 percent shrubs furthermore a trace amount of undesirable species was present. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The total annual production was measured at 598 pounds per acre in 2009. Similarity index for this key area was calculated to be 52 percent.

Key area SSCV-02 occurs on a Silty (028AY030NV) ecological site. The expected vegetative composition by weight for this ecological site is 30 percent grasses, 5 percent forbs, and 65 percent shrubs. Composition by weight measured at SSCV-02 in 2009 was 1 percent grasses, a trace amount of forbs, and 99 percent shrubs. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The total annual production was measured at 1,105 pounds per acre in 2009. Similarity index for this key area was calculated to be 64 percent.

Key area SSCV-03 occurs on a Loamy (028AY015NV) ecological site. The expected vegetative composition by weight for this ecological site is 55 percent grasses, 5 percent forbs, and 40 percent shrubs. Composition by weight measured at SSCV-03 in 2009 was 1 percent grasses and

99 percent shrubs. Total annual production expected for this ecological site is 800 pounds per acre on a favorable year, 600 pounds per acre on a normal year, and 400 pounds per acre on an unfavorable year. The total annual production was measured at 1,455 pounds per acre in 2009. Similarity index for this key area was calculated to be 36 percent.

Key area SSCV-04 occurs on a Shallow Calcareous Loam (029XY008NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 5 percent forbs, and 45 percent shrubs. Composition by weight measured at SSCV-04 in 2009 was 7 percent grasses, 7 percent forbs, and 86 percent shrubs. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 250 pounds per acre on an unfavorable year. The total annual production was measured at 566 pounds per acre in 2009. Similarity index for this key area was calculated to be 62 percent.

Key area SSCV-05 occurs on a Silt Flat (028AY001NV) ecological site. The expected vegetative composition by weight for this ecological site is 20 percent grasses, 5 percent forbs, and 75 percent shrubs. Composition by weight measured at SS-03 in 2009 was 1 percent grasses and 99 percent shrubs. Total annual production expected for this ecological site is 450 pounds per acre on a favorable year, 325 pounds per acre on a normal year, and 150 pounds per acre on an unfavorable year. The total annual production was measured at 594 pounds per acre in 2009. Similarity index for this key area was calculated to be 73 percent.

This key area analysis indicates that the Sunnyside Allotment is transitioning towards a shrub dominate state, different from the HCPC described in the respective ESDs. Many areas have most likely already completed this transition and may no longer be accurately represented by HCPC of the ESD for these sites. This is further represented by the low similarity indexes found at some key areas. Other key areas are still supporting the major vegetative species of the HCPC, however they are occurring at a differing proportion. As this transition continues to occur, these plant communities may also no longer be accurately represented by the HCPC. This transition is most likely due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation.

The three-year recovery objectives for the Whipple, King, and Hot Flash Fires established an objective of an average of four permanently established desirable perennial plants per square meter. The Whipple Fire is meeting this objective with up to 17 plants per square meter. The King Fire is meeting this objective with up to 14 plants per square meter. The Hot Flash Fire is not meeting this objective with about one plant per square meter.

On the Sunnyside Allotment, habitat for several BLM special status species is known to exist (Appendix III).

Vegetative structure, distribution, and productivity are as expected across the Sunnyside Allotment. However, vegetative composition is trending toward shrub dominance. The Whipple and King burned areas are recovering as expected, however the Hot Flash burned area is not. The Sunnyside Allotment is not achieving the Habitat and Biota Standard due to shrub

dominance and poor recovery of the Hot Flash burned area. There is also no evidence that the area is making significant progressing towards meeting this standard.

Hardy Spring Allotment

Determination:

□ Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

X Not Achieving the Standard, and not making significant progress toward standard

Causal Factors:

□ Livestock are a causal factor to not achieving the standard.

X Livestock are not a causal factor to not achieving the standard

X Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion:

Rangeland monitoring data (Appendix I) and professional observations indicate that vegetation structure, distribution, and productivity on the Hardy Spring Allotment are consistent with the ESD and/or expected plant community for the area. However, vegetative composition differs from the ESD, generally with percent composition by weight showing shrubs are higher than what is expected while grasses are lower when compared to the HCPC in the ESD.

Key area HS-03 occurs on a Silty (028BY013NV) ecological site. The expected vegetative composition by weight for this ecological site is 30 percent grasses, 5 percent forbs, and 65 percent shrubs. Composition by weight measured at HS-03 in 2009 was 2 percent forbs and 98 percent shrubs. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The total annual production was measured at 358 pounds per acre in 2009. Similarity index for this key area was calculated to be 53 percent.

Key area HS-05 occurs on a Silty (028BY013NV) ecological site. The expected vegetative composition by weight for this ecological site is 30 percent grasses, 5 percent forbs, and 65 percent shrubs. Composition by weight measured at HS-05 in 2009 was 1 percent grasses and 99 percent shrubs furthermore a trace amount of undesirable species was present. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The total annual production was measured at 671 pounds per acre in 2009. Similarity index for this key area was calculated to be 52 percent.

Key area HS-07 occurs on a Saline Meadow (028BY002NV) ecological site. The expected vegetative composition by weight for this ecological site is 85 percent grasses, 10 percent forbs, and 5 percent shrubs. Composition by weight measured at HS-07 in 2009 was 83 percent grasses and grass-like species and 17 percent forbs. Total annual production expected for this ecological

site is 1,500 pounds per acre on a favorable year, 1,000 pounds per acre on a normal year, and 700 pounds per acre on an unfavorable year. The total annual production was measured at 306 pounds per acre in 2009. Similarity index for this key area was calculated to be 51 percent.

Key area HS-09 occurs on a Shallow Calcareous Loam (028BY011NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 5 percent forbs, and 45 percent shrubs. Composition by weight measured at HS-09 in 2009 was 3 percent grasses, 3 percent forbs, and 94 percent shrubs furthermore 1 percent was undesirable species. Total annual production expected for this ecological site is 600 pounds per acre on a favorable year, 450 pounds per acre on a normal year, and 250 pounds per acre on an unfavorable year. The total annual production was measured at 733 pounds per acre in 2009. Similarity index for this key area was calculated to be 43 percent.

This key area analysis indicates that most key areas are transitioning towards a shrub dominate state, different from the HCPC described in the respective ESDs (except HS-07). As this transition occurs, these plant communities may no longer be accurately represented by the HCPC. Currently, these key areas are supporting the major vegetative species of the HCPC, however they are occurring at a differing proportion. This transition is most likely due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation.

The three-year recovery objectives for the Gubler Fire established an objective of an average of four permanently established desirable perennial plants per square meter. This burned area is not meeting this objective with less than one plant per square meter.

On the Hardy Spring Allotment, habitat for several BLM special status species is known to exist (Appendix III).

Vegetative structure, distribution, and productivity are as expected across the Hardy Spring Allotment, with the exception of the low production at HS-07. However, vegetative composition is trending toward shrub dominance. The Gubler burned area is not recovering as expected. The Hardy Spring Allotment is not achieving the Habitat and Biota Standard due to shrub dominance, low productivity at HS-07, and poor recovery of the Gubler burned area. There is also no evidence that the area is making significant progressing towards meeting this standard.

Shingle Pass Allotment

Determination:

□ Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards

X Not Achieving the Standard, and not making significant progress toward standard

Causal Factors:

□ Livestock are a causal factor to not achieving the standard.

X Livestock are not a causal factor to not achieving the standard

X Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:
X In conformance with the Guidelines
□ Not in conformance with the Guidelines

Conclusion:
Rangeland monitoring data (Appendix I) and professional observations indicate that vegetation structure, distribution, and productivity on the Shingle Pass Allotment are consistent with the ESD and/or expected plant community for the area. However, vegetative composition differs from the ESD, generally with percent composition by weight showing shrubs are higher than what is expected while grasses are lower when compared to the HCPC in the ESD.

Key area SSCV-01 occurs on a Loamy (028AY015NV) ecological site. The expected vegetative composition by weight for this ecological site is 55 percent grasses, 5 percent forbs, and 40 percent shrubs. Composition by weight measured at SSCV-01 in 2009 was 23 percent grasses, 2 percent forbs, and 77 percent shrubs furthermore a trace amount of undesirable species was present. Total annual production expected for this ecological site is 800 pounds per acre on a favorable year, 600 pounds per acre on a normal year, and 400 pounds per acre on an unfavorable year. The total annual production was measured at 1,037 pounds per acre in 2009. Similarity index for this key area was calculated to be 42 percent.

Key area SHP-01 occurs on a Shallow Calcareous Loam (028BY011NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 5 percent forbs, and 45 percent shrubs. Composition by weight measured at SHP-01 in 2009 was 1 percent grasses, 3 percent forbs, and 96 percent shrubs. Total annual production expected for this ecological site is 600 pounds per acre on a favorable year, 450 pounds per acre on a normal year, and 250 pounds per acre on an unfavorable year. The total annual production was measured at 623 pounds per acre in 2009. Similarity index for this key area was calculated to be 41 percent.

Key area SHP-02 occurs on a Claypan (028BY037NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 10 percent forbs, and 40 percent shrubs. Composition by weight measured at SHP-02 in 2009 was 9 percent grasses, 4 percent forbs, and 86 percent shrubs. Total annual production expected for this ecological site is 800 pounds per acre on a favorable year, 600 pounds per acre on a normal year, and 400 pounds per acre on an unfavorable year. The total annual production was measured at 1,132 pounds per acre in 2009. Similarity index for this key area was calculated to be 50 percent.

Key area CVE-01 occurs on a crested wheatgrass seeding. The vegetative composition by weight measured at this site in 2009 was 72 percent grasses and 28 percent shrubs. The total annual production was measured at 1,521 pounds per acre in 2009. This is similar to expected conditions on this seeding. The area is becoming encroached with shrubs.

This key area analysis indicates that key areas are transitioning towards a shrub dominate state, different from the HCPC described in the respective ESDs. As this transition occurs, these plant communities may no longer be accurately represented by the HCPC. Currently, these key areas are supporting the major vegetative species of the HCPC, however they are occurring at a

differing proportion. This transition is most likely due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation. Also pinyon-juniper encroachment has been observed over large portions of this allotment.

On the Shingle Pass Allotment, habitat for several BLM special status species is known to exist (Appendix III).

Vegetative structure, distribution, and productivity are as expected across the Shingle Pass Allotment. However, vegetative composition is trending toward shrub dominance. The Shingle Pass Allotment is not achieving the Habitat and Biota Standard due to shrub dominance and pinyon-juniper encroachment. There is also no evidence that the area is making significant progressing towards meeting this standard.

SUMMARY OF STANDARD ACHIEVEMENT

Table 2—Summary of Standard Achievement

ALLOTMENT	STANDARD 1 Soils	STANDARD 2 Ecosystem Components	STANDARD 3 Habitat and Biota
Sunnyside (21023)	Achieving the Standard	Achieving the Standard	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor
Hardy Spring (11022)	Achieving the Standard	Achieving the Standard	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor
Shingle Pass (00906)	Not Achieving the Standard but making progress towards; Livestock are a significant factor	Not Achieving the Standard but making progress towards; Livestock are a significant factor	Not Achieving the Standard and not making progress towards; Livestock are not a significant factor

Definitions per the BLM Manual H-4180-1 – Rangeland Health Standards (1/19/01)
Significant Progress: Movement toward meeting standards and conforming to guidelines that is acceptable in terms of rate and magnitude. Acceptable levels of rate and magnitude must be realistic in terms of the capability of the resource, but must also be as expeditious and effective as practical.
Significant Factor: Principal causal factor in the failure to achieve the land health standard(s) and conform with the guidelines. A significant factor would typically be a use that, if modified, would enable an area to achieve or make significant progress toward achieving the land health standard(s). To be a significant factor, a use may be one of several causal factors contributing to less-than-healthy conditions; it need not be the sole causal factor inhibiting progress towards the standards.

PART 2—ARE LIVESTOCK A CONTRIBUTING FACTOR TO NOT MEETING THE STANDARDS? SUMMARY REVIEW:

According to the Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area, it must be determined if livestock grazing is a significant factor in the non-attainment of the Standards and Guidelines (BLM 2006).

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Sunnyside Allotment

Livestock use over the past ten years on the Sunnyside Allotment has been below permitted levels and often considerably lower (Table 2.1, Appendix I) because the livestock operator has voluntarily reduced the overall herd size to accommodate drought-like conditions across the allotments in recent years. Utilization across the allotment has been slight to heavy (Table 3.1, Appendix I). Heavy and severe utilization was measured within the Seaman Range HA prior to the 2009 wild horse gather. The 2009 gather is anticipated to resolve this over utilization problem.

Standard #1: Soils

The Soils Standard is being achieved on the Sunnyside Allotment with the exception of the Hot Flash Pasture. This pasture is not meeting this standard due to poor post-fire recovery.

Standard #2: Ecosystem Components

The Ecosystem Components Standard is being achieved on the Sunnyside Allotment with the exception of the Hot Flash Pasture. This pasture is not meeting this standard due to poor post-fire recovery.

Standard #3: Habitat and Biota

The Habitat and Biota Standard is not being achieved on the Sunnyside Allotment due to high shrub composition and poor recovery of the Hot Flash burned area. Slight to moderate utilization levels outside of the Seaman Range HA and years of reduced livestock numbers indicate that current livestock grazing is not a significant factor in the non-attainment of this standard across much of the allotment. Most likely this is due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation.

Within the Golden Gate and Seaman Range HAs, wild horses were over AML throughout this evaluation period and are considered a significant contributing factor to heavy and severe utilization in the White River portion of the Sunnyside Allotment. Since the wild horse gather of August 2009, it is predicted that wild horses would no longer be a significant contributing factor to not meeting this standard and allow for further progression towards achievement of this standard.

Hardy Spring Allotment

Livestock use over the past ten years on the Hardy Spring Allotment has been below permitted levels and often considerably lower (Table 2.1, Appendix I) because the livestock operator has voluntarily reduced the overall herd size to accommodate drought-like conditions across the allotments in recent years. Utilization across the allotment has been slight to severe (Table 3.1, Appendix I). Heavy and severe utilization was measured within the White River HA prior to the 2009 wild horse gather. The 2009 gather is anticipated to resolve this over utilization problem.

Standard #1: Soils

The Soils Standard is being achieved on the Hardy Spring Allotment.

Standard #2: Ecosystem Components

The Ecosystem Components Standard is being achieved on the Hardy Spring Allotment.

Standard #3: Habitat and Biota

The Habitat and Biota Standard is not being achieved on the Hardy Spring Allotment due to shrub dominance, low productivity at HS-07, and poor recovery of the Gubler burned area. Slight to moderate utilization levels outside of the White River HA and years of reduced livestock numbers indicate that current livestock grazing is not a significant factor in the non-attainment of this standard across much of the allotment. Most likely this is due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation.

Within the White River HA, wild horses were over AML throughout this evaluation period and are considered a significant contributing factor to heavy and severe utilization in the Lower Cove portion of the Hardy Spring Allotment. Since the wild horse gather of August 2009, it is predicted that wild horses would no longer be a significant contributing factor to not meeting this standard and allow for further progression towards achievement of this standard.

Shingle Pass Allotment

Livestock use over the past ten years on the Shingle Pass Allotment has been below permitted levels and often considerably lower (Table 2.1, Appendix I) because the livestock operator has voluntarily reduced the overall herd size to accommodate drought-like conditions across the allotments in recent years. Utilization across the allotment has been slight to light (Table 3.1, Appendix I).

Standard #1: Soils

The Soils Standard is not being achieved on the Shingle Pass Allotment due to exposed stream banks Parker Spring south and the unnamed spring. Livestock have been identified as a significant factor in the non-attainment of this standard at these two riparian areas. Livestock from both the Shingle Pass Allotment and the adjacent Sheep Pass Allotment use this area. Steps are currently being taken to repair the drift fences in the area to reduce livestock use from the adjacent allotment. Other factors in the non-attainment of this standard include elk use and variable precipitation.

