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

STANDARDS AND DETERMINATION DOCUMENT
September 15, 2008

Raymond and Sandy Rosenlund (2704456)
Term Permit Renewal
Ruby Valley (00619), Maverick Springs (00621), and Horse Haven (00620) Allotments

Location: Ely, Nevada
Applicant/Address:

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STANDARDS AND DETERMINATION DOCUMENT
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Standards and Guidelines Assessment
The Standards and Guidelines for Nevada's Northeastern Great Basin Area were developed by the Northeastern Great Basin Area Resource Advisory Council (RAC) and approved in 1997. 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 and Determination Document evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Ruby Valley, Maverick Springs, and Horse Haven Allotments in the Ely BLM District. 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 Standards were assessed for the Ruby Valley, Maverick Springs, and Horse Haven Allotments by a BLM interdisciplinary team consisting of rangeland management specialists, wildlife biologist, weeds specialist, and watershed specialist. Documents and publications used in the assessment process include the Soil Survey of Western White Pine Area, Nevada, Parts of White Pine and Eureka Counties (USDA-NRCS 1997); Ecological Site Descriptions for Major Land Resource Area 28B (USDA-NRCS 2003); Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2000); Sampling Vegetation Attributes (USDI-BLM et al. 1996); and the National Range and Pasture Handbook (USDA-NRCS 1997). A complete list of references is included at the end of this document. All are available for public review in the Ely BLM District Office. The interdisciplinary team used rangeland monitoring data, professional observations, and photographs to assess achievement of the Standards and conformance with the Guidelines.

The Ruby Valley Allotment encompasses approximately 17,441 acres of public land. The allotment occurs entirely within White Pine County, and is situated approximately 70 miles northwest of Ely, Nevada. The northeast portion of this allotment borders the Ruby Valley National Wildlife Refuge. The area occurs in the Ruby Valley Watershed (6). The Ruby Valley Allotment occurs within the Buck and Bald Wild Horse Herd Management Area (HMA). Potential pygmy rabbit (*Brachylagus idahoensis*) habitat is located within the allotment and relict dace (*Relictus solitarius*) habitat is located adjacent to the Ruby Valley Allotment. Elk, deer, antelope, and sage grouse habitat are also found on the allotment. There are two active and three unknown status leks within or adjacent to this allotment. No wilderness occurs within the allotment. The nearest wilderness is the Goshute Canyon Wilderness, which is approximately 25 miles away.

The Maverick Springs Allotment encompasses approximately 45,015 acres of public land. The allotment occurs entirely within White Pine County, and is situated approximately 60 miles northwest of Ely, Nevada. The area is in the Maverick Springs Range bordering the Ruby Valley

(6) and Long Valley (117) watersheds. The Maverick Springs Allotment occurs within the Buck and Bald Wild Horse HMA. Potential pygmy rabbit habitat is located within the allotment. Elk, deer, antelope, and sage grouse habitat are also found on the allotment. No wilderness occurs within the allotment. The nearest wilderness is the Goshute Canyon Wilderness, which is approximately 20 miles away.

The Horse Haven Allotment encompasses approximately 26,151 acres of public land. The allotment occurs entirely within White Pine County, and is situated approximately 70 miles northwest of Ely, Nevada. The area is in the Maverick Springs Range bordering the Ruby Valley (6) and Long Valley (117) watersheds. The Maverick Springs Allotment occurs within the Buck and Bald Wild Horse HMA. A portion of the allotment is within the Butte Valley Sage Grouse Population Management Unit (PMU). Potential pygmy rabbit habitat is located within the allotment. Elk, deer, and antelope habitat are also found on the allotment. No wilderness occurs within the allotment. The nearest wilderness is the Goshute Canyon Wilderness, which is approximately 17 miles away.

The current term permit is issued for the period 03/01/2006 to 02/28/2016 to Raymond and Sandy Rosenlund. This is a cattle allotment with a total grazing preference of 2,217 Animal Unit Months (AUMs). Of these, 1,934 AUMs are active and 283 AUMs are suspended nonuse. The current term permit authorizes approximately 82 head of cattle with a season of use from 11/01-03/31 on Ruby Valley Allotment, approximately 6 head of cattle with a season of use from 05/01-07/31 on Horse Haven Allotment, and the Maverick Springs Allotment has yearlong use. The current term permit authorizes approximately 55 head of cattle with a season of use from 03/01-03/31 and 11/01-02/28 on Maverick Springs Allotment, and approximately 175 head of cattle with a season of use from 04/01-10/31 on Maverick Springs Allotment.

On the Ruby Valley Allotment, two key areas have been established based on accessibility and general use by livestock, vegetation, and ecological range sites. Both key areas were visited and had data collected in 2007. One key area (RV-1) is located on a Loamy Ecological Site (028BY017NV) with dominate plant species of shadescale (*Atriplex confertifolia*), bud sage (*Picrothamnus desertorum*), Indian ricegrass (*Achnatherum hymenoides*), and squirreltail (*Elymus elymoides*). The second key area (RV-2) is located on a Coarse Gravelly Loam (028BY075NV) with dominate plant species of shadescale, black sagebrush (*Artemisia nova*), winterfat (*Krascheninnikovia lanata*), and Indian ricegrass.

On the Maverick Springs Allotment, four key areas have been established based on accessibility and general use by livestock, vegetation, and ecological range sites. Two key areas were visited and had data collect in 2007 and the other two were visited and had data collected in 2008. The first key area (MS-1) is located on a Loamy Ecological Site (028BY010NV) with dominate plant species of Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), Douglas rabbitbrush (*Chrysothamnus viscidiflorus*), and needleandthread (*Hesperostipa comata)*. Two other key areas (MS-2 & MS-3) are located on a Loamy Slope Ecological Site (028BY015NV) with dominate plant species of big sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), and wheatgrass (*Agropyron sp.*). The last key area (MS-4) is located on a Shallow

Calcareous Loam Ecological Site (028BY011NV) with dominate species of black sagebrush and Indian ricegrass.

On the Horse Haven Allotment, two key areas have been established based on accessibility and general use by livestock, vegetation, and ecological range sites. Both key areas were visited and had data collect in 2007. However, most of the data from HH-2 was lost. The other key area (HH-1) is on a Droughty Loam Ecological Site with dominate plant species of Wyoming big sagebrush, spiny hopsage (*Grayia spinosa*), bluegrass (*Poa secunda*), and Indian ricegrass.

A summary of monitoring data is located in Appendix I of this document.

PART 1. STANDARD CONFORMANCE REVIEW

Ruby Valley Allotment

Standard 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

- Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to potential of the site.

Determination:

X Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards achieving

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

Causal Factors

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

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

□ 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: Standard Achieved

Rangeland monitoring and professional observation indicates that overall soil condition is currently being maintained on the native range. Soils are stable and productive and the topsoil is holding in place. Line intercept cover data collected on the allotment shows that the Ruby Valley Allotment is meeting the standard. Vegetative cover registered within or slightly higher than the appropriate ground cover percentage for both of the key areas (See Appendix I).

Key Area RV-1 occurs on Broyles-Blimo soil association (472) with a Loamy ecological site (028BY017NV). These soils typically have moderate to slow permeability. The approximate

ground cover (basal and ground) for a Coarse Gravelly Loam site is 5-15 percent. Monitoring data indicate that this key area has a vegetative cover of 21.6 percent. The site is maintaining cover appropriate to the potential for the site. A slight increase in cover does not negatively affect infiltration and permeability.

Key Area RV-2 occurs on an Automal-Wintermute soil association (373) with a Coarse Gravelly Loam ecological site (028BY075NV). These soils typically have a slow permeability. The approximate ground cover (basal and ground) for a Coarse Gravelly Loam site is 15-25 percent. Monitoring data indicate that this key area has a vegetative cover of 14 percent. The site is maintaining cover appropriate to the potential for the site.

Standard 2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

- 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.
    - Chemical, physical and biological water constituents are not exceeding the state water quality standards.

