

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

**Standards Determination Document
August 25, 2008**

**Term Permit Renewal
Tumbling JR Ranch (Operator # 2702966)
Cold Creek Allotment (0603)
Warm Springs Allotment (0606)
Dry Mountain Allotment (0609)
Warm Springs Trail (0622)**

*Location: Ely, Nevada
Applicant/Address:*

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STANDARDS DETERMINATION DOCUMENT

Tumbling JR Ranch (#2702966) Term Permit Renewal

Cold Creek Allotment (0603)

Warm Springs Allotment (0606)

Dry Mountain Allotment (0609)

Warm Springs Trail (0622)

Standards and Guidelines Assessment

Standards and Guidelines for Grazing Administration were developed by the Northeastern Great Basin Area Resource Advisory Council (RAC) and approved by the Secretary of the Interior on February 12, 1997. Standards and Guidelines reflect the stated goals of improving rangeland health while providing for the viability of the livestock industry, all wildlife species and wild horses and burros in the Northeastern Great Basin Area. 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 (SDD) evaluates and assesses livestock grazing management achievement of the Standards and conformance to the Guidelines for the Cold Creek Allotment (0603), Warm Springs Allotment (0606), Dry Mountain Allotment (0609), and Warm Springs Trail (0622) located in the Ely District BLM. The Warm Springs Sheep Trail has been separated as an allotment for grazing billing purposes. The Warm Springs Sheep Trail will be evaluated for achievement of the Standards based on intersection within allotments (Table 15, Appendix I). The Warm Springs Trail runs south from the Cold Creek Allotment to the Duckwater Planning Unit. The trail is one mile wide and 68 miles long. There are 24 miles of trail in Warm Springs Allotment and 44 miles in the Newark and South Pancake Allotments.

Standards for Rangeland Health were reviewed by a BLM interdisciplinary team consisting of rangeland management specialists, wildlife biologists, weeds specialist, watershed specialist, wild horse specialist, archaeologist, soil/air/water specialist, recreation specialist and others. 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, Ecological Site Descriptions for Major Land Resource Area 28B, and Major Land Resource Area 25X, Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2000), Sampling Vegetation Attributes (USDI-BLM et al. 1996), Nevada Rangeland Monitoring Handbook (USDA-SCS et al. 1984 and 2006), and the National Range and Pasture Handbook (USDA NRCS 2003). The interdisciplinary team also used rangeland monitoring data, maps, professional observations, and photographs to assess achievement of the Standards and conformance to the Guidelines. A complete list of references is included at the end of this Standards Determination Document. All references are available for public review in the Ely BLM District Office.

Current management practices were implemented in the Final Multiple Use Decisions issued for the Warm Springs Allotment on March 14, 1994 and for the Dry Mountain Allotment on July 12, 1990 and Cold Creek Allotment in 1992. These decisions are helping these allotments to achieve standards. As of 2006, an agreement was signed by the permittee and the Bureau of Land Management. The agreement recognizes and identifies livestock practices and management procedures along with future shared goals and objectives for the Tumbling JR Ranch and the Bureau of Land Management. Management practices

have been established to serve to maintain or achieve the Northeastern Great Basin Area (RAC) Standards for Grazing Administration which is specifically related to authorized grazing use.

Rangeland monitoring is conducted at key areas and representative study sites in the term permit renewal area. The key areas and study sites have been selected based on accessibility, soil mapping units (SMU), representative ecological (range) sites, livestock use patterns, and permittee input. The term permit renewal area has been monitored for vegetation condition periodically since the 1960s. The primary evaluation period for this Standards Determination Document is considered to be from 1997 through 2007. "Current livestock grazing management practices" are considered to be those practices implemented during this period. All scientifically based documents and rangeland monitoring data are available for public inspection at the Ely Field Office during business hours.

Allotment Information

The Cold Creek Allotment, Warm Springs Allotment, Dry Mountain Allotment and Warm Springs Trail (Figure I, Appendix II) are the permitted grazing allotments for Tumbling JR Ranch (Operator No. 2702966).

Cold Creek Allotment

Cold Creek Allotment is situated at the north end of Newark Valley, west of the Ruby Mountains and east of the Diamond Range. Cold Creek Allotment's northern half is in Huntington Watershed and the southern portion is in Newark Watershed. Cold Creek allotment consists of 62,103 acres of public land. The allotment includes both Crested wheatgrass seedings and native range, fenced into 18 pastures and divided into five units (Figure II, Appendix II and Table 5, Appendix I). Cold Creek Allotment seedings, fences, and water developments were initially constructed during 1943-1964. The Huntington unit is made up of four native range pastures. The Newark unit includes one seeding and one native pasture. The Diamond unit contains four native pastures. The Griswold and Strawberry units are Crested wheatgrass seedings. Historically, utilization patterns were mapped in 1988 and 1990, and use transects have been completed on various portions of the allotment since 1973. Reliable actual use data has been available since 1983. An evaluation was performed on Cold Creek Allotment in 1992. The evaluation was interdisciplinary in focus and identified all the management objectives relevant to the allotment. Each unit within the Cold Creek Allotment has established key management areas. Utilization data performed with the key plant forage method was collected in 1997 on the Huntington unit, Griswold unit, and Strawberry unit. In 2007, utilization data and cover data were collected on the Diamond unit, Huntington unit, Griswold unit, and Newark unit.

Warm Springs Allotment

The Warm Springs Allotment includes 318,740 public acres situated in the northwest corner of White Pine County. The majority of the Warm Springs Allotment is located in the Long Valley Watershed. The northern part of the Warm Springs Allotment is included in the Ruby Valley Watershed and the west portion includes the Newark Watershed. Small portions of the Warm Springs Allotment are included in Huntington and North Butte Watersheds.

Permitted use for Warm Springs Allotment is 7,744 AUMs cattle use, subdivided into eight use areas (Figure XII, Appendix II). The cattle operation on the Warm Springs allotment has been year-round, with Newark and Long Valleys used as winter/spring range, and the Diamond and Buck/Bald Mountains

for spring/summer use. The Julian and West Bald crested wheatgrass seedings (3,550 acres) and the Ruby Valley Use Area also provide summer forage.

The allotment contains a wide variety of vegetation types. Valley bottoms are mostly winterfat/bottlebrush squirreltail, Indian ricegrass, interspersed with greasewood, rabbitbrush, and black sage associations. Mid-elevations include pinyon pine, juniper, big sage, bitterbrush, in varying proportions, interspersed with areas of black sage. Mountain brush communities, involving a mixture of serviceberry, snowberry, big sage, bitterbrush, and mountain mahogany, occur at higher elevations, along with low sage associations and mesic pockets of willow, aspen, and chokecherry.

There are 29 key areas identified for the Warm Springs allotment dispersed throughout the eight use areas. Two key areas (WS-1 and WS-2) are located on Crested wheatgrass seedings and 25 key areas are on native range. Frequency trend and ecological status (condition) studies were established at 17 of the native key areas. The locations of the key areas in Warm Springs Allotment are shown in Figure VI, Appendix II. Three of the 27 key areas were abandoned. WS-14 was abandoned for ecological status due to a road construction. WS-18 and WS-25 were abandoned for ecological status because they're located on a transition zone.

Utilization cages have been placed at each of the key grazing areas to show the current annual growth of key forage species. Key forage plant method transects have been completed at the key area locations and at other locations (study sites) in the allotment periodically. Ecological status studies and cover studies have also been completed at sixteen of the key areas of the allotment.

Dry Mountain Allotment

Dry Mountain Allotment is one large grazing pasture of 27,552 acres public land. Dry Mountain Allotment is nestled entirely in the Long Valley Watershed. The crest of Dry Mountain forms the west boundary of the allotment. The Dry Mountain allotment is located south of the Warm Springs Allotment. Evaluation data has been collected on Dry Mountain Allotment since 1989. Utilization mapping was completed on the allotment in 1989, 1993, and 1994 for combined livestock, wild horses, and wildlife. Utilization mapping was also conducted in Long Valley in 2007 (Figure IV, Appendix II, and IVa, Appendix II). Utilization for the key areas on Dry Mountain Allotment using the Key Forage Plant Method was collected in 2002, 2003, and 2006.

Warm Springs Trail

The Warm Springs Trail (0622) runs from North Cold Creek Allotment south across 27 miles of Warm Springs Allotment and terminates at the old Duckwater Planning Unit (Figure III, Appendix II).

Part 1. Standard Conformance Review

Summary of Standards Achievement by Allotment

ALLOTMENT	STANDARD 1 Upland Sites	STANDARD 2 Riparian and Wetland Sites	STANDARD 3 Habitat
Cold Creek	Uplands: Standard achieved	Riparian: Not achieving the Standard	Uplands: Not achieving the Standard
Warm Springs	Uplands: Not achieving the Standard	Riparian: Not achieving the Standard	Uplands: Not achieving the Standard
Dry Mountain	Uplands: Standard achieved	Riparian: N/A	Uplands: Not achieving the Standard

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 the potential of the site.

A. COLD CREEK ALLOTMENT:

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
- 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:

UPLANDS: *Standard achieved*

Monitoring and professional observation indicate that overall soil condition is currently being maintained on the native range on Cold Creek Allotment. Rangeland monitoring studies accomplished in 2007 (Table 7, Appendix I) specify that the vegetative cover and production of plant community species are appropriate to the potential natural community of the native range sites at key areas Diamond #3, Diamond #4, Huntington #3, and Huntington #4. Native site Huntington #1 has exceeded PNC. Table 6a, Appendix I summarizes utilization levels for each native range key area studied in 1997 and 2007 along with their associated licensed use for that year. The results of Table 6a, Appendix I show that levels of use did not exceed the moderate level for any site. The period of grazing use for Diamond Unit/Newark Unit is June 1 to September 27, Huntington Unit is April 25 to August 25, and Griswold Unit is April 20 to July 21.

The crested wheatgrass seeding that occurs at study site Griswold NW shows cover component to be within the potential natural community for the site. Utilization levels (Table 6, Appendix I) at Griswold NW didn't exceed the slight utilization level (1-20%) when studied in 2007. Newark #1, a crested wheatgrass seeding, was reported to have undisturbed bunches of cryptobiotic crust along stable soil. The BLM handbook Interpreting Indicators of Rangeland Health, 2005, describes that soil surfaces stabilize with organic matter on the surface and biological crusts. The presence of biological crust factor is a good indicator of soil surface resistance to erosion (Pierson et al. 1994). Utilization levels at Newark #1 did not exceed the light utilization level (21-40%) in 2007.

B. WARM SPRINGS ALLOTMENT:

Determination:

- 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:

- In conformance with the Guidelines**
- Not in conformance with the Guidelines

Conclusion:

UPLANDS: *Not achieving the Standard, but making significant progress towards achieving. 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 studies accomplished in 1998, 1999, and 2007 (Table 10, Appendix I) indicate that the amount of vegetative canopy and ground cover is appropriate to the potential natural community (PNC) or has exceeded the PNC at all key areas studied on the Warm Springs Allotment. The results show that in 2007, WS-3 was within PNC in the vegetative cover component. Line intercept method performed in 1998 show that WS-25 had the appropriate cover component as PNC for the site. The key areas that have exceeded PNC in vegetative cover are WS-4, WS-5, WS-11, WS-20, WS-21, WS-23, WS-16, WS-17, WS-24, WS-26, WS-12, WS-13, and WS-15.

The presence of cheatgrass at five key areas on the Warm Springs Allotment indicates the lack of appropriate native perennial vegetative component that promote soil infiltration characteristics. Infiltration and runoff processes may be altered when a sagebrush steppe rangeland is converted to a monoculture of annual grasses (USDOI-BLM Technical Reference 1734-6, 2005). The upland sites standard is not achieved on the Warm Springs Allotment.

For the Warm Springs Allotment failure to meet the upland sites standard is not due to inappropriate livestock management, the proper grazing system is established. Key forage plant utilization methods (Table 8, Table 9, Appendix I) were conducted on twenty two of twenty nine key areas between the years 1997 and 2007. The results of Table 8, Appendix I show that seven key areas have no detectable use when studied in the years 1997 to 2000. The results also show that in particular years six key areas did not exceed the slight level (1-20%) of utilization, nineteen key areas did not exceed the light level (21-40%) of use and fourteen key areas were in the moderate level (41-60%) of use. The key plant forage utilization method performed in 2001 and 2003 found one key area (WS-5) to have heavy use (61-80%).

Table 8a, Appendix I compares the level of utilization to the license use for the same year studied. Key area WS-5 had heavy utilization in 2001 and 2003. The licensed use for WS-5 was recorded as 3,679 AUMs in 2001 and 2,191 AUMs in 2003. WS-5 had moderate use in 2003 with a licensed use of 5,002 AUMs.

Utilization and use pattern mapping conducted within Long Valley use area in 2007 show predominantly light use (Figure IV, Appendix II and Figure IVa, Appendix II). As a result, litter remains to promote soil infiltration and permeability appropriate to the potential of the site studied.

C. DRY MOUNTIAN ALLOTMENT:

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
- 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:

UPLANDS: *Standard achieved*

Professional observation and monitoring data (line intercept method) conclude that at each key area located within the Dry Mountain Allotment the vegetative attribute of cover is within the potential natural community according to the ecological site descriptions (Table 14, Appendix I). Monitoring (Key Forage Plant Method) data shows that utilization levels did not exceed the moderate (41-60%) level (Table 13, Appendix I) at any key area. Rangeland monitoring and professional observation along with photo documentation indicate that overall soil condition is currently being maintained on the native range.

Standard 2. Riparian and Wetland Sites:

Riparian and wetland areas exhibit a properly functioning condition and achieve State water quality criteria.

As indicated by:

- Canopy and ground cover, including litter, live vegetation, and biological crust, and rock appropriate to 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 acceleration 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).
 - Other covers (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.

A. COLD CREEK ALLOTMENT:

Determination:

- 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:

- In conformance with the Guidelines**
- Not in conformance with the Guidelines

Conclusion:

RIPARIAN: *Not achieving the Standard, but making significant progress towards achieving. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.*

Forty four water sources are identified within the Cold Creek Allotment (Figure V, Appendix II). There are thirty springs located within the Cold Creek Allotment. A memo dated 12/17/1990 in the monitoring files has acknowledged key riparian sites in Cold Creek Allotment and is summarized in the Cold Creek Evaluation File (1992). Most of the actual aspen (*Populus tremuloides*) acreage in the Diamond Mountains (west side) is inaccessible to livestock due to extremely steep topography. The springs inaccessible to livestock will not be considered for standards determination. The following locations have been considered as key riparian springs and were assessed on July 28, 2008 (Table 7b, Appendix I); Abal Springs, Corta Springs, Unnamed Spring, and Cold Spring.

Corta Springs complex is identified as an important spring source on the Cold Creek Allotment. Corta Spring was included in a series of springhead exclosures, designed to alleviate livestock overuse and trampling. In the summer of 2008, PFC assessment at Corta Spring was rated as Functioning at Risk with a trend that was not apparent. Corta Spring was described to have moderate grazing on the vegetation, but the appropriate riparian vegetation species are present and vigorous in the riparian area. USDOI-BLM Technical Reference 1737-14, 1997, describes that utilization should be considered along with the potential of vegetative regrowth to ensure the riparian function/integrity. At Corta Spring the interdisciplinary team also described upland species encroachment on the riparian area.

Abal Springs Complex was rated as Functioning at Risk with a downward trend during the assessment in the summer of 2008. Presence of upland vegetative species in the riparian area was recorded by the Interdisciplinary team as well as the lack of adequate riparian vegetative cover present to dissipate energy during high flows. The fence in the riparian area needs to be maintained at Abal Springs Complex.

Unnamed spring in the Cold Creek Allotment is a seasonal (intermittent) seep and did not have surface water present during the assessment in summer 2008. A rating to assess unnamed spring was not applicable because the function of the riparian area was not maintaining without water.

Cold Spring on the Cold Creek Allotment is a lotic system that terminates in Cold Creek Reservoir. During summer 2008, Cold Spring was rated as Proper Functioning Condition.

B. WARM SPRINGS ALLOTMENT:

Determination:

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:

In conformance with the Guidelines

Not in conformance with the Guidelines

Conclusion RIPARIAN: *Not achieving the Standard, but making significant progress towards achieving. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.*

Water resources for Warm Springs Allotment are identified in Figure VI, Appendix II. In 1997 and 1998 assessment of seventeen springs on the Warm Springs Allotment was performed by an interdisciplinary (ID) team using the Proper Functioning Condition (PFC) method (Table 12, Appendix I). In 2008, one spring and lotic system was assessed by an ID team (Table 12, Appendix I).

In 1998, the two lotic or stream riparian areas (Deadman Creek and Old Deadman Creek) were both rated as proper functioning condition (PFC). Of the fifteen lentic sites (springs) studied in 1999, ten were rated as PFC and four are Functioning-at-Risk (FAR) with an upward trend. Four springs assessed in 1999 are FAR, riparian indicators appropriate to stream bank characteristics were not present on these springs.

In 2008, unnamed spring located at Township 21N, Range 56E, section 22 was assessed with the PFC method. Unnamed spring was rated as functioning at risk with a downward trend. The ID team identified that the contributing factors to the rating are the lack of saturation of soils sufficient to compose and maintain hydric soils and that there is upland species encroachment into the riparian area. Native invasive plants (e.g., pinyon pine or juniper into riparian area) may adversely affect a site by increased

water usage or rapid nutrient depletion (e.g., high nutrient depletion by cheatgrass) (USDOI-BLM Technical Reference 1734-6, 2005).

C. DRY MOUNTIAN ALLOTMENT:

Determination: N/A

- 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:

- In conformance with the Guidelines
- Not in conformance with the Guidelines

Conclusion: N/A

RIPARIAN: N/A

Water resources on the Dry Mountain Allotment are displayed in Figure VI, Appendix II. There are no natural spring sources creating riparian habitat found within the Dry Mountain 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.

A. COLD CREEK ALLOTMENT:

Determination:

- 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:

- In conformance with the Guidelines
- Not in conformance with the Guidelines**

Conclusion:

UPLANDS: *Not achieving the Standard, but making significant progress towards achieving. 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 (line-intercept method and key forage plant utilization) show habitat conditions overall exhibit a healthy, productive, and diverse plant community that is progressing toward providing suitable habitat for wildlife and maintaining ecological processes over the majority of the Cold Creek allotment (Table 7, Appendix I). The percent composition of vegetation for study site Griswold NW, a crested wheatgrass seeding, is Wyoming Sagebrush 70%, Sandbergs bluegrass 8%, Rabbitbrush 17%, Indian ricegrass 3%, and Crested wheatgrass 2% (Table 7, Appendix I). Vegetative structure and distribution are appropriate for the allotment as determined by ecological site descriptions, monitoring data, range observations and professional judgment. Table 7a, Appendix I shows the results of the cover study compared to the appropriate ecological site at Potential Natural Community (PNC) and the amount of shrubs, forbs, and grasses at each site. The vegetative classes of grasses, shrubs, and forbs are present at each key area studied on Cold Creek Allotment (Table 7a, Appendix I). However, the appropriate amount of each vegetative class (Table 7a, Appendix I) is not present at each key area for PNC as described by the ecological site descriptions for each site on the Cold Creek Allotment. Huntington #3, Newark #1 and Diamond #3 are not in PNC. The study sites that are close to PNC are Huntington #4, Huntington #1, and Diamond #4. Cold Creek Allotment is not meeting the habitat standard.

Livestock are not a contributing factor for Cold Creek Allotment not achieving the standard. Utilization studies performed on the Cold Creek Allotment were done by key forage plant methods in 1997 and 2007. Data collected on Cold Creek Allotment (Table 6, Appendix I) show that utilization levels did not exceed the moderate levels (41-60%) for any site identified.

B. WARM SPRINGS ALLOTMENT:

Determination:

- 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:

- In conformance with the Guidelines**
- Not in conformance with the Guidelines

Conclusion:

UPLANDS: Not achieving the Standard, but making significant progress towards achieving. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.