Standard #2: Ecosystem Components

The Ecosystem Components Standard is not being achieved on the Shingle Pass Allotment due to Parker Spring south and the unnamed spring functioning at risk with a downward trend. Livestock have been identified as a significant factor in the non-attainment of this standard at these two riparian areas. Livestock from both the Shingle Pass Allotment and the adjacent Sheep Pass Allotment use this area. Steps are currently being taken to repair the drift fences in the area to reduce livestock use from the adjacent allotment. Other factors in the non-attainment of this standard include elk use and variable precipitation.

Standard #3: Habitat and Biota

The Habitat and Biota Standard is not being achieved on the Shingle Pass Allotment due to high shrub composition and pinyon-juniper encroachment. Slight to light utilization levels and years of reduced livestock numbers indicate that current livestock grazing is not a significant factor in the non-attainment of this standard. Most likely this is due to altered natural disturbance regimes, past historic overgrazing, and/or variable precipitation.

PART 3—GUIDELINE CONFORMANCE REVIEW AND SUMMARY

Grazing is in conformance with all applicable Guidelines as provided in the Mojave-Southern Great Basin Standards and Guidelines on the Sunnyside, Hardy Spring, and Shingle Pass Allotments.

PART 4—MANAGEMENT PRACTICES TO CONFORM WITH GUIDELINES AND ACHIEVE STANDARDS

Recommendations:

1. Continue rangeland monitoring of the Sunnyside, Hardy Spring, and Shingle Pass Allotments for livestock in compliance with proper allowable use levels and vegetative condition.

2. Land treatments/range improvement projects may be appropriate to prevent portions of the Sunnyside, Hardy Spring, and Shingle Pass Allotments from completing the transition into an altered, shrub-dominate or pinyon-juniper state. Treatments may also be appropriate to restore shrub-dominated sites and/or pinyon-juniper encroached sites.

3. Fencing and development of springs in the Parker Mountain area is recommended to provide reliable stockwater and protect or improve riparian areas, especially at Parker Springs, and the unnamed spring.

4. Reopen the Whipple and King burned areas to livestock grazing because resource objectives have been met and no concerns were identified on the site visits. This would close out the Livestock Closure Agreements for these fires. The interdisciplinary team also recommends that no changes in management that will result in increased livestock concentration on the burn be made at this time (i.e. establishment of water haul site in the area, etc.). These are currently areas of light livestock use.

5. Provide prescribed grazing of the Hot Flash Pasture for the control of the invasive annual grass, cheatgrass. By controlling cheatgrass in the Hot Flash Pasture, it will be able to progress towards a healthy crested wheatgrass community while reducing the risk of another wildfire in the area. The permittee and the assigned rangeland management specialist will work together cooperatively on an annual basis to implement a high intensity/short duration prescribed grazing treatment on the Hot Flash Pasture of the Sunnyside Allotment, as follows:

   Approximately 200 head of cattle will be allowed to graze in the Hot Flash Pasture beginning when cheatgrass emerges in early spring, as determined annually by the assigned rangeland management specialist, or no later than March 15. The area will be evaluated regularly during grazing to determine that utilization on crested wheatgrass does not exceed 40 percent of the current year's growth. Once this threshold is reached, the permittee will remove all livestock within two days and will keep all livestock off the pasture for the remainder of the growing season.

   If sufficient fall moisture causes a fall emergence of cheatgrass, a second grazing treatment may occur as long as seed dissemination on crested wheatgrass has occurred prior to turn out. When fall use is authorized, utilization on crested wheatgrass will not exceed 55 percent of the current year's growth. Once this threshold is reached, the permittee will remove all livestock within two days.

   The Hot Flash Pasture will be monitored regularly during the treatment to ensure that over utilization of desirable species does not occur. This pasture will be evaluated after five years to determine treatment success and incorporate any needed modifications to this agreement and the management of the Hot Flash Pasture.

   To ensure the success of the treatment, the permittee will continue to provide regular maintenance on the fences and water developments within this pasture as previously agreed upon.

6. The active AUMs are recommended to remain:
   a. Sunnyside: 5402 AUMs
   b. Hardy Spring: 3478 AUMs
   c. Shingle Pass: 2724 AUMs

7. The season of use is recommended to be:
   a. Sunnyside: 06/01 to 10/31 and 12/01 to 03/31
   b. Hardy Spring: 12/01 to 05/15
   c. Shingle Pass: 05/15 to 10/31
   d. These dates have been updated from the current permit to better reflect the grazing system in place on these allotments.

   Cattle will continue to be grazed in two herds, one using the Sunnyside Allotment and the other using the Hardy Spring and Shingle Pass Allotments. Cattle will be in the Cave Valley Pasture of the Sunnyside Allotment and the Shingle Pass Allotment during the

summer and early fall. During winter and early spring, cattle will be in the White River pasture of the Sunnyside Allotment and the Hardy Spring Allotment. All cattle will be kept on private lands in November and in April/May the southern herd will be on private lands.

8. In the Hardy Spring Allotment, livestock will be removed from the Lower Cove after April 1 each year by withholding water at Roirdian's Well and from Lower Perish Spring Pipeline. Herding may also be needed to drift cattle out of the Lower Cove. This area is beginning to show signs of deteriorating range conditions and has been heavily utilized in recent years. Providing this growing season rest will help the area to recover.

9. A 15-day window will be allowed to gather and move livestock when moving from a pasture or an allotment.

10. Cattle will continue to be rotated within the allotments by providing water at different locations at different times. This includes the use of wells, reservoirs, and spring developments.

11. Maximum utilization levels of key forage species on the Sunnyside, Hardy Spring, and Shingle Pass Allotments will be established as follows:
    - Perennial native grasses: 50% of current year's growth
    - Perennial non-native seedings: 65% of current year's growth
    - Perennial shrubs and half-shrubs: 50% use on current annual production.
    - Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.

12. According the licensed use data for the past ten years, grazing use under this permit has been lower than permitted use (Table 2.1). Monitoring data show that current livestock management is yielding acceptable range conditions. Reduced livestock numbers are due to the livestock operator voluntarily reducing the overall herd size to accommodate drought-like conditions across the allotment. As conditions begin to improve, the operator will increase herd size toward the total active preference in order to better utilize available forage across the allotments. As livestock numbers increase, range conditions should be closely monitored to ensure that allowable use levels are met. Especially within wild horse HAs where range conditions have been stressed by over utilization in recent years.

13. The placement of mineral or salt supplements will be a minimum distance of ½ mile from known water sources, riparian areas, winterfat bottoms, sensitive sites, populations of special status species, and cultural resource sites. Mineral and salt blocks will also be one mile from sage grouse leks. Use of nutritional supplements (not forage) is encouraged to improve the ability of livestock to utilize forage and to improve livestock distribution across the allotments.

14. On the Shingle Pass Allotment, the four fenced vegetation treatment (Big Spring Chaining, Upper Seeding, Triangle Seeding, and Freestone Seeding) will continue to be grazed with the surrounding native range until such a time that it is feasible to implement a grazing management system in these areas. Options for improved functionality and upkeep of these fences will continue to be pursued in order to implement a grazing management system.

15. To improve reliable stockwater and facilitate livestock distribution, it is recommended to consider the following projects:
    - Reconstruct the stockwater pond below Cottonwood Spring on Shingle Pass Allotment
    - Collect and pipe water from Haggerty Wash into the Upper Seeding of Shingle Pass Allotment

These recommendations are consistent with the on-going findings and recommendations of the Cave Valley Watershed Analysis in the Cave Valley portion of the Shingle Pass and Sunnyside Allotments.

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SIGNATURE PAGE

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APPENDIX I—DATA SUMMARY

1. Key Areas and Ecological Sites

A key area is a relatively small portion of a pasture or allotment selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the current grazing management over the pasture or allotment as a whole (NRCS 1997). Key areas represent range conditions, trends, seasonal degrees of use, and resource production and values. Table 1.1 depicts key areas and their location within the Sunnyside, Hardy Spring, and Shingle Pass Allotments as well as the ecological site associated with the key area and soil mapping unit of each site (Figure 2, Appendix II). These key areas occur within the Lincoln County, Nevada, North Part Soil Survey (NV784), the Nye County, Nevada, Northeastern Part Soil Survey (NV783), and the Soil Survey of Western White Pine County Area, Nevada (NV780).

An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (NRCS 1997). Ecological Site Descriptions (ESD) are used for inventory, evaluation, and management of native vegetation communities. The ecological site of a key area is determined based on several factors including soils, topography, and plant community.

Table 1.1—Summary of Key Areas and Study Sites

Allotment	Key Area/Study Site	Location	Ecological Site	Dominant Species of HCPC	Soil Mapping Unit
Sunnyside	SS-01	T7N R62E S5	Silty 8-10” P.Z. (028BY013NV)	winterfat and Indian ricegrass	3974—Linoyer-Kunzler association (NV783)
Sunnyside	SS-02	T4N R61E S34	Sandy Loam 8-12” P.Z. (029XY049NV)	Wyoming big sagebursh and Indian ricegrass	3310—Ursine-Veet-Armespan association (NV783)
Sunnyside	SS-03	T3N R62E S21	Silty 5-8” P.Z. (029XY020NV)	winterfat, Indian ricegrass, & squirreltail	3190—Penoyer-Geer association (NV783)
Sunnyside	SS-05	T5N R61E S2	Silty 8-10” P.Z. (028BY013NV)	winterfat and Indian ricegrass	3972—Linoyer very fine sandy loam (NV783)
Sunnyside	SS-06-SS	T4N R61E S19	Shallow Calcareous Loam 8-10” P.Z. (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	3302—Palinor-Parisa association (NV783)
Sunnyside	SS-07-SS	T5N R61E S19	Shallow Calcareous Loam 8-12” P.Z. (029XY008NV)	black sagebrush and Indian ricegrass	3335—Handpah-Watoopah-Candelaria association (NV783)

Table 1.1—Summary of Key Areas and Study Sites

Allotment	Key Area/Study Site	Location	Ecological Site	Dominant Species of HCPC	Soil Mapping Unit
Sunnyside	SSCV-02	T6N R64E S18	Silty 8-10” P.Z. (028AY030NV)	winterfat and Indian ricegrass	2071—Chuffa-Linoyer-Playas complex (NV784)
Sunnyside	SSCV-03	T7N R63E S27	Loamy 8-10” P.Z. (028AY015NV)	Wyoming big sagebrush, Indian ricegrass, & needleandthread	1340—Heist association (NV784)
Sunnyside	SSCV-04	T6N R63E S32	Shallow Calcareous Loam 8-12” P.Z. (029XY008NV)	black sagebrush and Indian ricegrass	2123—Littleailie-Lojet association (NV784)
Sunnyside	SSCV-05	T6N R63E S25	Silt Flat (028AY001NV)	Wyoming big sagebrush, squirreltail, & bluegrass	2071—Chuffa-Linoyer-Playas complex (NV784)
Hardy Spring	HS-02	T9N R62E S19	Shallow Calcareous Loam 8-10” P.Z. (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	3300—Palinor very gravelly loam (NV783)
Hardy Spring	HS-03	T8N R60E S26	Silty 8-10” P.Z. (028BY013NV)	winterfat and Indian ricegrass	3970—Linoyer-Revel association (NV783)
Hardy Spring	HS-05	T8N R62E S7	Silty 8-10” P.Z. (028BY013NV)	winterfat and Indian ricegrass	3974—Linoyer-Kunzler association (NV783)
Hardy Spring	HS-07	T8N R61E S14	Saline Meadow (028BY002NV)	alkali sacaton and alkali cordgrass	3280—Duffer-Equis association (NV783)
Hardy Spring	HS-08-SS	T8N R61E S5	Loamy 8-10” P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, & needleandthread	3211—Kunzler, dry-Sycomat association (NV783)
Hardy Spring	HS-09	T8N R60E S16	Shallow Calcareous Loam 8-10” P.Z. (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	3300—Palinor very gravelly loam (NV783)
Hardy Spring	HS-10-SS	T7N R60E S9	Shallow Calcareous Loam 8-10” P.Z. (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	3334—Handpah-Palinor-Parisa association (NV783)
Shingle Pass	SSCV-01	T7N R64E S3	Loamy 8-10” P.Z. (028AY015NV)	Wyoming big sagebrush, Indian ricegrass, & needleandthread	1340—Heist association (NV784)

Table 1.1—Summary of Key Areas and Study Sites

Allotment	Key Area/Study Site	Location	Ecological Site	Dominant Species of HCPC	Soil Mapping Unit
Shingle Pass	CVE-01	T8N R64E S21	Crested Wheatgrass Seeding	Crested Wheatgrass	1340—Heist association (NV784)
Shingle Pass	SHP-01	T9N R63E S23	Shallow Calcareous Loam 8-10" P.Z. (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	1211—Palinor-Urmafot-Urmafot association (NV784)
Shingle Pass	SHP-02	T10N R63E S33	Claypan 12-14" P.Z. (028BY037NV)	low sagebrush, bluebunch wheatgrass, & needlegrasses	1180—Eoj-McIvey association (NV780)

2. Licensed Livestock Use

Over the grazing seasons from 2000 to 2009, livestock permitted use on the Sunnyside Allotment was 5,402 AUMs, on the Hardy Spring Allotment was 3,478 AUMs, and on the Shingle Pass Allotment was 2,724 AUMs. Table 2.1 summarizes the licensed use data for this time period. These allotments are grazed by a single permittee. Livestock use varies dependent annual conditions and variability. The livestock operator has voluntarily reduced the overall herd size to accommodate drought-like conditions across the allotments in recent years (also see 9. Precipitation Data below).

Table 2.1—Licensed Used Data

Grazing Year	Sunnyside Allotment		Hardy Spring Allotment		Shingle Pass Allotment	
	Licensed Use (AUMs)	% Licensed Use of Permitted Use	Licensed Use (AUMs)	% Licensed Use of Permitted Use	Licensed Use (AUMs)	% Licensed Use of Permitted Use
2000	4586	85%	2872	83%	2721	100%
2001	4788	89%	2878	83%	2421	89%
2002	3696	68%	2026	58%	2490	91%
2003	1830	34%	936	27%	1453	53%
2004	1373	25%	876	25%	1453	53%
2005	2148	40%	1200	35%	1453	53%
2006	1671	31%	450	13%	1107	41%
2007	767	14%	529	15%	296	11%
2008	2253	42%	932	27%	694	25%
2009	2658	49%	352	10%	993	36%

3. Utilization

Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson 2006). The general utilization objective for all allotments in the Ely BLM District according to the Ely District Record of Decision and Approved Resource Management

Plan (ROD/RMP – August, 2008) is to "Manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health" (Ely RMP, p. 85). The Nevada Rangeland Monitoring Handbook gives guidelines to determine the proper use levels by plant category (grasses, forbs, and shrubs) and by grazing season (spring, summer, fall, winter, yearlong). Proper use levels for all allotments are also implied by the Standards and Guidelines for Rangeland Health and Grazing Administration (February 1997).

Key forage plant utilization method was used to collect utilization data at key areas as well as other sites on the Sunnyside, Hardy Spring, and Shingle Pass Allotments (Table 3.1). Table 3.1 also includes unmeasured observations. Utilization is for all herbivores (cattle, wild horses, wildlife, etc.).