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

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
□ Livestock are not a contributing factor to not achieving the standard
□ Failure to meet the standard is related to other issues or conditions

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

Conclusion: Standard Achieved
No natural riparian areas occur on the Ruby Valley Allotment.

Standard 3. Habitat:
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

As indicated by:
- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, or age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
X Livestock are not a contributing 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: Not achieving the Standard, but making significant progress towards. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.
Rangeland monitoring data (See Appendix I) and professional observations show that vegetation structure and distribution on the Ruby Valley Allotment are consistent with the Rangeland Ecological Site Descriptions (ESD) and expected plant community for the area. Vegetative structure is composed of varying age classes and heights of plants. Vegetation is distributed across the landscape as expected for both sites. These are indicators that the Ruby Valley Allotment is close to meeting the standard for habitat.

However on the Ruby Valley Allotment vegetation productivity and composition differs somewhat from the ESDs. Key area RV-1 has a total annual production of 106 pounds per acre (air dry). According to the ESD, annual production should be about 200 pounds per acre (air dry). This is a lower annual production than would be expected for this site. Percent vegetation composition by weight shows that shrubs are higher than what is expected while grasses are lower when compared to the historic climax plant community (HCPC) in the ESD for RV-1. However dominate species on the ground are the same as the dominate species in the ESD. This is further expressed by the similarity index for the area which is 82 percent. This shows that the vegetative components are present however differ in percent composition.

Key area RV-2 has a total annual production of 308 pounds per acre (air dry). According to the ESD, annual production for this site should be about 300 pounds per acre (air dry). This key area is producing as expected for the site. Percent vegetation composition by weight shows that shrubs are higher than what is expected while grasses are lower when compared to the HCPC in the ESD for RV-2. These data at RV-2 is believed to have been collected in a transition area from the dominate Coarse Gravelly Loam ecological site into a Shallow Calcareous Loam ecological site (28BY011NV). This would account for the combination of black sagebrush and shadscale being co-dominate and is further expressed by the similarity index of 37 percent. This similarity index shows that dominate vegetation may not by consistent with the ESD.

<u>Maverick Springs Allotment</u>

Standard 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

- Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to potential of the site.

Determination:

X Achieving the Standard

□ Not Achieving the Standard, but making significant progress towards achieving

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

Causal Factors

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

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

□ 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: Standard Achieved
Rangeland monitoring and professional observation indicates that overall soil condition is currently being maintained on the native range. Soils are stable and productive and the topsoil is holding in place. Line intercept cover data collected on the allotment shows that the Maverick Springs Allotment is meeting the standard. Vegetative cover registered within the appropriate ground cover percentage for all of the key areas except MS-4 (See Appendix I).

Key Area MS-1 occurs on Bobs-Fax-Parisa soil association (1081) with a Loamy ecological site (028BY010NV). These soils typically have moderate to moderately slow permeability. The approximate ground cover (basal and ground) for a Loamy site is 10-20 percent. Monitoring data indicate that this key area has a vegetative cover of 15.7 percent. The site is maintaining cover appropriate to the potential for the site.

Key Area MS-2 occurs on a McIvey-Pioche soil association (520) with a Loamy Slope ecological site (028BY015NV). These soils typically have a slow to very slow permeability. The approximate ground cover (basal and ground) for a Loamy Slope site is 25-35 percent. Monitoring data indicate that this key area has a vegetative cover of 28 percent. The site is maintaining cover appropriate to the potential for the site.

Key Area MS-3 occurs on a McIvey-Pioche soil association (520) with a Loamy Slope ecological site (028BY015NV). These soils typically have a slow to very slow permeability. The approximate ground cover (basal and ground) for a Loamy Slope site is 25-35 percent. Monitoring data indicate that this key area has a vegetative cover of 24.3 percent. The site is maintaining cover appropriate to the potential for the site.

Key Area MS-4 occurs on a Palinor very gravelly loam (282) with a Shallow Calcareous Loam ecological site (028BY011NV). This soil typically has a moderate permeability. The approximate ground cover (basal and ground) for a Shallow Calcareous Loam site is 15-20 percent. Monitoring data indicate that this key area has a vegetative cover of 6.2 percent. Cover for this site is lower than expected, however soils are healthy on this site as indicated by biotic crusts that extend into the interspaces and no signs of excessive trampling and/or compaction.

Standard 2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

- 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.
- Chemical, physical and biological water constituents are not exceeding the state water quality standards.

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

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
□ Livestock are not a contributing factor to not achieving the standard
□ Failure to meet the standard is related to other issues or conditions

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

Conclusion: Standard Achieved
No natural riparian areas occur on the Maverick Springs Allotment.

Standard 3. Habitat:
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

As indicated by:
- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, or age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
X Livestock are not a contributing 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: Not achieving the Standard and not making significant progress towards. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.
Rangeland monitoring data (See Appendix I) and professional observations show that vegetation structure, distribution, and productivity on the Maverick Springs Allotment are consistent with the ESD and expected plant community for the area. Vegetative structure is composed of varying age classes and heights of plants. Vegetation is distributed across the landscape as expected for all sites. Key area MS-2 has a total annual production of 834 pounds per acre (air dry). Key area MS-3 has a total annual production of 1,472 pounds per acre (air dry). According to the ESD, annual production for both of these sites should be about 700 pounds per acre (air dry) during unfavorable years and about 1500 pounds per acre (air dry) during favorable years. These are indicators that the Maverick Springs Allotment is close to meeting the standard for habitat.

However on the Maverick Springs Allotment vegetation composition differs from the ESD. Percent vegetation composition by weight shows that shrubs are higher than what is expected while grasses are lower when compared to the HCPC in the ESD for both sites. This is also expressed by the similarity index for the area which is 40 percent on MS-2 and 29 percent on MS-3. This shows that the vegetative community is in a mid seral stage and may be lacking components found in the HCPC. The plant community dynamics for these sites indicate that big sagebrush and Douglas rabbitbrush increase while bluebunch wheatgrass (*Pseudoroegneria spicata*) and needlegrasses (*Achnatherum sp.*) decrease when ecological condition declines.

<u>Horse Haven Allotment</u>
Standard 1. Upland Sites
Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:
- Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to potential of the site.

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
□ Livestock are not a contributing factor to not achieving the standard
□ 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: Standard Achieved
Rangeland monitoring and professional observation indicates that overall soil condition is currently being maintained on the native range. Soils are stable and productive and the topsoil is holding in place. Line intercept cover data collected on the allotment shows that the Horse Haven Allotment is meeting the standard. Vegetative cover registered slightly lower than the appropriate ground cover percentage for the key area where data was collected (See Appendix I).

Key Area HH-1 occurs on an inclusion of soil mapping unit 1287 (Palinor-Izar-Biken association) with a Droughty Loam ecological site (028BY052NV). These soils typically have moderate permeability. The approximate ground cover (basal and ground) for a Droughty Loam site is 20-35 percent. Monitoring data indicate that this key area has a vegetative cover of 16.6 percent. The site is maintaining cover appropriate to the potential for the site. A slight decrease in cover does not negatively affect infiltration and permeability.

Standard 2. Riparian and Wetland Sites
Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

- 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.
- Chemical, physical and biological water constituents are not exceeding the state water quality standards.

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

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
□ Livestock are not a contributing factor to not achieving the standard
□ Failure to meet the standard is related to other issues or conditions

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

Conclusion: Standard Achieved
No natural riparian areas occur on the Horse Haven Allotment.

Standard 3. Habitat:
Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

As indicated by:
- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, or age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

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

Causal Factors
□ Livestock are a contributing factor to not achieving the standard.
X Livestock are not a contributing factor to not achieving the standard
X Failure to meet the standard is related to other issues or conditions

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

Conclusion: Not achieving the Standard, but making significant progress towards. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.
Rangeland monitoring data (See Appendix I) and professional observations show that vegetation structure, distribution, and productivity on the Horse Haven Allotment are consistent with the ESD and expected plant community for the area. Vegetative structure is composed of varying age classes and heights of plants. Vegetation is distributed across the landscape as expected for both the sites. The area has a total annual production of 529 pounds per acre (air dry). According to the ESD, annual production should be about 600 pounds per acre (air dry). These are indicators that the Horse Haven Allotment is close to meeting the standard for habitat.