The Standard is not achieved for the Warm Springs Allotment. Livestock are not a contributing factor for the Standard not being met on the Warm Springs Allotment. Rangeland monitoring studies accomplished in 1998 and 1999 (Table 10, Appendix I) along with photographic records indicate that the vegetative composition and production of plant community species are appropriate to the potential of the sites at key areas WS-4, WS-5, WS-11, WS-12, WS-13, WS-16, WS-20, WS-21, WS-23, WS-24, WS-25, WS-26. The other key areas on Warm Springs Allotment have the species present of the potential plant community but not the appropriate amount of composition in each class of shrubs, grasses, and forbs (Table 11, Appendix I). The sites that do not have the appropriate percentage of grasses are WS-3, WS-15, and WS-17. Key area WS-3 was studied in 1998 and 2007 using the line-intercept method; cover is appropriate for the potential natural community but composition shows low grass component. WS-3 is indicated to be in mid seral stage based on a 1998 ecological condition study. The grazing period of use is winter use at WS-3.

Key area WS-15 has low grass composition when compared to the ecological site description, but has appropriate vegetative cover. The period of use on WS-15 is summer; this site is a black sagebrush site and has the appropriate species present.

Key area WS-17 has appropriate shrub percentage but low grass component. The utilization at WS-17 was reported as light for two years and the season of use is summer. The cover component at WS-17 is appropriate for this site according to the ecological site description and has the appropriate diversity of vegetative species.

Ecological condition studies (Table 11, Appendix I) completed at the key areas on Warm Springs Allotment in 1998 and 1999 indicate that three key area upland sites are in mid seral and twelve key areas are in late seral stages. Five key areas were reported to have cheatgrass (*Bromus tectorum*) present at the sites.

Most habitats on the Warm Springs Allotment are exhibiting a healthy, productive, and diverse population of desirable plant species appropriate to site characteristics, to provide suitable feed, water, cover and living space for animal species and are maintaining the ecological processes. The Standard is not met on the Warm Springs Allotment because the presence of cheatgrass is not a desirable vegetative species.

C. DRY MOUNTIAN ALLOTMENT:

Determination:

- 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:

- In conformance with the Guidelines**
- Not in conformance with the Guidelines

Conclusion: *Not achieving the Standard, but making significant progress towards achieving. Livestock are not a contributing factor to not achieving the Standard, failure to meet the standard is related to other issues or conditions.*

UPLANDS: The results of monitoring studies (Table 14, Appendix I) for the Dry Mountain Allotment performed in 2006 show that the vegetative cover component falls within the potential natural community according to the ecological site descriptions. The data shows (Table 14a, Appendix I) the appropriate composition of vegetation at key areas DM-4 and DM-5 when compared to the ecological site description. However, DM-1 has low grass component and DM-2 has *Halogeton glomeratus* (saltlover) present. During utilization studies performed in 2002, 2003, and 2006, results show (Table 13a, 13b, 13c, Appendix I) that no utilization level exceeded the moderate level (41-60%). Appropriate grazing management practices are in place and livestock are not a contributing factor to not achieving the standard.

Part 2. Are Livestock a Contributing Factor of not Meeting the Standards? Summary Review:

Existing Livestock Management Practices

Livestock Grazing Management Agreement

Current livestock grazing practices are not contributing to The Warm Springs, Cold Creek and Dry Mountain allotments not achieving certain Standards. Since 1999 annual meetings have been held to discuss and develop livestock management practices, grazing schedules and an annual grazing plan. Flexibility in stocking levels, periods of use, and trail routes have been granted. Allowing flexibility has established a long-term stable grazing operation and grazing rotation system. The stocking levels, periods of use and trail routes have been based upon pasture carrying capacity, forage availability and condition, current growing conditions, planned rest periods, and any changes as a result of the previous year's monitoring and achievement of the standards.

An agreement was signed by the permittee on March 2006. The term for the agreement extends to 2014. The agreement reflects grazing use in accordance with the 2000 Allotments re-evaluation. The purpose of the agreement was to document livestock grazing management for Silver State Ranches on the Warm Springs and Dry Mountain Allotments for the term agreement. A name transfer has been issued for the Silver State Ranches to be Tumbling JR Ranch. The agreement will recognize and identify livestock practices and management procedures along with future shared goals and objectives for the Tumbling JR Ranch and the Bureau of Land Management. Management practices have been established to serve to maintain or achieve the Northeastern Great Basin Area Standards for Grazing Administration which is specifically related to authorized grazing use.

Current management practices implemented since the Final Multiple Use Decisions were issued for the Warm Springs Allotment on March 14, 1994 and for the Dry Mountain Allotment on July 12, 1990 and Cold Creek Allotment in 1992. These decisions are helping these allotments to achieving standards.

Terms and Conditions:

In accordance with 43 CFR 4130.3-2, the following terms and conditions will be included in the grazing permit for Tumbling JR Ranch on the Cold Creek, Warm Springs, and Dry Mountain Allotment, and Warm Springs Trail.

Stipulations:

Dry Mountain

The following wells will all be pumped during the use period, though not necessarily all at the same time, to distribute use:

Long Valley Well #2	-T21N, R58E, sec. 32	SWSW
Moore Well	-T20N, R58E, sec. 8	NESW
J&J Well	-T20N, R58E, sec. 20	SWNE
Maple Syrup Well	-T19N, R58E, sec. 3	NENE

Warm Springs

Livestock use in the Ruby Valley use area will be either spring/summer, fall (4/15-10/15) or winter (10/15-5/15) but not both in the same growing season.

No salt or supplements will be allowed within ½ mile of water sources or in winterfat vegetation.

In order to maintain animal distribution in the Long Valley Use Area, all functioning wells will be pumped on a regular basis throughout the winter. Cattle moved into the valley will be split up and distributed as equally as possible to various water sources rather than pushed over Buck Pass and allowed to drift.

Livestock use authorization will be contingent on the availability of adequate stockwater.

The Julian and West Bald seedings will be used and licensed.

Cold Creek

Authorized livestock use was adjusted as follows on the Cold Creek Allotment in 2000 under a temporary agreement in lieu of the grazing system specified in the 1992 Cold Creek Allotment Final Multiple Use Decision:

Strawberry Unit 04/15 to 08/15

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Strawberry SW	4/15 to 5/14	314
Strawberry NW	5/15 to 6/27	476
Strawberry NE	6/28 to 7/19	238
Huntington #1	7/20 to 8/15	293
Strawberry SE	REST	
Huntington #2	REST	

Griswold Unit 4/20 to 7/21

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Griswold NE	4/20 to 5/17	276
Griswold SE	5/18 to 6/20	336
Griswold SW	6/21 to 7/21	306
Griswold NW	REST	

Huntington/Diamond Unit 4/25 to 8/25

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Huntington #3	4/25 to 6/3	296
Huntington #4	6/4 to 7/27	400
Diamond #4	7/28 to 8/25	215

Newark/Diamond Unit 6/1 to 9/27

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Diamond #1	6/1 to 6/3	148
Newark #1	7/1 to 8/28	292
Newark #2	8/29 to 9/27	148

Every Year

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Diamond #2	8/1 to 9/30	201
Mitigation seeding	4/15 to 5/15	472

The established grazing system on Cold Creek Allotment has been a rest-rotation system where one pasture is rested each year.

Appropriate management practices have been in place on the Warm Springs, Cold Creek, Dry Mountain, and Warm Springs Trail Allotments. Based on review of the monitoring data collected since 1997 and professional observation, livestock are not a contributing factor for the mentioned Allotments not meeting the Rangeland Health Standards.

Part 3. Guideline Conformance Review and Summary

GUIDELINES:

- 1.1 Management practices will maintain or promote upland vegetation and other organisms and provide for infiltration and permeability rates, soil moisture storage, and soil stability appropriate to the ecological site within management units.
- 1.2 When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments should be designed and implemented where appropriate.
- 1.3 Management practices are adequate when significant progress is being made toward this Standard.

GUIDELINES:

- 2.1 Management practices will maintain or promote sufficient vegetation cover, large woody debris, or rock to achieve to achieve proper functioning condition in riparian and wetland areas. Supporting the process of energy dissipation, sediment capture, ground water recharge, and stream bank stability will thus promote stream channel morphology (e.g., with/depth ratio, channel roughness, and sinuosity) appropriate to climate, landform, gradient, and erosion history.
- 2.2 Where grazing management practices are not likely to restore riparian and wetland sites land management treatments should be designed and implemented where appropriate to the site.
- 2.3 Management practices are adequate when sufficient progress is being made toward the Standard.
- 2.4 Grazing management practices will maintain, restore or enhance water quality and ensure the attainment of water quality that meets or exceeds state standards.

GUIDELINES:

- 3.1 Management practices will promote the conservation, restoration, and maintenance of habitat for threatened and endangered species, and other special status species as may be appropriate.

3.2 Intensity, frequency, season of use and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach long-term land use plan objectives. Measurements of ecological condition and trend/utilization will be in accordance with techniques identified in the Nevada Rangeland Monitoring Handbook.

3.3 Grazing management practices should be planned and implemented to allow for integrated use by domestic livestock, wildlife, and wild horses consistent with land use plan objectives.

3.4 Where grazing practices alone are not likely to achieve habitat objectives, land treatments may be designed and implemented as appropriate.

3.5 When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, they will be emphasized over non-native species.

3.6 Management practices are adequate when significant progress is being made toward this Standard.

VEGETATION MANAGEMENT GUIDELINES (APPENDIX A TO STANDARDS AND GUIDELINES)

Current livestock management practices are in conformance with Salt Desert Shrublands Guideline #1 which states:

“Grazing should generally be limited to very early season grazing or dormant season rather than year round. If very early season grazing is permitted or prescribed to control cheatgrass early in spring, grazing should be terminated early enough to allow perennial plant species to set seed.”

Current livestock management practices are in conformance with Sagebrush/Bunchgrass Rangelands Guideline #1 which states:

“Create and maintain a diversity of sagebrush age and cover classes on the landscape through the use of prescribed fire, prescribed natural fire, mechanical, biological, and/or chemical means to provide a variety of habitats and productivity conditions.”

Part 4. Management Practices to Conform With Guidelines

Discussion:

Current management practices implemented since the Final Multiple Use Decisions were issued for the Warm Springs Allotment on March 14, 1994 and for the Dry Mountain Allotment on July 12, 1990 and Cold Creek Allotment in 1992. These decisions are helping these allotments to achieve standards.

Final Multiple Use Decisions

Warm Springs

As per the March 14, 1994 Final Multiple Use Decision, the authorized livestock active use for the Warm Springs Allotment is 7,744 AUMs cattle use with 16,799 AUMs held in suspended non-use for a total authorized use of 23,995 AUMs. This adjustment was implemented under Title 43CFR 4160.3(c). The kind and class of livestock is cattle (cow/calf). The period of use is 04/01 through 08/01 and 04/01 through 10/15.

Table 1. Cattle Use by Use Area, Warm Springs Allotment

<u>AUMs</u>				
<u>Use Area</u>	<u>Period of Use</u>	<u>Active</u>	<u>Suspended</u>	
Buck and Bald	04/01 to 08/01	2,269	7,377	
Newark Valley	08/01 to 04/15	357	867	
Diamond Mountain	04/15 to 10/15	264	0	
Ruby Valley	04/15 to 10/15 or 10/15 to 04/15	840	0	
Long Valley	10/15 to 04/15	3,088	7,723	
Long Valley Wash	10/15 to 04/15	378	832	
Julian Seeding	04/15 to 10/31	227	0	
West Bald Seeding	04/15 to 10/31	<u>321</u>	<u>0</u>	
Total		7,744	16,799	

A. Livestock use will be authorized by use area and will be in accordance with the period of use and active preference for each of the eight use areas.

B. Livestock use in the Ruby Valley use area will be either spring/summer/fall (4/15 – 10/15) or winter (10/15 – 4/15) but not both in the same growing season.

C. The new livestock preference on the Warm Springs Allotment is as follows:

Total Preference	24,543 AUMs
Active Preference	7,744 AUMs
Suspended Preference	16,799 AUMs

As part of the decision the allotment has been divided into eight separate use areas, including the Julian and West Bald seedings which were adjudicated during the decision process. With the seedings a new total preference of 24,543 was established.

Dry Mountain Allotment

As a result of an evaluation completed for the years 1986-1988 a Final Multiple Use Decision (FMUD) was issued for the Dry Mountain Allotment on July 12, 1990. The FMUD was appealed on August 15, 1990. The appeal was settled by an agreement signed February 21, 1992. The agreement stipulated that

the identified preference be recognized as 2,827 active AUMs for cattle use and 605 AUMs of sheep use for the season of use 10/01-04/01. After an agreement, there was also a Dry Mountain Allotment re-evaluation for all grazing users (livestock, wildlife, and wild horses) in fiscal year 1994.

Cold Creek Allotment

A Multiple Use Decision for the Cold Creek Allotment was issued in 1992. Based on monitoring data the final decision changed the existing authorized livestock active use. Over a five year period 5,094 cattle AUMs were reduced with 4,035 AUMs placed in suspended non-use. Year one was established as the 1992 grazing year. See Table 2 and Table 3 for the reduction in cattle preference:

Table 2. Cattle preference prior to 1992.

Number	Kind	Period of Use	AUMs	
			Active	Suspended
800	Cattle	4/15-5/14	789	0
1354	Cattle	4/15-11/14	8191	0

Table 3. Cattle preference after the Final Multiple Use Decision.

Pasture	Active Preference (AUMs)		
	Year 1	Year 3	Year 5
Strawberry NW	874	678	482
Strawberry SW	574	445	316
Strawberry NE	436	338	241
Strawberry SE	773	600	427
Griswold NW	634	464	294
Griswold SW	666	488	310
Griswold NE	593	434	275
Griswold SE	729	534	339
Newark #1	226	259	292
Newark #2	116	133	150
Huntington #1	235	265	294
Huntington #2	82	86	90
Huntington #3	233	262	291
Huntington #4	323	364	405
Diamond #1	289	233	177
Diamond #2	329	265	201
Diamond #3	484	390	296
Diamond #4	350	282	214
Total Active AUMs	7946	6520	5094
Total Suspended	1183	2609	4035

Recommendations:

Continue all desirable livestock management practices currently being implemented. Continue rangeland monitoring of these allotments for livestock in compliance with proper allowable use levels established in the Final Multiple Use Decisions for these allotments.

1. The seasons of use are recommended to remain summer/winter depending on the use area on the Warm Springs Allotment and November 1 to May 1 on the Dry Mountain Allotment, and May 16 to October 31 on the Cold Creek Allotment.
2. The Active AUMs are recommended to remain at 5,561 Active cattle AUMs on the Cold Creek Allotment and 7,709 Active cattle AUMs on the Warm Springs Allotment, and 1,149 active cattle AUMs and 602 preference sheep AUMs on the Dry Mountain Allotment.
2. Salt and/or mineral supplements for livestock shall be located no closer than $\frac{1}{4}$ mile from water sources. Supplements are to be placed $\frac{1}{2}$ mile from existing waters.
3. Utilization levels should remain as follows:
For each Allotment maximum utilization on native key species at 50%
Seeding pastures allowable use for crested wheatgrass at 65%.
4. Wildlife escape ramps would be installed and maintained by the permittee at each trough used on the allotment (permanent or temporary).

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Appendix I Data Analysis

Cold Creek Allotment, Warm Springs Allotment, Dry Mountain Allotment, Warm Springs Trail

Monitoring Data for the Cold Creek Allotment

Allotment Information

Cold Creek allotment consists of 62,103 acres of public land. The allotment includes both Crested wheatgrass seedings and native range, fenced into 18 pastures and divided into five units (Table 5) see Figure II, Appendix II for location.

Table 5. The acreage for the Cold Creek Allotment by pasture unit.

Table Pasture Units on the Cold Creek Allotment.			
Unit	Acres	Pasture Numbers	Key Species
Griswold	5,538	4	Crested Wheatgrass (<i>Agropyron crestatum</i>)
Strawberry	6,643	4	Crested Wheatgrass (<i>Agropyron crestatum</i>)
Diamond	19,685	4	Bitterbrush (<i>Purshia tridentata</i>) and Indian ricegrass (<i>Achnatherum hymenoides</i>)
Huntington	27,513	4	Indian ricegrass (<i>Achnatherum hymenoides</i>)
Newark	2,755	2	Crested Wheatgrass (<i>Agropyron crestatum</i>) and Basin wildrye (<i>Elymus cinereus</i>)
Total	62,134		

Vegetative Species Identification for Cold Creek Allotment

CODE	SCIENTIFIC NAME	COMMON NAME
Seedings		
AGCR	<i>Agropyron cristatum</i>	Crested wheatgrass
Native		
POSE	<i>Poa Secunda</i>	Sandbergs bluegrass
LECI4	<i>Leymus cinereus</i>	Basin Wildrye
ACHY	<i>Achnatherum hymenoides</i>	Indian Ricegrass
ELEL5	<i>Elymus elyoides</i>	Squirreltail
ARTRW8	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming sagebrush
PUTR2	<i>Purshia tridentata</i>	Antelope bitterbrush
ACHNA	<i>Achnatherum</i> spp.	Needlegrass
CHRS9	<i>Chrysothamnus</i> spp.	Rabbitbrush
ARTEM	<i>Artemisia</i> spp.	Sagebrush

Soils by Ecological Site Descriptions

Soil types vary throughout the Cold Creek Allotment. The NRCS Major Land Resource Area (MLRA) Boundary of MLRA 28A and MLRA 25X is located entirely within Cold Creek Allotment. The allotment pastures contain a mixture of soil types identified in MLRA 28A and MLRA 25X. Thirty four different Soil Mapping Units (SMUs) have been identified in the allotment. The six major soil mapping units (Figure VIII, Appendix II) in the allotment are 1010, 1050, 1030, 500, 1090, 580. Key Areas for range monitoring studies have been established in several of the soil types. Native pasture Key Area Huntington #4 occurs in SMU 1010, soils that occur in this MLRA 25X ecological site are typically moderately deep and well drained. Runoff at this site is moderate to very rapid. The potential for sheet and rill erosion is moderate to high depending on slope. Key area Huntington #3 is located at a soil site that has moderately deep to deep and well drained soils as described by the ecological site in MLRA28B. Diamond #4 is located on a slope gradient of 0-2%. The potential of rill erosion at key area Diamond #4 is low. Study Site Newark #1, a crested wheatgrass seeding, occurs in SMU 174. The soils at Newark #1 are moderately deep to deep and well drained. The site located at Griswold NW includes soils that are moderately deep to deep and well drained.

Utilization

Key Forage Plant Method

Results (Table 6) show that utilization levels did not exceed the moderate level (50%) on native pastures (Huntington #3, Huntington #4, Diamond #3, Diamond #4) during monitoring studies performed in 2007 and 1997 (Huntington #1). The crested wheatgrass seedings (Griswold NW, Newark #1) did not exceed the light utilization level (21-40%) as studies performed in 2007 show. In 1997 the utilization levels at the Crested wheatgrass seedings (Griswold SE, Griswold NE, Griswold SW, Strawberry NE, Strawberry SE, Strawberry SW) did not exceed the moderate level (41-60%). Table 6a summarizes utilization levels for each native key area studied in 1997 and 2007 along with their associated licensed Use for the year.

Table 6. Utilization studies were performed on the Cold Creek Allotment using the Key Forage Plant Method in summer of 2007 and summer of 1997.

Cold Creek		
Utilization		
Date	Pasture/Study Site	Key Area/UTMs
7/30/2007	Diamond #3	11S N4419085 E0604793
Key Species	Percent Use	Category
Sandbergs bluegrass	6.36%	slight
Basin Wildrye	9%	slight
Date	Pasture/Study Site	Key Area/UTMs
8/3/2007	Diamond #4	11S N4418570 E0606298
Key Species	Percent Use	Category
Indian ricegrass	9%	slight
Basin wildrye	12%	slight
Date	Pasture/Study Site	Key Area/UTMs

Table 6. Utilization studies were performed on the Cold Creek Allotment using the Key Forage Plant Method in summer of 2007 and summer of 1997.