Table 3.1—Utilization Data Summary

Date Collected	Allotment	Key Area/ Study Site	Vegetation Species	Utilization	Total
10/16/2000	Sunnyside	SSCV-03***	squirreltail	slight	14%
10/16/2000	Sunnyside	SSCV-03***	Indian ricegrass	light	40%
10/16/2000	Shingle Pass	Freestone 1	crested wheatgrass	light	34%
03/12/2003	Hardy Spring	HS-03*	winterfat	moderate	---
03/12/2003	Hardy Spring	across allotment	all palatable	slight to moderate	---
03/13/2003	Sunnyside	White River Pasture**	all palatable	light to severe	---
06/15/2005	Sunnyside	SEA 1**	squirreltail	slight	2%
06/15/2005	Sunnyside	SEA 2**	galleta	slight	8%
06/15/2005	Sunnyside	SEA 3**	Indian ricegrass	light	23%
06/15/2005	Sunnyside	SEA 4**	Indian ricegrass	slight	18%
06/16/2005	Sunnyside	SEA 11**	Indian ricegrass	light	27%
06/16/2005	Sunnyside	SEA 12**	galleta	light	5%
06/16/2005	Sunnyside	SEA 13**	Indian ricegrass	light	10%
06/16/2005	Sunnyside	SEA 13**	galleta	light	15%
10/29/2007	Hardy Spring	254*	winterfat	light	23%
10/29/2007	Hardy Spring	255*	winterfat	slight	20%
04/02/2008	Sunnyside	27**	Indian ricegrass	moderate	47%
04/04/2008	Sunnyside	28**	Indian ricegrass	moderate	50%
04/04/2008	Sunnyside	29**	Indian ricegrass	moderate	57%
04/04/2008	Sunnyside	29**	winterfat	heavy	70%
04/04/2008	Sunnyside	29**	galleta	heavy	64%
04/04/2008	Sunnyside	29**	four-wing saltbush	moderate	43%
04/04/2008	Sunnyside	30**	Indian ricegrass	moderate	43%
3/11/2009	Hardy Spring	288*	Indian ricegrass	severe	76%
3/11/2009	Hardy Spring	289*	all palatable	severe	---
3/11/2009	Hardy Spring	290*	all platable	severe	---
3/11/2009	Hardy Spring	291*	winterfat	light	31%
04/20/2009	Sunnyside	SS-01	winterfat	moderate	53%
04/20/2009	Sunnyside	SS-01	squirreltail	moderate	56%
04/20/2009	Sunnyside	SS-02**	galleta	moderate	49%
04/20/2009	Sunnyside	SS-02**	Indian ricegrass	moderate	52%
04/20/2009	Sunnyside	SS-03**	winterfat	moderate	42%
04/21/2009	Sunnyside	SSCV-02***	winterfat	light	35%
04/21/2009	Sunnyside	SSCV-03***	all grasses	moderate	47%
04/21/2009	Shingle Pass	SSCV-01***	needleandthread	slight	11%
04/21/2009	Shingle Pass	SSCV-01***	Indian ricegrass	slight	11%
04/21/2009	Shingle Pass	Site #1	needleandthread	light	23%
04/21/2009	Shingle Pass	Site #1	Indian ricegrass	light	34%
05/21/2009	Sunnyside	SS-01	winterfat	slight	11%
05/21/2009	Sunnyside	SS-02**	galleta	negligible	2%
05/21/2009	Sunnyside	SS-03**	winterfat	slight	9%
05/21/2009	Sunnyside	SS-05	winterfat	slight	5%
05/26/2009	Hardy Spring	HS-07	basin wildrye	slight	4%
05/26/2009	Hardy Spring	HS-03*	winterfat	moderate	41%

Table 3.1—Utilization Data Summary

Date Collected	Allotment	Key Area/ Study Site	Vegetation Species	Utilization	Total
05/26/2009	Hardy Spring	HS-05	winterfat	slight	8%
03/23/2010	Sunnyside	SS-01	winterfat	light	35%
03/26/2010	Sunnyside	SS-03**	winterfat	light	22%
03/26/2010	Sunnyside	SS-05	winterfat	light	27%
03/26/2010	Sunnyside	SS-06-SS**	winterfat	moderate	40%
03/26/2010	Sunnyside	SS-07-SS	Indian ricegrass	slight	18%
03/23/2010	Hardy Spring	HS-02	Indian ricegrass	slight	17%
03/23/2010	Hardy Spring	HS-03*	winterfat	light	36%
03/23/2010	Hardy Spring	HS-05	winterfat	light	24%
03/23/2010	Hardy Spring	HS-07	basin wildrye	light	24%
03/23/2010	Hardy Spring	HS-07	inland saltgrass	slight	12%
03/23/2010	Hardy Spring	HS-07	alkali sacaton	light	21%
03/23/2010	Hardy Spring	HS-09*	Indian ricegrass	light	37%
03/23/2010	Hardy Spring	HS-09*	bluegrass	light	21%
*within White River HA; **within Golden Gate and Seaman HA; ***within Silver King HMA					

4. Line-Point Intercept Cover Studies

Line-point intercept is a rapid, accurate method for quantifying soil cover, including vegetation, litter, rocks and biotic crusts. These measurements are related to wind and water erosion, water infiltration and the ability of the site to resist and recover from degradation (Herrick et al 2005). The results from this cover study are compared to the appropriate cover for each ecological site as indicated by the Natural Resources Conservation Service (NRCS) Rangeland Ecological Site Descriptions (ESD). Results are also compared to general known healthy rangelands.

Line-point intercept cover studies were conducted in 2009 at key areas and study sites on the Sunnyside, Hardy Spring, and Shingle Pass Allotments and data is summarized in Table 4.1 and 4.2. Cover data for burned areas is summarized in Section 6—Wildfire Summaries.

Table 4.1—Ground Cover Summary, 2009

Allotment	Key Area/ Study Site	Bare Ground	Ground Cover					ESD Veg. Cover
			Rock	Bio. Crust	Herb. Litter	Woody Litter	Veg.	
Sunnyside	SS-01	77%	0%	0%	6%	3%	14%	10-20%
	SS-02	59%	9%	0%	7%	1%	24%	15-25%
	SS-03	72%	0%	0%	13%	0%	15%	10-20%
	SS-05	48%	0%	1%	27%	7%	77%	10-20%
	SS-06-SS	29%	9%	3%	7%	4%	48%	15-20%
	SS-07-SS	66%	12%	0%	1%	3%	18%	20-30%
	SSCV-02	68%	0%	0%	13%	2%	17%	5-15%
	SSCV-03	43%	3%	6%	8%	8%	32%	10-25%
	SSCV-04	36%	17%	1%	4%	2%	40%	20-30%
	SSCV-05	51%	0%	0%	9%	2%	38%	5-10%
Hardy Spring	HS-02	49%	11%	2%	2%	3%	33%	15-20%
	HS-03	52%	0%	1%	24%	9%	14%	10-20%
	HS-05	58%	0%	0%	12%	1%	29%	10-20%
	HS-07	7%	0%	0%	19%	0%	74%	15-25%
	HS-08-SS	49%	0%	2%	7%	8%	34%	10-20%
	HS-09	36%	14%	0%	7%	3%	40%	15-20%
	HS-10-SS	43%	17%	0%	3%	1%	36%	15-20%
Shingle Pass	SSCV-01	50%	3%	0%	7%	2%	38%	10-25%
	CVE-01	41%	6%	0%	20%	1%	32%	---
	SHP-01	43%	1%	18%	0%	6%	32%	15-20%
	SHP-02	36%	3%	0%	6%	3%	52%	15-20%

Table 4.2—Vegetative Cover by species (including understory)

Allotment	Key Area	Vegetative species	% Cover
Sunnyside	SS-01	winterfat	12%
		whitestem blazing star	1%
		Indian ricegrass	1%
	SS-02	Wyoming big sagebrush	15%
		spineless horsebrush	2%
		bud sagebrush	2%
		galleta	6%
		Indian ricegrass	1%
	SS-03	winterfat	15%
	SS-05	winterfat	11%
		whitestem blazing star	6%
	SS-06-SS	black sagebrush	46%
		Nevada ephedra	3%
		cheatgrass	1%
		squirreltail	1%
	SS-07-SS	black sagebrush	13%
		Douglas' rabbitbrush	5%
	SSCV-02	winterfat	17%

Table 4.2—Vegetative Cover by species (including understory)

Allotment	Key Area	Vegetative species	% Cover
	SSCV-03	Wyoming big sagebrush	32%
		squirreltail	1%
	SSCV-04	black sagebrush	35%
		squirreltail	2%
		Douglas' rabbitbrush	1%
		long-leaf phlox	1%
		Indian ricegrass	1%
		bluegrass	1%
	SSCV-05	Wyoming big sagebrush	31%
		Douglas' rabbitbrush	6%
		winterfat	2%
Hardy Spring	HS-02	black sagebrush	32%
		Douglas' rabbitbrush	1%
	HS-03	winterfat	13%
		whitestem blazing star	1%
	HS-05	winterfat	23%
		whitestem blazing star	7%
	HS-07	grasses	82%
		forbs	15%
		shrubs	0%
	HS-08-SS	Wyoming big sagebrush	29%
		Douglas' rabbitbrush	7%
		ephedra	1%
		squirreltail	1%
	HS-09	black sagebrush	33%
		Indian ricegrass	2%
		cheatgrass	6%
		bluegrass	2%
		long-leaf phlox	1%
	HS-10-SS	black sagebrush	30%
		Doulas' rabbitbrush	8%
		Indian ricegrass	1%
Shingle Pass	SSCV-01	Wyoming big sagebrush	9%
		Doulgas' rabbitbrush	19%
		unknown shrub	1%
		annual forb	1%
		mustard	1%
		needleandthread	11%
		Indian ricegrass	2%
	CVE-01	crested wheatgrass	30%
		Doulgas' rabbitbrush	2%
		annual forb	1%

Table 4.2—Vegetative Cover by species (including understory)

Allotment	Key Area	Vegetative species	% Cover
Shingle Pass (con't)	SHP-01	black sagebrush	21%
		Doulgas' rabbitbrush	2%
		dead shrub	5%
		pinyon pine	5%
		Hood's phlox	1%
		long-leaf phlox	2%
	SHP-02	low sagebrush	29%
		bluegrass	11%
		clover	9%
		long-leaf phlox	9%
		Douglas' rabbitbrush	2%
		paintbrush	1%

5. Similarity Index and Ecological Condition

A similarity index is the percentage of a specific vegetation state plant community that is presently on the site (NRCS 1997). Similarity index is usually computed in reference to the historic climax plant community (HCPC) and is an expression of how similar the existing plant community is to HCPC. Also note that HCPC is not always the most desirable plant community to manage for.

Similarity index is calculated as a percent composition by air dry weight. The site is inventoried to determine the current percent composition by weight on an air dry basis. These numbers are then compared to the percent composition by weight on an air dry basis of the HCPC in the Rangeland Ecological Site Description for the site. To calculate the similarity index, current composition cannot exceed that of HCPC. This yields percent allowable. The sum of all allowable percentages equals the similarity index.

Table 5.1 summarizes data used to calculate similarity index for the Sunnyside, Hardy Spring, and Shingle Pass Allotments.

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Sunnyside
Key Area: **SS-01**
Ecological Site: Silty 8-10" P.Z. (028BY013NV)
Potential vegetative composition*: 30% grasses, 5% forbs, and 65% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)

Date: 05/21/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	486	94%	40-50%	50%
whitestem blazing star	31	6%	1%	1%
squirreltail	trace	trace	5-10%	---
Total Production:	**517**		**Similarity Index:**	**51%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Sunnyside
Key Area: **SS-02**
Ecological Site: Sandy Loam 8-12" P.Z. (029XY049NV)
Potential vegetative composition*: 50% grasses, 5% forbs, and 45% shrubs
Total Annual Production (air dry lb/ac)*: 1100 (Favorable), 800 (Normal), 500 (Unfavorable Year)

Date: 05/21/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
Wyoming big sagebrush	1188	99%	20-30%	30%
Douglas' rabbitbrush	2	trace	3%	---
astragalis	trace	trace	2%	---
galleta	7	1%	T-15%	1%
squirreltail	2	trace	3%	---
Indian ricegrass	trace	trace	30-45%	---
Total Production:	**1199**		**Similarity Index:**	**31%**

Allotment: Sunnyside
Key Area: **SS-03**
Ecological Site: Silty 5-8" P.Z. (029XY020NV)
Potential vegetative composition*: 20% grasses, 5% forbs, and 70% shrubs
Total Annual Production (air dry lb/ac)*: 500 (Favorable), 350 (Normal), 200 (Unfavorable Year)

Date: 05/21/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	289	100%	70-80%	80%
annual forbs	trace	trace	T-3%	T
Total Production:	**289**		**Similarity Index:**	**80%**

Allotment: Sunnyside
Key Area: **SS-05**
Ecological Site: Silty 8-10" P.Z. (028BY013NV)
Potential vegetative composition*: 30% grasses, 5% forbs, and 65% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)

Date: 05/21/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	566	95%	40-50%	50%
saltbush	5	1%	2%	1%
whitestem blazing star	27	5%	1%	1%
Russian thistle	trace	trace	---	---
Total Production:	**598**		**Similarity Index:**	**52%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Sunnyside
Key Area: **SSCV-02**
Ecological Site: Silty 8-10" P.Z. (028AY030NV)
Potential vegetative composition*: 30% grasses, 5% forbs, and 65% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)

Date: 05/18/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	1058	96%	50-60%	60%
Douglas' rabbitbrush	35	3%	3%	3%
annual forb	1	trace	---	---
Indian ricegrass	10	1%	10-25%	1%
squirreltail	1	trace	5-10%	---
Total Production:	**1105**		**Similarity Index:**	**64%**

Allotment: Sunnyside
Key Area: **SSCV-03**
Ecological Site: Loamy 8-10" P.Z. (028AY015NV)
Potential vegetative composition*: 55% grasses, 5% forbs, and 40% shrubs
Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)

Date: 05/19/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
Wyoming big sagebrush	1443	99%	20-35%	35%
squirreltail	12	1%	2-5%	1%
Total Production:	**1455**		**Similarity Index:**	**36%**

Allotment: Sunnyside
Key Area: **SSCV-04**
Ecological Site: Shallow Calcareous Loam 8-12" P.Z. (029XY008NV)
Potential vegetative composition*: 50% grasses, 5% forbs, and 45% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 250 (Unfavorable Year)

Date: 05/18/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
black sagebrush	459	81%	30-45%	45%
Douglas' rabbitbrush	27	5%	3%	3%
perennial forbs	40	7%	2-8%	7%
bluegrass	7	1%	2-5%	1%
squirreltail	13	2%	3%	2%
Indian ricegrass	20	4%	20-35%	4%
Total Production:	**566**		**Similarity Index:**	**62%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Sunnyside
Key Area: **SSCV-05**
Ecological Site: Silt Flat (028AY001NV)
Potential vegetative composition*: 20% grasses, 5% forbs, and 75% shrubs
Total Annual Production (air dry lb/ac)*: 450 (Favorable), 325 (Normal), 150 (Unfavorable Year)

Date: 05/18/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
Wyoming big sagebrush	393	66%	60-70%	66%
winterfat	45	8%	3%	3%
Douglas' rabbitbrush	152	26%	3%	3%
squirreltail	3	1%	5-15%	1%
Indian ricegrass	1	trace	3%	---
Total Production:	**594**		**Similarity Index:**	**73%**

Allotment: Hardy Spring
Key Area: **HS-03**
Ecological Site: Silty 8-10" P.Z. (028BY013NV)
Potential vegetative composition*: 30% grasses, 5% forbs, and 65% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)

Date: 05/26/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	348	97%	40-50%	50%
bud sagebrush	3	1%	2-8%	1%
cryptantha	4	1%	1%	1%
whitestem blazing star	2	1%	1%	1%
long-leaf phlox	1	trace	1%	---
Total Production:	**358**		**Similarity Index:**	**53%**

Allotment: Hardy Spring
Key Area: **HS-05**
Ecological Site: Silty 8-10" P.Z. (028BY013NV)
Potential vegetative composition*: 30% grasses, 5% forbs, and 65% shrubs
Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)

Date: 05/26/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
winterfat	645	96%	40-50%	50%
whitestem blazing star	23	3%	1%	1%
Indian ricegrass	3	1%	15-25%	1%
cheatgrass	trace	trace	---	---
Total Production:	**671**		**Similarity Index:**	**52%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Hardy Spring
Key Area: **HS-07**
Ecological Site: Saline Meadow (028BY002NV)
Potential vegetative composition*: 85% grasses, 10% forbs, and 5% shrubs
Total Annual Production (air dry lb/ac)*: 1500 (Favorable), 1000 (Normal), 700 (Unfavorable Year)

Date: 05/26/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
Baltic rush	93	30%	2-8%	8%
alkali sacaton	86	28%	40-50%	28%
unknown perennial grass	76	25%	10-15%	15%
annual forb	51	17%	---	---
Total Production:	**306**		**Similarity Index:**	**51%**