However on the Horse Haven Allotment vegetation composition differs somewhat from the ESD. Percent vegetation composition by weight shows that shrubs are higher than what is expected while grasses are lower when compared to the HCPC in the ESD. However dominate species on the ground are the same as the dominate species in the ESD. This is further expressed by the similarity index for the area which is 59 percent. This shows that the vegetative components are present however differ in percent composition.

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

<u>Ruby Valley Allotment</u>
Standard #1: Upland Sites
The Standard is being achieved.

Standard #2: Riparian and Wetlands
The Standard is being not applicable to the allotment.

Standard #3: Habitat
The Standard is not being achieved. In recent years, utilization on the Ruby Valley Allotment has been slight to moderate which is within proper use levels. Therefore, grazing is not a contributing factor to not achieving this standard. It is uncertain at this time what the cause of this change in productivity and composition is.

Maverick Springs Allotment
Standard #1: Upland Sites
The Standard is being achieved.

Standard #2: Riparian and Wetlands
The Standard is being not applicable to the allotment.

Standard #3: Habitat
The Standard is not being achieved. In recent years, utilization on the Maverick Springs Allotment has generally been slight to moderate which is within proper use levels. Therefore, grazing is not a contributing factor to not achieving this standard. It is uncertain at this time what the cause of this change in composition is.

Horse Haven Allotment
Standard #1: Upland Sites
The Standard is being achieved.

Standard #2: Riparian and Wetlands
The Standard is being not applicable to the allotment.

Standard #3: Habitat
The Standard is not being achieved. In recent years, utilization on the Horse Haven Allotment has been slight to moderate which is within proper use levels. Therefore, grazing is not a contributing factor to not achieving this standard. It is uncertain at this time what the cause of this change in composition is.

PART 3. GUIDELINE CONFORMANCE REVIEW AND SUMMARY

Grazing is in conformance with all applicable Guidelines as provided in the Northeastern Great Basin Standards and Guidelines.

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

Recommendations:

1. Continue rangeland monitoring of this allotment for livestock in compliance with proper allowable use levels for these allotments

2. The season of use is recommended to remain November 1 to March 31 on the Ruby Valley Allotment

3. The season of use is recommended to remain March 31 to February 28 on the Maverick Springs Allotment

4. The season of use is recommended to remain May 1 to August 31 on the Horse Haven Allotment

5. The Active AUMs are recommended to remain at 416 Active AUMs on the Ruby Valley Allotment.

6. The Active AUMs are recommended to remain at 1500 Active AUMs on the Maverick Springs Allotment.

7. The Active AUMs are recommended to remain at 18 Active AUMs on the Horse Haven Allotment.

8. Salt and/or mineral supplements for livestock shall be located no closer than ¼ mile from water sources.

9. Utilization levels of current year's growth of native key species will be established as follows:
   Ruby Valley Allotment maximum utilization on perennial grasses at 60%
   Ruby Valley Allotment maximum utilization on shrubs and half-shrubs at 50%
   Maverick Springs Allotment maximum utilization on perennial grasses at 55%
   Maverick Springs Allotment maximum utilization on shrubs and half-shrubs at 45%
   Horse Haven Allotment maximum utilization at 50%

10. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.

11. 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.

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Prepared by:

_____ _____

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Reviewed by:

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Kathleen McConnell Date
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Dave Jacobson Date
Wilderness

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Kalem Lenard Date
Recreation Planner

Melanie Peterson
Environmental Protection Specialist

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Elvis Wall
Native American Coordinator

Date

Gina Jones
Ecologist/NEPA

Date

I concur:

Chris Mayer
Supervisory Rangeland Management Specialist
Egan Field Office

Date

Jeffery A. Weeks
Field Office Manager
Egan Field Office Area

Date

APPENDIX I
DATA SUMMARY

Ruby Valley Allotment

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 Ruby Valley Allotment as well as the ecological site associated with the key area.

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.Ruby Valley Allotment Key Areas

Key Area	Location	Ecological Site	Dominate Species of HCPC	Soil Mapping Unit
RV-1	T25N R58E S22	Loamy (028BY017NV)	shadescale, Indian ricegrass & squirreltail	472—Broyles-Blimo association
RV-2	T26N R58E S27	Coarse Gravelly Loam (028BY075NV)	shadscale & Indian ricegrass	373—Automal-Wintermute soil association

2. Licensed Livestock Use

Over the grazing seasons from 1998 to 2007, livestock permitted use on the Ruby Valley Allotment was 416 AUMs in a cattle only operation. During this same time period, livestock actual use ranged from a high of 599 AUMs in 2000 to a low of 396 AUMs in 2004 and 2005. Livestock use has varied dependent on available forage due to growing conditions. In years where actual use exceeds permitted use, temporary use was authorized. Table 2-1 summarizes the actual use data for this time period.

Table 2-1.Ruby Valley Allotment Actual Use

Grazing Year	Actual Use (AUMs)	Grazing Year	Actual Use (AUMs)
1998	595	2003	408
1999	418	2004	396
2000	599	2005	396
2001	568	2006	434
2002	418	2007	408

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 Egan Field Office of the Ely BLM District according to the Egan Resources Management Plan and Final Environmental Impact Statement (RMP/FEIS – September, 1984) and Record of Decision (ROD – February, 1987) is to "Establish utilization limits to maintain watershed cover, plant vigor and soil fertility in consideration of plant phenology, physiology, terrain, water availability, wildlife needs, grazing systems and aesthetic values." (Egan ROD, p. 44). 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). A moderate use level (40-60%) is considered to be most desirable on the Ruby Valley Allotment.

Key forage plant utilization method was used to collect utilization data at the key areas. Utilization for the allotment is summarized in Table 3-1. Actual utilization on the Ruby Valley Allotment has been slight to moderate.

Table 3-1. Ruby Valley Allotment Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
RV-1	Indian ricegrass	2002	moderate	43%
		2006	slight	16%
		2007	slight	14%
	Bottlebrush squirreltail	2002	light	36%
RV-2	Indian ricegrass	2002	moderate	42%
		2006	slight	20%
		2007	slight	12%
	Sandberg's bluegrass	2002	light	38%
	winterfat	2006	light	26%
		2007	light	17%

4. Line Intercept Cover Studies

Canopy cover is the percent of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage, including small openings (Swanson 2006). The Line Intercept Method is a commonly used method of determining the relative percent live foliar or canopy cover of a range site by plant class (tree, shrub, grass, forb, or annual). The method also estimates the percent live foliar cover by plant species. The results are then compared to the appropriate cover for each ecological site as indicated by the Rangeland Ecological Site Descriptions (ESD). Results are also compared to general known healthy rangelands.

Line intercept cover studies have been conducted at the two key areas on the Ruby Valley Allotment. Table 4-1 summarizes data collected at these key areas and the ecological site approximation for each site.

Table 4-1. Ruby Valley Allotment Vegetation Cover

Key Area	Range Site	Existing Cover (%)	ESD Approx. Cover (%)
RV-1	Loamy (028BY017NV)	21.6%	5%-15%
RV-2	Coarse Gravelly Loam (028BY075NV)	14.0%	15%-25%

5. Similarity Index of Ecological Site Inventory

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.

When the similarity index is computed, a seral stage can be derived. Seral stages are the developmental stages of an ecological succession (NRCS 1997). A similarity index of 0 to 25 percent represents an early seral plant community, 26 to 50 percent represents a mid-seral plant community, 51 to 75 percent represents a late seral plant community, and 76 to 100 percent represents a climax plant community.

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 ESD 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 Ruby Valley Allotment.