7/24/2007	Newark #1	11S N4413155 E611000
Key Species	Percent Use	Category
Crested wheatgrass	37.30%	light
Date	Pasture/Study Site	Key Area/UTMs
7/24/2007	Huntington #3	11S N4414668 E608101
Key Species	Percent Use	Category
Indian ricegrass	50%	moderate
Date	Pasture/Study Site	Key Area/UTMs
7/27/2007	Huntington #4	11S N4418478 E0606552
Key Species	Percent Use	Category
Crested wheatgrass	17.27%	slight
Sandbergs bluegrass	8%	slight
Date	Pasture/Study Site	Key Area/UTMs
7/30/2007	Griswold NW	11S N4425008 E0606974
Key Species	Percent Use	Category
Crested wheatgrass	13%	slight
Sandbergs bluegrass	4%	slight
Date	Pasture/Study Site	Key Area/UTMs
10/25/1997	Huntington #1	11S N4433924 E0608614
Key Species	Percent Use	Category
Squirreltail	10%	slight
Date	Pasture/Study Site	Key Area/UTMs
10/15/1997	Griswold NE	11S N4421452 E0606502
Key Species	Percent Use	Category
Crested wheatgrass	38%	moderate
Date	Pasture/Study Site	Key Area/UTMs
8/6/1997	Griswold SW	11S N4421834 E608434
Key Species	Percent Use	Category
Crested wheatgrass	52%	moderate
Date	Pasture/Study Site	Key Area/UTMs
10/15/1997	Griswold SE	11S N4421443 E609516
Key Species	Percent Use	Category
Crested wheatgrass	46%	moderate
Date	Pasture/Study Site	Key Area/UTMs
10/25/1997	Strawberry NE	11S N4438345 E0610725

Table 6. Utilization studies were performed on the Cold Creek Allotment using the Key Forage Plant Method in summer of 2007 and summer of 1997.

Key Species	Percent Use	Category
Crested wheatgrass	48%	moderate

Date	Pasture/Study Site	Key Area/UTMs
8/19/1997	Strawberry SE	11S N4435367 E0611440

Key Species	Percent Use	Category
Crested wheatgrass	48%	moderate

Date	Pasture/Study Site	Key Area/UTMs
10/25/1997	Strawberry SW	11S N4434558 E067707

Key Species	Percent Use	Category
Crested wheatgrass	10%	slight

Table 6a. Utilization Levels and Associated Licensed Use, from 1997 through 2000, at Key Areas Within the Cold Creek Allotment.

Year of Key Area Reading		1997	2007
Use Area	Key Area		
Diamond	#3		Slight
	#4		Slight
	* Total AUMs Licensed on Allotment Each Year		###
Newark	#1		Light
	* Total AUMs Licensed on Allotment Each Year		###
Huntington	#3		Moderate
	#1		Slight
	#4		Slight
	* Total AUMs Licensed on Allotment Each Year		###
Griswold	NW		Slight
	NE	Moderate	
	SW	Moderate	
	SE	Moderate	
	* Total AUMs Licensed on Allotment Each Year	847	###
Strawberry	NE	Moderate	
	SE	Moderate	
	SW	Slight	
	* Total AUMs Licensed on Allotment Each Year	985	

* From grazing billings.

Slight Use = 1% - 20% use of current year's growth.

Light Use = 21% - 40% use of current year's growth.

Moderate Use = 41% - 60% use of current year's growth.

Heavy Use = 61%-80% use of current year's growth.

Severe Use = 81-100% use of current year's growth.

Cover

Studies performed in 2007 using the Line-intercept cover method are concluded in Table 7. Huntington #4 has vegetative cover similar to that identified as the potential natural community described in the ecological site description. The vegetative cover component at key area Huntington #4 was analyzed to be 12%. The potential Natural Community at Huntington #4 is between 10-20% for cover. Key Area Diamond #3 has adequate cover for soil stabilization including plant species and litter. The site has stable soil and adequate vegetative cover for the potential of the site. Cryptobiotic crust is present in the area at Newark #1 providing stability; there is also adequate vegetative cover. Key areas for Griswold unit and Strawberry unit also occur in crested wheatgrass seedings. The analysis of line-intercept at Griswold NW shows that total percent cover is at 11%. Table 7a shows the comparison of cover data by vegetative classes; shrubs, grasses, and forbs collected in 2007 at native range key areas within the Cold Creek Allotment to PNC cover values for the ecological site. The vegetative classes of grasses, shrubs, and forbs are present at each key area studied (Table 7a) on Cold Creek Allotment. However, the appropriate amount of each vegetative class (Table 7a) is not present at each key area for PNC as described by the ecological site descriptions for each site.

Table 7. Line-Intercept cover method performed at various key areas and study sites on the Cold Creek Allotment during summer 2007.

Cold Creek			
Line Intercept Cover			
Date	Pasture	Study Site/UTMs	
7/30/2007	Diamond #3	11S N4419085 E0604793	
Range Site			
Loamy 10-12" 028BY007NV ARTR2/ACTH7-PSSP			
Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Sagebrush	15%	31%	
Antelope Bitterbrush	18%	37%	
Sandbergs Bluegrass	12%	25%	
other veg	3%	6%	
Total	48%		20% to 30%
Date	Pasture	Study Site/UTMS	
8/3/2007	Diamond #4	11S N4418570 E0606298	
Range Site			
Loamy 10-12" 028BY007NV ARTR2/ACTH7-PSSP			
Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Sandbergs bluegrass	6%	18%	
Wyoming Sagebrush	13%	39%	
Indian ricegrass	0.3%	0.9%	
Crested wheatgrass	14%	42%	
TOTAL	33%		20% to 30%

Table 7. Line-Intercept cover method performed at various key areas and study sites on the Cold Creek Allotment during summer 2007.

Date	Pasture	Study Site/UTMs	
7/24/2007	Newark #1	11S N4413155 E611000	
Range Site			
Loamy 8-10" 028BY010NV ARTRW/ACHY-HECO26 (Crested Wheatgrass Seeding)			
Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Sagebrush	9%	64%	
Crested wheatgrass	5%	35%	
Total	14%		10% to 20%

Date	Pasture	Key Area/UTMs	
8/24/2007	Huntington #1	11S N4433924 E0608614	
Range Site			
Silt Flat 028BY056NV ARTRW/ELEL5-POSE			
Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Sandbergs bluegrass	8%	36%	
Needle grass	0.6%	2.7%	
Rabbitbrush	0%	0%	
Sagebrush	13%	59%	
Other Vegetation	0%		
TOTAL	22%		5% to 10%

Date	Pasture	Key Area/UTMs	
7/24/2007	Huntington #3	11S N4414668 E608101	
Range Site			
Loamy 8-10" 028BY010NV ARTRW/ACHY-HECO26			
Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Sagebrush	10%	83%	
Indian ricegrass	0.75%	6.25%	
Rabbitbrush	1.05%	4.7%	
Other Vegetation	0.74%	3.0%	
TOTAL	12.54%		10% to 20%

Date	Pasture	Key Area/UTMs	
7/27/2007	Huntington #4	11S N4418478 E0606552	
Range Site			
Loamy 8-10" 25XY019NV ARTRW/ACTH7-PSSP			

Table 7. Line-Intercept cover method performed at various key areas and study sites on the Cold Creek Allotment during summer 2007.

Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Sagebrush	8%	28%	
Sandbergs bluegrass	3%	10%	
Crested wheatgrass	17%	60%	
Total	28%		20% to 30%

Date	Pasture	Key Area/UTMs
7/30/2007	Griswold NW	11S N4425008 E0606974
Range Site		

Loamy 8-10" 028BY010NV ARTRW/ACHY-HECO26 (Crested wheatgrass Seeding)

Vegetation	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Sagebrush	8%	69%	
Sandbergs bluegrass	1%	8.6%	
Rabbitbrush	2%	17%	
Indian ricegrass	0.37%	3%	
Crested wheatgrass	0.20%	1.7%	
Total	11.57%		10% to 20%

Table 7a. Comparison of Cover Data by Shrubs, Grasses, and Forbs Collected in 2007 on Native Key Areas within the Cold Creek Allotment to Potential Natural Community (PNC) Cover Values for the Ecological Site.

Cold Creek Allotment (Key Area)	Ecological Site	(%) Cover at key area	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
Diamond (#3)	Loamy 10-12" 028BY007NV ARTR2/ACTH7 -PSSP	48%	Grasses = 25% Forbs = 6% Shrubs = 68%	Grasses = 65% Forbs = 10% Shrubs = 25%
Diamond (#4)		33%	Grasses = 60.9% Forbs = Trace Shrubs = 39%	Grasses = 65% Forbs = 10% Shrubs = 25%
Newark (#1)	Loamy 8-10" 028BY010NV ARTRW/ACHY -HECO26	14%	Grasses = 35% Forbs = Trace Shrubs = 64%	Grasses = 50% Forbs = 5% Shrubs = 45%
Huntington (#3)		12.54%	Grasses = 6.25% Forbs = 3.0% Shrubs = 87.7%	Grasses = 50% Forbs = 5% Shrubs = 45%
Huntington (#4)	Loamy 8-10" 025XY019NV ARTRW/ACTH7 -PSSP	28%	Grasses = 70% Forbs = Trace Shrubs = 28%	Grasses = 65% Forbs = 5% Shrubs = 30%

Huntington (#1)	Silt Flat 028BY056NV ARTRW/ELEL5 -POSE	22%	Grasses = 38.7% Forbs = Trace Shrubs = 59%	Grasses = 20% Forbs = 5% Shrubs = 75%
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Permitted Use

Cold Creek Allotment

Cattle AUMS

Total (historical)	active use	suspended nonuse	period
9,596	5,561	4,035	4/16 to 10/31

Licensed Use

Sum of Cattle Aums										
Grazing Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	Grand Total
Cold Creek Allotment by pasture										
Total AUMs	3577	4149	2488	3092	1144	1117	2005	2572	1983	22127
SEEDING		592						31		623
DIAMOND #1	151									151
DIAMOND #2		232								232
GRISWOLD NE		349		705						1054
GRISWOLD NW	286		627							913
GRISWOLD SE	312	272								584
GRISWOLD SW	260	369				473				1102
HUNTINGTON #1	281				250					531
HUNTINGTON #2						166				166
HUNTINGTON #3	309	408		245	237	274				1473
HUNTINGTON #4	378	395	698	775						2246
NEWARK #1	418	326	252	261						1257
NEWARK #2		158	194	217						569
STRAWBERRY NE	211									211
STRAWBERRY NW	406	458	606	726						2196
STRAWBERRY SE	424									424
STRAWBERRY SW		371			570		2005	2541	1983	941
Cold Creek	141	219	111	163	87	204				7454

Riparian Data

Forty four water sources are identified within the Cold Creek Allotment (Figure V, Appendix II). There are thirty springs located within the Cold Creek Allotment. A memo dated 12/17/1990 in the monitoring files has acknowledged key riparian sites in Cold Creek Allotment and is summarized in the Cold Creek Evaluation File (1992). Most of the actual aspen (*Populus tremuloides*) acreage in the Diamond Mountains (west side) is inaccessible to livestock due to extremely steep topography. The springs inaccessible to livestock will not be considered for standards determination. The locations in Table 7b have been considered as key riparian springs and were assessed on July 28, 2008.

Table 7b. Key Riparian Areas on the Cold Creek Allotment identified for PFC inventory in 2008.

Name	Location	Type	Rating-Trend	Rational
Abal Springs	T 24N, R55E sec. 16	Lotic	Functioning at Risk-Downward Trend	Upland species appear to be encroaching on riparian area
Corta Springs	T24N, R55E sec. 33	Lotic	Functioning at Risk-Not Apparent	Undesirable vegetative species present in riparian area
Unnamed Spring	T24N, R55E sec. 15	Seasonal Seep	N/A	Unnamed Spring flows only at certain times of the year when it receives water from another spring or a surface source
Cold Spring	T24N, R56E sec. 26	Lotic	Proper Functioning Condition	

Monitoring Data for the Warm Springs Allotment

Allotment Information

The Warm Springs Allotment includes 318,740 public acres.

Vegetative Species Identification for Warm Springs Allotment

CODE	SCIENTIFIC NAME	COMMON NAME
Seedings		
AGCR	<i>Agropyron cristatum</i>	Crested wheatgrass
Native		
ACHY	<i>Achnatherum hymenoides</i>	Indian ricegrass
ACHNA	<i>Achnatherum</i>	Needlegrass
PSSPS	<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass

POSE	<i>Poa secunda</i>	Sandbergs bluegrass
ELHY	<i>Elymus elymoides</i>	Bottlebrush Squirreltail
PONE	<i>Poa nevadaensis</i>	Nevada bluegrass
KRLA	<i>Krascheninnikovia lanata</i>	Winterfat
ATNU	<i>Atriplex nuttallii</i>	Nuttal Saltbush
ATFA	<i>Atriplex falcata</i>	Sickle saltbush
PHLOX	<i>Phlox</i>	Phlox
BRASS2	<i>Brassica</i>	Mustard
ASTRA	<i>Astragalus</i>	Milkvetch
PAMU11	<i>Packera multilobata</i>	Groundsel
ERIOG	<i>Eriogonum</i>	Buckwheat
HAPLO11	<i>Happlopappus</i>	Happlopappus
ASTER	<i>Aster</i>	Aster
ARTEM	<i>Artemisia</i>	Sagebrush
CHRY9	<i>Chrysothamnus spp.</i>	Rabbitbrush
BRTE	<i>Bromus tectorum</i>	Cheatgrass
ARTRV	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	Mountain big sagebrush
PUTR2	<i>Purshia tridentata</i>	Antelope bitterbrush
LEPID	<i>Lepidium</i>	Pepperweed
LUPINE	<i>Lupinus</i>	Lupine
ARNO4	<i>Artemisia nova</i>	Black Sagebrush
GRSP	<i>Grayia spinosa</i>	Spiny Hopsage
SYMPH	<i>Symphoricarpos</i>	Snowberry
IVAX	<i>Iva axillaris</i>	Poverty Weed
ATCO	<i>Atriplex confertifolia</i>	Shadscale
SAVE4	<i>Sarcobatus vermiculatus</i>	Greasewood
TETRA3	<i>Tetradymia spp.</i>	Horsebrush

Soils by Ecological Site Descriptions

The soils (Figure IX, Appendix II) in the Warm Springs Allotment are diverse and have formed in many different parent materials on various land forms. The erosion susceptibility for these soils varies from slight to very severe depending on soil characteristics and correlated vegetation communities. Those soils with slopes greater than 25 percent formed from rhyolites, or quartzite are in a severe to very severe class. Those soils formed from limestone or similar material with slopes greater than 25 percent are in a moderate to severe erosion class. Other soils that formed in sloping materials have slight to moderate erosion classes for water erosion. Wind erosion is a concern where soils are located in valley bottoms and have surface textures that are coarser than loam.

The soils of key areas WS-03, WS-04, WS-23 are deep to very deep. Permeability is moderate to moderately rapid with moderate to high available water holding capacity. The soil has the potential for formation of gullies, especially in areas near shallow drainages.

The soils of key areas WS-15, WS-16, WS17, and WS-24 are typically shallow and well drained. They usually have a hardpan or restrictive root-limiting layer. Most of these soils are high in calcium

carbonates, especially in the subsoil. The available water holding capacity is very low to low, water infiltration rates are slow to moderate and runoff is slow to medium.

The soils of key area WS-12, WS-13, WS-21 and WS-22 are mostly moderately deep to deep and well drained. The available water holding capacity is low to moderate and some soils are modified throughout the soil profile by high volumes of rock fragments. Runoff is slow to medium and the potential for sheet and rill erosion varies with slope gradient.

Key areas WS-05 and WS-26 are on soils that are deep, and somewhat poorly to well drained. Often they have a pH with the rooting depth of over 8.8. The water infiltration rate is moderately slow, runoff is slow to very slow, and soil may have a seasonal water table 6 to 15 feet below the soil surface. High salt concentrations reduce seed viability, germination and the available water holding capacity of the soils. Potential for sheet and rill erosion is slight to moderate.

Key area WS-20 is on soils that are shallow to moderately deep and well drained. Depth to a fine textured clay enriched subsoil ranges from 4 to 10 inches. This clay enriched subsoil swells on wetting and shrinks and cracks upon drying. These subsoils interfere with deep root development. These soils are poorly aerated during the early spring due to a perched water table. Available water holding capacity is low. Infiltration of water is restricted once these soils are wetted. Soil erosion will result in a loss of soil productivity.

Soils on key area WS-11 have very shallow and shallow effective rooting depths. Intense winds over these soils inhibit snow accumulations, and thus lower the effective precipitation. These soils have a high amount of gravels, cobbles, and stones on the surface which occupy plant growing space, yet protect the soils from erosion. The available water holding capacity is low to very low. Runoff is medium to rapid.

Utilization

Use Pattern Mapping

Mapped utilization patterns can be used to stratify a management unit or pasture. Documentation of livestock and wildlife use during a use period is beneficial for observing use patterns as they develop. Use Pattern Mapping was conducted in November of 2007 (low precipitation year) in the Long Valley Unit of the Warm Springs Allotment. The native vegetation and key species were described. The majority of utilization levels on Warm Springs Allotment in Long Valley range from slight (1-20%) to light (21-40%). The heaviest utilization in Long Valley was reported at the location of the current water source. There was no indication of impact by trailing, but some use is reported at heavy levels (60%) directly around the water source. The key species around the water source is Winterfat with an average height of 2-5 inches high.

The northern portion of the Long Valley grazing unit in the Warm Springs Allotment is mapped (figure III) with the majority of use as slight (1-20%) to light (21- 40%). There is an area with high vigor of Sandbergs bluegrass that has heavy (61%) utilization. The utilization reported in the area on Winterfat is slight (1-20%).

Key Forage Plant Method

Key forage plant method (KFPM) utilization transects (Table 8) were conducted on the allotment in 1997, 1998, 1999, 2000, 2001, 2002, 2003, and two key areas in 2007 (Table 9). The study transects were conducted at key range and wildlife management areas in Long Valley and on Buck & Bald Mountains.

Results of the key forage plant method utilization transects completed in the allotment from 1997-2003 are indicated in Table 8. The results from 2007 are shown in Table 9. Use rating of current year’s growth are categorized as; Slight (1-20%), Light (21-40%), Moderate (41-60%), Heavy (61-80%), Severe (81-100%).

The results of Table 8 show that seven key areas were found to have no detectable use include; WS-12 in 1997 and 2000, WS-15 in 1998, 1999, WS-16 in 1998, WS-17 in 1999, WS-18 in 1997 and 1998, WS-20 in 2000, and WS-24 in 2000.

The results show that the key areas found to be in the slight category during the utilization studies are WS-13 in 2001, WS-16 in 1997, WS-17 in 1998, and WS-22 in 2001, WS-3 in 2007, and WS-4 in 2007.

The light level of utilization included key areas; WS-3 in 1998, 1999 and 2002, WS-4 in 1999 and 2002, WS-5 in 1999, WS-7 in 1999, WS-8 in 1999, WS-9 in 1999, WS-23 in 1999, WS-11 in 1998 and 1999, WS-12 in 1998 and 1999, WS-13 in 1997 and 2000, WS-14 in 2000 and 2001, WS-15 in 1997 and 2000, WS-17 in 1997, WS-19 in 1998 and 2000, WS- 20 in 1998, 1999, and 2001, WS-21 in 1998 and 1999, WS-22 in 1997 and 1999, WS-27 in 2003, and WS-29 in 2000.

The key areas that did not exceed the moderate levels of use include the following; WS-3 in 2001, WS-4 in 1998 and 2001, WS-5 in 1998 and 2002, WS-7 in 1998, WS-8 in 1998 and 2003, WS-9 in 1998, WS-23 in 1998 and 2003, WS-11 in 1997 and 2000, WS-13 in 1998 and 1999, WS-14 in 1997, 1998, and 1999, WS-15 in 2001, WS-19 1997 and 2000, WS-21 in 1997, 2000, and 2001, WS-22 in 2000.

WS-5 had heavy utilization levels in 2001 and 2003.