Allotment: Hardy Spring
Key Area: **HS-09**
Ecological Site: Shallow Calcareous Loam 8-10” P.Z. (028BY011NV)
Potential vegetative composition*: 50% grasses, 5% forbs, and 45% shrubs
Total Annual Production (air dry lb/ac)*: 600 (Favorable), 450 (Normal), 250 (Unfavorable Year)

Date: 06/03/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
black sagebrush	670	91%	25-35%	35%
winterfat	22	3%	3%	3%
perennial forbs	25	3%	5-10%	3%
squirreltail	5	1%	2-5%	1%
Indian ricegrass	2	trace	20-35%	---
bluegrass	4	1%	2-8%	1%
cheatgrass	5	1%	---	---
Total Production:	**733**		**Similarity Index:**	**43%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Shingle Pass
Key Area: **SSCV-01**
Ecological Site: Loamy 8-10" P.Z. (028AY015NV)
Potential vegetative composition*: 55% grasses, 5% forbs, and 40% shrubs
Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)

Date: 05/19/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
Wyoming big sagebrush	141	14%	20-35%	14%
Douglas' rabbitbrush	651	63%	3%	3%
perennial forbs	17	2%	2-10%	2%
annual forbs	3	trace	---	---
needleandthread	182	18%	15-25%	18%
Indian ricegrass	37	4%	20-30%	4%
squirreltail	5	1%	2-5%	1%
cheatgrass	1	trace	---	---
Total Production:	**1037**		**Similarity Index:**	**42%**

Allotment: Shingle Pass
Key Area: **SHP-01**
Ecological Site: Shallow Calcareous Loam 8-10" P.Z. (028BY011NV)
Potential vegetative composition*: 50% grasses, 5% forbs, and 45% shrubs
Total Annual Production (air dry lb/ac)*: 600 (Favorable), 450 (Normal), 250 (Unfavorable Year)

Date: 05/20/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
black sagebrush	549	88%	25-35%	35%
Douglas' rabbitbrush	50	8%	3%	3%
perennial forbs	15	2%	5-10%	2%
annual forbs	5	1%	---	---
squirreltail	4	1%	2-5%	1%
Total Production:	**623**		**Similarity Index:**	**41%**

Table 5.1—Total Annual Yield and Composition of Key Areas

Allotment: Shingle Pass
Key Area: **SHP-02**
Ecological Site: Claypan 12-14" P.Z. (028BY037NV)
Potential vegetative composition*: 50% grasses, 10% forbs, and 40% shrubs
Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)

Date: 05/20/2009 **Plant Common Name**	**Current Production (air dry lb/ac)**	**Current % Composition by Weight (air dry)**	**HCPC % Composition by Weight (air dry)***	**% Allowable**
low sagebrush	920	81%	25-35%	35%
Douglas' rabbitbrush	62	5%	2%	2%
perennial forbs	50	4%	5-15%	4%
annual forbs	4	trace	---	---
bluegrass	89	8%	2-10%	8%
wheatgrass	7	1%	2%	1%
Total Production:	**1132**		**Similarity Index:**	**50%**

*from Ecological Site Description (ESD)

6. Current Composition and Production of Seeded Areas

One key area (CVE-01) is within the seeded portions of the Shingle Pass Allotment. This key area was inventoried to determine the current percent composition by weight on an air dry basis. This was completed using a double sampling technique. Current composition and production data collected in 2009 is summarized in Table 6-1.

Table 6-1.Current Composition and Production of Seeded Areas

Key Area	**Plant Common Name**	**Current Production (lbs./ac.; air dry wt.)**	**Current % Composition by Weight (air dry)**
CVE-01	crested wheatgrass	1100	72%
	Wyoming big sagebrush	320	21%
	Douglas' rabbitbrush	101	7%
	Total:	**1521**	

7. Wildfire Summaries (Figure 5, Appendix II)

The Whipple Fire burned approximately 315 acres on the Sunnyside Allotment in July 2006. During March 2007, approximately 315 acres were aerially seeded. The burned area was closed to livestock grazing until recovery objectives were met. On July 23, 2009, an interdisciplinary field visit to this fire was completed. This team noted good perennial recovery. Species observed included needleandthread, globemallow, Sandberg's bluegrass, galleta, buckwheat, cheatgrass, sand dropseed, and small burnet. Monitoring data is summarized in Table 7.1.

Table 7.1—Average Density and Cover of Annual and Perennial Plants on the Whipple Fire.
Density is measured as number of individuals per square meter. Total perennial density includes all perennial forbs, grasses, and shrubs. Averages for perennial forbs, grasses, and shrubs include firmly rooted perennials.

Category	Seeded Brushbelts			Unseeded Brushbelts			AA Plots*		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Invasive Annual Grass Density	130.60	141.67	338.40	104.47	74.00	169.33	126.44	79.17	149.83
Erodium cicutarium Density	0.07	1.13	11.93	1.07	6.47	24.93	0.39	5.94	54.78
Perennial Forb Density	0.67	1.47	0.60	0.73	1.13	1.27	1.39	3.50	2.00
Perennial Grass Density	1.07	1.53	6.00	7.80	9.07	47.20	3.22	4.00	16.00
Perennial Shrub Density	1.47	1.50	0.98	0.94	1.37	2.10	2.28	0.94	2.00
Overall Perennial Density	3.21	4.50	7.58	9.48	11.57	50.57	6.89	8.44	20.00
Firmly Rooted Perennial Density	2.00	3.03	3.91	7.48	8.70	17.23	4.44	4.22	14.72
Invasive Annual Grass Cover	8.00%	32.00%	38.33	3.33%	5.00%	10.33%	18.00%	9.67%	17.00%
Perennial Cover	1.67%	3.67%	2.33	2.00%	15.00%	9.00%	7.89%	12.11%	12.56%

*AA Plot = Additional Aerial Seeding Plot

The King Fire burned approximately 397 acres on the Sunnyside Allotment in July 2006. During March 2007, approximately 210 acres were aerially seeded. The burned area was closed to livestock grazing until recovery objectives were met. On July 23, 2009, an interdisciplinary field visit to this fire was completed. The team noted good perennial recovery. Species observed included needleandthread, Indian ricegrass, blue grama, globemallow, Sandberg's bluegrass, galleta, buckwheat, cheatgrass, squirreltail, and rabbitbrush. Monitoring data is summarized in Table 7.2.

Table 7.2—Average Density and Cover of Annual and Perennial Plants on the King Fire.
Density is measured as number of individuals per square meter. Total perennial density includes all perennial forbs, grasses, and shrubs. Averages for perennial forbs, grasses, and shrubs include firmly rooted perennials.

Category	Seeded Brushbelts			Unseeded Brushbelts			AA Plots*		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Invasive Annual Grass Density	0.00	0.00	0.00	102.93	124.47	294.20	82.25	97.19	197.00
Erodium cicutarium Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perennial Forb Density	0.00	0.33	0.20	0.73	4.07	3.73	0.44	0.81	1.00
Perennial Grass Density	0.07	0.13	0.20	7.27	9.60	10.33	7.44	9.31	13.25
Perennial Shrub Density	0.00	0.00	0.00	0.07	0.02	0.06	0.00	0.06	0.13
Overall Perennial Density	0.07	0.47	0.40	8.07	13.68	14.12	7.88	10.19	14.38
Firmly Rooted Perennial Density	0.07	0.33	0.34	7.67	9.02	13.32	7.75	9.75	14.31
Invasive Annual Grass Cover	0%	0%	0	10%	12.33%	20	13.13%	14.38%	19.63
Perennial Cover	0%	0%	0.67	2%	10.33%	24	3.88%	10.88%	12.88
Descurainia pinnata cover	5%	21.33%	5.33	0.00%	0%	0	1.25%	2.50%	0.25

*AA Plot = Additional Aerial Seeding Plot

The Gubler Fire burned approximately 1,388 acres on the Sorensen Well, Dee Gee Spring, and Hardy Spring Allotments in July 2006. During March 2007, approximately 1,176 acres were aerially seeded. During April 2007, approximately 50 acres were also hand seeded with basin big sagebrush seed. The burned area was closed to livestock grazing until recovery objectives were met and a temporary fence was constructed in the Hardy Spring Allotment to restrict livestock access to the burned area. In 2009, this fence was removed and the recovery considered a failure. Monitoring data is summarized in Table 7.3 and 7.4.

Table 7.3—Average Density and Cover of Annual and Perennial Plants on the Gubler Fire Aerial Seeding Treatment, 2007-2009. Plots listed in Table 6.4 are not included in Table 6.3. Density is measured as number of individuals per square meter. Total perennial density includes all perennial forbs, grasses, and shrubs. Averages for perennial forbs, grasses, and shrubs include firmly rooted perennials. *Indicates a seeded species.

Category	Seeded Brushbelts			Unseeded Brushbelts			AA plots*		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Invasive Annual Grass Density	31.40	21.17	5.77	59.93	16.10	0.17	28.69	33.83	36.04
Erodium cicutarium Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perennial Forb Density	0.10	0.60	0.10	0.07	0.23	0.03	0.07	0.48	0.10
Perennial Grass Density	0.03	0.13	0.03	0.07	0.07	0.00	0.13	0.48	0.34
Perennial Shrub Density	0.01	0.01	0.00	0.01	0.01	0.01	0.11	0.04	0.19
Total Perennial Density	0.14	0.75	0.14	0.15	0.31	0.05	0.31	1.00	0.63
Firmly Rooted Perennial Density	0.07	0.31	0.10	0.15	0.21	0.05	0.30	0.59	0.61
Salsola tragus Density	0.60	5.23	0.57	0.07	21.27	5.60	0.73	30.37	16.55
*Achnatherum hymenoides** Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.02
*Agropyron cristatum** Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.03
*Elymus elymoides** Density	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.15	0.27
*Poa secunda** Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Invasive Annual Grass Cover	4.33%	3.00%	0.00%	5.83%	0.67%	0.00%	0.06%	5.28%	2.69%
Perennial Cover	0.00%	0.08%	0.67%	0.00%	0.00%	0.00%	0.02%	1.21%	4.91%
Salsola tragus Cover	0.00%	11.00%	1.16%	0.00%	20.67%	15.50%	0.97%	26.55%	8.63%

*AA Plot = Additional Aerial Seeding Plot

Table 7.4—Average Density and Cover of Annual and Perennial Plants on the Gubler Fire Basin Big Sagebrush Hand Seeding, 2007-2009. All plots (both controls and seeded) were also seeded with the Gubler Aerial Seed Mix. Density is measured as number of individuals per square meter. Total perennial density includes all perennial forbs, grasses, and shrubs. Averages for perennial forbs, grasses, and shrubs include firmly rooted perennials.

Category	Seeded Brushbelts			Unseeded Brushbelts		
	2007	2008	2009	2007	2008	2009
Invasive Annual Grass Density	8.67	1.03	0.20	14.87	4.00	1.33
Erodium cicutarium Density	0.00	0.00	0.00	0.00	0.00	0.00
Perennial Forb Density	0.00	0.00	0.00	0.00	0.03	0.00
Perennial Grass Density	0.00	0.00	0.07	0.00	0.03	0.03
Perennial Shrub Density	0.32	0.54	0.34	0.37	0.65	0.38
Total Perennial Density	0.32	0.54	0.40	0.37	0.72	0.41
Firmly Rooted Perennial Density	0.32	0.38	0.37	0.37	0.43	0.41
Salsola tragus Density	0.20	43.73	2.83	0.17	39.50	1.37
Descurania pinnata Density	0.20	1.13	0.00	0.27	1.00	0.00
Sarcobatus vermiculatus Density	0.27	0.33	0.28	0.37	0.31	0.34
Invasive Annual Grass Cover	1%	0%	0	0.67%	0%	0
Perennial Cover	5.83%	10.17%	11.83	6.67%	10.67%	11.67
Salsola tragus Cover	1%	19.17%	5.33	1%	25.33%	2.33

The Hot Flash Fire burned approximately 1,040 acres in August 1998 on the Sunnyside Allotment. In September 2006, approximately 481 acres burned again. Following the 1998 fire, a protection fence was constructed which is now the boundary of the Hot Flash Pasture. This area has been seeded three times during fire stabilization and rehabilitation efforts with limited success. The burned area was closed to livestock grazing until recovery objectives were met. In 2002, a flash grazing treatment was implemented to control cheatgrass. The success of this treatment is unknown. On July 23, 2009, an interdisciplinary field visit to this fire was completed. The area is dominated by invasive plant species, namely cheatgrass and Russian thistle, with some remnant perennial species still present, namely crested wheatgrass. Recent monitoring data is summarized in Table 7.5.

Table 7.5—Average Density of Annual and Perennial Plants within the Hot Flash Burned Area.
Density is measured as number of individuals per square meter. Total perennial density includes all perennial forbs, grasses, and shrubs. Averages for perennial forbs, grasses, and shrubs include firmly rooted perennials.

Category	Seeded Brushbelts			Unseeded Brushbelts			AA Plots*		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Invasive Annual Grass Density	68.53	90.07	378.53	136.67	86.67	345.33	56.94	64.87	262.70
Erodium cicutarium Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perennial Forb Density	0.00	0.13	0.00	0.07	0.00	0.00	0.00	0.13	0.03
Perennial Grass Density	0.73	1.27	1.40	0.27	0.60	0.47	1.34	2.07	1.60
Perennial Shrub Density	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Overall Perennial Density	0.73	1.40	1.40	0.34	0.61	0.47	1.34	2.20	1.63
Firmly Rooted Perennial Density	0.53	1.07	1.40	0.14	0.61	0.47	0.94	1.87	1.63
Native Annual Forb Density	0.00	7.73	2.33	0.00	26.20	72.73	0.00	10.20	8.78
Invasive Annual Grass Cover	20.00%	15.00%	28.33%	28.33%	21.67%	31.67%	19.38%	19.27%	26.69%
Perennial Cover	1.00%	0.00%	0.00%	0.00%	0.67%	0.00%	2.81%	2.07%	0.25%
Salsola tragus Cover	0.00%	10.00%	15.00%	0.00%	14.00%	27.67%	0.31%	17.67%	19.44%

*AA Plot = Additional Aerial Seeding Plot

8. Proper Functioning Condition of Riparian Areas (Figure 3, Appendix II)
Proper Functioning Condition (PFC) is the method used by the BLM to assess riparian health and functionality. The process is completed by an interdisciplinary (ID) team. The team looks at hydrology, vegetation, and erosion/deposition characteristics of the site in order to determine if the riparian area is in proper functioning condition (PFC), functioning at risk (FAR), or nonfunctional.

PFC Assessments were completed on nine riparian areas within these allotments. Table 8.1 summarizes the findings of the ID teams. Several other potential riparian areas were visited and determined to not meet the basic requirement of a riparian area, therefore were not assessed.