Table 5-1.Total Annual Yield and Composition of Ruby Valley Allotment Key Areas

Key Area: RV-1
Date: 06/21/2007
Range Site: Loamy (028BY017NV)

Plant Common Name	Plant Symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
squirreltail	ELEL5	6%	5-15%	6%
Indian ricegrass	ACHY	6%	10-20%	6%
shadescale	ATCO	69%	40-50%	50%
bud sage	PIDE4	20%[1]	10-25%	20%

Similarity Index: 82% (climax seral stage)
Overall Production: 106 pounds per acre (air dry wt.)
Plant community dynamics: As ecological condition declines, shadscale increases in density, while Indian ricegrass, bottlebrush squirreltail and bud sagebrush compositions are reduced. With further site degradation, shadscale may become dominant to the extent of a nearly pure stand. Cheatgrass, halogeton and tansymustard are species likely to invade this site.

[1]bud sage percent composition was estimated because the plants were dormant

Key Area: RV-2
Date: 06/21/2007
Range Site: Coarse Gravelly Loam (028BY075NV)

Plant Common Name	Plant Symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Indian ricegrass	ACHY	3%	40-50%	3%
squirreltail	ELEL5	3%	2-5%	3%
mustard	BRASS	1%		
phlox	PHLOX	1%	1%	1%
winterfat	KRLA2	32%	5-10%	10%
shadescale	ATCO	6%	25-35%	6%
bud sage	PIDE4	7%	5-10%	7%
Douglas rabbitbrush	CHVI8	23%	2-5%	5%
black sage	ARNO4	25%	2%	2%

Similarity Index: 37% (mid seral stage)
Overall Production: 308 pounds per acre (air dry wt.)
Plant community dynamics: As ecological condition declines, shadscale and Douglas' rabbitbrush will increase in density, while Indian ricegrass composition will be reduced. With further degradation, shadscale may become dominant to the extent of a nearly pure stand. After a major disturbance such as a fire, Douglas' rabbitbrush may become dominant on this site. Cheatgrass, halogeton and mustards are the likely species to invade this site.

*from Ecological Site Descriptions

Maverick Springs Allotment

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 Maverick Springs Allotment as well as the ecological site associated with the key area.

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.Maverick Springs Allotment Key Areas

Key Area	Location	Ecological Site	Dominate Species of HCPC	Soil Mapping Unit
MS-1	T24N R58E S29 NE1/4 SW1/4	Loamy (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, & needleandthread	1081—Bobs-Fax-Parisa association
MS-2	T24N R58E S35 NW1/4 NW1/4	Loamy Slope (028BY015NV)	mountain big sagebrush & bluebunch wheatgrass	520—McIvey-Pioche association
MS-3	T24N R58E S23 W1/2 SE1/4	Loamy Slope (028BY015NV)	mountain big sagebrush & bluebunch wheatgrass	520—McIvey-Pioche association
MS-4	T25N R59E S18 NE1/4 NW1/4	Shallow Calcareous Loam (028BY011NV)	black sagebrush, Indian ricegrass, & needleandthread	282—Palinor very gravelly loam

2. Licensed Livestock Use

Over the grazing seasons from 1998 to 2007, livestock permitted use on the Maverick Springs Allotment was 1500 AUMs in a cattle only operation. During this period, actual use was 1504 AUMs. This difference of four AUMs is due to calculation and round differences in computer programs and is not significant. Table 2-1 summarizes the actual use data for this time period.

Table 2-1.Maverick Springs Allotment Actual Use

Grazing Year	Actual Use (AUMs)	Grazing Year	Actual Use (AUMs)
1998	1504	2003	1504
1999	1504	2004	1504
2000	1504	2005	1504
2001	1504	2006	1504
2002	1504	2007	1504

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 Egan Field Office of the Ely BLM District according to the Egan Resources Management Plan and Final Environmental Impact Statement (RMP/FEIS – September, 1984) and Record of Decision (ROD – February, 1987) is to "Establish utilization limits to maintain watershed cover, plant vigor and soil fertility in consideration of plant phenology, physiology, terrain, water availability, wildlife needs, grazing systems and aesthetic values." (Egan ROD, p. 44). 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). A moderate use level (40-60%) is considered to be most desirable on the Maverick Springs Allotment.

Key forage plant utilization method was used to collect utilization data at the key areas as well as at six other locations. Utilization for the allotment is summarized in Table 3-1. Actual utilization on the Marverick Springs Allotment has generally been slight to moderate and includes both cattle and wild horse use and possibly wildlife.

Table 3-1.Maverick Springs Allotment Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
MS-1	needleandthread	2008	slight	15%
MS-2	wheatgrass	2007	slight	7%
MS-3	wheatgrass	2007	slight	7%
	bitterbrush	2006	light	22%
MS-4	Indian ricegrass	2008	slight	7%
1	thickspike wheatgrass	2006	heavy	74%
	bitterbrush	2006	slight	11%
2	bitterbrush	2006	slight	13%
3	thickspike wheatgrass	2006	moderate	48%
	bitterbrush	2006	slight	20%
4	thickspike wheatgrass	2006	slight	10%
5	thickspike wheatgrass	2006	heavy	62%
	bitterbrush	2006	moderate	48%
6	needleandthread	2006	moderate	48%

4. Line Intercept Cover Studies

Canopy cover is the percent of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage, including small openings (Swanson 2006). The Line Intercept Method is a commonly used method of determining the relative percent live foliar or canopy cover of a range site by plant class (tree, shrub, grass, forb, or annual). The method also estimates the percent live foliar cover by plant species. The results are then compared to the appropriate cover for each ecological site as indicated by the Rangeland Ecological Site Descriptions (ESD). Results are also compared to general known healthy rangelands.

Line intercept cover studies have been conducted at the four key areas on the Maverick Springs Allotment. Table 4-1 summarizes data collected at these key areas and the ecological site approximation for each site.

Table 4-1.Maverick Springs Allotment Vegetation Cover

Key Area	Range Site	Existing Cover (%)	ESD Approx. Cover (%)
MS-1	Loamy (028BY010NV)	15.7%	10%-20%
MS-2	Loamy Slope (028BY015NV)	28.0%	25%-35%
MS-3	Loamy Slope (028BY015NV)	24.3%	25%-35%
MS-4	Shallow Calcareous Loam (028BY011NV)	6.2%	15%-20%

5. Similarity Index of Ecological Site Inventory

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.

When the similarity index is computed, a seral stage can be derived. Seral stages are the developmental stages of an ecological succession (NRCS 1997). A similarity index of 0 to 25 percent represents an early seral plant community, 26 to 50 percent represents a mid-seral plant community, 51 to 75 percent represents a late seral plant community, and 76 to 100 percent represents a climax plant community.

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 ESD 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 Maverick Springs Allotment.

Table 5-1.Total Annual Yield and Composition of Maverick Springs Allotment Key Areas

Key Area: MS-2
Date: 06/21/2007
Range Site: Loamy Slope (028BY015NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Big sagebrush	ARTR	80%	10-20%	20%
bitterbrush	PUTR2	14%	2-8%	14%
wheatgrass	AGROP2	5%	30-40%	5%
Douglas rabbitbrush	CHVI8	1%	3%	1%

Similarity Index: 40% (mid-seral stage)
Overall Production: 834 pounds per acre (air dry wt.)
Plant Community Dynamics: As ecological condition declines, big sagebrush and rabbitbrush increase as bluebunch wheatgrass and needlegrasses decrease. Cheatgrass is the species most likely to invade this site. Singleleaf pinyon and Utah juniper readily invade this site where it occurs adjacent to pinyon-juniper woodlands. When pinyon and juniper occupy this site they compete with other species for available light, moisture, and nutrients. If pinyon-juniper canopies are allowed to close, they can eliminate all understory vegetation.

Key Area: MS-3
Date: 06/22/2007
Range Site: Loamy Slope (028BY015NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Big sagebrush	ARTR	52%	10-20%	20%
bitterbrush	PUTR2	46%	2-8%	8%
Douglas rabbitbrush	CHVI8	1%	3%	1%

Similarity Index: 29% (mid-seral stage)
Overall Production: 1,472 pounds per acre (air dry wt.)
Plant Community Dynamics: As ecological condition declines, big sagebrush and rabbitbrush increase as bluebunch wheatgrass and needlegrasses decrease. Cheatgrass is the species most likely to invade this site. Singleleaf pinyon and Utah juniper readily invade this site where it occurs adjacent to pinyon-juniper woodlands. When pinyon and juniper occupy this site they compete with other species for available light, moisture, and nutrients. If pinyon-juniper canopies are allowed to close, they can eliminate all understory vegetation.