Table 8a compares the licensed use for 1999, 2000, 2001, 2002, and 2003 on the Warm Springs Allotment and the associated utilization levels studied on key areas for Warm Springs Allotment. Key area WS-5 had heavy use in 2001 and licensed use of 3,679. Key area WS-5 also had heavy use in 2003 with a licensed use 2,191. In 2002 WS-5 had moderate use and a licensed use of 5,002.

Table 8. Utilization data performed during 1997-2003 for Warm Springs Allotment key areas

Long Valley							
Key Area	1997	1998	1999	2000	2001	2002	2003
WS-3		Winterfat 26%	Winterfat 34%		Winterfat 52%	Winterfat 24%	
WS-4		Winterfat 46%	Winterfat 30%		Winterfat 44%	Winterfat 27%	
WS-5		Indian ricegrass 52%	Indian ricegrass 38%			Saltbush 36%	Saltbush 68%
					Winterfat 66%	Winterfat 44%	Winterfat 58%
					Indian ricegrass 68%	Indian ricegrass 36%	Indian ricegrass 68%
WS-7		Winterfat 40%	Winterfat 34%				

Table 8. Utilization data performed during 1997-2003 for Warm Springs Allotment key areas

Long Valley							
Key Area	1997	1998	1999	2000	2001	2002	2003
		Indian ricegrass 42%	Indian ricegrass 38%				
WS-8							Indian ricegrass 54%
		Winterfat 42%	Winterfat 34%				Winterfat 48%
WS-9		sickle saltbush 56%	sickle saltbush 40%				
		Winterfat 44%	Winterfat 36%				
WS-23		Winterfat 36%	Winterfat 38%				Winterfat 48%
		Atriplex spp. 46%	Atriplex spp. 28%				

Table 8. Utilization data performed during 1997-2003 for Warm Springs Allotment key areas

Buck and Bald							
Key Area	1997	1998	1999	2000	2001	2002	2003
WS-11	Bluegrass 39%	Bluegrass 33%	Bluegrass 21%	Bluegrass 54%			
	Bluebunch wheatgrasses 50%	Needlegrass 35%		Indian ricegrass 52%			
	Antelope bitterbrush 33%						
WS-12	No Recent Use	Antelope bitterbrush 12%	Antelope bitterbrush 21%	No Recent Use			
		Bluebunch wheatgrass 40%	Bluebunch wheatgrass 33%				
		Needlegrass 34%	Needlegrass 37%				
WS-13	Bluegrass 39%	Bluegrass 57%	Bluegrass 45%	Bluegrass 37%			

Table 8. Utilization data performed during 1997-2003 for Warm Springs Allotment key areas

Buck and Bald							
Key Area	1997	1998	1999	2000	2001	2002	2003
	Indian ricegrass 39%	Indian ricegrass 58%		Indian ricegrass 30%	Indian ricegrass 13%		
	Bluebunch wheatgrasses 37%	Antelope bitterbrush 39%	Antelope bitterbrush 17%				
WS-14	Sandbergs bluegrass 32%	Sandbergs bluegrass 51%	Sandbergs bluegrass 45%	Sandbergs bluegrass 40%	Sandbergs bluegrass 36%		
	Western wheatgrasses 27%	Western wheatgrass 57%	Western wheatgrass 38%	Western wheatgrass 32%	Western wheatgrass 34%		
	Indian ricegrass 46%	Needlegrass 51%	Needlegrass 26%	Needlegrass 30%	Needlegrass 32%		
WS-15					Indian ricegrass 40%		
	Bluegrass 25%	No Recent Use	No Recent Use	Indian ricegrass 35%	Bluebunch wheatgrass 44%		
	Indian ricegrass 22%			bluegrass 37%	Bluegrass 48%		
WS-16	Indian ricegrass 20%	No Recent Use					
	Bluegrass 18%						
	Squirreltail 20%						
WS-17	Indian ricegrass 29%	Indian Ricegrass 18%					
	Bluegrass 26%	Western wheatgrass 23%	No Recent Use				
WS-18	No Recent Use	No Recent Use					
WS-19	Bluegrass 28%						

Table 8. Utilization data performed during 1997-2003 for Warm Springs Allotment key areas

Buck and Bald							
Key Area	1997	1998	1999	2000	2001	2002	2003
	Indian ricegrass 45%	Antelope bitterbrush 19%		Antelope bitterbrush 13%	Sandbergs bluegrass 28%		
	Western wheatgrasses 45%	Needlegrass 28%		Indian ricegrass 39%	Indian ricegrass 52%		
WS-20		Sandbergs bluegrass 25%	Sandbergs bluegrass 21%	No Recent Use	Sandbergs bluegrass 28%		
WS-21	Antelope bitterbrush 15%	Antelope bitterbrush 21%	Antelope bitterbrush 21%	Antelope bitterbrush 17%			
	Indian ricegrass 48%	Indian ricegrass 23%	Indian ricegrass 35%	Basin wildrye 44%	Indian ricegrass 52%		
		Western wheatgrass 20%	Bluebunch wheatgrass 33%	Bluebunch wheatgrass 36%	Sandbergs bluegrass 48%		
WS-22	Antelope bitterbrush 15%		Bluebunch wheatgrass 33%	Basin wildrye 44%	Antelope bitterbrush 20%		
	Indian ricegrass 33%		Antelope bitterbrush 21%	Antelope bitterbrush 17%			
			Indian ricegrass 35%	Bluebunch wheatgrass 36%			
WS-24				No Recent Use			
WS-27							Saltbush 36%
WS-29				Antelope bitterbrush 11%			
				Nevada bluegrass 27%			
				Bluebunch wheatgrass 23%			

Table 8a. Utilization Levels and Associated Licensed Use, from 1999 through 2003, at Key Areas Monitored Using Key Forage Plant Method within the Warm Springs Allotment.

Year of Key Area Reading		1999	2000	2001	2002	2003
Use Area	Key Area	Utilization Level				
Long Valley	WS-3	Light		Moderate	Light	
	WS-4	Light		Moderate	Light	
	WS-5	Light		Heavy	Moderate	Heavy
	WS-7	Light				
	WS-8	Light				Moderate
	WS-9	Light				
	WS-23	Light				Moderate
	* Total AUMs Licensed on Use Area Each Year			4,859	3,679	5,002
Buck and Bald	WS-11	Light	Moderate			
	WS-12	Light	No Use			
	WS-13	Moderate	Light	Slight		
	WS-14	Moderate	Light	Light		
	WS-15	No Use	Light	Moderate		
	WS-16					
	WS-17	No Use				
	WS-18					
	WS-19		Light	Moderate		
	WS-20	Light	No Use	Light		
	WS-21	Light	Moderate	Moderate		
	WS-22	Light	Moderate	Slight		
	WS-24		No Use			
	WS-27					Light
WS-29		Light				
* Total AUMs Licensed on Allotment Each Year		2,382	8,014	6,712	7,666	3,973

* From grazing billings.

Slight Use = 1% - 20% use of current year's growth.

Light Use = 21% - 40% use of current year's growth.

Moderate Use = 41% - 60% use of current year's growth.

Heavy Use = 61%-80% use of current year's growth.

Severe Use = 81-100% use of current year's growth.

Table 9. Utilization data collected during 2007 for Warm Springs Allotment key areas.

Date	Pasture/Study Site	Key Area
10/5/2007	Long Valley *	WS-3
Key Species	Percent Use	Category
Winterfat	0%	None
Squirreltail	1%	Slight

Date	Pasture/Study Site	Key Area
10/5/2007	Long Valley *	WS-4
Key Species	Percent Use	Category
Squirreltail	3%	Slight
Winterfat	10%	Slight

* In 2007 the licensed Use of Cattle AUMs in the Long Valley Use area was 1,461.

Cover Data

Cover vegetative attribute was collected using line-intercept method on key area WS-3 in 2007 and on twelve key areas in 1998 and on key area WS-16 in 1999. Results in Table 10 indicate that the amount of vegetative canopy and ground cover is appropriate to the PNC or has exceeded the PNC when compared to the ecological site descriptions at all key areas studied on the Warm Springs Allotment.

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
10/5/2007	Long Valley	WS-3	
Range Site			
Silty 8-10" 028BY013NV KRLA/ACHY			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Winterfat	9%	96.2%	
Squirreltail	0.35%	3.7%	
Total Cover	9.35%		10% to 20%

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
9/4/1998	Long Valley	WS-3	
Range Site			
Silty 8-10" 028BY013NV KRLA/ACHY			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Winterfat	21%	95%	
Squirreltail	0.4%	5%	
Total Cover	22%		10% to 20%

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
9/4/1998	Long Valley	WS-4	
Range Site			
Silty 8-10" 028BY013NV KRLA/ACHY			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Winterfat	11%	68%	
Squirreltail	4%	25%	
Phlox spp.	1%	6%	
Total Cover	16%		10% to 20%

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
8/26/1998	Long Valley	WS-5	
Range Site			
Saline Terrace 5-8" 028BY047NV ATFA/PASM-ACHY			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Sickle Saltbush	10%	52%	
Winterfat	0%		
Mustard	1%	5%	
Indian Ricegrass	1%	5%	
Squirreltail	7%	36%	
Total Cover	19%		5% to 10%

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
7/10/1998	Buck and Bald	WS-11	
Range Site			
Mountain Ridge 12-14 Range Site 028BY034NV ARAR8-ARNO4/PSSPS-ACTH7			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Bluegrass	4%	15%	
Squirreltail	1%	3%	
Needleandthread	0%	0.0%	
Milkvetch	0%	0.0%	
<i>Senecio multilobatus</i>	0%	0.0%	
<i>Eriogonum</i>	0.4%	1.0%	
<i>Haplopappus spp.</i>	0%	0.0%	
<i>Asteraceae</i>	2.1%	7.0%	
White Aster	0.3%	1.0%	
Low Sagebrush	5.5%	21.0%	
Black Sagebrush	11.3%	42.0%	

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Rabbitbrush	0%	0.0%
Total Cover	26%	15% to 20%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
7/10/1998	Buck and Bald	WS-12
Range Site		
Loamy 12-16" 028BY030NV ARTRV/PSSPS		

Species	Cover (%)	Composition (%)	Potential Natural Condition
Bluegrass	3%	6%	
Cheatgrass	6.3%	14.0%	
Squirreltail	1.3%	3.0%	
Therber's Needlegrass	2.8%	6.5%	
Bluebunch wheatgrass	0.3%	0.6%	
Mountain Big Sagebrush	18.2%	42.0%	
Rabbitbrush	4.9%	11.0%	
Antelope Bitterbrush	1.9%	4.4%	
Phlox	0.8%	1.0%	
Milkvetch	0.1%	0.2%	
Asteraceae	1.6%	3.7%	
Pepperweed	0.45%	0.90%	
Lupine	1.1%	2.5%	
Mustard	0.2%	0.5%	
Total Cover	43%		25% to 35%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
7/10/1998	Buck and Bald	WS-13
Range Site		
Loamy 10-12" 028BY007NV ARTR2/ACTH7-PSSP		

Species	Cover (%)	Composition (%)	Potential Natural Condition
Squirreltail	1.3%	4.1%	
Indian Ricegrass	1.0%	3.2%	
Bluegrass	2.4%	7.7%	
Thurbers Needlegrass	1.8%	5.8%	
Bluebunch wheatgrass	0.4%	1.2%	
Lupin	5.3%	12.0%	
Phlox	1.1%	3.5%	
Cheatgrass	0.8%	2.5%	
<i>Senecio multilobatus</i>	0.2%	0.6%	
<i>Eriogonum spp.</i>	0%	0%	
Big Sagebrush	16%	51%	
Total Cover	31%		20% to 30%

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
9/9/1998	Buck and Bald	WS-15	
Range Site			
Shallow Calcareous Loam 8-10" 028BY011NV ARNO4/ACHY-HECO26			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Black Sagebrush	25%	83%	
Sandbergs Bluegrass	2.5%	8.3%	
Cheatgrass	0.2%	0.6%	
Rabbitbrush	1.3%	4.3%	
Indian Ricegrass	0.5%	1.6%	
Phlox	1%	3%	
Needleandthread	0.3%	0.01%	
Total Cover	30%		15% to 20%

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
7/17/1999	Buck and Bald	WS-16	
Range Site			
Shallow Loam 8-10" 028BY080NV ARTW/ACHY-HECO26			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Wyoming Big Sagebrush	17.8%	59.0%	
Sandbergs Bluegrass	1.8%	0.1%	
Rabbitbrush	5.0%	16.0%	
Phlox	1.7%	5.6%	
Squirreltail	1.4%	4.6%	
Spiny Hopsage	1.8%	6.0%	
Indian Ricegrass	0.6%	2.0%	
Total Cover	30%		10% to 20%

Line Intercept Cover			
Date	Pasture	Key Area/UTMs	
7/9/1998	Buck and Bald	WS-17	
Range Site			
Shallow Calcareous Loam 8-10" 028BY011NV ARNO4/ACHY-HECO26			
Species	Cover (%)	Composition (%)	Potential Natural Condition
Black Sagebrush	30%	85%	
Sandbergs Bluegrass	1.6%	4.5%	
Rabbitbrush	2.4%	6.8%	
Squirreltail	0.7%	2.0%	
Eriogonum	0.2%	0.6%	
Phlox	0.1%	0.3%	

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Total Cover	35%	15% to 20%
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Line Intercept Cover

Date	Pasture	Key Area/UTMs
8/5/1998	Buck and Bald	WS-20

Range Site

Claypan 12-14" 028BY037NV ARAR8/PSSPS

Species	Cover (%)	Composition (%)	Potential Natural Condition
Sandberg's Bluegrass	4.0%	16.0%	
Squirreltail	2.0%	8.0%	
Phlox	0.0%	0.0%	
Lupin	1.8%	7.2%	
annual forb	0.5%	2.0%	
low sagebrush	13.5%	54.0%	
Rabbitbrush	1.2%	4.0%	
Unknown	2.1%	8.4%	
Total Cover	25%		15% to 20%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
9/18/1998	Buck and Bald	WS-21

Range Site

Loamy 10-12" 028BY007NV ARTR2/ACTH7-PSSP

Species	Cover (%)	Composition (%)	Potential Natural Condition
Mountain Big Sagebrush	6.1%	13.2%	
Rabbitbrush	10.5%	22.8%	
Sandbergs Bluegrass	10.4%	22.6%	
Nevada Bluegrass	1.3%	2.8%	
Bluebunch wheatgrass	2.9%	6.3%	
Indian Ricegrass	5.0%	10.8%	
Phlox	3.5%	7.6%	
<i>Senecio multilobatus</i>	3.3%	7.1%	
perennial forb	2.8%	6.0%	
Total Cover	46%		20% to 30%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
8/26/1998	Long Valley	WS-23

Range Site

Silty Clay 8-10" 028BY071NV KRLA2/ELMA-PASM

Species	Cover (%)	Composition (%)	Potential Natural
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Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

		Condition
Winterfat	14.7%	70.0%
Nuttall's Saltbush	5.2%	24.0%
perennial grass	0.3%	1.4%
Indian Ricegrass	0.6%	2.8%
Total Cover	21%	10% to 15%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
9/8/1998	Ruby Valley	WS-24
Range Site		
Shallow Calcareous Loam 8-10" 028BY011NV ARNO4/ACHY-HECO26		
Species	Cover (%)	Composition (%)
Rabbitbrush	4.0%	14.0%
Black Sagebrush	21.6%	77.0%
Phlox	0.5%	1.7%
Indian Ricegrass	1.2%	4.2%
Sandbergs Bluegrass	0.4%	1.4%
Squirreltail	0.4%	1.4%
Buckwheat	0.3%	1.0%
Total Cover	28%	10% to 15%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
7/8/1999	Newark Valley	WS-25
Range Site		
Shallow Calcereous Loam 8-10" 028BY011NV ARNO4/ACHY-HECO26		
Species	Cover (%)	Composition (%)
Squirreltail	2.1%	12.0%
Sandbergs Bluegrass	1.2%	7.0%
Indian Ricegrass	0.3%	1.7%
Shadscale	4.1%	24.0%
Rabbitbrush	6.4%	37.0%
Spiny Hopsage	2.4%	14.0%
Black Sagebrush	0.7%	4.1%
Total Cover	17%	15%-20%

Line Intercept Cover

Date	Pasture	Key Area/UTMs
		WS-26
Range Site		
Sodic Flat 5-8" 028BY020NV SAVE4/SPAI-DISP		

Table 10. Line-Intercept Cover data collected on the Warm Springs Allotment.

Species	Cover (%)	Composition (%)	Potential Natural Condition
Squirreltail	3.0%	15.7%	
Greasewood	11.9%	62.6%	
Pepperweed	0.1%	0.5%	
Sickle Saltbush	4.3%	22.6%	
Total Cover	19%		2%-8%

Frequency Trend

Frequency trend has been determined for the key areas of the Warm Springs Allotment during 1998 and 1999. Frequency trend at fifteen of the key areas were static and at one key area (WS-24) trend was upward.

Ecological Condition

Ecological status estimates the stage of succession at a given range site, by measuring plant species composition, production, and other factors and comparing it to the composition of the Potential Natural Community (PNC) or climax for that site. This is estimated as a percentage of PNC; Classifications include Early Seral, or poor, (0 - 25%); Mid Seral, or fair, (26 - 50%); Late Seral, or good, (51 - 75%); And Potential Natural Community (PNC), or excellent, (76 - 100%).

Ecological status has been determined for the key areas of the Warm Springs Allotment during 1998 and 1999. The results are presented in Table 11. Results show that in the summer areas (Buck & Bald) two key areas are in mid seral (fair) condition and seven key areas are in late seral (good) condition. Results also show that in the winter areas (Long Valley) one key area is in mid seral (fair) condition, and three key areas are in late seral (good) condition. Results also show that in Ruby Valley one key area is in late seral (good) condition, and in Newark Valley one key area is in late seral (good) condition.

Table 11 shows that key areas on Warm Springs Allotment have the species present of the potential plant community but not the appropriate amount of composition in each class of shrubs, grasses, and forbs. The sites that do not have the appropriate percentage of grasses are WS-3, WS-15, and WS-17. Key area WS-3 was studied in 1998 and 2007 using the line-intercept method; cover is appropriate for the potential natural community but composition shows low grass component. WS-3 is indicated to be in mid seral stage based on a 1998 ecological condition study. The grazing period of use is winter use at WS-3.

Key area WS-15 has low grass composition when compared to the ecological site description, but has appropriate vegetative cover. The period of use on WS-15 is summer; this site is a black sagebrush site and has the appropriate species present.

Key area WS-17 has appropriate shrub percentage but low grass component. The utilization at WS-17 was reported as light for two years and the season of use is summer. The cover component at WS-17 is appropriate for this site according to the ecological site description and has the appropriate diversity of vegetative species.

Table 11. The key area name, vegetation type, current existing vegetation and percent composition by species and by group, the associated condition rating for the respective range site associated with each key area and the potential composition of grasses, forbs and shrubs at PNC as comparison.