Table 8.1—Summary of PFC Assessments

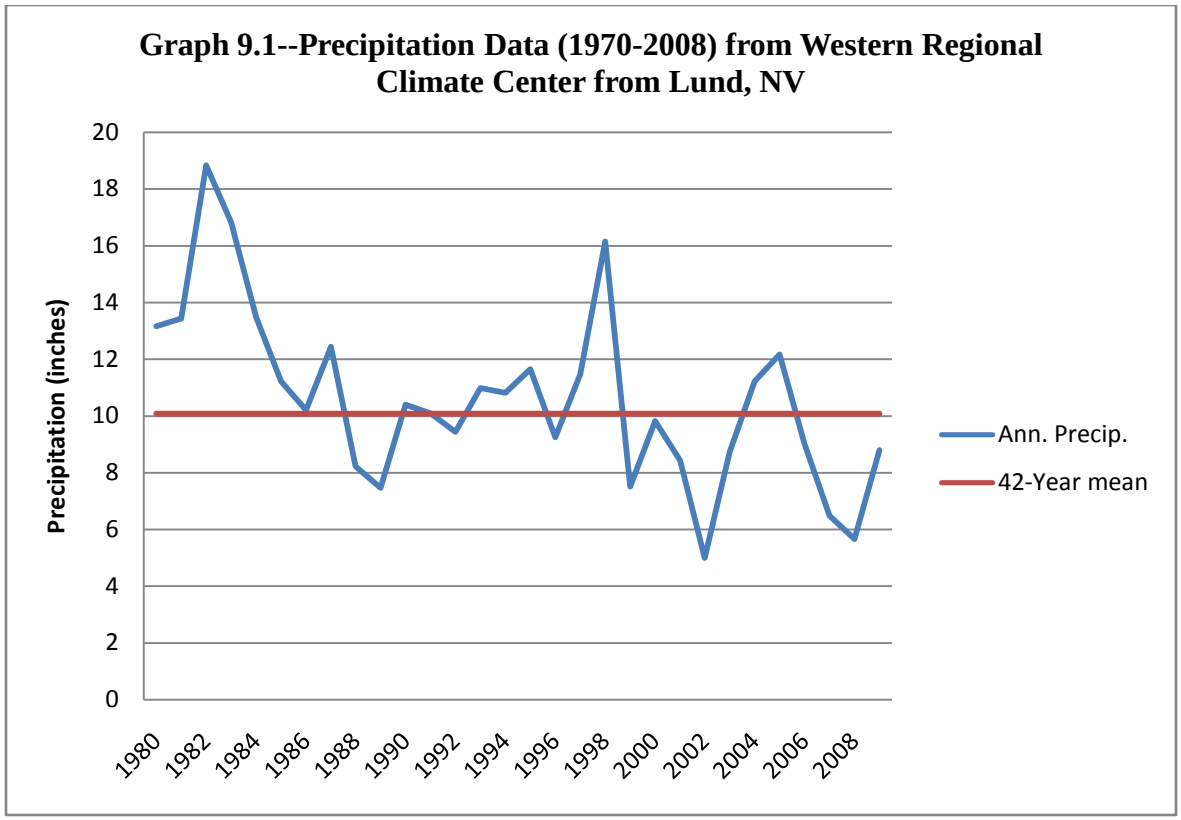
Allotment	Riparian Area	Date	Functionality (notes)
Sunnyside	Trough Spring	10/5/2009	PFC
Sunnyside	Sidehill Spring	9/24/2009	PFC
Shingle Pass	Little Geyser Spring	9/24/2009	PFC
Shingle Pass	unnamed Spring (near W. Parker Spring)	9/23/2009	FAR with downward trend; improved livestock management is recommended
Shingle Pass	Parker Spring (south)	9/23/2009	FAR; trend not apparent; excessive hoof action in channel (elk and cattle)
Shingle Pass	Parker Spring (north)	9/23/2009	PFC
Shingle Pass	Big Travis Spring	9/24/2009	PFC
Shingle Pass	Haggerty Spring/Wash	8/11/2009	FAR with upward trend; irrigation diversion and bare upland banks
Single Pass	Big Spring	8/11/2009	FAR with upward trend; at risk due to access and utilization

9. Precipitation Data

Annual precipitation greatly influences growing condition of forage species and is often correlated to available forage. Historical climate data from the Western Regional Climate Center at the Lund, Nevada weather station is being used to represent the annual precipitation on the Sunnyside, Hardy Spring, and Shingle Pass Allotments. Table 9.1 and Graph 9.1 summarize annual precipitation data collected since 1980. The 42 year mean annual precipitation for this station is 10.08 inches.

Table 9.1—Western Regional Climate Center Precipitation Data from Lund, NV

YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)
1980	13.16	1990	10.39	2000	9.82
1981	13.43	1991	10.09	2001	8.43
1982	18.83	1992	9.43	2002	4.99
1983	16.82	1993	10.98	2003	8.72
1984	13.48	1994	10.81	2004	11.22
1985	11.22	1995	11.64	2005	12.16
1986	10.20	1996	9.24	2006	9.01
1987	12.44	1997	11.46	2007	6.48
1988	8.22	1998	16.15	2008	5.65
1989	7.46	1999	7.50	2009	8.79


Graph 9.1--Precipitation Data (1970-2008) from Western Regional Climate Center from Lund, NV
Precipitation (inches)
20
18
16
14
12
10
8
6
4
2
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
Ann. Precip.
42-Year mean

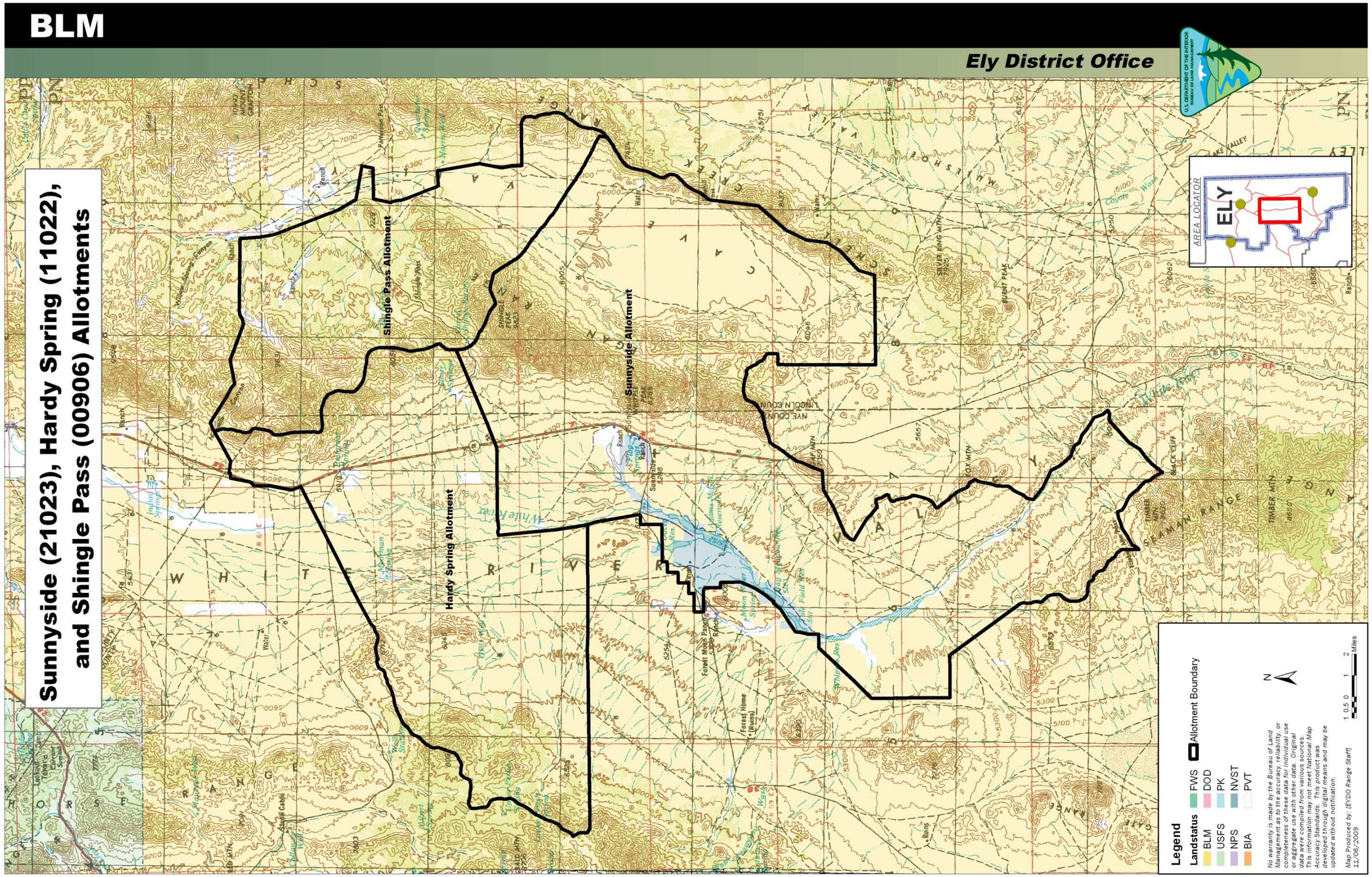


Figure 1—Allotment Map; Sunnyside, Hardy Spring, and Shingle Pass Allotments

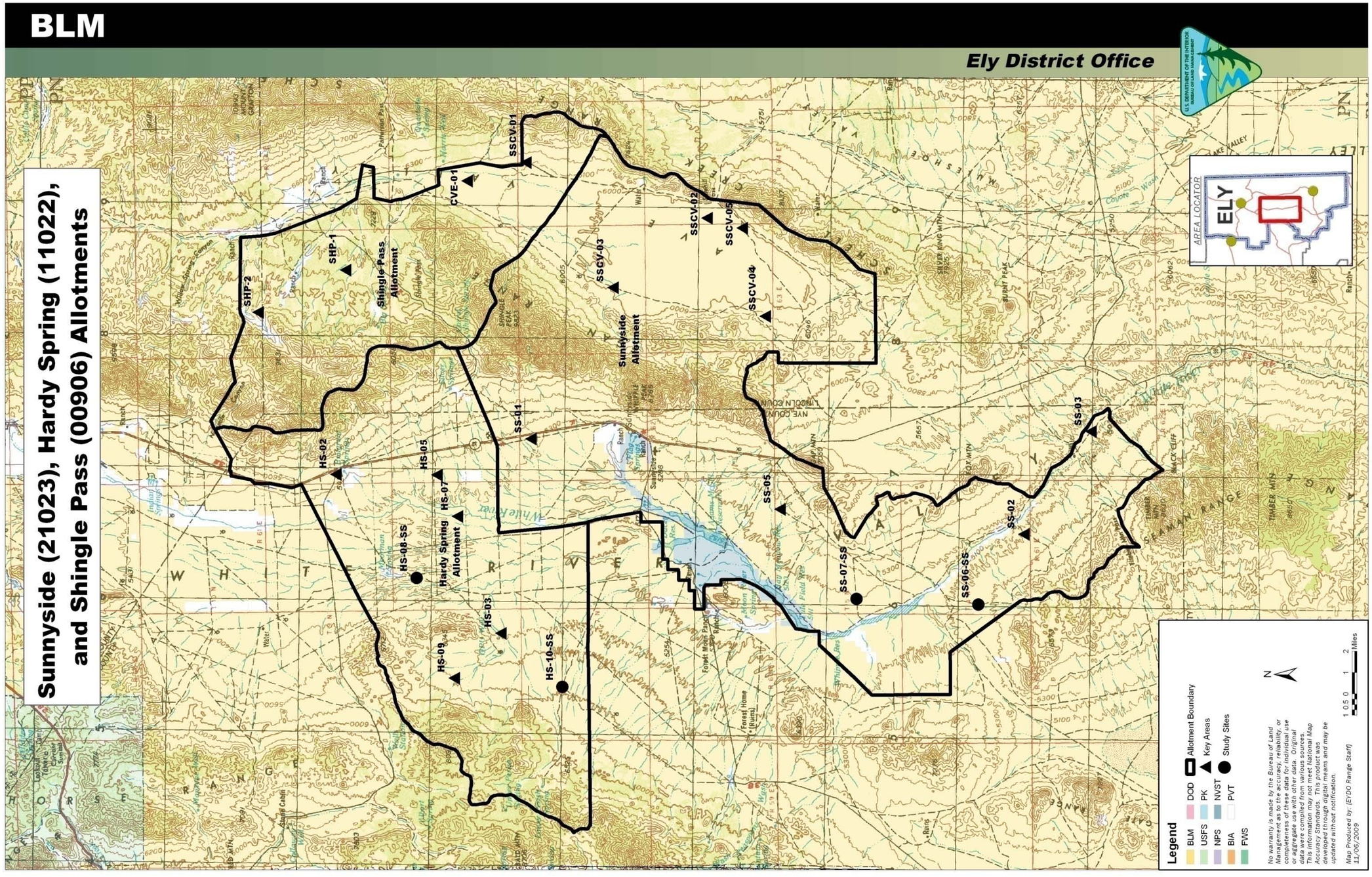


Figure 2—Key Area and Study Site Locations; Sunnyside, Hardy Spring, and Shingle Pass Allotments