*from Ecological Site Description

Horse Haven Allotment

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 Horse Haven Allotment as well as the ecological site associated with the key area.

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.Horse Haven Allotment Key Areas

Key Area	Location	Ecological Site	Dominate Species of HCPC	Soil Mapping Unit
HH-1	T26N R59E S30 W1/2 NE1/4	Droughty Loam (028BY052NV)	Wyoming big sagebrush, spiny hopsage, & Indian ricegrass	1287—Palinor-Izar-Biken association
HH-2	T25N R60E S6 NW1/4 NW1/4	Loamy (028BY007NV)	big sagebrush, Thurber's needlegrass, & bluebunch wheatgrass	323—Urmafot-Bobs-Palinor association

2. Licensed Livestock Use

Over the grazing seasons from 1998 to 2007, livestock permitted use on the Horse Haven Allotment was 18 AUMs in a cattle only operation. Table 2-1 summarizes the actual use data for this time period.

Table 2-1.Horse Haven Allotment Actual Use

Grazing Year	Actual Use (AUMs)	Grazing Year	Actual Use (AUMs)
1998	18	2003	18
1999	18	2004	18
2000	18	2005	18
2001	18	2006	18
2002	18	2007	18

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 Egan Field

Office of the Ely BLM District according to the Egan Resources Management Plan and Final Environmental Impact Statement (RMP/FEIS – September, 1984) and Record of Decision (ROD – February, 1987) is to "Establish utilization limits to maintain watershed cover, plant vigor and soil fertility in consideration of plant phenology, physiology, terrain, water availability, wildlife needs, grazing systems and aesthetic values." (Egan ROD, p. 44). 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). A moderate use level (40-60%) is considered to be most desirable on the Horse Haven Allotment.

Key forage plant utilization method was used to collect utilization data at the key areas. Utilization for the allotment is summarized in Table 3-1. Actual utilization on the Horse Haven Allotment has been slight to moderate.

Table 3-1.Horse Haven Allotments Utilization

Key Area	Key Species	Grazing Year	Utilization	Total
HH-1	Sandberg's bluegrass	2007	light	30%
		2007*	slight	15%
	Indian ricegrass	2007	moderate	55%
		2007*	light	26%
	winterfat	2007	moderate	48%
HH-2	Indian ricegrass	2006	slight	15%
		2007	light	39%
	needle grass	2006	slight	15%
		2007	light	38%
	bitterbrush	2006	slight	14%

*collected near key area

4. Line Intercept Cover Studies

Canopy cover is the percent of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage, including small openings (Swanson 2006). The Line Intercept Method is a commonly used method of determining the relative percent live foliar or canopy cover of a range site by plant class (tree, shrub, grass, forb, or annual). The method also estimates the percent live foliar cover by plant species. The results are then compared to the appropriate cover for each ecological site as indicated by the Rangeland Ecological Site Descriptions (ESD). Results are also compared to general known healthy rangelands.

Line intercept cover studies have been conducted at one key area on the Horse Haven Allotment. Table 4-1 summarizes data collected at this key area and the ecological site approximation for it.

Table 4-1.Horse Haven Allotment Vegetation Cover

Key Area	Range Site	Existing Cover (%)	ESD Approx. Cover (%)
HH-1	Droughty Loam (028BY052NV)	16.6%	20%-35%

5. Similarity Index of Ecological Site Inventory

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.

When the similarity index is computed, a seral stage can be derived. Seral stages are the developmental stages of an ecological succession (NRCS 1997). A similarity index of 0 to 25 percent represents an early seral plant community, 26 to 50 percent represents a mid-seral plant community, 51 to 75 percent represents a late seral plant community, and 76 to 100 percent represents a climax plant community.

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 ESD 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 Horse Haven Allotment.

Table 5-1.Total Annual Yield and Composition of Horse Haven Allotment Key Areas

Key Area: HH-1
Date: 06/14/2008
Range Site: Droughty Loam (028BY052NV)

Plant Common Name	Plant symbol	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Wyoming big sagebrush	ARTRW	54%	20-35%	35%
spiny hopsage	GRSP	25%	5-20%	20%
bluegrass	POSE	19%	2%	2%
Indian ricegrass	ACHY	2%	15-25%	2%

Similarity Index: 59% (late seral stage)
Overall Production: 529 pounds per acre (air dry wt.)[1]
Plant community dynamics: As ecological condition declines, Wyoming big sagebrush, spiny hopsage, horsebrush and other shrubs increase in density as Indian ricegrass and needleandthread decrease. The amount of spiny hopsage is quite variable but is usually greatest where soils are coarse textured. Shadscale and/or bud sagebrush, although typically occurring in minor amounts, have a strong fidelity to this plant community. Spiny hopsage, shadscale, and bud sagebrush often dramatically increase on this site following wildfire. Cheatgrass and annual mustards are species likely to invade this site.

*from Ecological Site Description
[1]does not include phenology factor adjustments because they are unrealistic

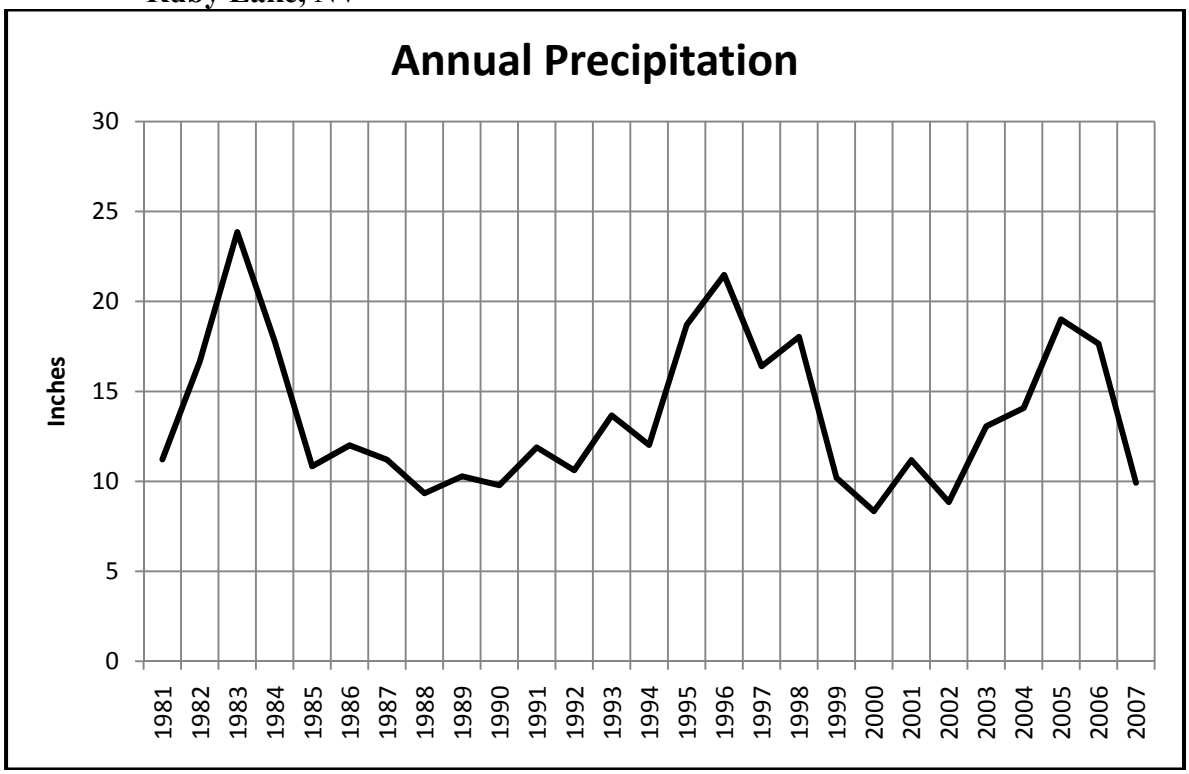
Precipitation Data

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 Ruby Lake, Nevada weather station provides an accurate representation of the annual precipitation on the Ruby Valley, Maverick Springs, and Horse Haven Allotments. Table 1-1 and Graph 1-1 summary annual precipitation data collected since 1981.