Key Area	Range Site	Associated Vegetation Type	Current Existing Vegetation by Species Along with Their Current Existing % Composition	Condition Rating (PNC)	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
WS-3 (Long Valley)	028BY013NV	KRLA2/ACHY Silty 8-10"	Bottlebrush squirreltail 1.0% Winterfat 99.0%	Mid Seral	Grasses = 1.0% Forbs = Trace Shrubs = 99.0%	Grasses = 30% Forbs = 5% Shrubs = 65%
WS-4 (Long Valley)	028BY013NV	KRLA2/ACHY Silty 8-10"	Bottlebrush squirreltail 15.0% Indian ricegrass 10.0% Phlox spp. 39.0% Winterfat 36.0%	Late Seral	Grasses = 35.0% Forbs = 39.0% Shrubs = 36.0%	Grasses = 30% Forbs = 5% Shrubs = 65%
WS-5 (Long Valley)	028BY047NV	ATFA/PASM-ACHY Saline Terrace 5-8"	Bottlebrush squirreltail 28.0% Sickle saltbush 64.0% Rabbitbrush 6.0% Winterfat 2.0%	Late Seral	Grasses = 28.0% Forbs = Trace Shrubs = 72.0%	Grasses = 15% Forbs = 5% Shrubs = 80%
WS-11 (Bald Mountain)	028BY034NV	ARAR8-ARNO4/PSSP- ACTH7 Mountain Ridge 12-14"	Sandbergs bluegrass 12.0% Bottlebrush squirreltail 4.0% Indian ricegrass Trace Mustard 1.0% Phlox 1.0% Unknown forb 1.0% Buckwheat Trace Senecio spp. 1.0% Unknown annual forb 2.0% Low sagebrush 44.0% Black sagebrush 33.0% Rabbitbrush 1.0%	Late Seral	Grasses = 16.0% Forbs = 6.0% Shrubs = 78.0%	Grasses = 45% Forbs = 10% Shrubs = 45%
WS-12 (Bald Mountain)	028BY030NV	ARTRV/PSSPS Loamy 12-16"	Cheatgrass 11.0% Bottlebrush squirreltail 4.0% Indian ricegrass Trace Sandbergs bluegrass 2.0% Bluebunch wheatgrass 1.0% Needlegrass 3.0% Phlox spp. 2.0%	Mid Seral	Grasses = 10.0% Forbs = 4.0% Shrubs = 75.0%	Grasses = 55% Forbs = 10% Shrubs = 35%

Table 11. The key area name, vegetation type, current existing vegetation and percent composition by species and by group, the associated condition rating for the respective range site associated with each key area and the potential composition of grasses, forbs and shrubs at PNC as comparison.

Key Area	Range Site	Associated Vegetation Type	Current Existing Vegetation by Species Along with Their Current Existing % Composition	Condition Rating (PNC)	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
			Lupin spp. 2.0% Mountain big sagebrush 71.0% Antelope bitterbrush 2.0% Rabbitbrush 2.0%			
WS-13 (Buck and Bald)	028BY007NV	ARTR2/ACTH7 –PSSP Loamy 10-12"	Bottlebrush squirreltail 7.0% Sandbergs bluegrass 3.0% Needlegrass 10.0% Bluebunch wheatgrass 2.0% Indian ricegrass 4.0% Cheatgrass Trace Senecio spp. 1.0% Lupin spp. 25.0% Phlox spp. 3.0% Mountain big sagebrush 43.0% Rabbitbrush 1.0% Sagebrush 1.0%	Late Seral	Grasses = 26.0% Forbs = 29.0% Shrubs = 45.0%	Grasses = 65% Forbs = 10% Shrubs = 25%
WS-15 (Buck and Bald)	028BY011NV	ARNO4/ACHY – HECO26 Shallow Calcareous Loam 8-10"	Black sagebrush 71.0% Shadscale 10.0% Rabbitbrush 1.0% Sandbergs bluegrass 8.0% Bottlebrush squirreltail 4.0% Aster 3.0% Phlox spp. 1.0% Cheatgrass 1.0% Indian ricegrass 1.0%	Late Seral	Grasses = 13.0% Forbs = 4.0% Shrubs = 82.0%	Grasses = 50% Forbs = 5% Shrubs = 45%
WS-16 (Buck and Bald)	028BY080NV	ARTRW/ACHY – HECO26 Shallow Loam 8-10"	Wyoming sagebrush 57.0% Spiny hopsage 6.0% Rabbitbrush 15.0% Indian ricegrass 1.0% Bottlebrush squirreltail 13.0%	Late Seral	Grasses = 21.0% Forbs = 1.0% Shrubs = 78.0%	Grasses = 55% Forbs = 10% Shrubs = 35%

Table 11. The key area name, vegetation type, current existing vegetation and percent composition by species and by group, the associated condition rating for the respective range site associated with each key area and the potential composition of grasses, forbs and shrubs at PNC as comparison.

Key Area	Range Site	Associated Vegetation Type	Current Existing Vegetation by Species Along with Their Current Existing % Composition	Condition Rating (PNC)	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
			Sandbergs bluegrass 7.0% Phlox spp. 1.0%			
WS-17 (Buck and Bald)	028BY011NV	ARNO4/ACHY – HECO26 Shallow Calcareous Loam 8-10"	Sandbergs bluegrass 2.0% Indian ricegrass 2.0% Bottlebrush squirreltail 3.0% Cheatgrass Trace Phlox spp. 1.0% Buckwheat 1.0% Senecio spp. 1.0% Black sagebrush 80.0% Rabbitbrush 10.0%	Mid Seral	Grasses = 7.0% Forbs = 3.0% Shrubs = 90.0%	Grasses = 50% Forbs = 5% Shrubs = 45%
WS-20 (Buck and Bald)	028BY037NV	ARAR8/PSSPS Claypan 12-14"	Bluegrass 22.0% Bottlebrush squirreltail 6.0% Lupin 12.0% Low sagebrush 55.0% Rabbitbrush 5.0%	Late Seral	Grasses = 28.0% Forbs = 12.0% Shrubs = 60.0%	Grasses = 50% Forbs = 10% Shrubs = 40%
WS-21 (Buck and Bald)	028BY007NV	ARTR2/ACTH7 –PSSP Loamy 10-12"	Wyoming sagebrush 34.0% Tetradymia spp. 10.0% Rabbitbrush 6.0% Thickspike wheatgrass 11.0% Indian ricegrass 23.0% Bottlebrush squirreltail 2.5% Bluegrass 3.0% Needlegrass 1.0% Phlox spp. 9.0% Lupine 0.5%	Late Seral	Grasses = 40.5% Forbs = 9.5% Shrubs = 50.0%	Grasses = 65% Forbs = 10% Shrubs = 25%
WS-22 (Buck and Bald)	028BY007NV	ARTR2/ACTH7 –PSSP Loamy 10-12"	Antelope bitterbrush 29.0% Mountain big sagebrush 52.0% Bluebunch wheatgrass 6.0% Rabbitbrush 2.0%	Late Seral	Grasses = 7.0% Forbs = 1.0% Shrubs = 87.0%	Grasses = 65% Forbs = 10% Shrubs = 25%

Table 11. The key area name, vegetation type, current existing vegetation and percent composition by species and by group, the associated condition rating for the respective range site associated with each key area and the potential composition of grasses, forbs and shrubs at PNC as comparison.

Key Area	Range Site	Associated Vegetation Type	Current Existing Vegetation by Species Along with Their Current Existing % Composition	Condition Rating (PNC)	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
			Bluegrass 1.0% Cheatgrass 5.0% Snowberry 4.0% Mustard 1.0%			
WS-23 (Long Valley)	028BY071NV	KRLA2/ELMA7 –PASM Silty Clay 8-10"	Bottlebrush squirreltail 2.0% Western wheatgrass 36.0% Indian ricegrass 1.0% Winterfat 30.0% Saltbush 31.0%	Late Seral	Grasses = 39.0% Forbs = .0% Shrubs = 61.0%	Grasses = 45% Forbs = 5% Shrubs = 55%
WS-24 (Ruby Valley)	028BY011NV	ARNO4/ACHY – HECO26 Shallow Calcareous Loam 8-10"	Indian ricegrass 18.0% Bottlebrush squirreltail 6.0% Phlox spp. 11.0% Buckwheat 5.0% Black sagebrush 44.0% Rabbitbrush 14.0% Winterfat 0.2%	Late Seral	Grasses = 24.0% Forbs = 16.0% Shrubs = 58.2%	Grasses = 50% Forbs = 5% Shrubs = 45%
WS-26 (Newark Valley)	028BY020NV	SAVE4/SPAI –DISP Sodic Flat 5-8"	Bottlebrush squirreltail 1.0% Greasewood 80.0% Sickle saltbush 19.0%	Late Seral	Grasses = 1.0% Forbs = 0.0% Shrubs = 99.0%	Grasses = 15% Forbs = 5% Shrubs = 80%

Each of the respective Ecological Sites at each of the key areas was determined using soil mapping units determined by the Natural Resources Conservation Service (NRCS). During field inspections adjustments were made, if needed, to determine the most appropriate ecological site for the area. Ecological Condition was completed on the listed key areas using the double sampling method described in the Soil Conservation Service National Range Handbook (July 13, 1976) and the Bureau of Land Management National Range Handbook H-4410-1 (1984). This data was then compared to the appropriate Major Land Resource Area (MLRA 28B) Ecological Site Description, also published by NRCS, which was determined for each key area. Ecological sites are defined as ecological subdivisions of rangelands that are differentiated in terms of the climax (original or natural potential) plant community they are capable of supporting.

Condition ratings were calculated using percent composition, derived from using the above double sampling method, and comparing these values to the most appropriately applicable ecological site to determine a rating. The rating is defined as being the percent of the Potential Natural Community (PNC) which may also be referred to as historic climax (existed before European immigration and settlement). Therefore, the seral stages listed above, for each key area are an indicator of the percent of climax for the respective range site on which they occur. A rating of $\geq 75\%$ is considered the achievement of PNC with values approaching 100% being the species composition and plant diversity indicated in the applicable ecological site description.

Warm Springs Riparian Data

Water resources for Warm Springs Allotment are identified in Figure VI, Appendix II. In 1997 and 1998, the two lotic or stream riparian areas were both rated at proper functioning condition (PFC). Of the fifteen lentic sites (springs) studied in 1999, ten were rated as PFC and four are Functioning-at-Risk (FAR) with an upward trend (Table 12). Four springs assessed in 1999 are FAR, riparian indicators appropriate to streambank characteristics were not present on these springs.

Table 12. Riparian data on the Warm Springs Allotment.

<u>Type</u>	<u>Location</u>	<u>Functioning Condition</u>	<u>Date</u>
Lotic	Deadman Creek 21/56/9	PFC	1998
Lotic	Old Deadman Creek 21/56/16	PFC	1998
Lentic	Woodchuck Spring 21/57/4	PFC	1999
Lentic	Cherry Spring 24/37/26	PFC	1999
Lentic	Cotton-wood Spring 22/57/30	PFC	1999
Lentic	Seven Un-named Springs 21/56/15-22	FAR-Up	1999
Lentic	Orchard Canyon 22/56/23	PFC	1999
Lentic	Un named Spring 22/57/32	PFC	1999
Lentic	Un named Spring 22/56/28	PFC	1999
Lentic	Water Canyon 24/57/20	PFC	1999
Lentic	Un named Spring 24/57/21	FAR-Up	1999
Lentic	Un named Spring 21/56/22	FAR-Up	1999

Table 12. Riparian data on the Warm Springs Allotment.

Lentic	Little Willow Spring 21/57/6	FAR-Up	1999
Lentic	Moore Spring 22/56/35	PFC	1999
Lentic	Mill Spring 24/57/17	PFC	1999
Lentic	Bourne Tunnel 24/57/33	PFC	1999
Lentic	Unnamed Spring	FAR- Downward	2008

Handy Spring

Handy Spring is a small spring located in the Diamond Mountains at T 22 N, R 55 E, sec. 9, NE. The springhead itself is developed, with storage and a stock watering trough, with very little vegetation. Overflow from the trough continues down the drainage for ¼ to ½ mile, and supports riparian grasses, elderberry, and rose. No condition ratings have been done on this limited riparian zone.

Deadman Creek

Deadman Creek is a perennial creek which flows through Buck Station on the west flank of Buck Mountain, from a spring source at T 22 N, R 56 E, sec. 10, NW. The public portion of this creek (1/2 mile) is steep (22% gradient), rocky, and well-confined.

Old Deadman Creek

Old Deadman Creek is a small creek with multiple sources and variable flow. In dry years the last mile of stream experiences intermittent flow. Old Deadman sources are located at T 21 N, R 56 E, sec. 22, NE. The stream course is approximately 2.5 miles long, entirely on public land. Old Deadman Creek supports a good sized, varied riparian zone, including fairly dense willow and rose thickets.

Mud Spring

Mud spring is located near Buck pass at T 22 N, R 57 E, sec. 32, NE. Mud Spring consists of a developed springhead with water piped to a nearby trough, and a 5 acre riparian protection fence, which encloses the main springhead, an additional small seep, and an open meadow.

Cottonwood Spring

Cottonwood Spring/canyon is located on the north end of Buck Mountain at T 22 N, R 57 E, sec. 30. It consists of several springheads and small aspen patches connected by a small perennial stream that runs up to a mile from the upper springheads. One of the springhead/aspen complexes is on private land, but the majority is public.

Moore Springs

The Moore Spring complex is one of several sources for Orchard Canyon creek, and is located at T22 N, R 56 E, sec. 36. These springheads and their outflows support riparian vegetation.

Orchard Canyon

Orchard Canyon is a significant stream riparian complex, extending approximately 2.5 miles below Moore Springs, at T 22 N, R 56 E, sec. 23, 24, 25, 26, 35, 36, on the north end of Buck Mountain. Two 40 acre private parcels are included along Orchard canyon’s length, but the majority is public.

Water Canyon

Water Canyon is a small spring and stream riparian system on west Bald Mountain, at T 24 N, R57 E, sec. 20, NE. A 3 acre enclosure protects the Water Canyon springhead and meadow.

Mill Spring

Mill Spring is a small spring on Bald Mountain at T 24 N, R 57 E, sec. 17, SW. Riparian vegetation is confined to clumps of rose at the springhead and a small meadow fed by the trough overflow.

Unnamed Spring

An unnamed spring located in Newark Valley at T 22 N, R 56 E, sec. 28, NW is a small valley bottom springhole and saline meadow.

Permitted Use

Warm Springs Allotment			
Cattle AUMS			
Total (historical)	Active use	Suspended nonuse	Period
23,960	7,709	16,251	3/1 to 2/28

The cattle operation on this allotment has been year-round, with Newark and Long Valleys used as winter/spring range, and the Diamond and Buck /Bald Mountains for summer/fall use. Two crested wheatgrass seedings (3,550 acres) also provide summer forage. Other than seasonal movement between the high country and the valleys, no formal grazing system has been in use prior to fall of 1998. An agreement was signed between the BLM and permittee in 2006. Sheep trail use through Newark Valley is licensed as a separate allotment (Warm Springs Trail).

Licensed Use

Warm Springs Cattle AUMs										
Sum of AUMs by pasture										
Grazing Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	Grand Total
BUCK AND BALD	2382	1754	842	1345	1782					8105
DIAMOND MOUNTAIN						41				41
JULIAN SEEDING	112	584				489				1185
LONG VALLEY		4859	3679	5002	2191	4368	3886	5125	1461	30571

RUBY VALLEY	485	817	1029							2331
W. BALD SEEDING			1162	1319						2481
NEWARK VALLEY	2324					394	4123		2572	9413
Grand Total	5303	8014	6712	7666	3973	5292	8009	5125	4033	54127

Wild Horse Use

The Warm Springs Allotment includes the majority of the Buck and Bald Wild Horse HMA. The RPS objective for this allotment is to provide habitat and forage for approximately 280 wild horses (3,359 AUMs) within the Buck and Bald HMA. It has been determined through monitoring that a thriving natural ecological balance will be obtained by maintaining wild horse use at the following appropriate management level (AML) as per the March 14, 1994 Multiple Use Decision.

Table 2. Appropriate Management Level

<u>Use Area</u>	<u>Herd Management Area</u>	<u>AUMs</u>
Buck & Bald	Buck & Bald	883
Newark Valley	Buck & Bald	317
Long Valley	Buck & Bald	382
Long Valley Wash	Buck & Bald	150
	Total	1,732

Wild horse AML for the Warm Springs Allotment by use area is summarized as follows:

<u>Wild Horse Use Area</u>	<u>Number of Animals</u>
Newark/W. Bald	35
E. Buck/Long Valley	76
Long Valley Wash	30
Bald Mountain	29
Total	170 **

* The 1,732 AUMs identified for wild horses is less than 170 animals for 12 months, because a portion of these animals spend some time outside the allotment boundary. (1,732 AUMs equates to 144 wild horses yearlong.)

The setting of wild horse numbers by allotment will eventually provide for an overall herd management area wild horse AML. Removals will occur on an HMA basis and numbers will be maintained at or near the total AML. Numbers within use areas and/or allotments may be higher or lower than the numbers identified above because of seasonal movements but the total AML for the HMA will be maintained.

Census Flight July 23, 2008

Use Area	HMA	# of Animals
Cold Creek	Buck and Bald	38
Warm Springs	Buck and Bald	110

Monitoring Data for the Dry Mountain Allotment

Allotment Information

Dry Mountain Allotment is one large grazing pasture of 27,552 acres public land.

Vegetative Species Identification for Dry Mountain Allotment

CODE	SCIENTIFIC NAME	COMMON NAME
Native		
KRLA2	<i>Krascheninnikovia lanata</i>	Winterfat
BRASS2	<i>Brassica</i> spp.	Mustard
ACHY	<i>Achnatherum hymenoides</i>	Indian ricegrass
HAGL	<i>Halogeton glomeratus</i>	Halogeton (saltlover)
POA	<i>Poa</i> spp.	Bluegrass
ARNO4	<i>Artemisia nova</i>	Black sagebrush
ARTEM	<i>Artemisia</i> spp.	Sagebrush
ARTRW8	<i>Artemisia tridentata</i> spp. <i>wyomingensis</i>	Wyoming sagebrush
POSE	<i>Poa secunda</i>	Sandbergs bluegrass

Soils by Ecological Site Descriptions

Dry Mountain Allotment is located within the Major Land Resource Area (MLRA) 28B. There are twenty five different soil mapping units found in Dry Mountain Allotment (Figure X, AppendixII). Key Area DM-5 and DM-1 are located in silty soils. The soils at these sites are deep to very deep and well drained. Permeability is moderate to moderately rapid with moderate to high available water holding capacity. Potential for sheet and rill erosion is slight; however there is high potential for gullies to form. Key Area DM-4 and DM-2 are located in coarse silty soils. The soils at these sites have moderate to moderately rapid permeability with low available water holding capacity. Potential at these sites for both sheet and rill erosion is slight.

Utilization

Use Pattern Mapping

Use Pattern Mapping was conducted in November of 2007 (low precipitation year) in the Long Valley portion of the Dry Mountain Allotment (Figure IV, Appendix II). The native vegetation and key species were described. The southern portion of Long Valley showed slight utilization (1-20%) patterns by livestock. Sandbergs bluegrass was characterized as high vigor. Halogeton was reported growing along roadside at some stretches. The point source of moderate utilization (41-60%) in the southern portion of Long Valley is the result of an old water source. The moderate use site has low grass component and high content of Halogeton. No sign of current livestock use was reported in 2007.

Key Forage Plant Method

Utilization studies performed using the Key Forage Plant Method were performed on the Dry Mountain Allotment during 2002, 2003, and 2006 (Table 13a, 13b, 13c). No utilization level exceeded the moderate level. Table 13d describes the category of use and the licensed use for the same year utilization was studied at each key are on the Dry Mountain Allotment.

Table 13a. Key Forage Plant Method results from 2006 on the Dry Mountain Allotment.

Dry Mountain Allotment				
Utilization - Key Forage Plant Method				
2006				
Date	Key Area	Veg type/Range Site	Location	
8/15/2006	DM-5	Winterfat	11S N4387387 E632454	
Key Species		% Use	Category	Notes
Winterfat		48%	Moderate	Cured Mustard in meadow

Table 13a. Key Forage Plant Method results from 2006 on the Dry Mountain Allotment.

Date	Key Area	Veg type/Range Site	Location	
8/15/2006	DM-1	Wyoming Sagebrush	11S N4384997 E632133	
Key Species		% Use	Category	Notes
Indian ricegrass		27%	Light	No invasive species detected
Date	Key Area	Veg type/Range Site	Location	
8/15/2006	DM-4	Winterfat	11S N4380990 E631553	
Key Species		% Use	Category	Notes
Winterfat		46%	Moderate	Trace of halogeton in meadow

Date	Key Area	Veg type/Range Site	Location	
8/15/2006	DM-2	Winterfat	11S N4383410 E630459	
Key Species		% Use	Category	Notes
Winterfat		40%	Moderate	Bluegrass present at site
Date	Key Area	Veg type/Range Site	Location	
8/15/2006	DM-3	Black Sagebrush	11S N4384203 E628736	
Key Species		% Use	Category	Notes
Winterfat		46%	Moderate	Soil is stable, no detection of invasive species

Indian ricegrass

48%

Moderate

Table 13b. Key Forage Plant Method results from 2003 on the Dry Mountain Allotment.