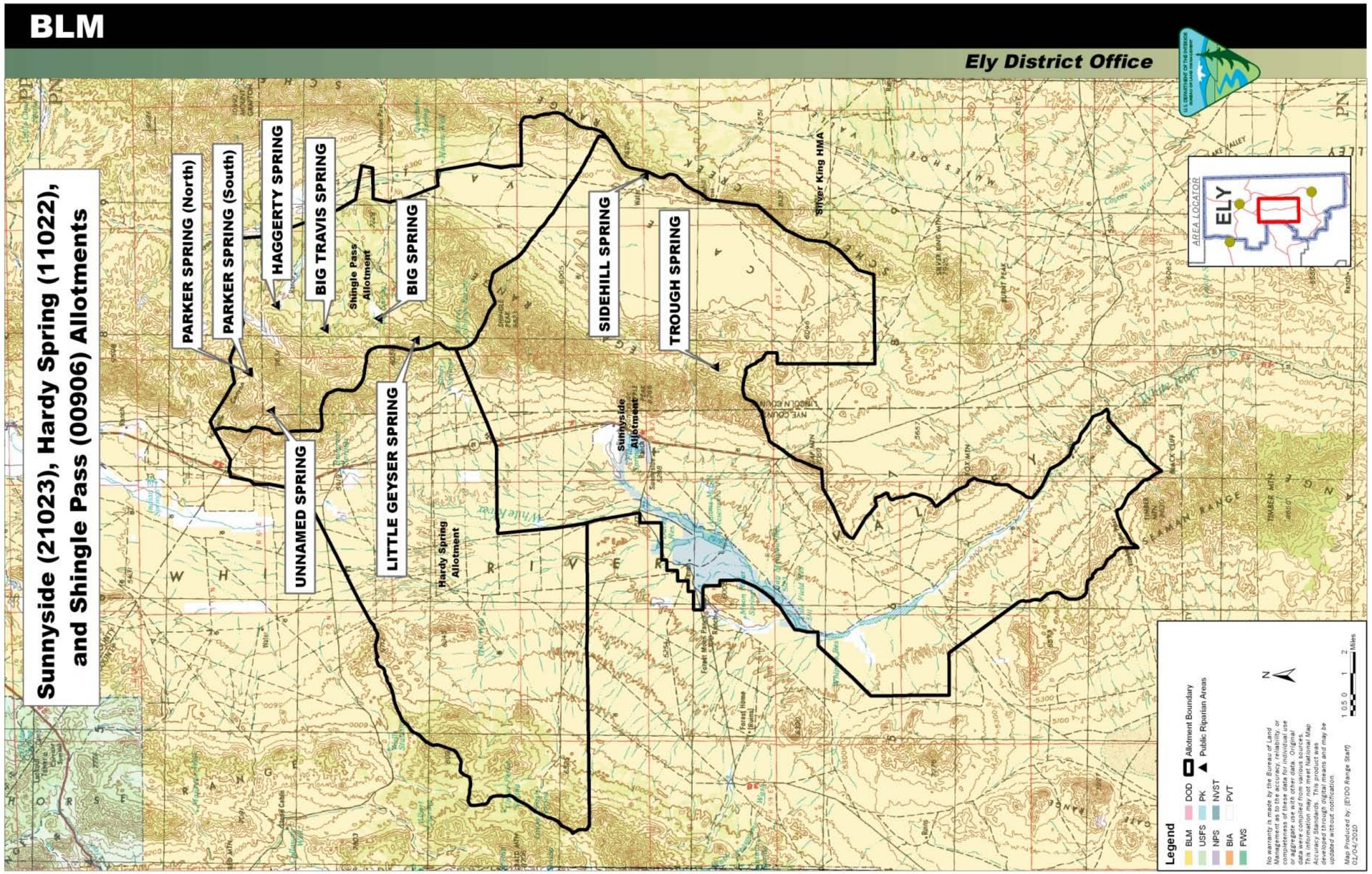


Figure 3—Riparian Areas; Sunnyside, Hardy Spring, and Shingle Pass Allotments

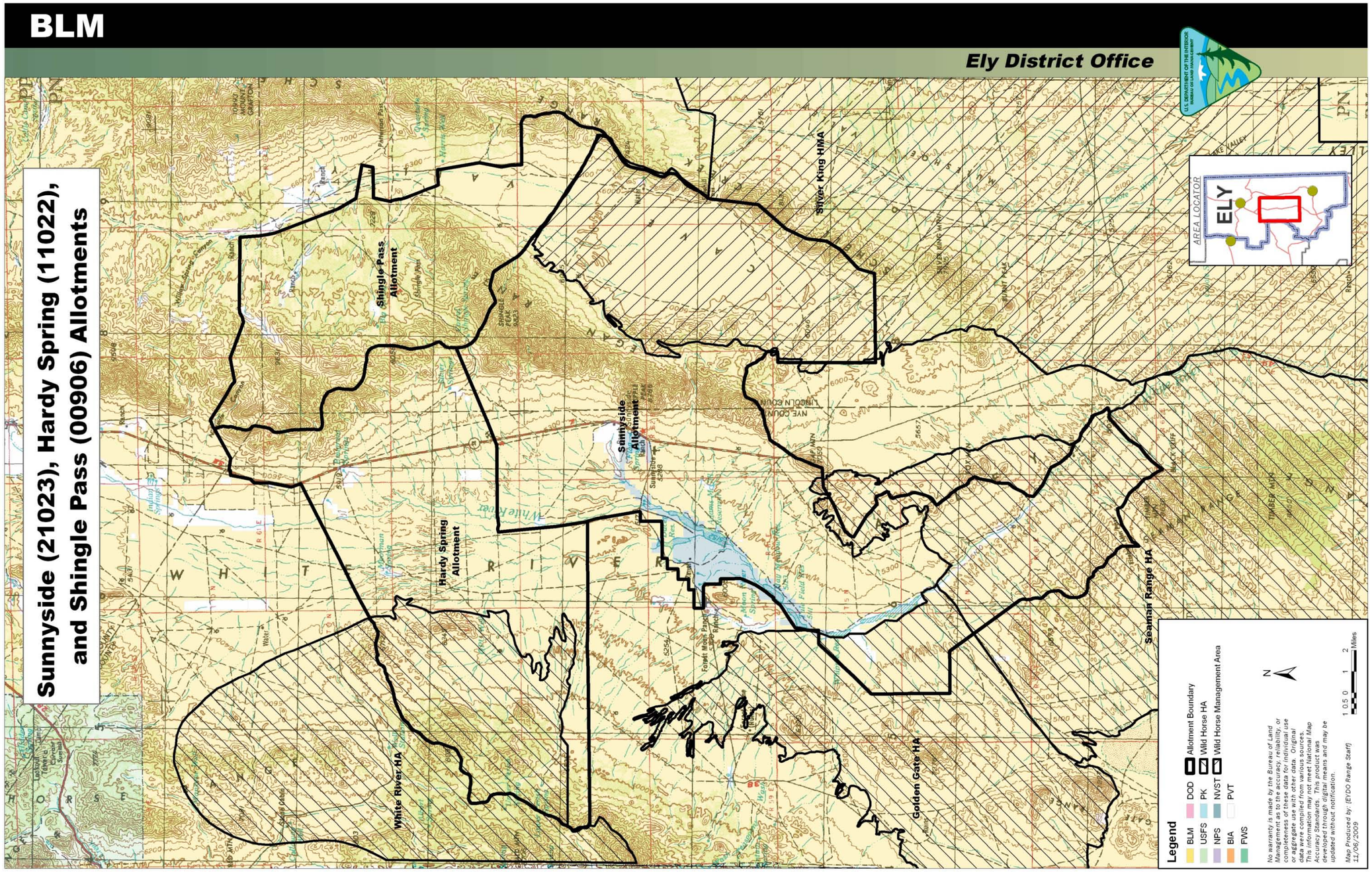


Figure 4—Wild Horse Herd Areas (HA) and Herd Management Areas (HMA); Sunnyside, Hardy Spring, and Shingle Pass Allotments

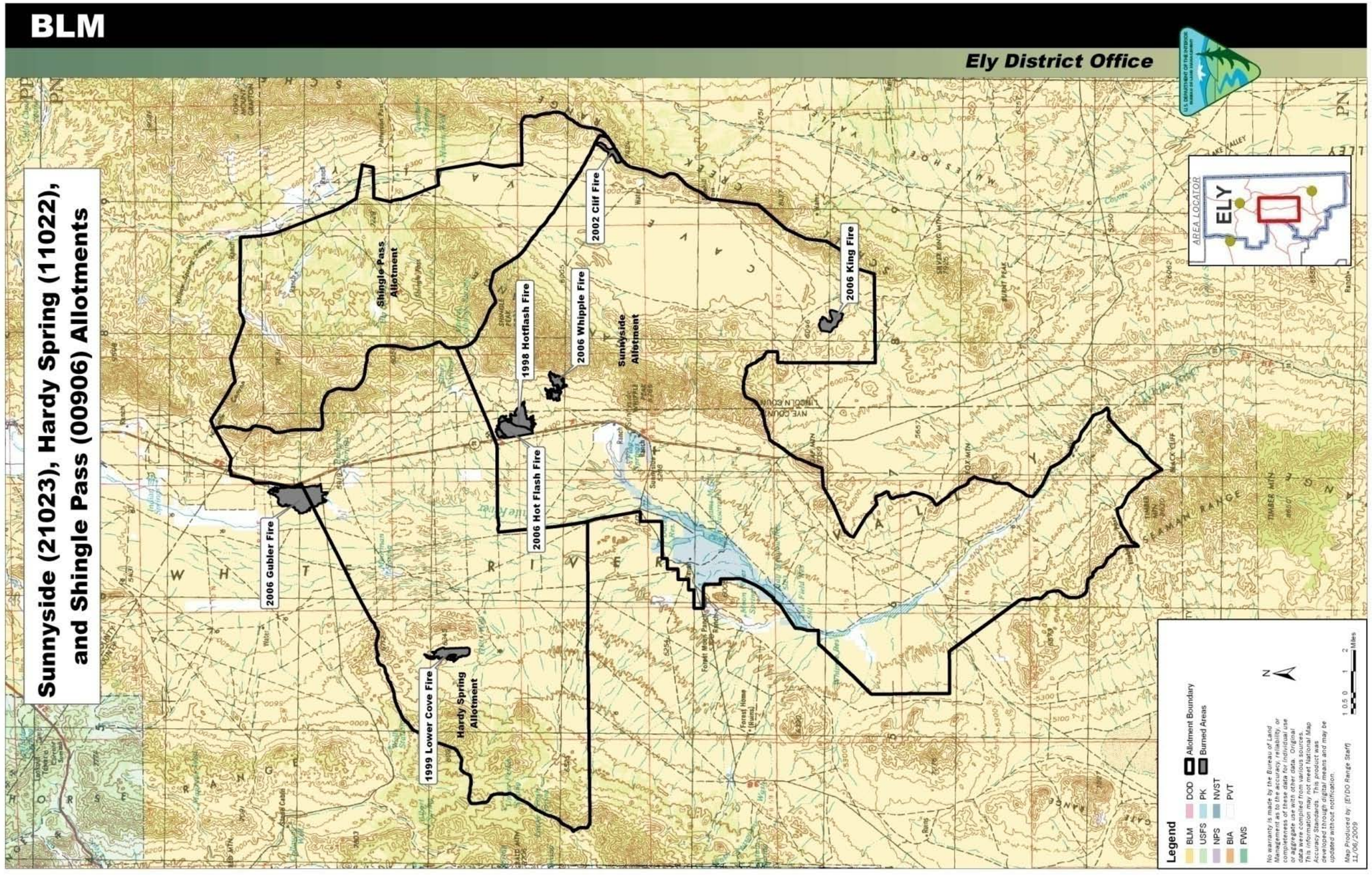


Figure 5—Burned Areas on the Sunnyside, Hardy Spring, and Shingle Pass Allotments

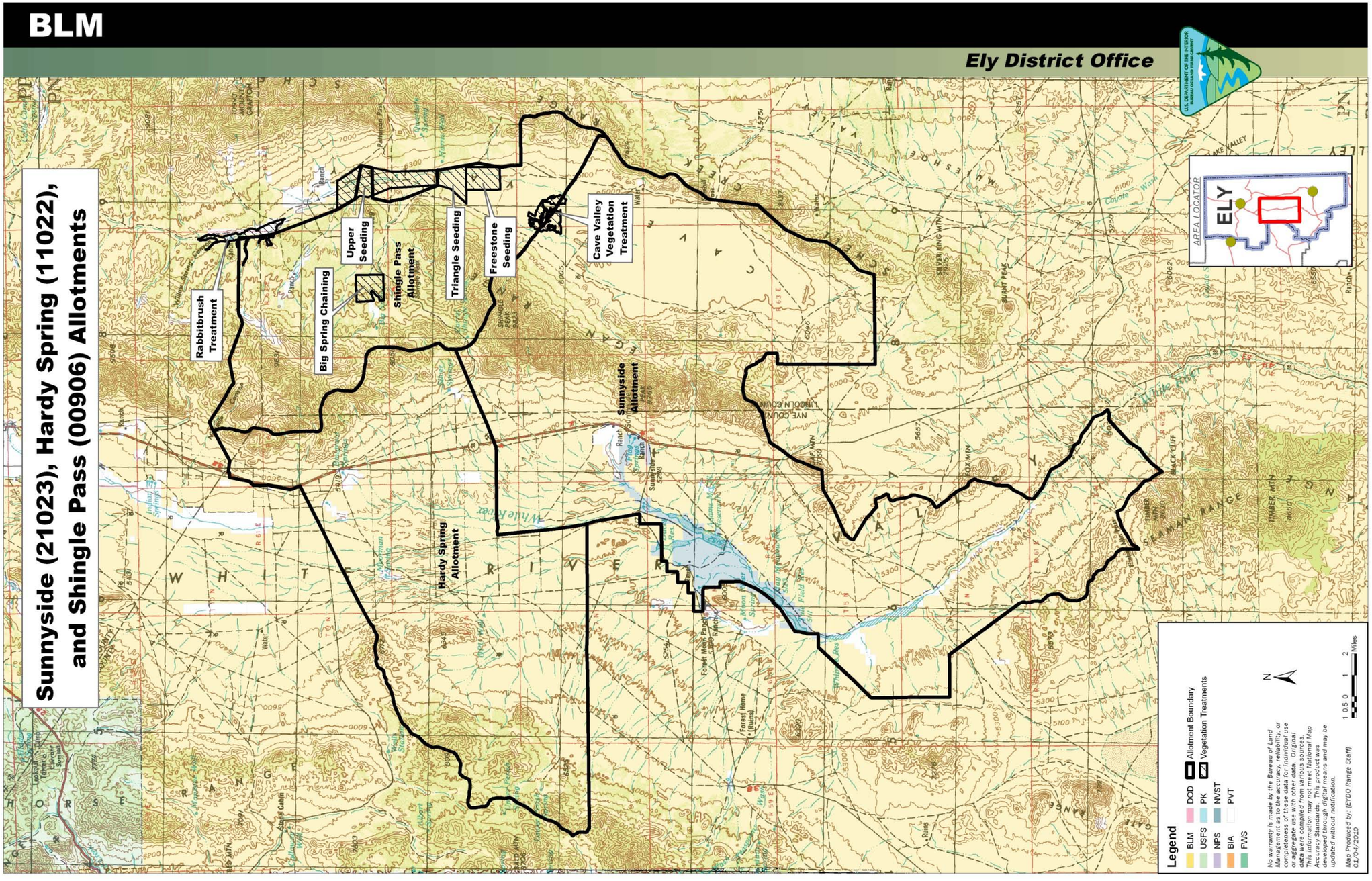


Figure 6—Vegetation Treatment Areas; Sunnyside, Hardy Spring, and Shingle Pass Allotments

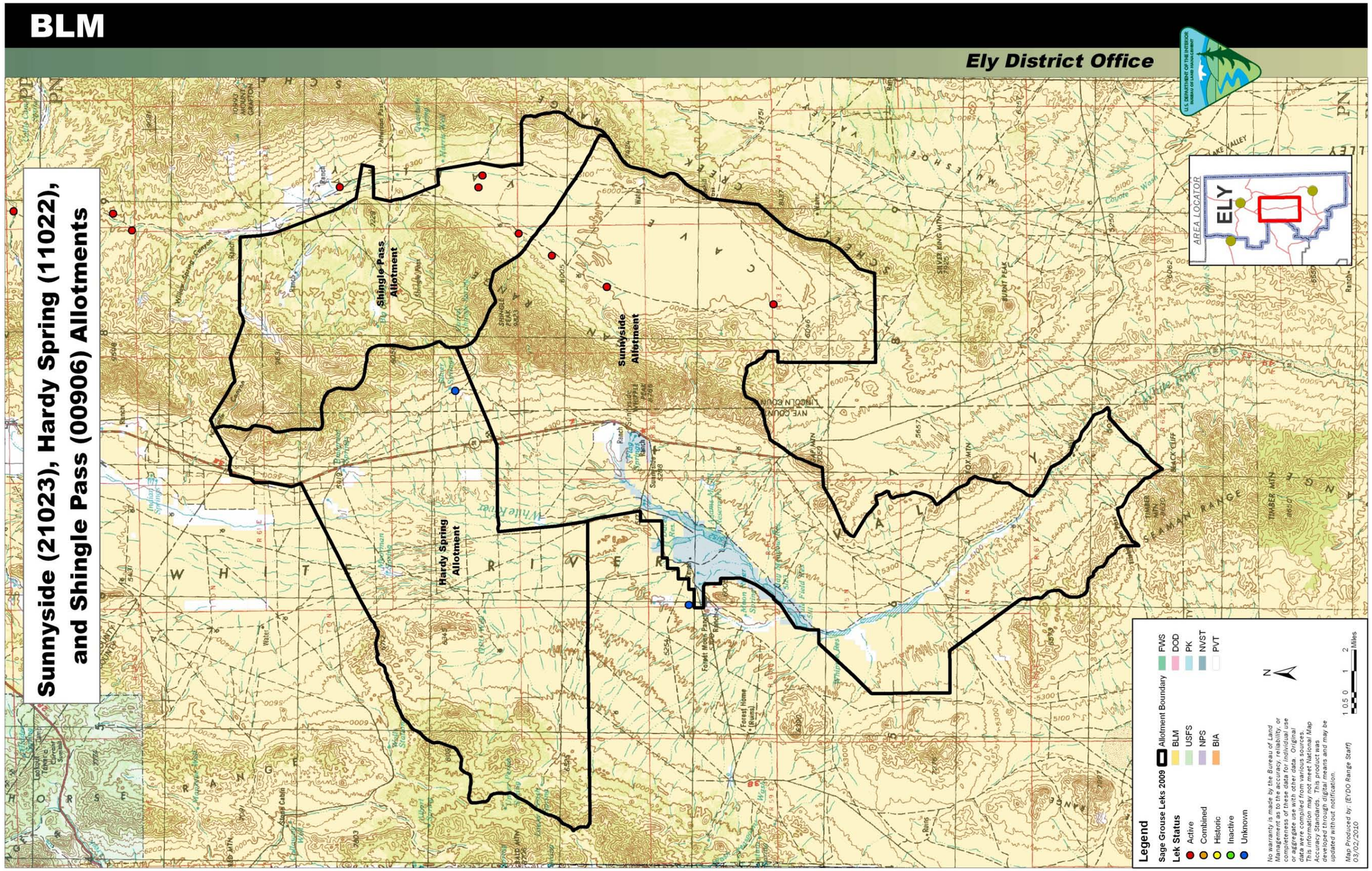


Figure 7—Sage-Grouse Lek Locations; Sunnyside, Hardy Spring, and Shingle Pass Allotments

APPENDIX III—SPECIAL STATUS SPECIES

Sunnyside, Hardy Spring, and Shingle Pass Allotment

BIRDS

Greater Sage-Grouse (*Centrocercus urophasianus*)—The greater sage-grouse is a high-profile sensitive species considered to be warranted for listing as Threatened or Endangered but for whom listing is precluded by other species of higher priority (USDI 2010). It has been identified as an "umbrella" species by the Ely District BLM, and chosen to represent the habitat needs of the sagebrush (*Artemisia* spp.) obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). Under the sage-grouse guidelines set forth by Connelly et al. (2000), the herbaceous (grass and forb) component should comprise at least 15 percent cover and sagebrush should comprise 15-25 percent cover. The Sunnyside, Hardy Spring, and Shingle Pass Allotments are part of the Quinn, Cave Valley, and Butte Valley sage-grouse population management units (PMU). The White Pine County Sage-Grouse Conservation Plan (hereafter termed the Plan; 2004) identified approximately 49% (950,773 ac) of potential (1,870,317 ac) sage-grouse habitat within the Butte/Buck/White Pine PMU as not meeting the sage-grouse habitat guideline standards (Connelly et al. 2000). In the sagebrush habitat rating system used in the Plan, one category, termed "R2", is defined as "Areas with inadequate grass/forb understory composition, adequate sagebrush cover". The Plan estimated approximately 708,000 acres of sagebrush habitat in this category throughout the PMU. The Quinn and Cave Valley PMUs are thought to have similar habitats. The cover data collected for these allotments indicate that the sagebrush plant communities within the project area are not meeting the Connelly Guidelines (Connelly et al. 2000).