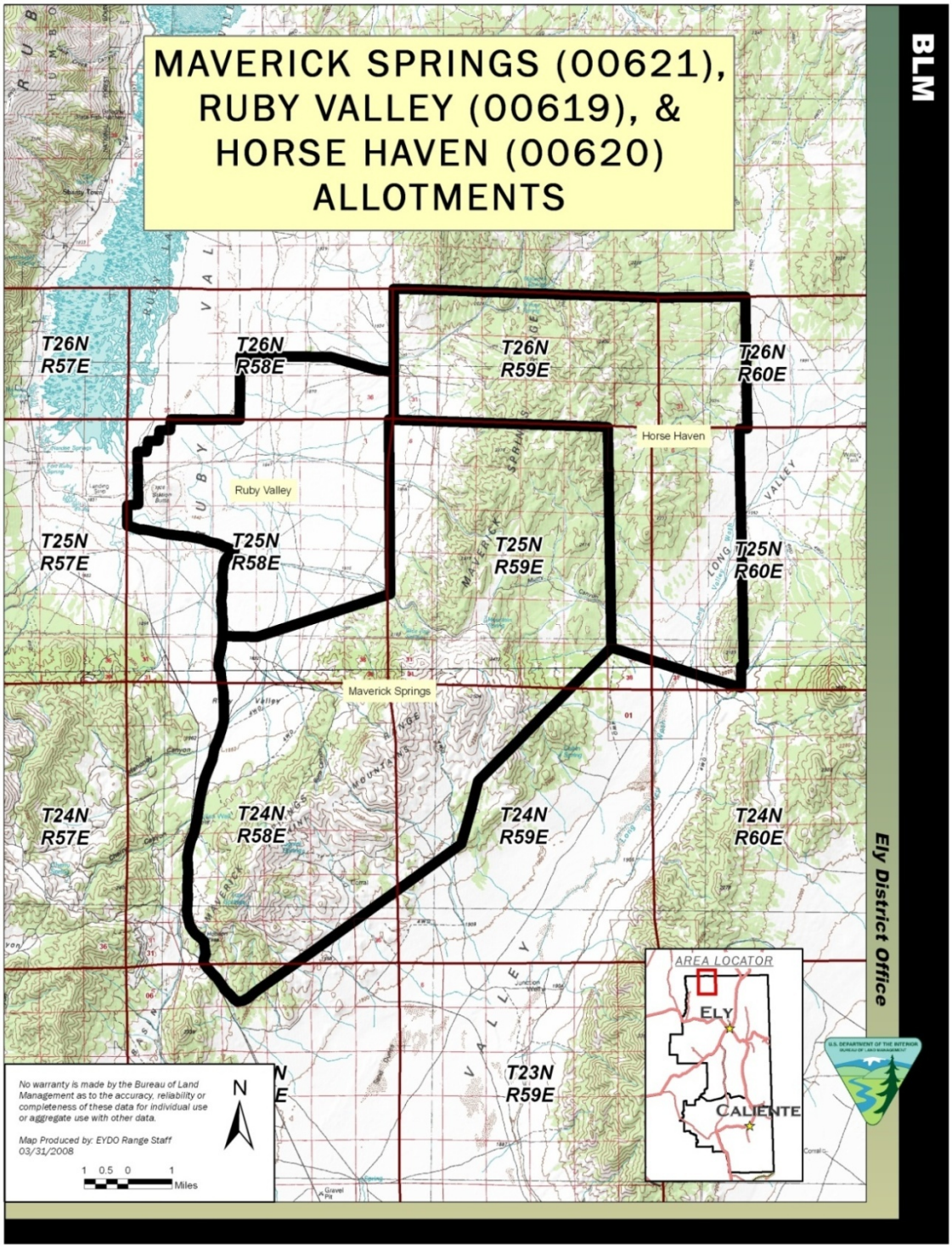
Table 1-1.Western Regional Climate Center Precipitation Data from Ruby Lake, NV

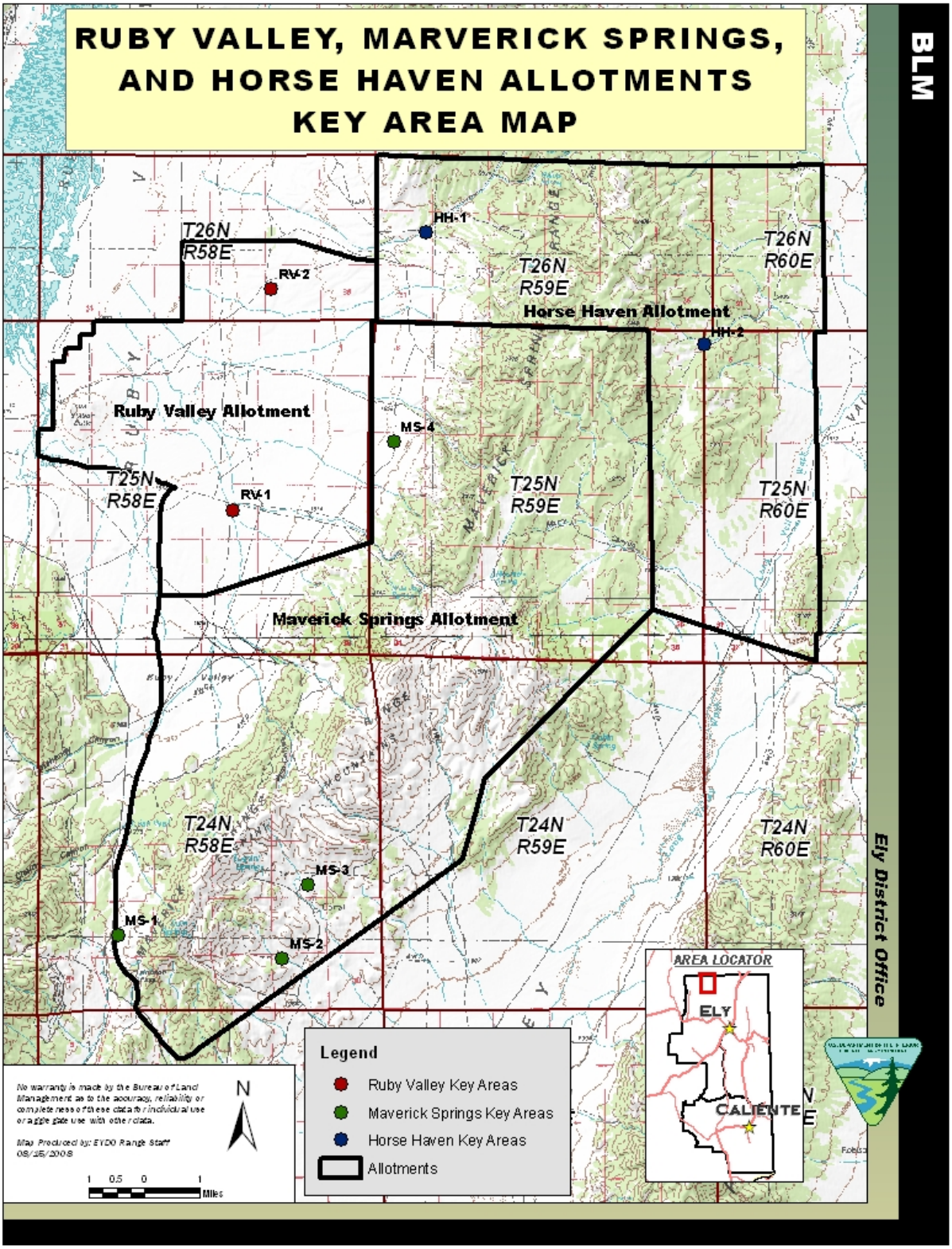
YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)	YEAR	ANNUAL PRECIP. (inches)
1981	11.22	1990	9.78	1999	10.2
1982	16.67	1991	11.89	2000	8.34
1983	23.86	1992	10.62	2001	11.19
1984	17.78	1993	13.67	2002	8.85
1985	10.84	1994	12.02	2003	13.06
1986	12	1995	18.7	2004	14.08
1987	11.2	1996	21.48	2005	19
1988	9.34	1997	16.4	2006	17.65
1989	10.28	1998	18.03	2007	9.92