Utilization - Key Forage Plant Method				
2003				
Date	Key Area	Veg type/Range Site	Location	
5/29/2003	DM-5	Winterfat	11S N4387387 E632454	
Key Species		% Use	Category	Notes
Winterfat		40%	Light	
Date	Key Area	Veg type/Range Site	Location	
5/29/2003	DM-1	Wyoming Sagebrush	11S N4384997 E632133	
Key Species		% Use	Category	Notes
Indian ricegrass		22%	Light	
Date	Key Area	Veg type/Range Site	Location	
8/15/2003	DM-4	Winterfat	11S N4380990 E631553	
Key Species		% Use	Category	Notes
Winterfat		54%	Moderate	Small patches of Sandbergs bluegrass
Date	Key Area	Veg type/Range Site	Location	
5/29/2003	DM-2	Winterfat	11S N4383410 E630459	
Key Species		% Use	Category	Notes
Winterfat		52%	Moderate	
Date	Key Area	Veg type/Range Site	Location	
5/29/2003	DM-3	Black Sagebrush	11S N4384203 E628736	
Key Species		% Use	Category	Notes
Winterfat		48%	Moderate	

Table 13c. Key Forage Plant Method results from 2002.

Utilization - Key Forage Plant Method				
2002				
Date	Key Area	Veg type/Range Site	Location	
5/6/2002	DM-5	Winterfat	11S N4387387 E632454	
Key Species		% Use	Category	Notes

Table 13c. Key Forage Plant Method results from 2002.

Winterfat		28%	Light	Winterfat has low vigor
Date	Key Area	Veg type/Range Site	Location	
5/6/2002	DM-1	Wyoming Sagebrush	11S N4384997 E632133	
Key Species		% Use	Category	Notes
Indian ricegrass		28%	Light	Low to moderate vigor of grasses
Date	Key Area	Veg type/Range Site	Location	
4/25/2002	DM-4	Winterfat	11S N4380990 E631553	
Key Species		% Use	Category	Notes
Winterfat		50%	Moderate	
Sandbergs bluegrass		42%	Moderate	
Date	Key Area	Veg type/Range Site	Location	
4/25/2002	DM-2	Winterfat	11S N4383410 E630459	
Key Species		% Use	Category	Notes
Winterfat		35%	Light	
Date	Key Area	Veg type/Range Site	Location	
5/29/2003	DM-3	Black Sagebrush	11S N4384203 E628736	
Key Species		% Use	Category	Notes
Indian ricegrass		34%	Light	
Winterfat		38%	Light	Low vigor of grasses due to drought

Table 13d. Utilization Levels and Associated Licensed Use, from 2002, 2003, 2006 at Key Areas within the Dry Mountain Allotment.

Year of Key Area Reading		2002	2003	2006
Use Area	Key Area			
Dry Mountain	DM-1	Light	Light	Light
	DM-2	Light	Moderate	Moderate
	DM-3	Light	Moderate	Moderate
	DM-4	Moderate	Moderate	Moderate
	DM-5	Light	Light	Moderate
	* Total AUMs Licensed on Allotment Each Year			1,658

* From grazing billings.

Slight Use = 1% - 20% use of current year's growth.

Light Use = 21% - 40% use of current year's growth.
 Moderate Use = 41% - 60% use of current year's growth.
 Heavy Use = 61%-80% use of current year's growth.
 Severe Use = 81-100% use of current year's growth.

Cover

Line-Intercept

Monitoring for the vegetative attribute of cover was performed on the Dry Mountain Allotment in 2006. Following the methodology in *Sampling Vegetation Attributes* the Range-specialists used line-intercept methods. The results (Table 14) at each key area study show that vegetative cover falls within the potential natural community according to the range ecological site descriptions. Table 14a shows the comparison of cover data by vegetative classes; shrubs, grasses, and forbs collected in 2006 at native range key areas within the Cold Creek Allotment to PNC cover values for the ecological site. The data shows (Table 14a) the appropriate composition of vegetation at key areas DM-4 and DM-5 when compared to the ecological site description, but DM-1 has low grass component and DM-2 has *Halogeton glomeratus* (saltlover) present.

Table 14. Line-Intercept data performed on the Dry Mountain Allotment during 2006.

Line Intercept Cover			
Date	Key Area	Veg type/Range Site	Location
8/10/2006	DM-5	Winterfat Range Site 28BY013NV	11S N4387387 E632454
<u>Vegetation</u>		<u>Cover (%)</u>	<u>Potential Natural Condition</u>
Sagebrush		8%	10-20%
Winterfat		10%	
Other vegetation		0	
Total Cover		18%	
Date	Key Area	Veg type/Range Site	Location
8/15/2006	DM-1	Wyoming Sagebrush Range Site 28BY013NV	11S N4384997 E632133
<u>Vegetation</u>		<u>Cover (%)</u>	<u>Potential Natural Condition</u>
Sagebrush		13%	10-20%
Indian ricegrass		0.56%	
Total Cover		13.56%	
Date	Key Area	Veg type/Range Site	Location
8/15/2006	DM-4	Winterfat Range Site 28BY084NV	11S N4380990 E631553

Table 14. Line-Intercept data performed on the Dry Mountain Allotment during 2006.

<u>Vegetation</u>	<u>Cover (%)</u>	<u>Composition (%)</u>	<u>Potential Natural Condition</u>
Winterfat	11.23%	83.7%	
Bluegrass	2.18%	16.2%	
Total Cover	13.41%		10-20%

Date	Key Area	Veg type/Range Site	Location
8/15/2006	DM-2	Winterfat Range Site 28BY084NV	11S N4383410 E630459

<u>Vegetation</u>	<u>Cover (%)</u>	<u>Composition (%)</u>	<u>Potential Natural Condition</u>
Winterfat	9.70%	76.0%	
<i>Halogeton glomeratus</i>	3.05%	23.9%	
Total Cover	12.75%		10-20%

Table 14a. Comparison of Cover Data by Grasses, Forbs, and Shrubs Collected on Dry Mountain Allotment to PNC Cover Values for the Ecological Site.

Allotment (Key Area)	Ecological Site	% Cover	Existing Vegetative Composition At Key Area (%)	Potential Vegetative Composition Expected at PNC (%)
Dry Mountain (DM-5)	Silty 8-10" 028BY013NV KRLA2/ACHY	18%	Grasses = 44% Forbs = 1% Shrubs = 55 %	Grasses = 30% Forbs = 5% Shrubs = 65%
Dry Mountain (DM-1)		13.56%	Grasses = 4.1% Forbs = 0.1% Shrubs = 95.8%	Grasses = 30% Forbs = 5% Shrubs = 65%
Dry Mountain (DM-4)	Coarse Silty 6-8" 028BY084NV KRLA2/ACHY	13.41%	Grasses = 16.2% Forbs = 0.1% Shrubs = 83.7%	Grasses = 55% Forbs = 10% Shrubs = 35%
Dry Mountain (DM-2)		12.75%	Grasses = Trace Forbs = 23.90% Shrubs = 76.0%	Grasses = 55% Forbs = 10% Shrubs = 35%

Dry Mountain Riparian Data

The water resources found on the Dry Mountain Allotment are shown in (Figure VII, Appendix II). There are no natural spring sources creating riparian habitat found within the Dry Mountain Allotment.

Permitted Use

Dry Mountain Allotment			
Cattle AUMS			
Total (historical)	Active Use	Suspended nonuse	Period
2,824	1,149	1,675	10/1 to 4/1
Sheep AUMS			
	Active Use		Period
	602		10/1 to 4/1

Licensed Use

Sum of Cattle Aums	Column Labels							
Row Labels	1999	2000	2001	2003	2005	2006	2007	Grand Total
DRY MOUNTAIN						368		368
Pasture	705	493	579	1658	921	408	322	5086
Grand Total	705	493	579	1658	921	776	322	5454

Data Warm Springs Trail

Allotment Information

The Warm Springs Trail (0622) runs from North Cold Creek Allotment south across 27 miles of Warm Springs Allotment and terminates at the old Duckwater Planning Unit (Figure III, Appendix II).

Table 15. Permitted livestock use for Tumbling JR Ranch on Warm Springs Trail then by allotment within the trail.

Warm Springs Trail		
Sheep AUMs		
Active Use		Period
Sheep AUMs	938	3/01 to 3/31
Sheep AUMs	927	11/01 to 11/30
Total	1865	
Trail AUMs by Allotment		
Warm Springs		812
Newark		620
Dry mountain		30
S. Pancake		403
Total		1865

The Warm Springs Sheep Trail has been separated as an allotment for grazing billing purposes. The Warm Springs Sheep Trail will be evaluated for achievement of the Standards based on intersection within allotments.

Precipitation data

Data from the National Oceanic and Atmospheric Administration (NOAA) recording Station at Yelland Air Field in Ely, Nevada is being used for this assessment. The average annual precipitation from 1971 to 2000 is 9.87 inches. Precipitation data can be used to calculate a yield index for each year (Sneva et al. 1983). In calculating the yield index, the first step is to calculate the crop yield (effective precipitation). For the Intermountain Big Sagebrush Region this includes precipitation from September through June.

Precipitation data was used in the formulation of a yield index in the calculation of a long term stocking rate. The first step was to calculate the crop yield, the effective annual precipitation for plant growth occurring between September and June of each year. The crop yield for each year was arrayed to determine the averaged median long term crop yield. The average crop yield for the Yelland Air Field reporting station was 8.46 inches. The individual yearly crop yields during the evaluation period were then divided by the long term average crop yield to determine a precipitation index for each year. The yield index was then determined from the precipitation index by using the linear regression equation $\hat{Y} = -23 + 1.23X$, where \hat{Y} represents the yield index and x represents the precipitation index. ^{1/} Table 1 shows the precipitation and yield indices for the Yelland Air Field data.

^{1/} Sneva, Forest, C. M. Britton. August 1983. Adjusting and forecasting herbage yields in the Intermountain Big Sagebrush Region of the Steppe Province. Agricultural Experimental Station, Oregon State University, Corvallis. Station Bulletin 659, Page 61.

Table 1-1. Crop Yield, Precipitation Index and Yield Index for Yelland Field Reporting Station			
year	crop yield	Precipitation Index	Yield Index
1990	7.12	84	81
1991	7.75	92	90
1992	7.1	84	80
1993	9.6	113	117
1994	7.45	88	85
1995	12.77	151	163
1996	5.59	66	58
1997	7.84	93	91
1998	10.37	123	128
1999	7.07	84	80
2000	6.7	79	74
2001	5.15	61	52
2002	4.41	52	41
2003	6.89	81	77
2004	5.43	64	56
2005	12.2	144	154
2006	8.32	98	98
2007	5.62	66	59

Appendix II - Maps

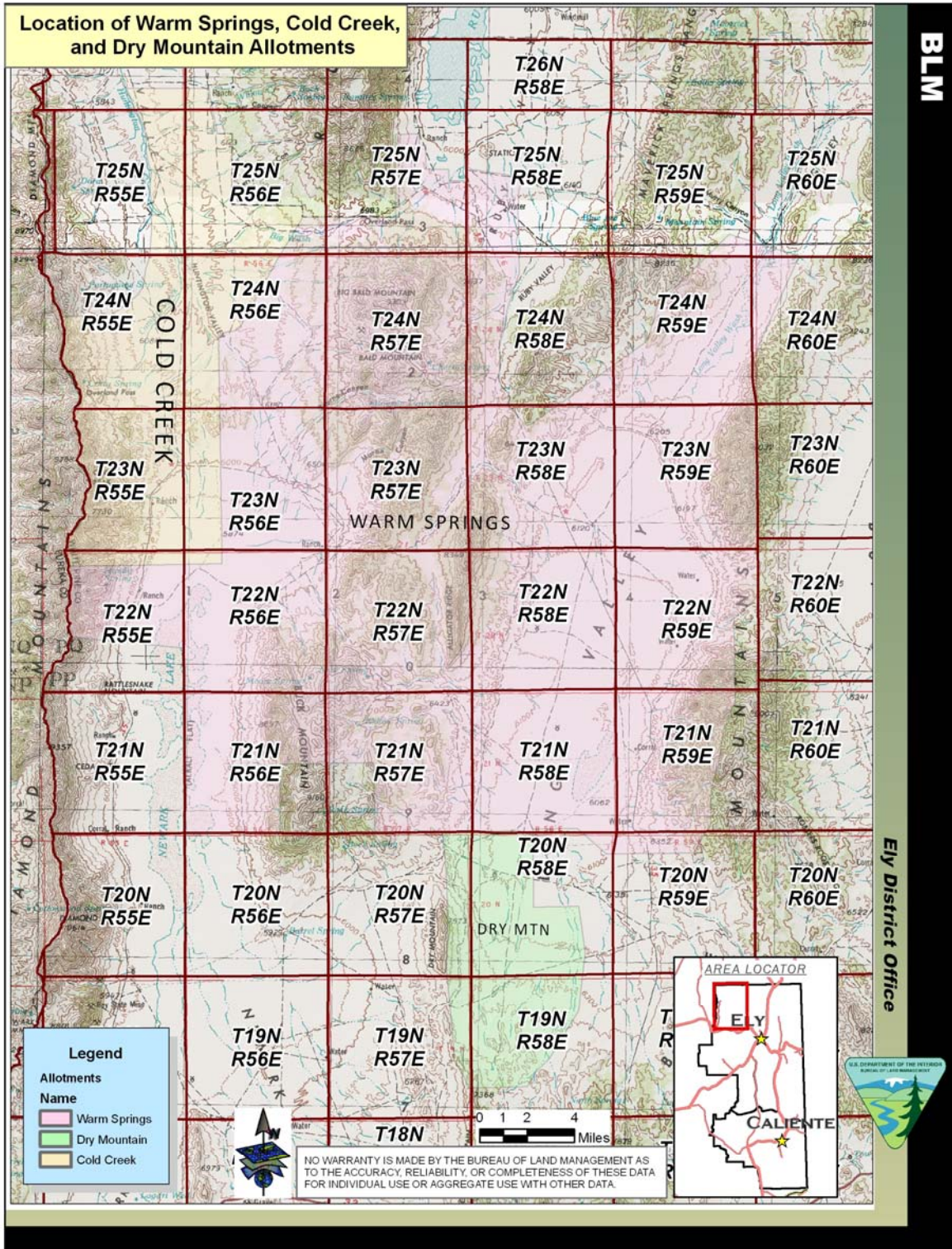


Figure I. Location of Warm Springs, Cold Creek, and Dry Mountain Allotments.

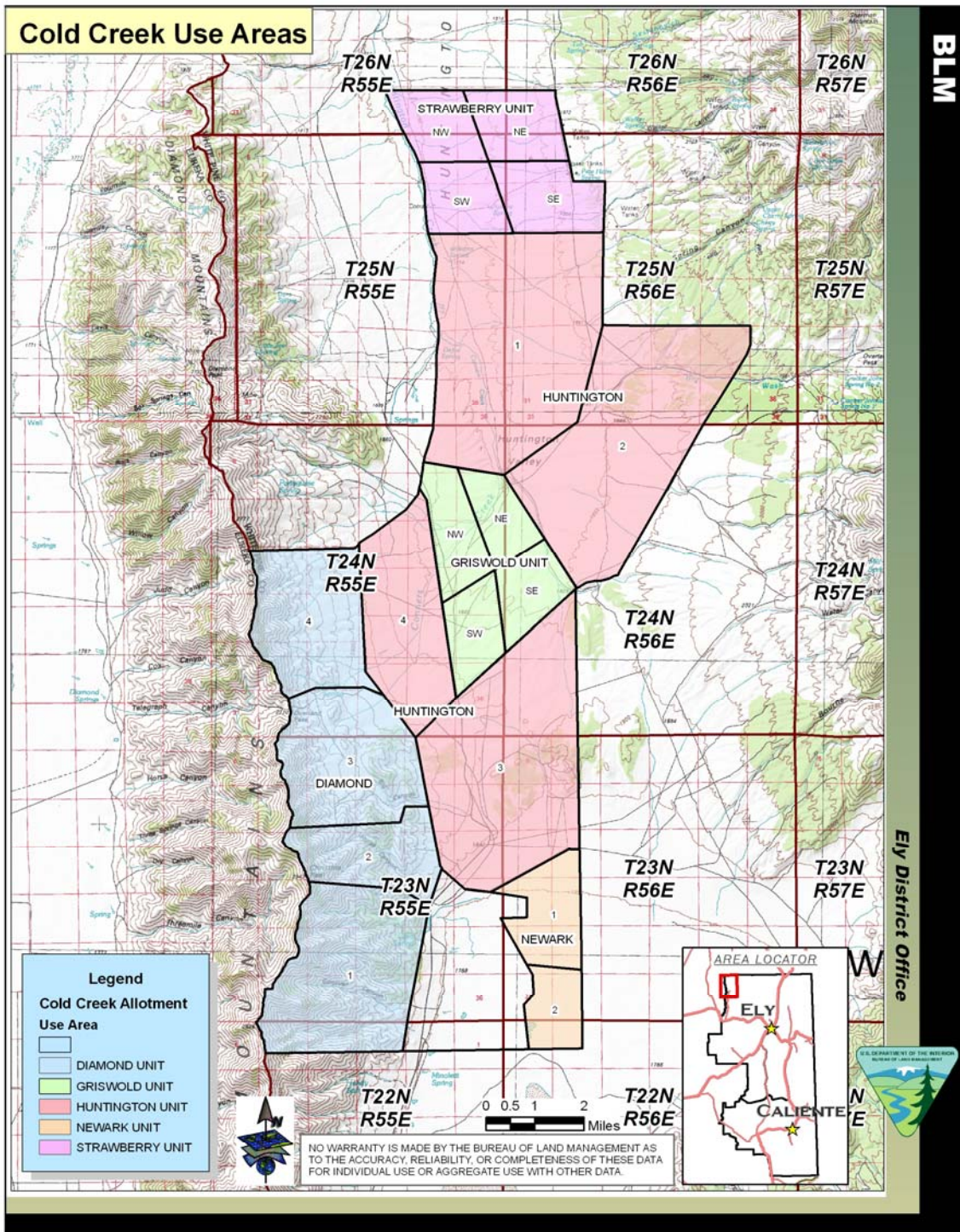


Figure II. The Five Grazing units of Cold Creek Allotment.