Key areas and study sites in the Sunnyside Allotment are within current or potential sage-grouse habitat. Key areas SS-02, SSCV-03, and SSCV-05 are in Wyoming big sagebrush plant communities. Key area SSCV-04 and study sites SS-06-SS and SS-07-SS are in black sagebrush plant communities. The herbaceous cover of SS-02 is 7 percent, SS-06-SS is 2 percent, SS-07-SS is 0 percent, SSCV-03 is 1 percent, SSCV-04 is 5 percent, and SSCV-05 is 0 percent. The sagebrush cover of SS-02 is 15 percent, SS-06-SS is 46 percent, SS-07-SS is 13 percent, SSCV-03 is 32 percent, SSCV-04 is 35 percent, and SSCV-05 is 31 percent. These sites fail to meet the Connelly Guidelines. However, the total vegetative cover expected, according to the ecological site descriptions (ESDs), for SS-02 is 15-25 percent, SS-06-SS is 15-20 percent, SS-07-SS is 20-30 percent, SSCV-03 is 10-25 percent, SSCV-04 is 20-30 percent, and SSCV-05 is 5-10 percent. Based on the ESDs, only SS-07-SS and SSCV-04 could meet the Connelly Guidelines.

Key areas and study sites in the Hardy Spring Allotment are within current or potential sage-grouse habitat. Study site HS-08-SS is in a Wyoming big sagebrush plant community. Key areas HS-02 and HS-09 and study site HS-10-SS are in black sagebrush plant communities. The herbaceous cover of HS-02 is 0 percent, HS-08-SS is 1 percent, HS-09 is 11 percent, and HS-10-SS is 1 percent. The sagebrush cover of HS-02 is 32 percent, HS-08-SS is 29 percent, HS-09 is 33 percent, and HS-10-SS is 30 percent. These sites fail meeting the Connelly Guidelines. However, the total vegetative cover expected for HS-02, HS-09, and HS-10-SS is 15-20 percent while HS-08-SS is 10-20 percent according to the ESDs for these sites. Based on the ESDs, these sites would not likely meet the Connelly Guidelines.

Key areas in the Shingle Pass Allotment are within current or potential sage-grouse habitat. Key area SSCV-01 is in a Wyoming big sagebrush plant community, key area SHP-01 is in a black sagebrush plant community, and key area SHP-02 is in a low sagebrush plant community. The herbaceous cover of SSCV-01 is 15 percent, SHP-01 is 3 percent, and SHP-02 is 30 percent. The sagebrush cover of SSCV-01 is 9 percent, SHP-01 is 21 percent, and SHP-02 is 29 percent. SSCV-01 and SHP-01 fail to meet the Connelly Guidelines while SHP-02 exceeded these recommendations. However, the total vegetative cover expected for SSCV-01 is 10-25 percent, SHP-01 and SHP-02 is 15-20 percent according to the ESDs for these sites. Based on the ESDs, these sites are not likely to meet the Connelly Guidelines.

Site specific evaluation of sage-grouse habitat guidelines should be tempered with consideration of site potentials described in the rangeland ESDs. According to Connelly, et al. (2000):

> "There is much variability among sagebrush-dominated habitats (Tisdale and Hironaka 1981, Hironaka et al. 1983), and some Wyoming sagebrush and low sagebrush breeding habitats may not support 25% herbaceous cover. In these areas, total herbaceous cover should be >15%...In all of these cases, local biologists and range ecologists should develop height and cover requirements that are reasonable and ecologically defensible."

Considering this caveat from Connelly et al. (2000), most of the ecological sites at these sagebrush community key areas are not capable of meeting the requirements of the sage-grouse guidelines for mesic or arid sites, but they may still be considered potential grouse habitat as sage-grouse have been observed in sagebrush communities within the project area (active leks). The Ely District Approved Resource Management Plan, developed by local specialists, states in reference to sagebrush plant communities, "Sagebrush in the mid-late phase of the herbaceous state is desired for wildlife habitat." Although these key areas do not meet the herbaceous understory requirements set forth within the Connelly Guidelines, they are in the mid to late phase of the herbaceous state.

The shrub dominance described under Standard 3—Habitat—is not consistent with the vegetative composition desired for sage-grouse habitat.

There are 7 sage-grouse leks within the project area and an additional lek within a three mile buffer of the project area (Figure 7, Appendix II). Table 1 summarizes lek numbers as well as sage-grouse habitat type by allotment.

Table 1—Summary of sage-grouse habitat by allotment.

	Number of known leks					**Sage-grouse habitat present**		
Allotment	Active	Inactive	Historic	Unknown/ Uncertain	**Total**	winter	nesting	summer, brood-rearing
Sunnyside	3				**3**	X	X	X
Hardy Spring				1	**1**	X	X	X
Shingle Pass	3				**3**	X	X	X
three mile buffer	1				**1**			

Sage-grouse often nest in suitable habitat within three miles of a lek site. The sage-grouse breeding and nesting period is generally considered to be approximately March 15 through May 31. The brood-rearing period is generally considered to be June 1 through October 31. The wintering period is generally considered to be November 1 through March 14.

Raptors—There are two known historic nesting locations of prairie falcon (*Falco mexicanus*) and two of the ferruginous hawk (*Buteo regalis*) in the Hardy Spring Allotment. There is one known nesting location for the golden eagle (*Aquila chrysaetos*) in the Sunnyside Allotment. These sites were last checked between 1973 and 1992. Prairie falcons nest on cliffs therefore are not disturbed by cattle grazing. There is currently suitable ferruginous hawk nesting habitat along the juniper/sagebrush ecotones within the allotments. Raptor use of the area would be expected for foraging during spring and fall migrations as well as by over-wintering individuals. Proper grazing management would improve the herbaceous grass and forb communities, thereby improving habitat for raptor prey species.

Other Birds—The western least bittern (*Ixobrychus exilis hesperis*) and the western snowy plover (*Charadrius alexandrinus nivosus*) are known to occur on the Sunnyside Allotment. These locations are on the Wayne Kirch Wildlife Management Area which is not grazed under this grazing permit.

MAMMALS

Pygmy Rabbit (*Brachylagus idahoensis*)—The pygmy rabbit has been documented to occur within the Sunnyside Allotment. The Sunnyside and Shingle Pass Allotments have potential habitat for the pygmy rabbit. The species prefers areas of tall sagebrush with deep friable soils for digging burrows.

Desert Bighorn Sheep (*Ovis canadensis nelson*)—Desert bighorn sheep is a subspecies of the Rocky Mountain bighorn sheep. Its preferred habitat is steep slopes on, or near mountains, with a clear view of the surrounding area. They live in small pockets of dry desert mountain ranges, foothills near rocky cliffs, and water when it is available. According to Nevada Department of Wildlife's Bighorn Sheep Management Plan (NDOW 2001), it is important that habitats are maintained in good to excellent ecological condition because livestock directly compete with bighorns for forage, water, and space.

Occupied desert bighorn sheep habitat occurs in the Egan Range portion of the Sunnyside, Hardy Spring, and Shingle Pass Allotments. Additional unoccupied habitat also occurs in these allotments. There is currently no monitoring data in this area. Proper grazing management practices are designed to maintain good to excellent ecological conditions.

Bats—Several sensitive bat species have been documented on the allotments. They feed over a variety of habitats where insects congregate, particularly riparian areas and wet meadows. They may roost in trees, rock crevices, caves, and old mines.

The pallid bat (*Antrozous pallidus*) and the western small-footed myotis (*Myotis ciliolabrum*) have been documented at Shingle Spring on the Shingle Pass Allotment. An interdisciplinary team visited Shingle Spring in 2009 and found the spring area to be a meadow complex with no

riparian or wetland areas. The source is developed with a small area having riparian characteristics below the tank overflow. The surrounding vegetative community is Great Basin Pinyon-Juniper Woodlands.

Other documented occurrences of sensitive bat species are on privately owned lands within the allotments.

PLANTS

Sunnyside Green Gentian (*Frasera gypsicola*)—The Sunnyside green gentian is found on the Sunnyside and Hardy Spring Allotments. This species is found in open, dry, whitish, alkaline, often salt-crusted and spongy silty-clay soils on calcareous flats and barrens, with little if any gypsum content, in cushion-plant associations surrounded by sagebrush, greasewood, and occasionally barberry and swamp cedar vegetation. The statewide population is estimated at over 203,000 individuals (NNHP 2001). The Nevada Natural Heritage Program (NNHP) has 10 documented occurrences of the Sunnyside green gentian in Nevada (2009).

White River Catseye (*Cryptantha welshii*)—The White River catseye is found on the Sunnyside and Hardy Spring Allotment. This species is found in dry, open, sparsely vegetated outcrops, and derived sandy to silty or clay soils, of whitish calcareous or carbonate deposits, often forming knolls or gravelly hills, and on soils adjacent to such habitats. The species appears to tolerate or even increase with transient disturbances within its habitat, such as animal trampling and roadside maintenance. It is endemic to Nevada and the statewide population is estimated at over 44,000 individuals (NNHP 2001). The NNHP has 42 documented occurrences of the White River catseye in Nevada (2009).

Tiehm Blazingstar (*Mentzelia tiehmii*)—The Tiehm blazingstar is found on the Sunnyside Allotment. This species is found mostly on white calcareous knolls and bluffs with scattered perennials. It is endemic to Nevada and the statewide population is estimated at over 14,000 individuals (NNHP 2001). The NNHP has seven documented occurrences of the Tiehm blazingstar in Nevada (2009).

Charleston Grounddaisy (*Townsendia jonesii* var. *tumulosa*)—The Charleston grounddaisy is found on the Sunnyside Allotment. This species is found in open, sparsely vegetated calcareous areas, on shallow gravelly carbonate soils on slopes and exposed knolls in forest clearings mostly in the montane conifer zone with ponderosa pine, extending to the pinyon-juniper, mountain mahogany, and lower subalpine conifer zones, recurring on knolls of white, alkaline, calcareous, silty lacustrine deposits in the upper shadscale/mixed-shrub and lower sagebrush zones. It is endemic to Nevada and the population size is unknown (NNHP 2001). The NNHP has 45 documented occurrences of the Charleston grounddaisy in Nevada (2009).

Parish Phacelia (*Phacelia parishii*)—The Parish phacelia is found on the Sunnyside Allotment. This species is found in moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, sometimes on gypsum deposits. The statewide population is estimated at over 37,000,000 individuals (NNHP 2001). The NNHP has 17 documented occurrences of the Parish phacelia in the Nevada (2009).

AQUATICS

There are a number of sensitive aquatic species that inhabit springs, ponds and other wetlands in White River Valley. These aquatic habitats are on privately owned lands or the Wayne Kirch Wildlife Management Area which are not grazed under this grazing permit.

APPENDIX IV—TERMS AND CONDITIONS

Proposed New Grazing Permit 2704739

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land*	Type Use	AUMs**
Sunnyside 21023	600 Cattle	06/01 to 10/31	100	Active	3018
Sunnyside 21023	600 Cattle	12/01 to 03/31	100	Active	2387
Hardy Spring 11022	635 Cattle	12/01 to 05/15	100	Active	3466
Shingle Pass 00906	500 Cattle	05/15 to 10/31	100	Active	2795

*% Public Land is the percent of public land for billing purposes.
**AUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Allotment AUMs Summary

Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PREFERENCE
Sunnyside	5402	0	5402
Hardy Spring	3478	16	3494
Shingle Pass	2724	3428	6152

Terms and Conditions

1. Maximum utilization levels of key forage species on the Sunnyside, Hardy Spring, and Shingle Pass Allotments will be established as follows:
   - Perennial native grasses: 50% of current year's growth
   - Perennial non-native seedings: 65% of current year's growth
   - Perennial shrubs and half-shrubs: 50% use on current annual production
   - Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.
2. Cattle will be rotated within the allotments by providing water at different locations at different times. This includes the use of wells, reservoirs, and spring developments.
3. On the Sunnyside Allotment, grazing in the Hot Flash Pasture will be in accordance with the Hot Flash Pasture Livestock Grazing Agreement.
4. On the Hardy Spring Allotment, livestock will be removed from the Lower Cove after April 1 each year by withholding water at Riordan's Well and from Lower Perish Spring Pipeline. Herding may also be needed to drift cattle out of the Lower Cove.
5. A 15-day window will be allowed to gather and move livestock when moving from a pasture or an allotment.
6. The placement of mineral or salt supplements will be a minimum distance of ½ mile from known water sources, riparian areas, winterfat bottoms, sensitive sites, populations of special status species, and cultural resource sites. Mineral and salt blocks will also be one mile from sage grouse leks.
7. On the Shingle Pass Allotment, the four fenced vegetation treatment (Big Spring Chaining, Upper Seeding, Triangle Seeding, and Freestone Seeding) will continue to be

grazed with the surrounding native range until such a time that it is feasible to implement a grazing management system in these areas.

8. No motorized access is permitted within the South Egan Range and Far South Egans Wilderness Areas and the Riordan's Well Wilderness Study Area without approval of the District Manager. Motorized access may be permitted for emergency situations, or where practical alternatives for reasonable grazing management needs are not available and such motorized use would not have an adverse impact on the natural environment

Additional Stipulations Common to All Grazing Allotments:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
3. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
4. Grazing use will be in accordance with the Standards and Guidelines for Grazing Administration. The Standards and Guidelines have been developed by the respective Resource Advisory Council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
5. If future monitoring data indicates that Standards and Guidelines for Grazing Administration are not being met, the permit will be reissued subject to revised terms and conditions.
6. Pursuant to 43 CFR 10.4 (G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
7. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of any hazardous or solid wastes as defined in 40 CFR Part 261.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.

APPENDIX V—WEED RISK ASSESSMENT

Term Grazing Permit Renewal for Authorization #2704739
on the Hardy Spring (11022), Shingle Pass (00906) and Sunnyside (21023)
Grazing Allotments

Lincoln, Nye and White Pine Counties, Nevada

On May 12, 2010 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for Authorization #2704739 on the Hardy Spring (11022) Allotment, Shingle Pass (00906) Allotment and Sunnyside (21023) Allotment in Lincoln, Nye and White Pine Counties, NV. Under the proposed grazing permit, cattle would continue to be grazed in two herds, one using the Sunnyside Allotment and the other using the Hardy Spring and Shingle Pass Allotments. Cattle would be in the Cave Valley Pasture of the Sunnyside Allotment and the Shingle Pass Allotment during the summer and early fall. During winter and early spring, cattle will be in the White River pasture of the Sunnyside Allotment and the Hardy Spring Allotment. All cattle will be kept on private lands in November and in April/May the southern herd will be on private lands. Allowable use levels will be established and other terms and conditions will be further clarified from the current permit.