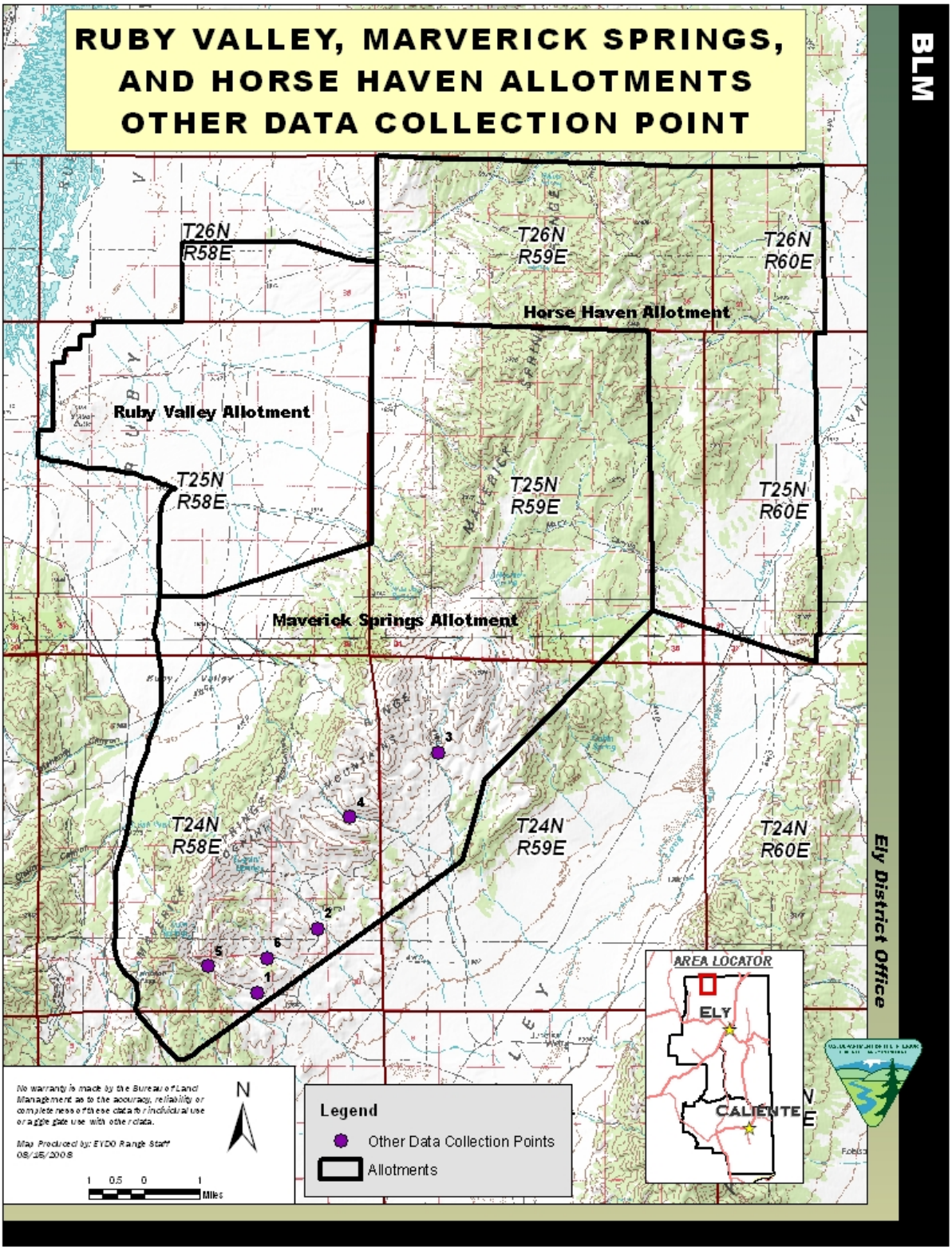
Graph 1-1.Precipitation Data (1981-2007) from Western Regional Climate Center from Ruby Lake, NV



APPENDIX II
MAPS
Ruby Valley, Maverick Springs, and Horse Haven Allotments




RUBY VALLEY, MARVERICK SPRINGS, AND HORSE HAVEN ALLOTMENTS KEY AREA MAP
BLM
Ely District Office
T26N R58E
T26N R59E
T26N R60E
T25N R58E
T25N R59E
T25N R60E
T24N R58E
T24N R59E
T24N R60E
Ruby Valley Allotment
Horse Haven Allotment
Maverick Springs Allotment
RV-1
RV-2
HH-1
HH-2
MS-1
MS-2
MS-3
MS-4
AREA LOCATOR
ELY
CALIENTE
Legend
Ruby Valley Key Areas
Maverick Springs Key Areas
Horse Haven Key Areas
Allotments
N
Miles


RUBY VALLEY, MARVERICK SPRINGS,
AND HORSE HAVEN ALLOTMENTS
OTHER DATA COLLECTION POINT
BLM
T26N
R58E
T26N
R59E
T26N
R60E
Horse Haven Allotment
Ruby Valley Allotment
T25N
R58E
T25N
R59E
T25N
R60E
Maverick Springs Allotment
T24N
R58E
T24N
R59E
T24N
R60E
Ely District Office
AREA LOCATOR
ELY
CALIENTE
Legend
Other Data Collection Points
Allotments
N
Miles

APPENDIX III
TERMS AND CONDITIONS
Ruby Valley, Maverick Springs, and Horse Haven Allotments

Allotment Name and Number	Livestock Number/Kind	Grazing Period	% Public Land*	Type Use	AUMs**
Ruby Valley #00619	82 Cattle	03/01 to 03/31	100	Active	84
	82 Cattle	11/01 to 02/28	100	Active	324
Horse Haven #00620	6 Cattle	05/01 to 7/31	100	Active	18
Maverick Springs #00621	55 Cattle	03/01 to 3/31	100	Active	56
	175 Cattle	04/01 to 10/31	100	Active	1231
	55 Cattle	11/01 to 2/28	100	Active	217

*% 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
Ruby Valley	416	283	699
Horse Haven	18	0	18
Maverick Springs	1500	0	1500

Livestock Management Practices - Terms and Conditions
In accordance with 43 CFR §4130.3 and §4130.3-2 the following terms and conditions shall be included in the term grazing permit for Raymond and Sandy Rosenlund for the Ruby Valley, Maverick Springs, and Horse Haven Allotments:

1. Maximum allowable use levels for the Ruby Valley Allotment will be established as follows:
   - Perennial grasses: 60% current year's growth
     This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
   - Perennial shrubs and half-shrubs: 50% use on current annual production.
     This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use. Use would be read in April or prior to the spring re-growth. Use during spring contributes to following season's use level.

2. Maximum allowable use levels for the Maverick Springs Allotment will be established as follows:
   - Perennial grasses: 55% current year's growth
     This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
   - Perennial shrubs and half-shrubs: 45% use on current annual production.
     This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use. Use would be read in April or prior to the spring re-growth. Use during spring contributes to following season's use level.
3. Maximum allowable use levels for the Horse Haven Allotment will be established as follows:
   - Perennial grasses: 50% current year's growth
     This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
   - Perennial shrubs and half-shrubs: 50% use on current annual production.
     This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use. Use would be read in April or prior to the spring re-growth. Use during spring contributes to following season's use level.
4. Salt and/or mineral supplements for livestock will be located no closer than ¼ mile from water sources. Use of nutritional supplements (not forage) is encouraged to improve the ability of cattle to utilize forage in the winter months and to improve livestock distribution across the allotment.
5. The permittee is required to perform normal maintenance on the range improvements that have been issued through cooperative agreements or Section 4 permits.