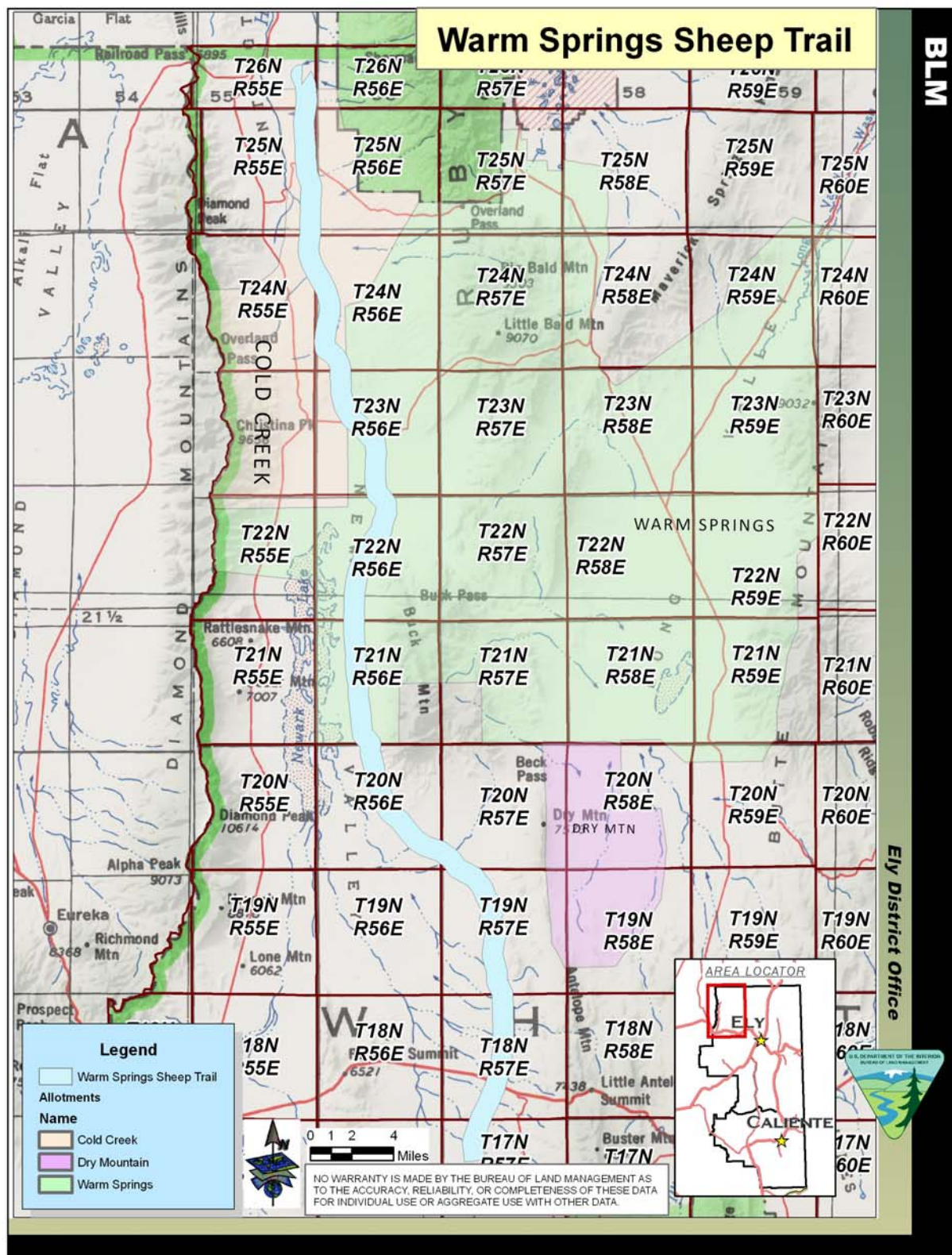


Figure III. Approximate Location of Warm Springs Trail.

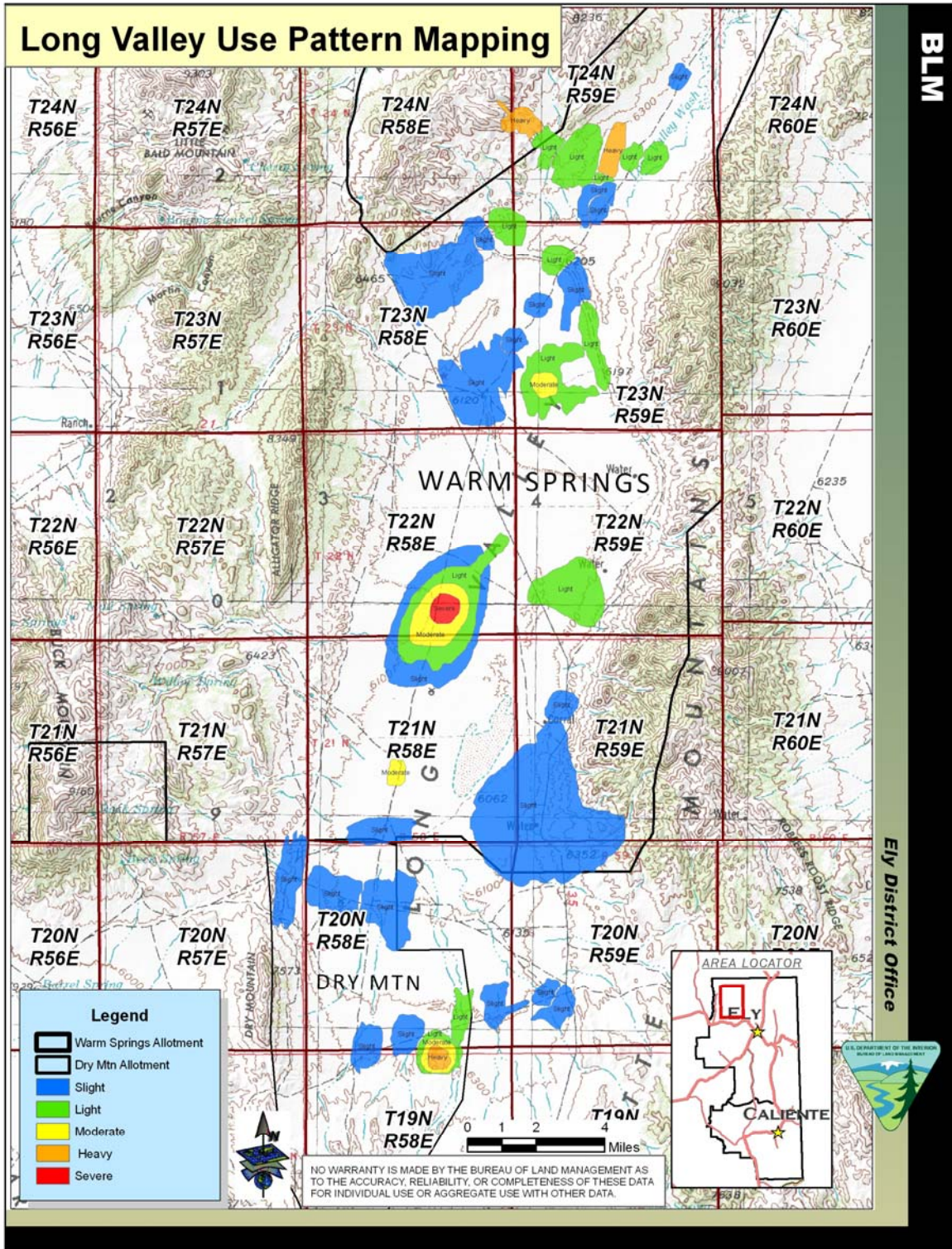


Figure IV. Use pattern mapping of utilization in Long Valley within the Warm Springs and Dry Mountain Allotments.

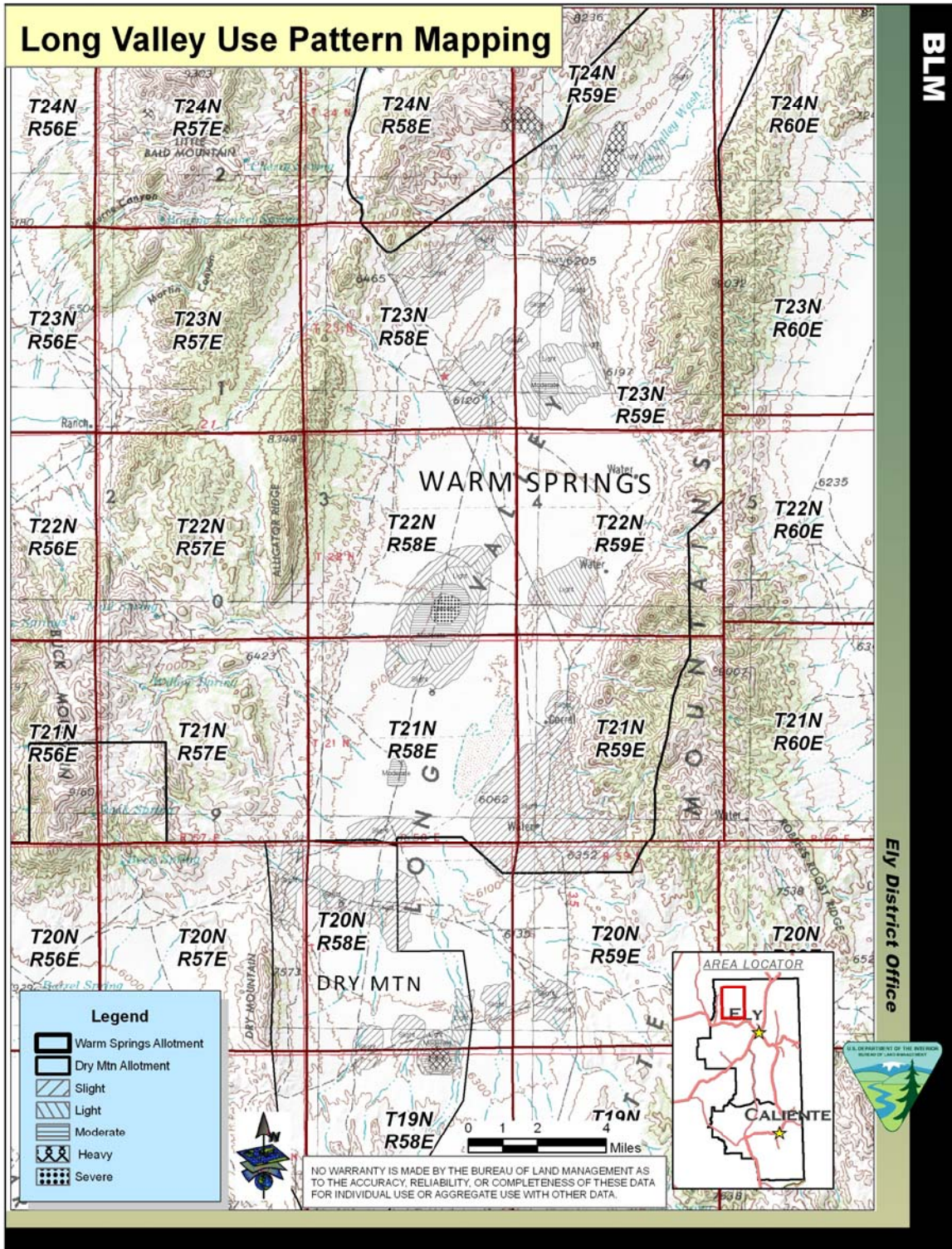


Figure IVa. Use pattern mapping of utilization in Long Valley within the Warm Springs and Dry Mountain Allotments. Symbols are used to identify use levels.

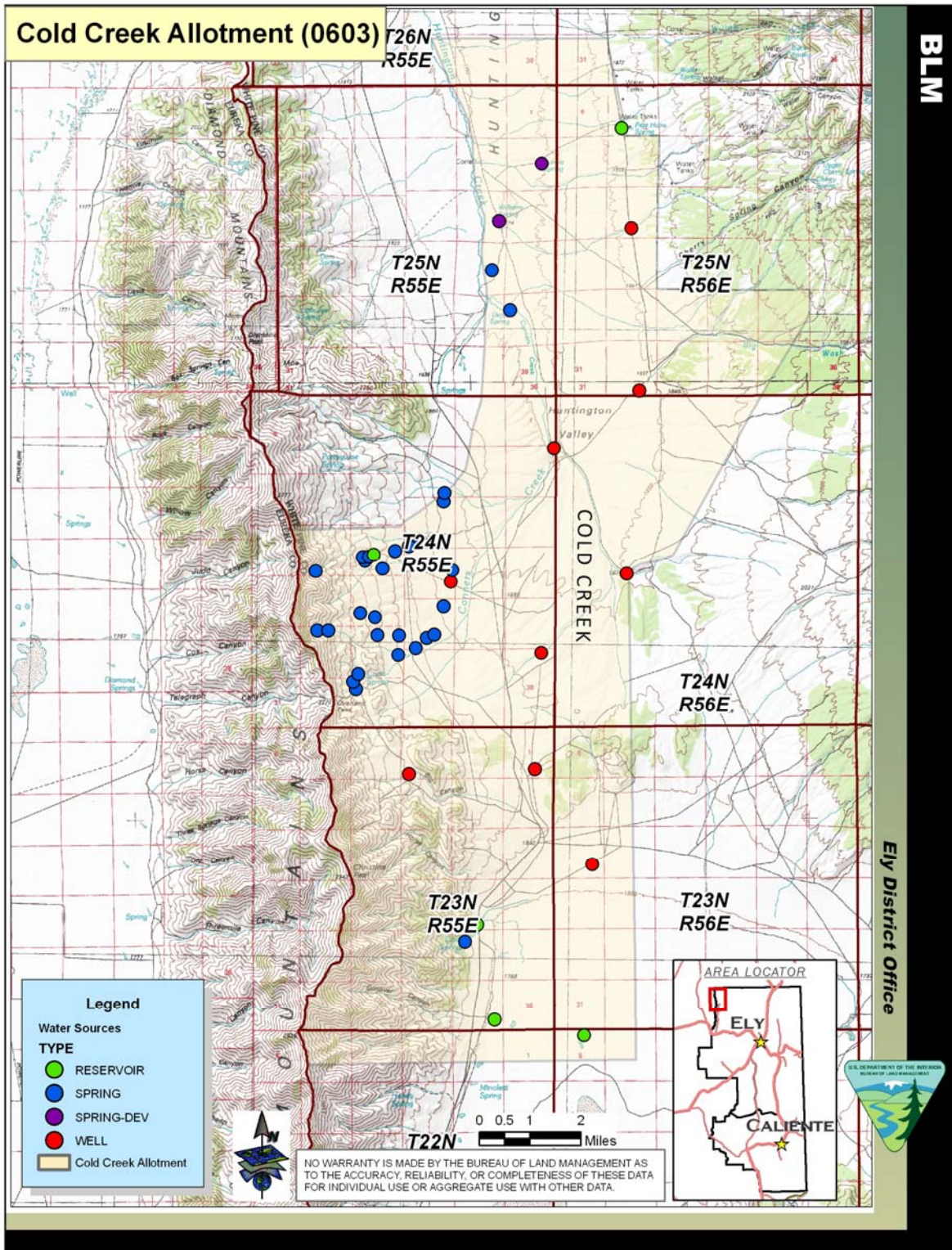


Figure V. Water sources identified within the Cold Creek Allotment.

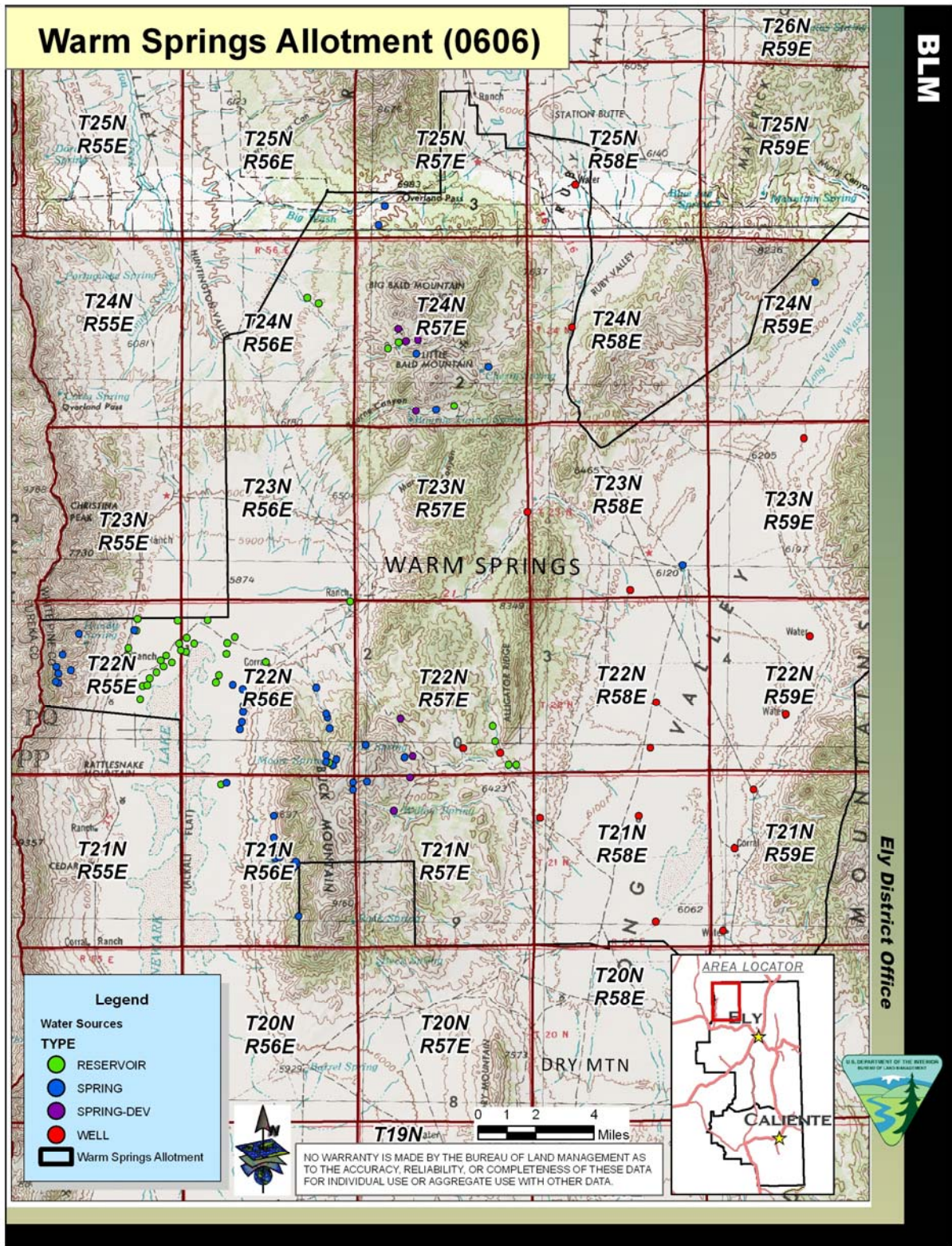


Figure VI. Water Sources identified within the Warm Springs Allotment.

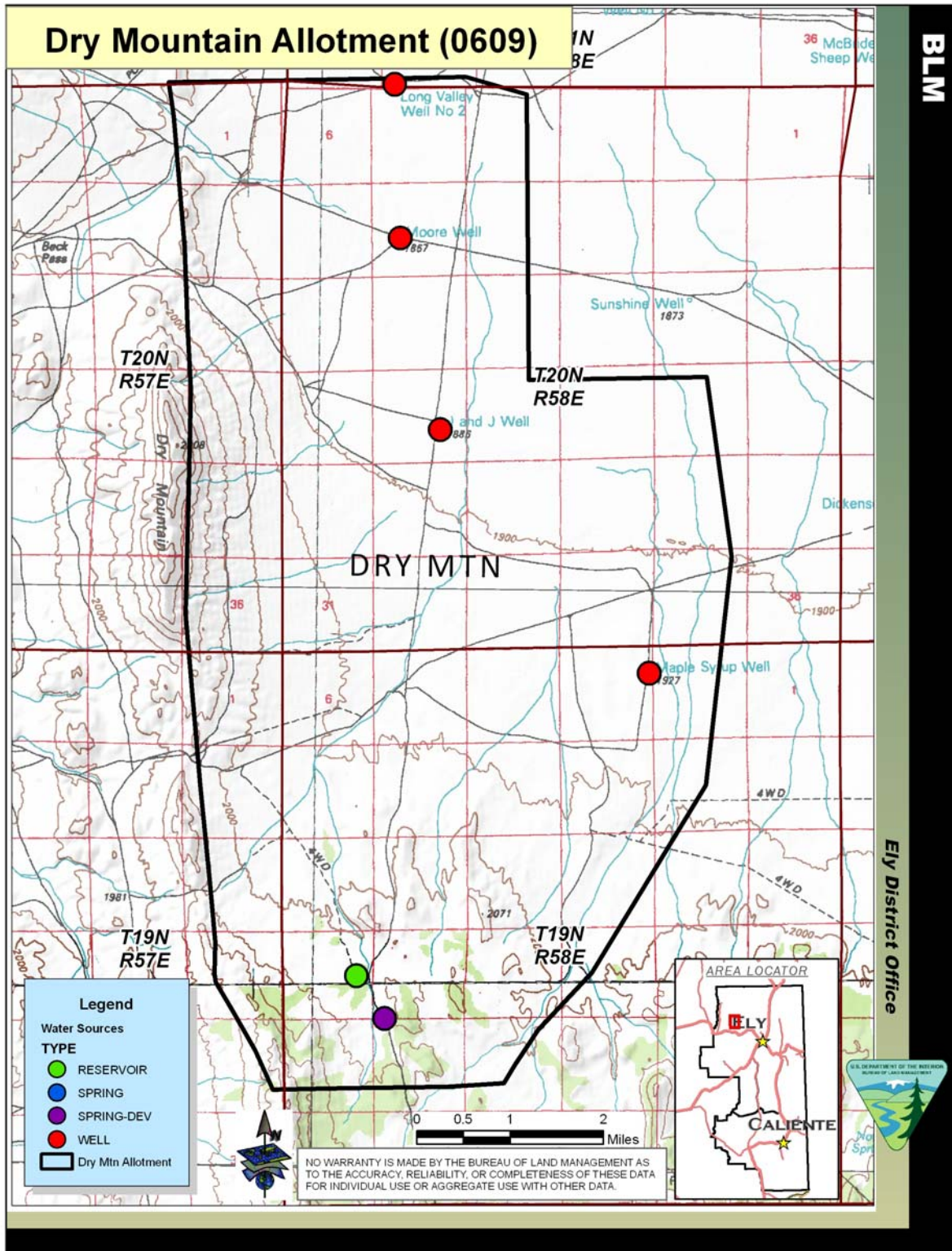


Figure VII. Water resources identified within the Dry Mountain Allotment.