Table 1—Proposed Term Permit 2704739

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land*	Type Use	AUMs**
Sunnyside 21023	600 Cattle	06/01 to 10/31	100	Active	3018
Sunnyside 21023	600 Cattle	12/01 to 03/31	100	Active	2387
Hardy Spring 11022	635 Cattle	12/01 to 05/15	100	Active	3466
Shingle Pass 00906	500 Cattle	05/15 to 10/31	100	Active	2795

*% Public Land is the percent of public land for billing purposes.
**AUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Allotment AUMs Summary

Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PREFERENCE
Sunnyside	5402	0	5402
Hardy Spring	3478	16	3494
Shingle Pass	2724	3428	6152

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. This area was last inventoried in 2008. The following species are found within the boundaries of the Hardy Spring allotment:

Tamarix spp.	Salt cedar
Centaurea stoebe	Spotted knapweed
Acroptilon repens	Russian knapweed
Onopordum acanthium	Scotch thistle

The following species are found within the boundaries of the Shingle Pass allotment:

Acroptilon repens	Russian knapweed

The following species are found within the boundaries of the Sunnyside allotment:

Acroptilon repens	Russian knapweed
Tamarix spp.	Salt cedar
Lepidium latifolium	Tall whitetop
Linaria dalmatica	Dalmatian toadflax
Lepidium draba	Hoary cress

The following species are found along roads and drainages leading to the allotments:

Acroptilon repens	Russian knapweed
Centaurea stoebe	Spotted knapweed
Onopordum acanthium	Scotch thistle
Lepidium draba	Hoary cress
Cirsium vulgare	Bull thistle

While not officially documented the following non-native invasive weeds probably occur in or around the allotments: cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. Grazing can increase the populations of the noxious and invasive weeds already within the permitted areas and could aid in the introduction of weeds from surrounding areas. There are several occurrences of Russian Knapweed along main roads in each of the allotments. As part of a good grazing plan, the establishment of desirable forages is integral to the weed management program. Desirable forage that emerges during the growing season should be managed to increase its competitiveness. The design features of the proposed action include utilization levels of native plants to help prevent weeds from establishing or spreading and improve native vegetation.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (6) at the present time. Currently, the weed infestations are concentrated along well traveled roads, if new weed infestations establish or spread from current locations within the permitted areas this could have an adverse impact those native plant communities including reducing productive rangeland by out competing desirable forage. Also, managing the past fire to improve native vegetation will help prevent a cheatgrass fire regime. This area is currently part of the Ely District weed treatment areas and the proposed action includes measures to increase native plants and help prevent weeds from establishing and/or spreading.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

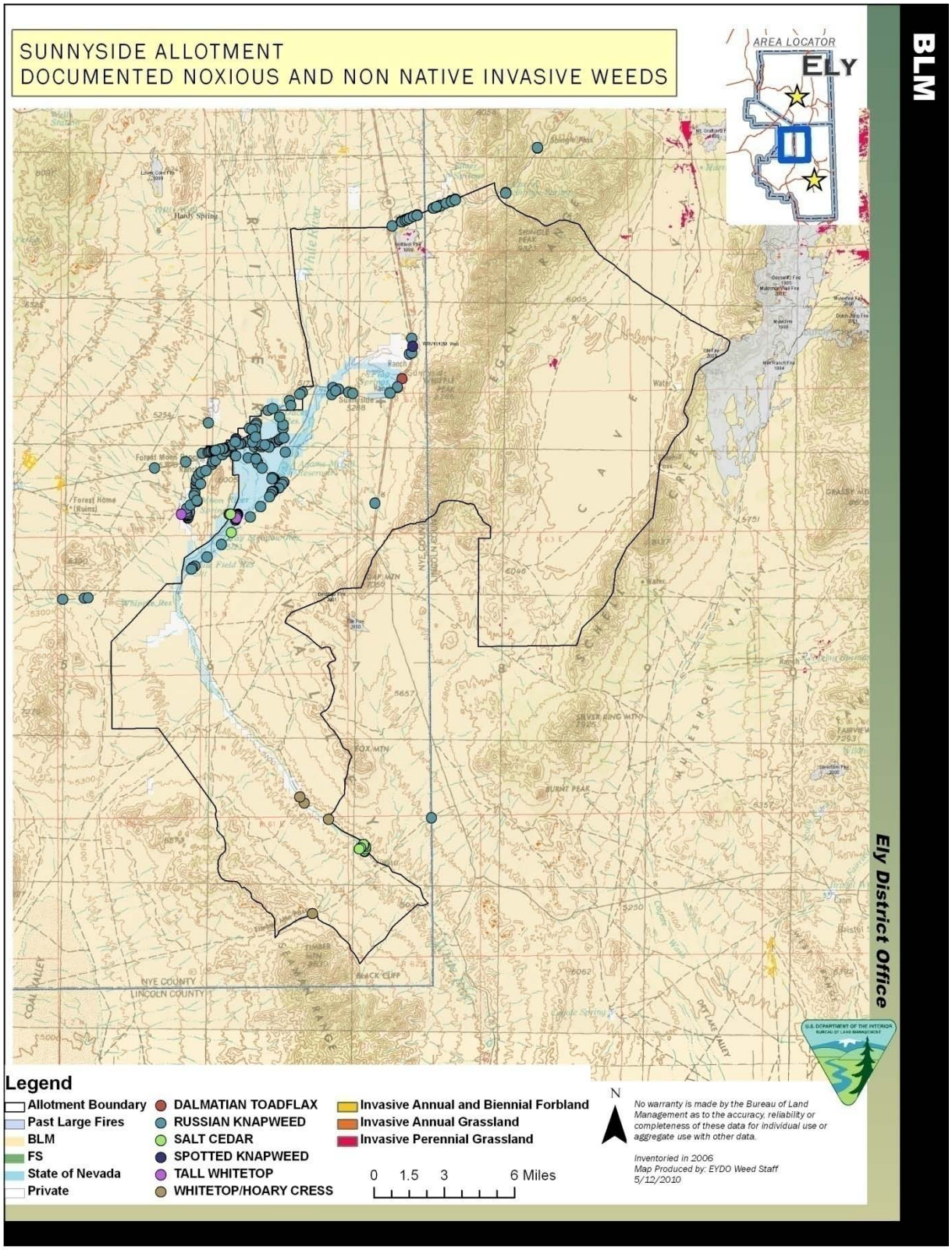
For this project, the Risk Rating is Moderate (24). This indicates that the project can proceed as planned as long as the following measures are followed:

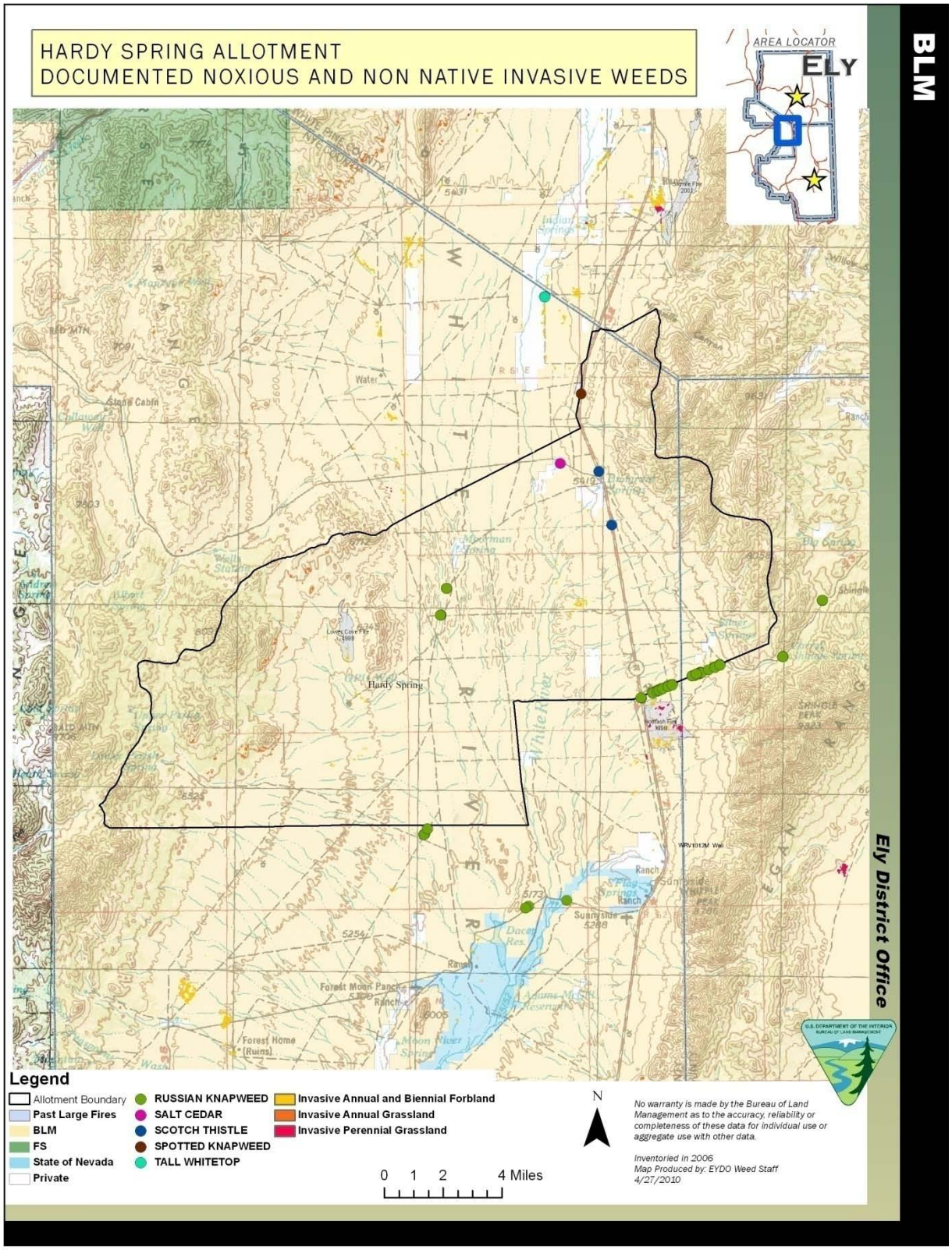
- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.

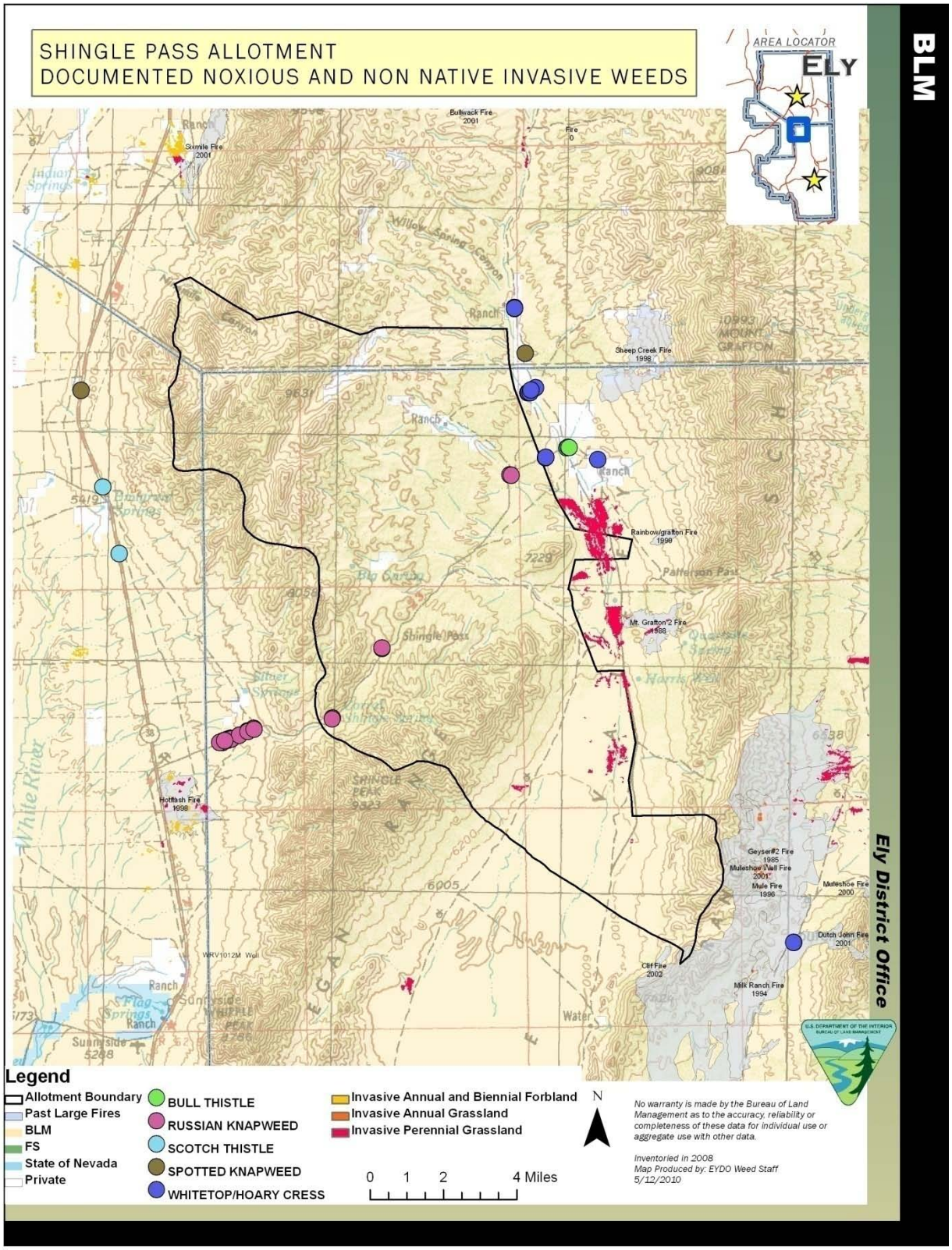
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Grazing will be conducted in compliance with the Ely District BLM noxious weed schedules. The scheduled procedures can significantly and effectively reduce noxious weed spread or introduction into the project area.
- When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

Reviewed by: *\/s/ TJ Mabey* 5/12/2010

TJ Mabey Date
Range Technician


SUNNYSIDE ALLOTMENT
DOCUMENTED NOXIOUS AND NON NATIVE INVASIVE WEEDS
AREA LOCATOR
ELY
BLM
Ely District Office
Legend
Allotment Boundary
Past Large Fires
BLM
FS
State of Nevada
Private
DALMATIAN TOADFLAX
RUSSIAN KNAPWEED
SALT CEDAR
SPOTTED KNAPWEED
TALL WHITETOP
WHITETOP/HOARY CRESS
Invasive Annual and Biennial Forbland
Invasive Annual Grassland
Invasive Perennial Grassland
N
0 1.5 3 6 Miles
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Inventoried in 2006
Map Produced by: EYDO Weed Staff
5/12/2010
NYE COUNTY
LINCOLN COUNTY


HARDY SPRING ALLOTMENT
DOCUMENTED NOXIOUS AND NON NATIVE INVASIVE WEEDS
AREA LOCATOR
ELY
BLM
Ely District Office
Hardy Spring
Legend
Allotment Boundary
Past Large Fires
BLM
FS
State of Nevada
Private
RUSSIAN KNAPWEED
SALT CEDAR
SCOTCH THISTLE
SPOTTED KNAPWEED
TALL WHITETOP
Invasive Annual and Biennial Forbland
Invasive Annual Grassland
Invasive Perennial Grassland
N
0 1 2 4 Miles
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Inventoried in 2006
Map Produced by: EYDO Weed Staff
4/27/2010


SHINGLE PASS ALLOTMENT
DOCUMENTED NOXIOUS AND NON NATIVE INVASIVE WEEDS
AREA LOCATOR
ELY
BLM
Ely District Office
Bullwack Fire 2001
Skimile Fire 2001
Sheep Creek Fire 1998
Rainbow/grafton Fire 1998
Mt. Grafton 2 Fire 1988
Hotflash Fire 1998
Geyser#2 Fire 1985
Muleshoe Well Fire 2001
Mule Fire 1996
Muleshoe Fire 2000
Dutch John Fire 2001
Cliff Fire 2002
Milk Ranch Fire 1994
Legend
Allotment Boundary
Past Large Fires
BLM
FS
State of Nevada
Private
BULL THISTLE
RUSSIAN KNAPWEED
SCOTCH THISTLE
SPOTTED KNAPWEED
WHITETOP/HOARY CRESS
Invasive Annual and Biennial Forbland
Invasive Annual Grassland
Invasive Perennial Grassland
N
0 1 2 4 Miles
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
Inventoried in 2008
Map Produced by: EYDO Weed Staff
5/12/2010