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. The payment of your grazing fees is due on or before the date specified in the grazing bill. This date is generally the opening date of your allotment. If payment is not received within 15 days of the due date, you will be charged a late fee assessment of $25 or 10

percent of the grazing bill, whichever is greater, not to exceed $250. Payment with Visa, MasterCard or American Express is accepted. Failure to make payment within 30 days of the due date may result in trespass action.

5. 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.
6. Grazing use in White Pine County will be in accordance with the Northeastern Great Basin Area 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.
7. 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.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. 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.

APPENDIX IV

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Term Grazing Permit Renewal for Rosenlund
Horse Haven, Maverick Springs & Ruby Valley Allotments
White Pine County, Nevada

On April 2nd, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the term grazing permit renewal for Roselund on the Horse Haven, Maverick Springs, and Ruby Valley allotments in White Pine County, NV. The current permit allows up to 6 cattle to graze on the Horse Haven allotment from 05/01 to 07/31 for 18 AUMs permitted use and 0 AUMs historic suspended, for a total permitted use of 18 AUMs. On the Middle Steptoe allotment the current permit allows up to 55 cattle to graze from 11/01 to 02/28, 175 cattle to graze from 04/01 to 10/31, and 55 cattle to graze from 11/01 to 02/28 for 1,500 AUMs permitted use and 0 AUMs historic suspended, for a total permitted use of 1,500 AUMs. On the Ruby Valley allotment the current permit allows up to 82 cattle to graze from 03/01 to 03/31 and 11/01 to 02/28 for 416 AUMs permitted use and 283 AUMs historic suspended, for a total permitted use of 699 AUMs.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. There are currently no mapped weed infestations within the Ruby Valley and Horse Haven allotments. The following species are found within the boundaries of the Maverick Springs allotment:

Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress

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

Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar

The Horse Haven and Maverick Springs allotments were last inventoried for noxious weeds in 2002. The Ruby Valley allotment was last inventoried for noxious weeds in 2004. It should be noted that these allotments are very close to and even border the Elko District –BLM and no weed inventory data is available for that area. While not officially inventoried the following non-native invasive weeds probably occur in or around the allotment: 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. The proposed action could increase the populations of the noxious and invasive weeds already within the allotments and could aid in the introduction of weeds from surrounding areas. Within the allotments, watering and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the amount of ground disturbance associated with that.

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 High (8) at the present time. If new weed infestations establish within these allotments it could have an adverse impact those native plant communities, especially since the majority of the allotments are considered to be weed-free. Also, any increase of cheatgrass could alter the fire regime in the area.

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.

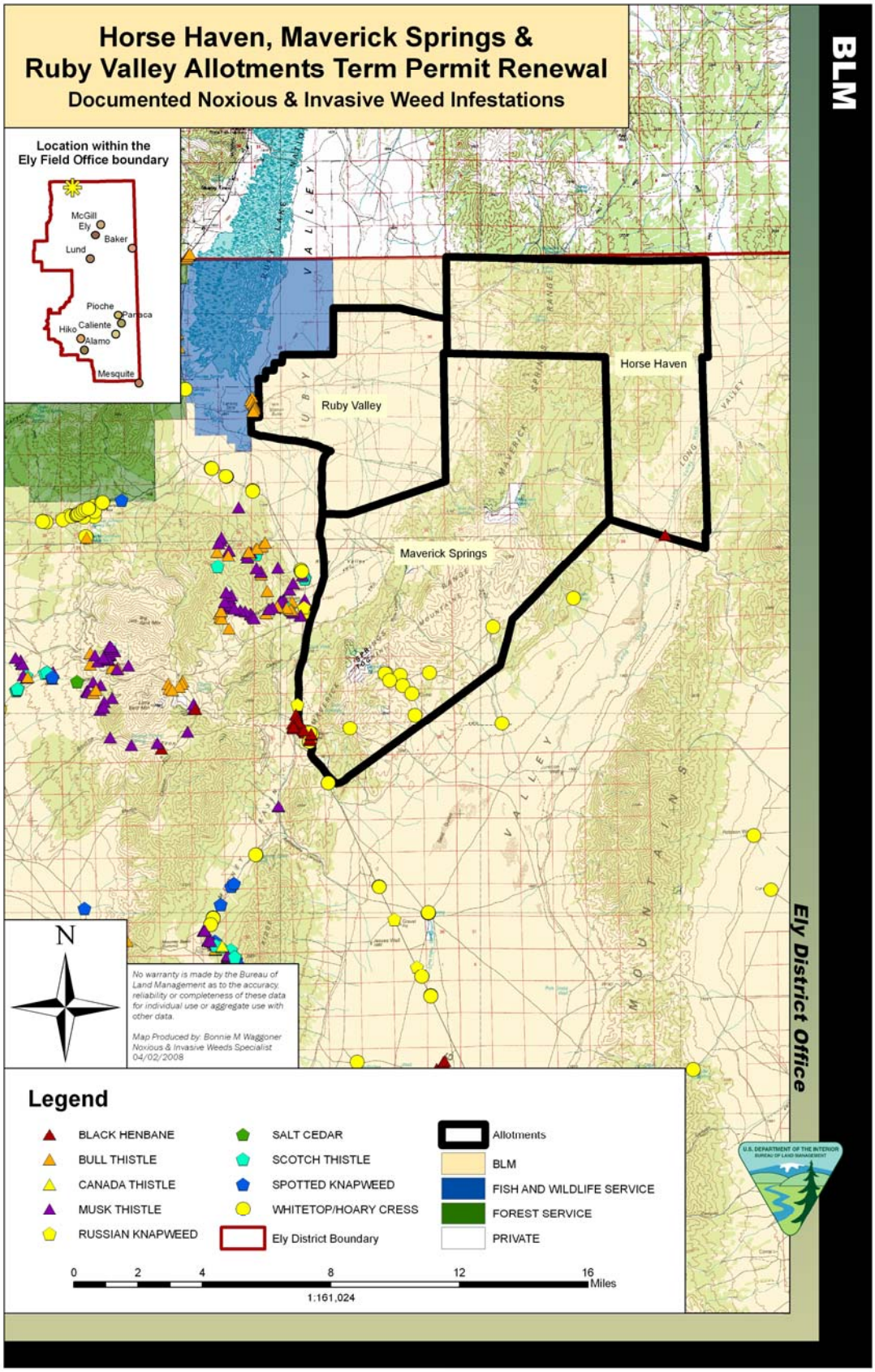
For this project, the Risk Rating is Moderate (32). This indicates that the project can proceed as planned as long as the following measures are followed:

- 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.
- 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 Field Office.
- 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.
- 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: _____ 4/2/2008

Bonnie Million — Date

Ely District Noxious & Invasive Weeds Coordinator


Horse Haven, Maverick Springs &
Ruby Valley Allotments Term Permit Renewal
Documented Noxious & Invasive Weed Infestations
BLM
Location within the
Ely Field Office boundary
McGill
Ely
Baker
Lund
Pioche
Panaca
Hiko
Caliente
Alamo
Mesquite
Ruby Valley
Horse Haven
Maverick Springs
N
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.
Map Produced by: Bonnie M Waggoner
Noxious & Invasive Weeds Specialist
04/02/2008
Legend
BLACK HENBANE
BULL THISTLE
CANADA THISTLE
MUSK THISTLE
RUSSIAN KNAPWEED
SALT CEDAR
SCOTCH THISTLE
SPOTTED KNAPWEED
WHITETOP/HOARY CRESS
Ely District Boundary
Allotments
BLM
FISH AND WILDLIFE SERVICE
FOREST SERVICE
PRIVATE
0 2 4 8 12 16 Miles
1:161,024
Ely District Office