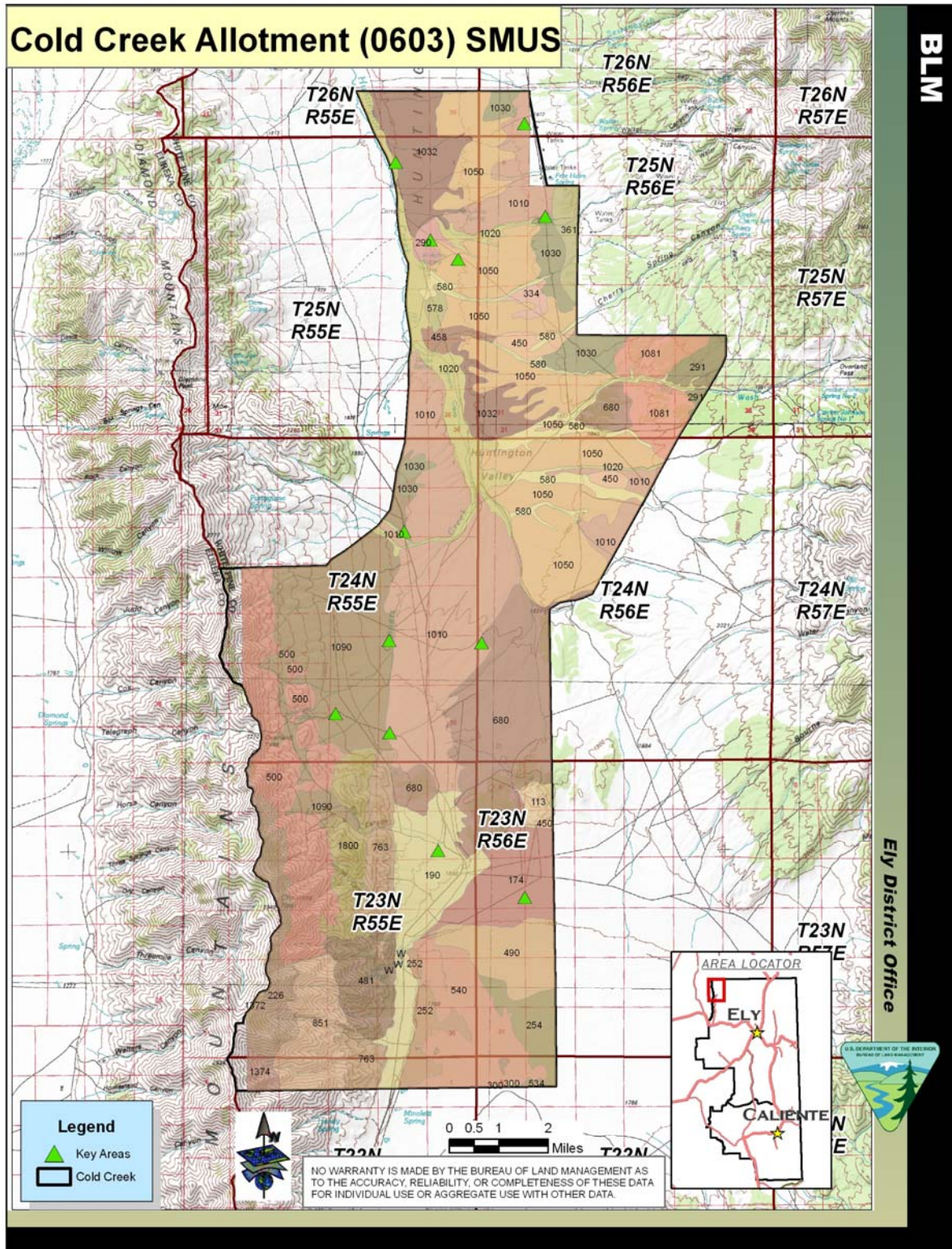


Figure VIII. Soil Mapping Units (SMUs) identified within the Cold Creek Allotment.

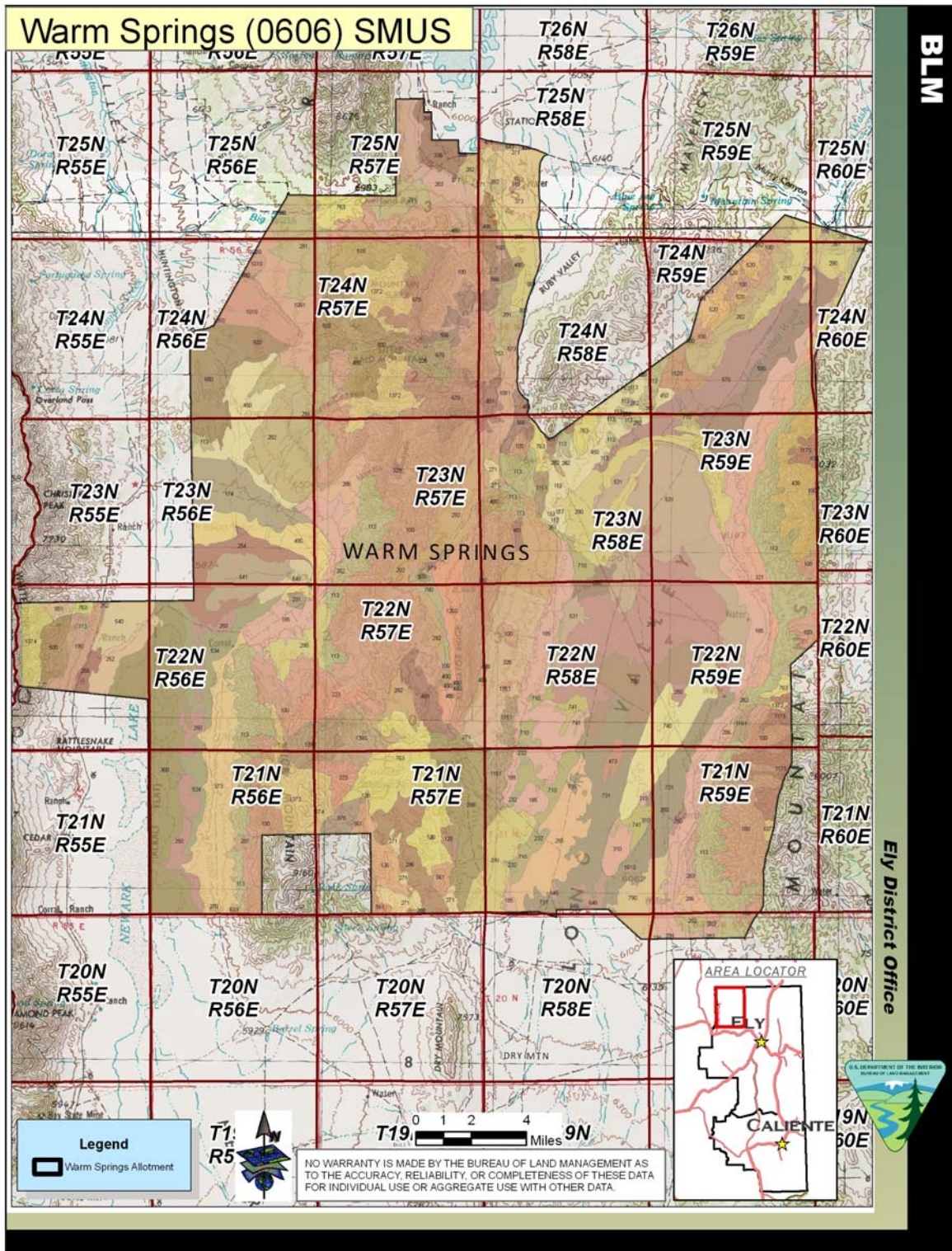


Figure IX. Soil Mapping Units (SMUs) identified within the Warm Springs Allotment.

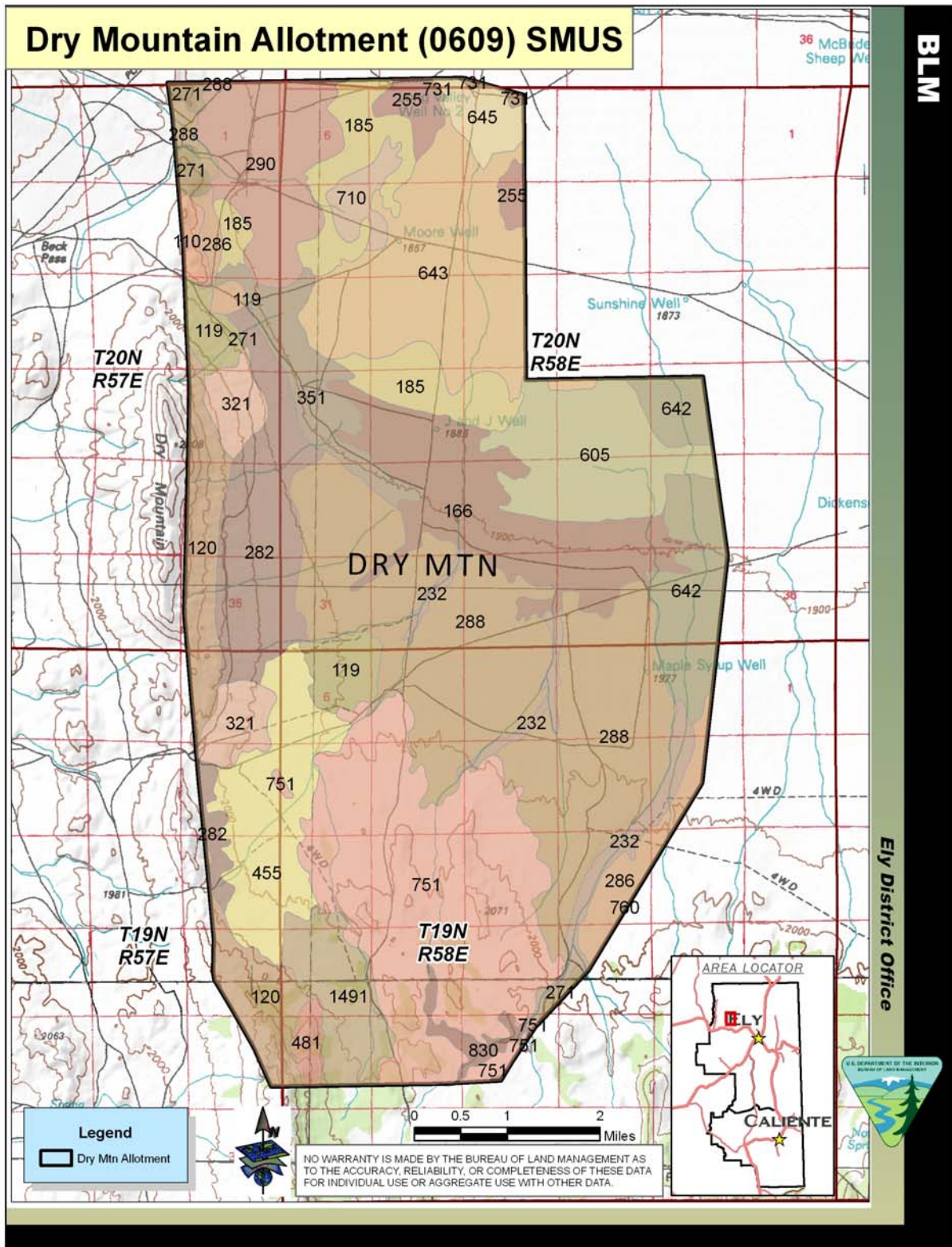


Figure X. Soil Mapping Units (SMUs) identified in the Dry Mountain Allotment.

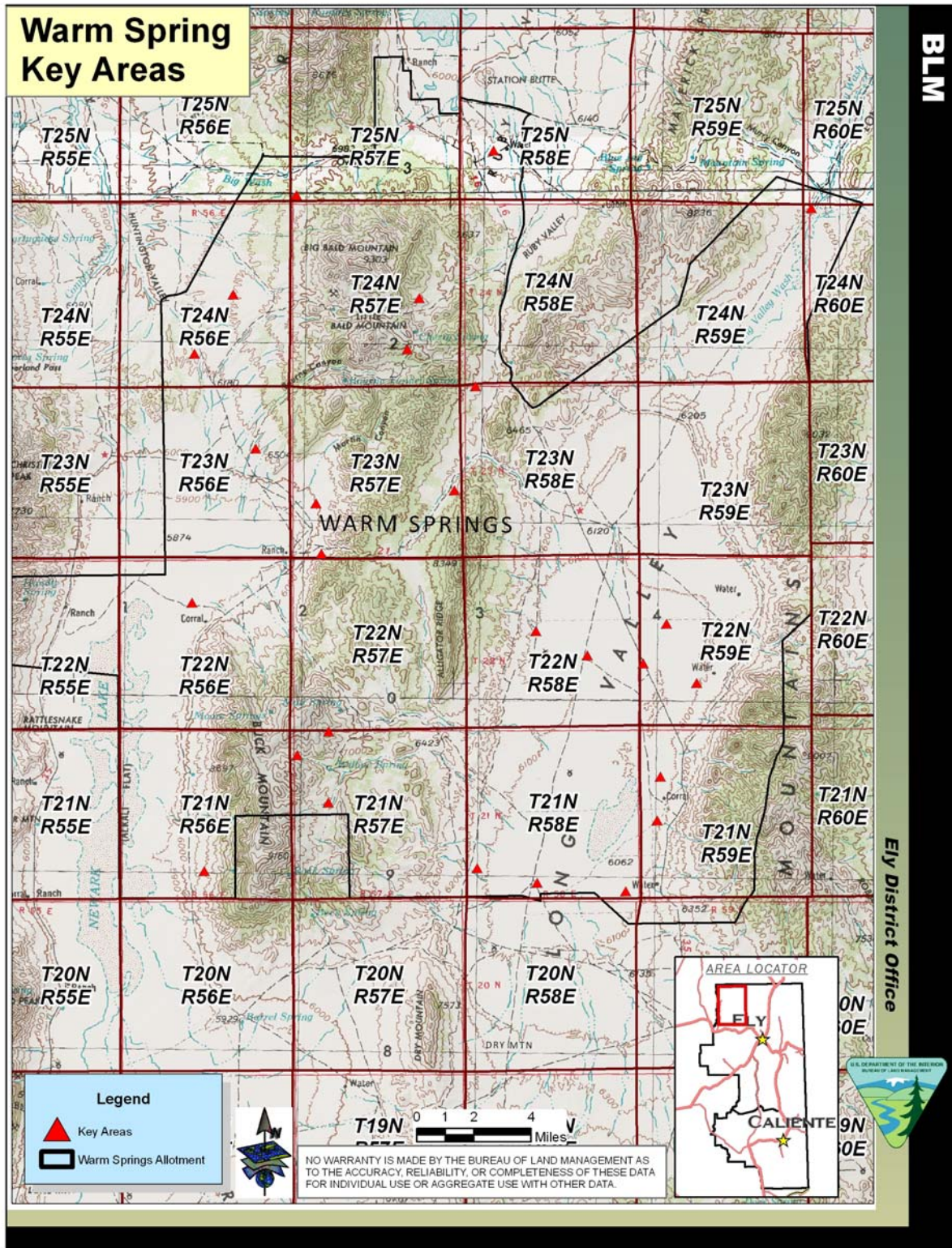


Figure XI. The key areas located on the Warm Springs Allotment.

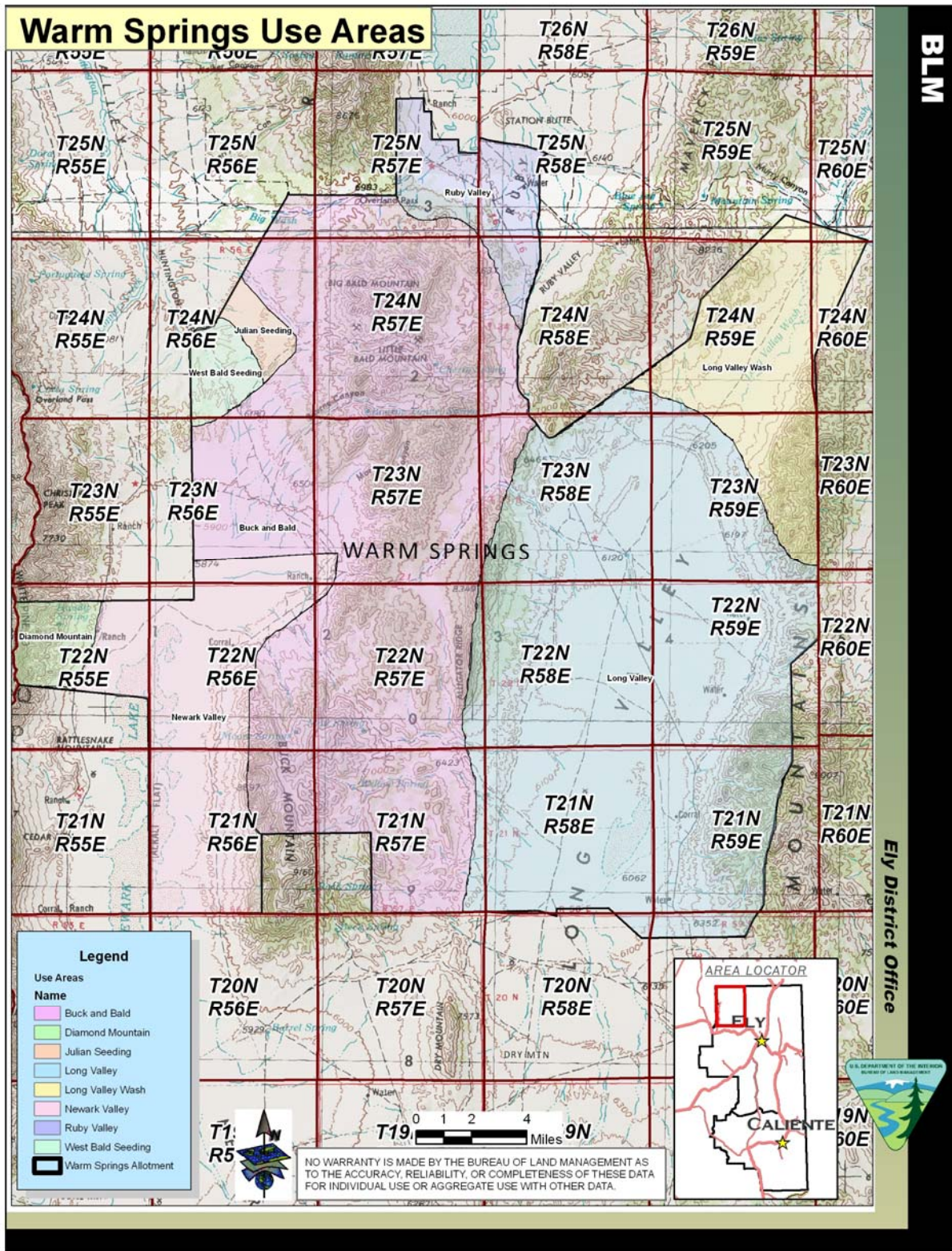


Figure XII. Warm Springs Allotment, divided into eight use areas.